Social Capital and Economic Performance: Analytics*

by

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1 The Background

The idea of social capital sits awkwardly in contemporary economic thinking. Even though it has a powerful, intuitive appeal, it has proven hard to track as an economic good. Among other things, it is fiendishly difficult to measure. This isn't because of a recognised paucity of data, but because we don't quite know what we should be measuring. Comprising different types of relationships and engagements, the components of social capital are many and varied and, in many instances, intangible.

One can argue that it is misleading to use the term "capital" to refer to whatever that thing is we are trying to identify, because capital is usually identified with tangible, durable, and alienable objects, such as buildings and machines, whose accumulation can be estimated and whose worth can be assessed.[1] There is much to agree with in that observation. However, in regard to both heterogeneity and intangibility, social capital would seem to resemble knowledge and skills. So, one can also argue that since economists haven't shied away from regarding knowledge and skills as forms of capital, we shouldn't shy away in this case either. This said, there is a temptation to use "social capital" as a peg on which to hang all those informal engagements we like, care for, and approve of. For example, it isn't uncommon today to hear the view that if a society harbours widespread opportunistic behaviour, such as free-riding, rent-seeking, and bribery and corruption, it is because citizens haven't invested sufficiently in social capital. But if the concept is to serve any purpose, the temptation should be resisted. Although the term is probably here to stay because of its heuristic appeal, one conclusion I draw from the analysis which follows is that we should avoid regarding social capital on a par with manufactured and environmental capital. I also argue that rather than interpret cooperative engagements in terms of the "social capital" they are thought to embody, we would be better employed continuing to study human capital (in the sense economists use the term) and institutions (they are often called resource allocation mechanisms), understand their character, and identify the measures that could improve them and their mix. Such concepts as social capital can help us to focus on matters of importance, but they can also prove to be a distraction.

Thus, for example, in the field of economic development there is now a substantial literature on what are called "informal institutions". As part of its aim has been to identify their rationale, a good deal of the literature in fact concentrates on their virtues.[2] But in focusing on the benefits such institutions offer, one can be distracted from asking if their continued existence could prevent more productive social arrangements from becoming established, say, in the shape of formal markets. One can even ask whether informal institutions were ever as good as they are frequently made out to have been. The temptation

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[1] On this, see Solow (1995; 2000) and Arrow (2000).

[2] See, for example, Bromley et al. (1992).

always to regard observed practices as desirable is no doubt strong, especially when their rationale have been detected; but it should be resisted.[3]

In an early definition, social capital was identified with those "... features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions" (Putnam, 1993: 167). As a characterization this appears beguiling, but it suffers from a weakness: it encourages us to amalgamate incommensurable objects, namely (and in that order), beliefs, behavioural rules, and such forms of capital assets as interpersonal links, without offering a hint as to how they are to be amalgamated.[4] One of my aims here is to suggest that they can't be amalgamated. Since this would imply that we must study them separately if we are to understand what they are about and how they are related, this essay is an attempt to do just that.

Some authors have focused on "trust". Others have studied those components of social organization (e.g., rotating savings and credit associations, irrigations management systems, credit cooperatives, civic associations, and the better types of marriages) that make "social capital" a productive asset. Yet others have considered a broader sense of the notion, by including extended kinship, lobbying organizations, and such hierarchical relationships as those associated with patronage (e.g., the Hindu jajmani system and the Sicilian Mafia) and street gangs, so that dense networks don't inevitably result in overall economic betterment, at least not in the long run. Case studies of the management systems of local common-property resources in poor countries have offered further insights into the character of those communitarian institutions (e.g., collective-management systems of local fisheries, forests, grazing lands, and threshing grounds) that enable mutually beneficial courses of action to be undertaken by interested parties. Moreover, the theory of repeated games has been used to interpret long-term relationships in the above-mentioned institutions and the norms of behaviour that sustain them. However, the theory of repeated games has also warned us that long-term relationships can involve allocations where some of the parties are _worse off_ than they would have been if they had not been locked into the relationships. Even though no overt coercion would be involved, such relationships are exploitative. One can even argue that the theory in question makes precise the sense in which a relationship _can_ be exploitative.[5]

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[3] See Ogilvie (1995) for a chilling portrait of life constrained by communitarian rules in the Black Forests of Wurttemberg in the early-Modern period, and persisting until the nineteenth century.

[4] See also Putnam (2000: 19), who writes: "... social capital refers to connections among individuals - social networks and the norms of reciprocity and trustworthiness that arise from them."

[5] See Fudenberg and Maskin (1986) for powerful results on this subject. Such exploitative relationships as I am referring to in the text cannot develop in repeated plays of the Prisoners' Dilemma, and is the reason why they haven't been noted in the literature on horizontal social relationships.

In short, the theory implies that certain types of social capital suffer from negative productivity, while others enjoy positive productivity. In all these accounts, the engagements that rely on what is called social capital occur somewhere between the individual and the State: they are conducted within informal institutions. When applied to horizontal networks, social capital is identified with the workings of civil society.

Of central importance to any concept of social capital is the notion of trust.[6] But how should trust be defined? Is trust a public good, as is frequently claimed? Moreover, if created, how is trust maintained? What are we to make of the suggestion that trust is a "moral good", in that, unlike economic commodities, it grows with use and decays with disuse (Hirschman, 1984)? Furthermore, is trust at the interpersonal level a substitute for the courts and the rule of law, or is it a complement? More generally, what are the links between macro-level institutions, such as the legislative, judicial, and executive branches of government, and those micro-level institutions, such as personal networks, which would appear to embody social capital? Do these institutions reinforce one another, or does each type tend to displace the other?

How do markets relate to social capital? Is there anything in the intuition that the process of modernization and economic development (e.g., the growth of markets) comes in tandem with a shrinkage of social capital as a "factor" of production; and the closely related question, do long-established social networks act as a deterrent to the modernization process? What does one mean by the terms "culture of trust" and "culture of distrust"? Moreover, is culture related to social capital; if so, in which way?

Is social capital a public good, such as shared knowledge, or is it more like a private good, such as human skills? Or to put the matter technically, should an economy's social capital be regarded as a shift factor in its aggregate production function, or should we view it as a private input in production, much like the human capital that appears routinely in macroeconomic growth models? Or is social capital merely another name for good institutions? Then again, is social capital a pure capital good, or is it, like many kinds of knowledge, simultaneously something which offers direct enjoyment? Should we try to construct an index of aggregate social capital; if the answer is "yes", how should we go about it?

2 Summary

In this article I use economic analysis to develop a theoretical framework for addressing the above questions. I argue that social capital is most usefully viewed as a system of interpersonal networks (Sections 4 and 6). If the externalities network formation gives rise to are "confined", social capital is an

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[6] See, for example, Gambetta (1988) and Fukuyama (1995).

aspect of "human capital", in the sense economists use the latter term.[7] However, if network externalities are more in the nature of public goods, social capital is a component of what economists call "total factor productivity" (Section 8). There is no single object called social capital, there is a multitude of bits that together can be called social capital. Each bit reflects a set of interpersonal connections.

Just as the productivity of manufactured or natural capital goods depends upon the use to which they are put, the worth of social capital depends upon the kinds of activities in which members of networks are engaged. This is why writings on social capital so frequently have been studies of institutions.[8] I argue, however, that to identify social capital with institutions is a mistake: institutions emerge from networks, they are themselves not the networks. I show by means of examples that any system of networks can in principle give rise to any one of several sets of engagements. Thus, networks harbour multiple equilibria (Sections 4-5). Each equilibrium is characterized by a distinct institutional structure, involving a distinct set of human relationships (Section 6). To be sure, institutions are distinguished not only by the rights, obligations, and responsibilities their members enjoy and harbour, the viability of institutions is dependent on the extent to which members trust one another to fill their roles. For this reason, I begin the essay with the concept of trust (Section 3). Since trust (or a lack of it) is based on the beliefs people hold about one another and the world, institutions are associated with the beliefs that sustain them. To put it in another way, institutions are formed and held together by the beliefs members hold about one another and the world. Beliefs are the links between social capital and institutions and, more generally, between social capital and culture (Section 5). This explains why it is frequently so hard to tell apart writings on social capital from those on culture (especially, civic culture) and why it is so easy to slip from speculations on the demands of social capital to thoughts on the imperatives of culture. Though they are related in ways that are identified in this essay, social capital, trust, culture, and institutions are different objects and should not be conflated. Trust can be created by a number of means, interpersonal networks form only one set of means (Sections 4-5).

Beliefs assume a fundamental role in the thesis I develop below. However, as the origins of the kinds of beliefs I study pose intriguing historical and anthropological problems in any particular context, they are beyond the scope of this essay (and the author's competence!). What economic analysis enables us to do instead is to identify those systems of beliefs that are rational, that is, those that would not be belied by the unfolding of evidence. Economists use the expression "rational expectations" to denote

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[7] By "externalities" I mean the side-effects of human activities when they are undertaken without mutual agreement. Externalities are often called "spillovers". The private production of public goods (and public bads!) involves an acute form of externalities: the spillovers are unconfined, additive, and "anonymous".

[8] See, for example, the Special Issue of the Journal of Interdisciplinary History, 1999, 29(3), on "Patterns of Social Capital, Part I".

expectations about outcomes (e.g., market prices) that are confirmed. In contrast, the beliefs I explore here are about one another's characteristics and predilictions (Sections 4-5).

Networks and markets can be complemetary, but they can be competitive too. Their various relationships are explored in Section 7. The impersonality of markets has been much criticized in the literature on social capital. While one of the strength of networks is the collegiality among their members, networks suffer from that very exclusiveness. Impersonality has enormous virtues: it reflects inclusiveness and enables resources to flow from less to more productive uses. In Section 8 these matters are explored by means a simple macroeconomic model. I use the model to interpret well-known empirical findings on the value of social capital.

3 Trust[9]

That trust is a key ingredient in transactions is not controversial.[10] And yet, until recently economists rarely discussed the notion. It was treated rather like background environment, present whenever called upon, a sort of ever-ready lubricant, permitting voluntary participation in production and exchange.

While there are a number of senses in which the word "trust" is used in colloquial language, it acquires an important role in the efficacy of various institutions when it is placed squarely within agency relationships. With this in mind, I will be using the word "trust" in the context of someone forming expectations about those actions of others which have a bearing on her choice of action, when that action must be chosen before she can observe the actions of those others. Trust is of importance because its presence or absence can have a bearing on what we choose to do, and in many cases what we can do.

The clause concerning the inability to observe others' actions at the time one chooses one's own action is central. But it should be noted that this inability need not be due to one's choice of action temporally preceding those of others. For example, it could be that what I ought now to do depends on whether you have done what you said you would do, in circumstances where I cannot now, or possibly ever, verify whether you have actually done it.

This account of trust places significance on other people's unobservable <u>actions</u> for the choice of one's own course of action. But there is another class of cases where trust, in this same sense, comes into play. This is when others <u>know</u> something about themselves or the world, which the person in

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[9] This section is taken from Dasgupta (1988).

[10] Consider Arrow (1972: 357), who wrote: "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence." Or Coleman (1990: 304): "... social capital ... is embodied in the <u>relations</u> among persons... a group whose members manifest trustworthiness and place extensive trust in one another will be able to accomplish much more than a comparable group lacking that trustworthiness and trust."

question does not, and when what that person ought to do depends on the extent of his ignorance of these matters. For example, an agreement between myself and such other people may call upon them to disclose their information. But can I trust them to be truthful; that is, can I trust them to send me the correct messages, those they would send me if they were truly trustworthy?[11]

The former class of cases concerns unobservable actions, whereas the latter addresses problems of hidden information. The terms <u>moral hazard</u> and <u>adverse selection</u> are used for a not too dissimilar classification. Space forbids I go into these distinctions. In any case, as the two involve similar analytical considerations, I propose to conflate them.

Luhmann (1988) reserves the term "confidence" (or lack of it) when refering to our expectations of the <u>ability</u> of social institutions (e.g., markets or State agencies) to function adequately. It is clear enough, though, that his usage can be extended to cover our expectations of the ability of experts to do their job well (e.g., confidence in our physicians to diagnose our ailments correctly). In contrast, trust (or lack of trust) rears its head when we have cause to be concerned about someone's underlying disposition, motivation, and incentives. For example, we would lack confidence in the ability of the local police to protect our homes from theft if there weren't enough of them to make the rounds. By the same token, we would have no trust in that same police force to do what should be expected of them if we knew their members to be corrupt. Thus too for the civil service and the law.

A number of points follow immediately:

(1) If there were no suitable punishment for breaking agreements or contracts, people wouldn't have the appropriate incentives to fulfill them. If this were generally recognized, people would not wish to enter into transactions with one another. Thus, what could in principle have been mutually beneficial relationships would not be initiated.

(2) The threat of punishment for errant behaviour must be credible, or else the threat would be no threat. If people are to trust one another generally, they must have both confidence in the enforcement agency to do what is expected of it and trust in the agents to carry out their responsibilities.

(3) The enforcement agency may be society "at large", not the State. Social ostracism, and the sense of shame society can invoke in one, are examples of such punishment. A special case of the latter is one where the enforcement agency is the injured party to the transaction: the injured party can, for example, punish the errant party by ceasing to transact with him.

(4) You don't trust a person (or an agency) to do something merely because he says he will do it. You trust him only because, knowing what you know of his disposition, his available options and the

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[11] Formally, of course, they do not have to be truthful for me to be able to rely on them. As long as I can interpret their messages correctly, I can trust them. Thus the ancient Cretan was as informative as the knowledgeable saint.

consequences of his various possible actions, his knowledge base, ability, and so forth, you expect that he will choose to do it. In short, his promise must be credible. That is why we like to distinguish between "trusting someone" and "trusting someone blindly", and think the latter to be ill-advised.

(5) This follows from the previous point: when you decide whether to enter into an agreement with someone, you need to look at the world from <u>their</u> perspective as it is likely to be when it comes to they having to fulfill their part of the agreement. This is why game theorists instruct us to calculate backward, against time, and not forward, with time.

(6) Trust and confidence among persons and agencies are interconnected. If your trust (or confidence) in the enforcement agency falters, you will not trust people to fulfill their terms of an agreement and thus may choose not to enter into that agreement. By the same token, as democrats have long noted, you should not trust the enforcement agency (e.g., government) to do on balance what is desired of it if the agency does not expect it will be thrown out of power, through the ballot box or armed rebellion, if it does not do on balance what is desired of it.[12] It is this interconnectedness that makes trust a fragile commodity. If it erodes in any part of the mosaic, it can bring an awful lot down with it. This is one reason why the medical and legal professions had, and in many cases still have, not only stern codes of conduct instilled into their members, but also powerful guild rules for members if they are to belong. It can be argued that there was a need for those professions to break the intricate link alluded to above, so that vital transactions concerning health and protection could be entered into even if enforcement costs were to rise due to an erosion of trust elsewhere in the economy, through rapidly changing social mores, or whatever (Arrow, 1963).

(7) An immediate corollary of the previous observation is that the production of trust is riddled with beneficial externalities. This means there is likely to be an underinvestment in trust. But this doesn't make trust a public good, rather, it involves what economists call "network externalities" (she trusts you, now you trust me, so she now trusts me, and so forth).

(8) Trust is based on reputation, and reputation is acquired on the basis of observed behaviour over time. Reputation is an asset, so people invest in it, in that they forego immediate gains for the purpose of enjoying benefits later. But it isn't only people who can acquire a reputation, good or bad; institutions and groups can also acquire it and maintain it. It isn't easy to model the link between personal, group, and institutional reputation. However, the link needs to be studied if we are to understand the idea of social capital.

(9) How far people can trust one another depends in part on the extent to which actions are observable. So the efficiency of an institution depends, among other things, on the ease with which chosen actions can be monitored by interested parties. The ability to impose effective sanctions depends on the extent

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[12] Przeworski (1991) presents a mathematical model of the idea.

to which breaches of agreement are observable. For example, peer monitoring could be a way to reduce opportunistic behaviour within a firm. As monitoring is not costless, the peer would need to have adequate incentives to do the peering.[13] The firm, in turn, would need to be kept in line, say, by a public agency, whose task would be to monitor the firm's effluent discharge, so as to discourage it from breaking environmental standards. In its turn, the public agency would need to be kept in check. So it could be that a free and competitive press is necessary for this purpose. In each case, there is call for an institutional solution to the problem of creating trust. Moreover, the problems are connected.

(10) Even though there is no natural system of units in which trust, or a reputation for being trustworthy, can be measured, it does not matter in principle, because in any given context you can measure their worth by the extent to which mutual benefits can be realised. Admittedly, this would only be a measure of their instrumental value, but perhaps one should not expect more. In this sense also, trust and a reputation for trustworthiness are rather like knowledge; they are valuable both intrinsically and instrumentally.

These observations are seemingly banal, but repeatedly we will find use for them.

4 Cooperative Ventures: Why Are Agreements Ever Kept?

Institutions are overarching entities. People interact with one another <u>in</u> institutions. A more basic concept is that of <u>interactions</u> among people. Consider, then, a group of persons who have identified a mutually advantageous course of actions. We imagine that they have reached agreement on the allocation of rights and obligations. The agreement could be on the sharing of benefits and burdens associated with the management of a common-property resource (an irrigation system, a grazing field, a coastal fishery); or it could be on the provision of a public good (the construction of a drainage channel in a watershed), or on some general collective action (civic engagement, lobbying), or on a transaction in which purchase and delivery of the commodity cannot be synchronized (credit and insurance), or over exchanges which amount to reciprocity (I help you, now that you are in need, with the understanding that you will help me when I am in need), or on adopting a convention of behaviour (sending one another Christmas greetings); and so on.[14]

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[13] Stiglitz (1990) has explored the role of joint liability among individual borrowers of funds. Because liability is joint, borrowers have an incentive to monitor one another's choices. Stiglitz' immediate purpose in the article was to find an explanation for the success of the famous Grameen Bank in Bangladesh in recovering loans. Negative features of group-lending schemes (e.g. adding to the risks borne by individual borrowers) have been studied by Besley and Coate (1995) and Madajewicz (1997).

[14] Readers familiar with game theory will recognise that the last example has the structure of a Coordination Game, while the earlier examples, in their pristine forms, have the structure of the far more well known game called the Prisoners' Dilemma. The question being raised in the text (why are agreements ever kept?) is relevant no matter what is the nature of the "game", its relevance isn't restricted to the Prisoners' Dilemma.

Assuming then that an agreement has been reached, how can the parties be sanguine that it will be kept? It is easy enough to answer the question by saying that the parties would be sanguine if they could devise an institution in which abiding by the agreement would be a part of an <u>equilibrium strategy</u> (by which we mean that it would be in the interest of each to choose the strategy in question if everyone else were to choose it). The harder task is to devise an institution in which abiding by the agreement is a part of an equilibrium strategy. The reason why it is harder is that a <u>strategy</u>, being a sequence of conditional actions, is defined over counterfactuals (strategies assume the forms, "Do this if that happens", "Do that if she does this", and so on). In other words, to answer the question we have raised, the concept that has to be tracked is that of <u>equilibrium beliefs</u>, by which we mean a set of beliefs about one another, one for each party, such that it would be rational for each party to hold his belief if everyone else were to hold their respective beliefs.[15]

Broadly speaking, there would appear to be four types of situation where parties to an agreement could expect everyone to keep to their side of the bargain: (1) the group members care about one another; (2) the parties are honourable, and it is common knowledge among them that they are honourable; (3) the agreement is mutually enforced by instituting sanctions for deviant behaviour; and (4) there is an external enforcer of the agreement.[16]

Each of the four possibilities gives rise to a set of institutions that capitalize on their special features. In practice, though, the four situations would be expected to shade into one another. Moreover, it can prove difficult empirically to distinguish them. For example, someone employed by the group to act as a referee, or coordinator, or informer, could appear to an outside observer to be in overall authority. Nevertheless, for the sake of clarity, I treat the four as being distinct. In the remainder of this section we study them.

4.1 Mutual Affection

Innumerable transactions take place only because the people involved care about one another, rationally believe that all care about one another (i.e., each knows that the others know that they care about one another, each knows that the others know that each knows that they care about one another, and so on) and thus trust one another to carry out their obligations. Economists model the situation as one

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[15] Readers will have recognised that what I am refering to as an "equilibrium" is called a Nash equilibrium in game theory.

[16] Of course, none may be potent in a particular context, in which case people would find themselves in a hole they cannot easily get out of, and what could have been mutually beneficial agreements will not take place. The behaviour reported in the Mezzogiorno by Banfield (1958) is an illustration of this possibility. Ostrom (1990, 1996) and Baland and Platteau (1996) cite cases where cooperative arrangements haven't been entered into, or have broken down. Sen (1977) interprets the failure to cooperate the consequence of people being "rational fools".

where group members have interdependent utilities. The household best exemplifies institutions based on care and affection. As monitoring costs within the household are low (a group of people who cohabit are able to observe and to get to know one another), the institution harbours fewer problems of moral hazard and adverse selection than many other institutions. On the other hand, being few in number, members of a household, as a group, are unable to engage in those enterprises that require large numbers of people of varied talents and locations.

4.2 Pro-social Disposition

People would trust one another to keep agreements if they were sanguine that most others had a disposition to be trustworthy. Evolutionary psychologists have argued that, because of selection pressures that operated among our hunter-gatherer Pleistocene ancestors, we are adapted to have a general disposition to reciprocate.[17] Others have argued that such a disposition is to a greater or lesser extent formed through communal living, role modelling, education, and receiving rewards and punishments, and that the process begins at the earliest stages of our lives.[18]

For our purposes here, we do not have to choose between the two theories: either would do. In any event, they are not mutually exclusive. Thus, evolutionary psychologists have argued that our capacity to have such feelings as shame, affection, anger, approval, and jealousy has emerged under selection pressure. No doubt culture helps to shape preferences and expectations (thus, behaviour), which are known to differ widely across societies. But cultural coordinates enable us to identify the locus of points upon which shame, fairness, obligations, affection, reciprocity, and approval are put to work; they don't displace the centrality of shame, fairness, obligations, affection, reciprocity, and approval.[19] The thought I am exploring here is that, as adults we not only have a disposition for such behaviour as paying our dues, helping others at some cost to ourselves, and returning a favour, we also practise such norms as those which prescribe that we punish people who have hurt us intentionally; and even such meta-norms as shunning people who break agreements, on occasion frowning on those who socialise with people who have broken agreements; and so forth. By internalizing specific norms, a person enables the springs of her actions to include them. She therefore feels shame or guilt in violating the norm, and this prevents her from doing so, or at the very least it puts a break on her, unless other considerations are found by her to be overriding. In short, her upbringing ensures that she has a disposition to obey the norm, be it moral

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[17] Cosmides and Tooby (1992) is a key reference.

[18] See, for example, Hinde and Groebel (1991), which contains accounts of what is currently known of the development processes through which people from their infancy acquire prosocial dispositions; for example, by learning to distinguish accidental effects from intentional effects of others' actions.

[19] I go into these matters in greater detail in Section 5, where the prevalence of multiple equilibria is explored.

or social. When she does violate it, neither guilt nor shame would typically be absent, but frequently the act will have been rationalized by her. For such a person, making a promise is a commitment, and it is essential for her that others recognise it to be so.[20]

Often enough, the disposition to be honest would be toward members of some particular group (clan, or neighbours, or ethnic group), not others. This amounts to group loyalty. One may have been raised to be suspicious of people from other groups, one may have even been encouraged to dupe such others if and when the occasion arose (Section 5). Society as a whole wastes resources when the disposition for honesty is restricted to particular groups.

In the world as we know it, the disposition to be trustworthy at both the personal and impersonal spheres exists in varying degrees. When we refrain from breaking the law, it isn't always because of a fear of being caught. On the other hand, if say, relative to the gravity of the misdemeanour the pecuniary benefits from malfeasance were high, some transgression could be expected to occur. Punishment assumes its role as a deterrence because of the latter fact.

4.3 Mutual Enforcement

Where people encounter one another repeatedly in similar situations, agreements could be honoured even if the parties do not care for one another personally and are not disposed to be honest. This mechanism, where people are engaged in long-term relationships, is an ingredient in theories of social capital.[21]

Suppose that the group in question consists of far-sighted people who know one another, who prepare to interact indefinitely, who understand the details of the agreement, and who can observe whether each is complying with the terms of the agreement.[22] By a far-sighted person I mean someone who applies a low rate to discount future costs and benefits of alternative courses of action. Let us assume also that the parties in question are not separately mobile (although they could be collectively mobile, as

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[20] Sethi and Somanathan (1996) have identified a class of economic environments where the disposition to cooperate and to punish those who do not cooperate (even when it is not costless to inflict punishment) is (locally) evolutionary-stable (i.e., small proportions of mutants that have the disposition to cheat always are unable to invade the environment). However, the authors show that the disposition to cheat always on agreements is also (locally) evolutionary-stable in such environments. Thus, the economic environments in question harbour multiple evolutionary-stable configurations of dispositions.

[21] The theoretical chapter in Putnam (1993; ch.6) makes the connection, but does not develop the formal structure of the mechanism. For a good exposition of the mechanism, see Fudenberg and Tirole (1991). Long-term relationships, in the sense I use the term in this essay, are of far, far shorter duration than the time envisaged by evolutionary psychologists in their accounts of the emergence of our disposition to, say, reciprocate.

[22] I am not assuming that the parties are bound to meet forever. Rather, I am assuming that no matter how far a date into the future one cares to name, there is some chance that the parties in question (or representatives the parties care about) will be on hand to be able to cooperate.

in the case of nomadic societies); otherwise the chance of future encounters with one another would be low and people would discount heavily the future benefits of current cooperation.

The basic idea is this: if people are far-sighted and are not separately mobile, a credible threat by all that they would impose sufficiently stiff sanctions on anyone who broke the agreement would deter everyone from breaking it. Game theorists reserve the term "social norms" to denote those equilibrium strategies that support cooperative outcomes in repeated games. Such strategies include in their content not only doing what was agreed upon and imposing sanctions on those who violate the agreement (the counterfactuals), but they may also include imposing sanctions on those who do not impose sanctions on those who violate the agreement, on those who do not impose sanctions on those who do not impose sanctions on those who violate the agreement, and so forth, ad infinitum. Of course, non-cooperation (that is, failure of a long-term relationship to be initiated) is also an equilibrium outcome. Repeated games contain multiple equilibria. Which equilibrium prevails depends upon the set of beliefs that have been adopted. Multiple equilibria will be a recurrent theme in this essay.

In long-term relationships, agreements implemented by equilibrium strategies are self-enforcing. To be sure, the parties must be able to observe one another's actions; but, as the actions do not have to be verifiable publicly, no outside party is needed for enforcing agreements. The distinction between "observability" and "public verifiability" of actions and circumstances is important. It suggests that arrangements requiring public verifiability are founded on a different kind of institution. I turn to such institutions.

4.4 External Enforcement

It could be that the agreement is translated into an explicit contract and enforced by an established structure of power and authority; which is to say that the agreement is enforced by a "third" party. This may be the State, as in the case of contracts in the large numbers of markets operating throughout the world. But it need not be the State. In rural communities, for example, the structure of power and authority are in some cases vested in tribal elders (as in nomadic tribes in sub-Saharan Africa), in others in dominant landowners, feudal lords, chieftains, and priests.

The question of why such a structure of authority as may exist is accepted by people is a higher-order one, akin to the question of why people accept the authority of the State. The answer is that general acceptance itself is equilibrium behaviour: when a sufficiently large number of others accept the structure of authority, each has an incentive to accept it, the personal cost of non-compliance (a stiff gaol sentence) being too high. In particular, if everyone else accepts the authority structure, each would recognise that others would carry out the authority's bidding, for example, that non-compliance would be met with punishment (a stiff gaol sentence). So, general acceptance is an equilibrium and is held together by its own bootstraps, so to speak. This yields the corollary that even if a government backed by the apparatus

of the State were viewed by most citizens to be unworthy, it would remain in power if each citizen were to suppose that most others would continue to accept its authority.

The above argument shows that compliance is equilibrium behaviour if the Authority can be trusted to enforce agreements. But what incentives has the Authority to do the enforcing? Fear of reprisal by those over whom the Authority has authority would be a broad reason: armed rebellion, being voted out of office in elections, and so forth.[23] Of course, the argument would be valid only if the threat of reprisal were credible. Now, the threat of reprisal would be credible if the opportunities for mutually beneficial exchanges (i.e., the need for an Authority to enforce agreements) are expected to repeat themselves indefinitely in the future; which brings us back to the enforcement mechanisms identified in the theory of repeated games among mutually identifiable parties (section 4.3).

Consider now the case where sufficiently large numbers of people do not accept the authority structure (e.g., when tensions lead to riots or civil wars). Individual incentives to accept the Authority then weaken, because the fear of sanctions is less now, and the system unravels to an equilibrium characterised by non-acceptance of the authority structure. So, non-acceptance of Authority can also be held together by its own bootstrap. To ask which of the two equilibrium outcomes comes about is to ask which system of beliefs the parties adopt about one another's intentions.

For a third-party to enforce agreements, it has to be possible publicly to verify if the terms of a contract have been fulfilled. But this can prove costly (as confirmed by the enormous costs, relative to incomes, that litigations involve even in modern industrial societies); in some cases it can prove impossible. Because of this and possibly other reasons, societies, in order to facilitate cooperation, also rely on the previous three mechanisms we have identifed.

5 Culture as Beliefs

5.1 Basics

In each of the four types of situation just sketched, if abiding by a cooperative agreement is an equilibrium outcome, so is non-compliance an equilibrium outcome.[24] Which equilibrium prevails depends upon the beliefs that are adopted by the parties. The theory I am discussing here doesn't explain those beliefs, what it does is to identify - from among the many systems of beliefs the parties can in principle hold - those that can be rationally held. Rational beliefs are those that are not belied by the unfolding of evidence. As they are self-confirming, they offer an anchor for our analysis. However, because there can be multiple sets of rational beliefs, they offer just the kind of flexible anchor we need

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[23] Przeworski (1991).

[24] There can be many more equilibria, characterised by partial compliance. For expositional ease I shall often restrict the discussion to two extreme equilibria, those that are characterised by non-compliance and full compliance, respectively.

in order to make sense of societal differences (Section 5.2).

Talk of beliefs, and we are drawn inevitably to the notion of culture, which is bound up with the idea of social capital. In his famous work on the influence of culture on economic development, Weber (1930) took a community's culture to be its shared values and dispositions, not just beliefs. Studies as widely cast as Weber's can't easily be summarized, but the causal mechanism Weber himself would seem to have favoured in his work on Protestant ethic and the spirit of capitalism leads from religion, through political culture, to institutions and, so, to economic performance.

Using culture to explain economics has not been popular among social scientists in the post-War period. But there has been a recent revival. Since Weber, the most ambitious appeal to culture to understand differences in economic performance has been Landes (1998), who asks why it is that since the middle of the sixteenth century, countries in northern Europe managed to race ahead of those several others elsewhere seemingly better placed at the time. No doubt technological progress and its rapid diffusion among populations was the key to that success, but the progress itself needs explaining. The one Landes offers is distinctive, because it gives importance to the evolution (or a lack of it) of different types of attitudes and beliefs in various regions of the world. Landes argues that these differences gave rise to institutional differences (with feedback to attitudes and beliefs), which help to explain why some countries became winners, while others enjoyed a brief period of success before losing to the winners, while yet others merely suffered from atrophy.

Landes offered a historical narrative, drawing what could be called "suggestive inferences".[25] An alternative strand of enquiry makes use, when available, of statistical evidence. The two strands complement each other. Putnam (1993), Knack and Keefer (1997), and La Porta et al. (1997) have studied cross-section data and discovered positive links between civic culture (civic engagements, trust) and economic growth, while Granato, Inglehart, and Leblang (1996) have studied cross-section data and found positive links between personal motivation (the desire to advance oneself economically) and economic growth.

The statistical findings shouldn't be given a causal interpretation, nor do the authors suggest they should. For example, the motivation to advance oneself would be expected to depend upon one's expectations (i.e., beliefs) regarding the chance that hard work pays off. Moreover, parents would be expected to instil personal ambition in their children only if they were sanguine that such ambition would not be thwarted by the social order. Thus, even disposition can be a determined rather than determining factor (section 2.2).[26] When it is the former, an observed statistical link between culture and economic

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[25] I owe this term to Stanley Engerman.

[26] This viewpoint contrasts with ones that see culture as determining (see, for example, Triandis, 1991).

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progress should be interpreted at most as an equilibrium relationship between two endogenous variables. Culture in this view is a coordinating device.

Anthropologists have shown us how cultural differences can be interpreted in terms of differences in the beliefs people hold about the way the world works (for example, the role of ancestors and of spirits and gods in shaping our lives). The point of view I am exploring in this essay is a shade different. I am using "culture" to denote differences in the beliefs people hold about one another. In the previous section we noted, for example, that in long-term relationships mutually-held beliefs about the actions various parties would choose if matters were otherwise (counterfactuals) can act as focal points, leading to the choice of one set of strategies rather than another and, thereby, sustaining one set of institutions and technology rather than another.[27]

5.2 Two Exercises in Economic Theory

1. Cultural Stereotypes

Beliefs can play an even more complex role than the one discussed here so far. Economists have shown how cultural stereotypes can persist even when there are no intrinsic differences among groups. Needless to say, such stereotypes usually result in overall economic losses.[28]

Imagine that to be qualified to do a demanding (but personally rewarding) job requires investment, and that investment costs differ among people, dependent as the costs are on a person's intrinsic ability. Imagine too that individuals' intrinsic abilities have been drawn from the same genetic urn: there are no group differences, only individual differences. Assume now that innate ability cannot be observed by employers, to an extent that even if one has made the investment and is thus qualified for the demanding job, employers are unable ex ante to judge this with unerring accuracy. If, however, employers harbour negative stereotypes against a particular group's ability, they are likely to use a stiffer criterion for assigning workers of that group to the difficult, but personally more rewarding job. Among workers belonging to that group, this practice would lower the expected return on the investment that makes them suitable for the more rewarding job. This means that less numbers of them would make the investment. This in turn means that there would be fewer of them suitable for the rewarding job, which in its turn could confirm the cultural stereotype and justify the use of the stiffer criterion by employers. In other words, it is possible for people's beliefs about group differences to be confirmed by the consequences of the actions members of those groups take in response to the practice people follow in response to those beliefs. This is once again an instance of one equilibrium outcome out of possibly several, because, if employers did not hold negative cultural stereotypes against any group, there wouldn't

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[27] Greif (1994) has pursued this line of enquiry.

[28] The key contributions are Arrow (1973), Akerlof (1976), Starrett (1976), and Coate and Loury (1993). The example in the text is taken from the Coate-Loury paper.

be such a differentiated outcome among groups. Discrimination occurs and persists because of a self-fulfilling system of prejudicial beliefs.

2. Civic Virtues

Although quantitative estimates are sparse, civic virtues would appear to differ enormously across societies. In poor countries, where the State is often viewed by communities as an alien fixture and the public realm an unfamiliar social space, the temptation to free-ride on such State benefits as there are must be particularly strong. Even in a "well-ordered" society (I am using the term in the sense of Rawls, 1972) free-riding would not be uncommon: separation of the private and public spheres of life is not an easy matter. Living off the State can become a way of life.

Political scientists have puzzled over the fact that in some countries taxpayers comply far more frequently than would be expected if compliance rates in other countries were used as a basis of comparison. Paying taxes is voluntary, in that people choose to comply in situations where they are not directly coerced. But it is only "quasi-voluntary",[29] in that those who don't comply are subject to coercion if they are caught. One way to interpret differences in compliance across countries is to suppose that people are willing to pay their dues if (i) the government can be expected to keep to its side of the bargain on transfers and public expenditure, and (ii) others pay their dues. Taxpayers are viewed in this interpretation as people who are willing to cooperate on a good cause if a sufficiently large number of others cooperate as well, but not otherwise. The hypothesis is that most people are civic minded when, and only when, most others are civic minded.

There is evidence that people don't merely display reciprocity, they have <u>feelings</u> about reciprocity. To quote Levi (1988: 53), nobody likes being a sucker. As we noted in Section 4, our propensity to have such feelings is itself an outcome of selection pressure over the long haul of time. Findings such as these have been deployed by economists in modelling the attitudes of citizens to work on the one hand, and to the volume of taxes and the character of public transfers on the other.[30] Imagine that a person's desire to live off the State increases with the proportion of those who live off the State. (There is little stigma or shame when the proportion is large, but a good deal when the proportion is small.) Citizens vote on levels of taxes and transfers, and then choose in the light of the outcome of the votes whether to work. As the two sets of decisions are taken in a sequential manner, the model isn't easy to analyse, but it has been found that, with some additional structure, quantitative conclusions can be reached.[31] The model is attractive because it treats the degree of compliance (more generally, the degree

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[29] I am borrowing the term from Levi (1988).

[30] Lindbeck (1995, 1997); Lindbeck, Nyberg, and Weibull (1999).

[31] Lindbeck, Nyberg, and Weibull (1999).

of civic cooperation) as something to be explained; civic behaviour isn't regarded as part of the explanation. The model admits more than one equilibrium pattern of behaviour, each characterized by a particular degree of compliance. Being equilibria, compliance rates, whether high or low, are held together by their own bootstraps, involving the now-familiar circular chains of reasoning. Where compliance rates are high, it is because most people reciprocate by behaving in a civic-minded way when most others are behaving in a civic-minded way. Conversely, where compliance rates are low, it is because most people reciprocate by behaving in an opportunistic way when most others are behaving opportunistically. And so on.

5.3 Morals

In each of the two examples, the equilibrium beliefs that prevail could be the consequence of historical accidents, rather than deliberate agreement. So, it can be that societies that are identical in their innate contemporary characteristics display very different civic behaviour. Similarly, it can be that people in one society harbour cultural stereotypes even though people in another society possessing the same innate contemporary characteristics do not harbour them. Culture is not an explanatory variable in either example - it is endogenous in both. Moreover, as our four-way classification in Section 4 suggested and the foregoing model of quasi-voluntary behaviour illuminated, you do not need to know someone, even at some steps removed, to form beliefs (even rational beliefs) about his intended behaviour. Social capital, in the sense of interpersonal networks, is certainly necessary if mutually beneficial outcomes are to be identified and the associated agreements reached, but you do not need to know each and every fellow citizen to arrive at rational beliefs, at a statistical level, about their intended behaviour. Trust is the key to cooperation, social capital is merely one of the means to creating trust.

Analysis of equilibrium beliefs in such models as those in the above pair of examples is frequently a short hand for understanding pathways through which beliefs evolve over time. History matters, if only because historical experiences affect contemporary beliefs.[32] The idea, more broadly, is to explain contemporary cultural differences (differences in rational beliefs) in terms of differences in primitives, such as our material needs, the large-scale ecological landscape, the shared knowledge base, and historical accidents. Cultural differences would be correlated with differences in economic performance, they would not be the cause of them.

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[32] Binmore and Dasgupta (1986) and Krugman (1991) offer simple examples of what game theorists call "eductive" and "evolutive" analyses of social phenomena. In the former, the algorithm on the basis of which equilibrium beliefs are attained is built into the agents' reasoning processes (as in analytical game theory; see above (Sections 4.3 and 4.4) and Fudenberg and Tirole, 1991); in the latter, the algorithm is run in real time, and selection pressure determines which types of behaviour survive (as is implicit in the theory of evolutionary psychology; see Section 4.2 above, Weibull, 1995, and Sethi and Somanathan, 1996). The two types of analysis are not at logger-heads: they operate over different time scales and are therefore pertinent to different aspects of behaviour.

The models of cultural stereotypes and civic cooperation suggest also that different types of variables should be expected to change at different speeds - some slow, some others not-so-slow, yet others fast. Imagine now that certain types of (cultural) beliefs are slow to adapt to changing external circumstances. Since slow variables are to all intents and purposes fixed in the short run, it would not be unreasonable to regard them as parameters for short-run analyses. This is the approximation social scientists make when they offer cultural explanations for economic performance, for example, the success of Japan in the post-War era (Hayami, 1997, 1998).

Matters are different in the long run. Individual motivation and beliefs are influenced by values and the practice of norms, and they in turn are influenced by the products of society, such as institutions, artifacts, and technologies.[33] Moreover, any process which ties individual motivations and beliefs to values and norms and thereby to the choices made, and back again, would be expected to be path-dependent. There is little evidence though that trade and imitation may not lead to convergence in those spheres of culture that have a sizeable effect on economic performance. It is also possible that the effect of a particular component of a people's culture changes over time even when the culture itself isn't changing. The various components of culture are in different degrees complementary to other factors of production. So it is possible for a particular component to lie dormant for decades, even centuries, only to become a potent force when external circumstances are "right". By the same token, this same component could become ineffective, even dysfunctional, when external circumstances change again. This is why there is no logical flaw in such claims as that Japan's remarkable economic success in the post-War period has been due in part to some aspects of the nation's culture, even though those same aspects did not have potency in earlier centuries and may in future even prove to be dysfunctional.

And finally, the models of cultural stereotypes and civic cooperation offer the sobering thought that, under slowly changing circumstances, the extent to which people harbour cultural stereotypes or the degree to which people are civic-minded can alter imperceptively over a long period of time, until a moment is reached when society transforms itself rapidly from one state of affairs (e.g., a society where citizens are civic minded) to another, very different, state (e.g., a society where citizens are not civic minded). The rapid transformation is a transition from an equilibrium compliance rate in one basin of attraction to that in another.[34]

6 Creating Networks

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[33] See, for example, Douglas (1982) and Wildavsky (1987, 1994).

[34] In sociology the phenomenon is called "tipping". See Schelling (1978), who used it to explain rapid transformations in the urban landscape in the USA, namely, middle-class whites escaping inner cities for suburbia in the 1960s. Pathways leading to the tipping phenomenon have been used also to characterize the recent fall in birth rates in parts of the poor world (Dasgupta, 2000).

So far I have assumed that people are able to interact with one another without having to search for others with whom to interact. The social networks (networks for short) have been taken to be in place. But people are known to create networks. Moreover, searching for others with whom to form networks involves resources (e.g., time). So we need to study pathways by which networks get formed and the reasons why they get formed.

6.1 Communication Channels and Personal Relationships

One may think of networks initially as systems of communication channels for protecting and promoting interpersonal relationships. Interpersonal relationships are a sharper notion, reflecting as they do systems of mutual beliefs (and, hence, the character of interactions among members of networks). Networks cover a wide terrain. They include as tightly-woven a network as a nuclear family and one as extensive as a voluntary organization. We are born into certain networks and enter new ones. So networks are themselves connected to one another. Network connections can also be expressed in terms of channels, although a decision to establish channels which link networks could be a collective one.

An elementary channel connects a pair of individuals directly. But one can establish indirect links. A builds an elementary channel connecting her to B, C builds an elementary channel connecting him to B, and so forth. A is then connected to C, albeit once removed. Indeed C's motive for establishing an elementary channel with B could be because of his desire to be linked to A. And so on.

To establish a channel involves costs, as it does to maintain it. In some contexts they would be called "transaction costs". The desire to join a network on someone's part could be because of a shared value.[35] Networks also play a role in enabling coalitions to form, to coordinate and to act, matters central to Putnam's (1993) view of civic engagement. Generally speaking, the decision to invest in a channel could be because it would contribute directly to one's well-being (investing in friendship) or it could be because it makes economic sense (joining a guild), or it could be because of both (entering marriage). On occasion the time involved is not a cost at all, as the act of trying to create a channel can itself be something that adds grace to one's life. Arranging and sharing a meal; giving a personal, decorative expression to one's immediate environment; being able to confide one's inner world in chosen others - these are deeply felt needs. We all experience these needs and try to act upon them.[36] One imagines also that many of the consequences of joining a network and continuing one's membership are unanticipated. The immediate motivation could be direct pleasure (enjoyment in relating to someone or being a member of a congenial group), its economic benefits an unanticipated side-effect (the "old-boy" network). But the

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[35] Fukuyama (1997, Lecture 2) takes this to be the defining characteristic: "A network is a group of individual agents that share _informal_ norms or values beyond those necessary for market transactions."

[36] Douglas and Isherwood (1979) and Goody (1982, 1998) are insightful accounts of why and how it is that even "consumption" is a social engagement.

direction could go the other way (joining a firm and subsequently making friends among colleagues). Regardless of the motivation, expenditure in a channel involves a resource allocation problem, with all its attendant difficulties.[37]

The clause "personal relationships" in the notion of networks is central. It involves trust without recourse to third-party engagement.[38] There is also the suggestion that engaging in civic cooperation leads to a heightened disposition to cooperate. It amounts to forming personal beliefs about others and one's own tastes through sampling experiences. But if social engagement fosters trust and cooperation, there would be positive feedback between civic engagement and a disposition to be so engaged. The synergy would be tempered by the fact that the private cost of additional engagements (time) would rise with increasing engagements.[39]

As elsewhere in resource allocation theory, it helps to think first of networks in equilibrium and to then study their dynamics. We may take it that each person has available to him a set of channels from which he can choose. Some would have been inherited (the decision problem concerning these would be whether to maintain them and, if so, at what level of activity), others he would have to create. Imagine that for any configuration of channels that others select, there is an optimal set of channels for each individual. An equilibrium network of channels is then a feasible network possessing the property that each party's choice of channels in the network is optimal for him, given that others establish their respective channels in the network in question.

Equilibrium networks can be expected to contain strategically-placed individuals. They are the fortunate people, having inherited and (or) having made the most valuable connections, in a literal sense. There would be others with connections of not much economic worth, even if their emotional worth were high.

6.2 Network Externalities

Installing channels is a way to create trust. Plausibly, someone's knowledge of someone else' character declines with the number of elementary channels separating them, as in perhaps knowing very

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[37] In a fundamental paper, Bala and Goyal (2000) have modelled network formation as an equilibrium of a game in which people establishing the networks bear the cost of installation. The authors show that there are network games where equilibria are devoid of externalities (they are efficient).

[38] Compare Putnam (1993: 171): "Social trust in complex modern settings can arise from two related sources - norms of reciprocity and networks of civic engagement".

[39] Putnam (1993: 86-91) discusses this influence. He even suggests (p.90) that "taking part in a choral society or a bird-watching club can teach self-discipline and an appreciation for the joys of successful collaboration." Seabright (1997) reports empirical evidence of cooperation begetting further cooperation. Recall the observation by Hirschman (1984) that trust is a moral good (it grows with use and decays if unused).

little personally about a friend of a friend of a friend, knowing rather more about a friend of a friend, and knowing even more about a friend.[40] This creates the necessary tension between the benefits and costs of establishing elementary channels. But one can be misled by this chain-postulate into thinking that weak ties are not valuable. In fact they can be very valuable. In a famous study based on interviews with professional and technical workers in a town outside Cambridge, Massachusetts, Granovetter (1973, 1974) revealed that more than half had found their jobs through a personal connection. Surprisingly, the majority of personal connections weren't close friends, they were mere acquaintances.

Granovetter himself noted that the latter finding should have been expected. The reason weak ties are especially useful in the search for jobs is that they cover a greater range of links than do strong ties. Weak ties connect one to a variety of people and thereby to a wide information base. However, among <u>rural</u> populations in poor countries there are not so many weak ties, ties are mostly intense. This narrows possibilities. But it creates an avenue for migration. One enterprising member of the community moves to the city, perhaps supported by those with whom he has strong ties at home while he searches for work. He is followed by others in a chain-like fashion, as information is sent home of job prospects. Migrant workers may even recommend village relations to their bosses, employing whom would reduce moral hazard and adverse selection problems for the bosses. This would explain the still largely anecdotal evidence that city mills often employ disproportionate numbers of workers from the same village. The emotional costs of adaptation to new surroundings would also be lower for later migrants, with the implication that migration in response to new opportunities in the city should be expected to be slow to begin with but would pick up strength as costs decline.[41] Formal evidence of chain migration, though sparse, does exist. Caldwell (1969) has confirmed its occurence in sub-Saharan Africa and Banerjee (1983) has provided evidence from an Indian sample. Chain migration from village to town has been observed among children in Karnataka, India, by Iversen (2002) in his study of peer-group emulation as a determining factor in the supply of child labour.

Wintrobe (1995) postulates that parents invest in channels and pass them on to their children, in return for security in old age. This probably has had force in poor countries, where capital markets are largely unavailable to rural households. But there would seem to be more in our desire to transfer capital assets to the young. One type of capital we give our offspring in abundance is the kind which falls under the term "cultural values", values we cherish. We make such transfers not only because we think it is good for our children, but also because we desire to see our values survive. Investing in channels and passing them on to children is a way of preserving those values.

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[40] Compare this account with Putnam (1993: 168-9): "Mutual trust is lent. Social networks allow trust to become transitive and spread: I trust you, because I trust her and she assures me that she trusts you."

[41] Carrington, Detragiache, and Vishwanath (1996).

Wintrobe (1995) also asks why networks frequently operate along ethnic lines and why they are multi-purpose and dense, unlike specialized "professional" networks. In answer he observes that exit from, and entry into, ethnic networks are impossible, and that the threat of sanctions by the group prevents children from renaging on the implicit contract to work within it.

But there probably are additional forces at work. It shouldn't be surprising that the channels people bequeath upon their children in traditional societies frequently amount to ethnic networks (who else is there with whom one can form connections?). As Posner (1980) observes in the African context, village and kinship networks are a means of reducing problems of moral hazard and adverse selection, because monitoring one another's activities is not costly within the village and because membership of the kin-group is based on birth. But while it is true that exit from one's ethnicity is literally impossible, children do have a choice of not using the ethnic channels they may have inherited. So Wintrobe's thesis needs to be extended if we are to explain why those particular networks are so active, their mere denseness would probably not suffice. The way to extend the account is to observe first that investment in channels is <u>irreversible</u>: one can't costlessly re-direct channels once they have been established (such investments are inevitably specific to the relationships in question). Moreover, if trust begets trust, the cost of maintaining a channel would decline with repeated use (witness that we take our closest friends and relatives often for granted). So, using a channel gives rise to an externality over time, much as in "learning by doing" in the field of technology-use. The benefits from creating new channels are therefore low if one has inherited a rich network of relationships. This is another way of saying that the cost of not using inherited channels is high. Outside opportunities have to be especially good before one severs inherited links. It explains why we maintain so many of the channels we have inherited from our family and kinship, and why norms of conduct pass down the generations. We are, so to speak, locked-in from birth.

The establishment and maintenance of channels create externalities not only across time, but also among contemporaries. If the externalities are positive, as in the case of making friends (or becoming literate and numerate as a prelude to enjoying advanced communication links), there would typically be an undersupply. Diamond (1982) famously showed this in the context of people seeking those others with whom they would be able to exchange goods they have produced. Since one may run into people who haven't got appropriate goods to exchange, search is costly. When someone with goods searches more intensively, she benefits because she is more likely to find someone with whom to trade. But she also benefits those others who possess goods that are appropriate for exchanges with her because they are more likely to run into her. Simulations suggest that such externalities can have powerful effects. Diamond's purpose in constructing the model was to show how an economy could find itself in a depression if transactions involve search. People would produce little if they thought they had to wait a

long while before being able to sell (maintaining inventories is costly). It could even be a self-fulfilling thought. If so, equilibrium production and search would both be less than efficient.

There can also be negative externalities in the creation of channels, such as those within groups that are hostile to one another. One would expect an oversupply of them (they are often neighbourhood "arms" races).[42] But be they positive or negative, externalities give rise to collective inefficiency. Positive externalities point to an argument for public subsidy, negative ones for investment in such institutions as those whose presence would lower the externalities ("taxing" the corresponding activities would be another possibility). Local authorities frequently apply this argument when establishing youth centres, social clubs, and the like.

There are types of influence that are able to travel great distances, for example, via radio and television, newspaper, and the internet. They would be expected to push society in the direction of greater homogeneity. Individual projects and purposes would become more similar across regions. Of course, local influences can have this effect too, as in simple models of "contagion". Whether contagions spread or are geographically contained appears to be sensitive to model specification. The models are nevertheless united in one thing: they all tell us that channels of communication create twin pressures, one leading to clusters of attitudes and behaviour (Glaeser, Sacerdote, and Scheinkman, 1996; Eshel, Samuelson, and Shaked, 1998), the other to homogeneity (Ellison, 1993). These pressures work on different, criss-crossing spheres of our lives. Both in turn interact with markets.

Locally interacting systems are of obvious interest for an understanding of many of the social networks we observe. They capture the fact that elementary channels are not public goods. The creation of a channel by someone gives rise to externalities (those who are connected to the channel are affected), but they are <u>confined</u> externalities (presumably, not everyone is connected to the channel). Likewise, the creation of trust gives rise to externalities, but they too are confined externalities. Moreover, the externalities are not anonymous, they are personalized. Names matter. In this sense also they differ from public goods.[43]

6.3 Human Capital

James Coleman's original advocacy of the concept of social capital was based on the idea that it is an input in the production of human capital.[44] Social capital in that view is an aggregate of interpersonal networks. Establishing networks involves time and effort. Much of the effort is pleasurable,

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[42] In his analysis of the Sicilian Mafia, Gambetta (1993) studies the character of such negative externalities.

[43] For a fine account of the general theory of locally interacting socio-economic systems, see Blume and Durlauf (2001).

[44] Coleman (1988).

some not. Even so, just as academics are paid for what they mostly like doing anyway, as a return on investment in their education, networking would be expected to pay dividends even when maintaining networks is a pleasurable activity.

Burt (1992) has found among business firms in the United States that controlling for age, education and experience, employees enjoying strategic positions in networks are more highly compensated than those who are not. Their findings confirm that some of the returns from investment in network creation are captured by the investor. However, because of network externalities, not all the returns can be captured by the investor: when A and B establish a channel linking them, the investment improves both A's and B's earnings, but it also improves the earnings of C, who was already connected to B.

The findings of Burt and his colleagues imply that memberships in networks are a component of what economists call "human capital". The point is that if firms pay employees on the basis of what they contribute to profitability, they would look not only at the conventional human capital employees bring with them (e.g., health, education, experience, personality), but also the personal contacts they possess. It would be informative to untangle networks from the rest of human capital. This could reveal the extent to which returns from network investment are captured by the investor. But measurement problems abound. They may be insurmountable because of the pervasive externalities to which they give rise.

6.4 Horizontal ve. Vertical Networks

Putnam (1993: 174) observes a critical difference between horizontal and vertical networks:

"A vertical network, no matter how dense and no matter how important to its participants, cannot sustain social trust and cooperation. Vertical flows of information are often less reliable than horizontal flows, in part because the subordinate husbands information as a hedge against exploitation. More important, sanctions that support norms of reciprocity against the threat of opportunism are less likely to be imposed upwards and less likely to be acceded to, if imposed. Only a bold or foolhardy subordinate lacking ties of solidarity with peers, would seek to punish a superior."

There is a third reason:

Imagine a network of people engaged in long-term economic relationships, where relationships are maintained by observing social norms (e.g., norms of reciprocity). Suppose new economic opportunities arise outside the enclave, say, because markets have developed. Horizontal networks are more likely to consist of members who are similarly placed. If one of the parties discovers better economic opportunities outside the enclave, it is likely that others too will discover better economic opportunities. Both parties would then wish to re-negotiate their relationship.

Vertical (or hierarchical) networks are different. Even if the subordinate (e.g., the landless

labourer) finds a better economic opportunity in the emerging markets, it is possible that the superior (i.e., the landlord-creditor) does not; in which case the former would wish to re-negotiate, but the latter would not. It is no doubt tempting to invoke the Coase-argument (Coase, 1960), that the subordinate would be able to compensate the superior and thus break the traditional arrangement. But this would require the subordinate to be able to capitalise his future earnings, something typically not possible for such people as those who are subordinates in rural economies in poor countries. Nor is a promise to pay by instalments an appealing avenue open to a subordinate. He would have to provide collateral. As this could mean his family left behind, the worker could understandably find it too costly to move.

7 Networks and Markets

Networks are personal. Members of networks must have names, personalities, and attributes. Networks are exclusive, not inclusive, otherwise they would not be networks. The terms of trade within a network would be expected to differ from those which prevail across them. An outsider's word would not be as good as an insider's word: names matter.

Networks give rise to "communitarian" institutions. In contrast, markets (at least in their ideal form) involve "anonymous" exchanges (witness the oft-used phrase: "my money is as good as yours"). To be sure, the distinction between named and anonymous exchanges is not sharp, and even in a sophisticated market (modern banking), reputation matters (credit rating of the borrower). But the distinction is real. The key point that follows is that the links between markets and communitarian institutions are riddled with externalities. Transactions in one institution have effects that spill over to the other without being accounted for. Externalities introduce a wedge between private and social costs, and between private and social benefits. We observe below that some externalities are of a kind that reflects synergism between the two institutions, while others reflect antagonism between them.

All societies rely on a mix of impersonal markets and communitarian institutions. The mix shifts through changing circumstances, as people find ways to circumvent difficulties in realizing mutually beneficial transactions (Section 4). It pays to study those features of goods and services that influence the mix in question and the hazards that lie in wait while the mix changes as a consequence of the individual and collective choices that are made.

7.1 Complementarities

Networks and markets often complement one another. Production and exchange via networks in one commodity can be of vital importance to the functioning of the market in another. As has been long noted by economists, for example, exchanges within the firm are based on a different type of relationship from those in the marketplace between firms. The classification in Section 4 was in part prompted by such differences.

But complementarities between networks and markets can be a good deal more subtle. Powell

and Brantley (1992) have found that researchers in rival firms in such a competitive environment as the one that prevails in the bio-technology industry share certain kinds of information among themselves, even while the scientists maintain secrecy over other matters.[45] The balance between disclosure and secrecy is a delicate one, but in any given state of play a common understanding would seem to prevail on the kinds of information members of a network of scientists are expected to disclose, if asked, and the kinds one is expected not even to seek from others. In any such environment non-cooperation would be costly to the individual scientist: if he refused to share information, or was discovered to have misled others by giving false information about his own findings, he would be denied access to information others share.[46] There is also evidence that sharing research findings among scientists in rival firms is not clandestine practice. Management not only are aware of the practice, they positively encourage their scientists to join the prevailing network. Well-connected scientists are especially valued. The geographical clustering of firms in research-based industries (e.g., Silicon Valley, California; the Golden Triangle in North Carolina; Silicon Fen around Cambridge, England) is a consequence of the need for such networks. Networks can even be the means by which markets get established (long distance trade in earlier times). In some cases they are necessary if markets are to function at all.[47]

7.2 Crowding Out

Where networks and markets are substitutes, they are antagonistic. In an oft-quoted passage, Arrow (1974: 33) expressed the view that organizations are a means of achieving the benefits of collective action in situations where the price system fails. This formulation, if interpreted literally, gets the historical chronology backward, but it has an important contemporary resonance: when markets displace communitarian institutions in the production of goods and services, there are people who suffer unless counter-measures are undertaken by collective means.[48]

Arrow's observation also has a converse: certain kinds of network can prevent markets from functioning well.[49] Networks can even prevent markets from coming into existence. In such situations networks are a hindrance, not an engine of economic development. They may have served a purpose once, but they are now dysfunctional.

To illustrate, consider the strong kinship ties that are prevalent in traditional societies. Such ties

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[45] See also Powell (1990).

[46] Recall the basis of transactions discussed in Section 4.3.

[47] Rauch (1996a,b). Even here, the role of networks can be expected to diminish as it becomes easier and easier to transmit and access information in the market place.

[48] Dasgupta (2001, ch. 12) offers an example.

[49] Arnott and Stiglitz (1991).

reflect a communal spirit absent from modern urban life and strike an emotional chord among Occidental scholars (Apfell Marglin and Marglin, 1990). To be sure, there is a functional side to kinship ties: the obligation of members of a kinship to share their good fortune with others in the group offers a way to pool individual risks. For example, the lowlands of sub-Saharan Africa are in large measure semi-arid, where people face large climatic risks. In contrast, people in the highlands enjoy more reliable rainfall. Lineage groups are powerful in the lowlands. They are less powerful in the highlands, where even private ownership of land is not uncommon (e.g., the Kikuyu in Kenya; Bates, 1990).

However, there is a bad side to the coin in kinship obligations. They dilute personal incentives to invest for prosperity. Even if the social return on investment in an activity were high, the private return could be low: because of kinship obligations, the investor would not be able to appropriate the returns.[50] Insurance markets are superior to communitarian insurance systems because the former, covering a wider terrain of people, are able to pool more risks. On the other hand, mutual insurance among members of a community (e.g., household, kinship, village) can be expected to be less fraught with problems of moral hazard and adverse selection than markets. This means that if we view kinship obligations over insurance and credit, respectively, as risk-sharing arrangements and intertemporal consumption-smoothing devices, they are to the good; but they are not <u>all</u> to the good, because their presence renders as low the private benefits people would enjoy from transacting in insurance and credit markets even when the collective benefits are high.

It is possible also to show that the more dissimilar are transactors, the greater are the potential gains from transaction. This means that, to the extent communitarian institutions are a dense network of engagements, they are like economic enclaves (see Section 8). But if the institutions act as enclaves, they retard economic development. For example, social impediments to the mobility of labour imply that "talents" aren't able to find their ideal locations. This can act as a drag on technological progress. More generally, resources that should ideally flow across enclaves do not do so. Society then suffers from an inefficient allocation of resources.

8 Micro-Behaviour and Macro-Performance

I have argued that social capital should be identified with interpersonal networks. We should now ask how network activities translate into the macro-performance of economies.

If the market for labour and skills works reasonably well, wages and salaries would in part consist of the additional revenue employees make for their employers by virtue of the "contacts" they possess (Burt, 1992). This means that to the extent the worth of contacts is reflected in wages and salaries, social

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[50] Platteau and Hayami (1998) have stressed this feature of life in the lowlands of sub-Saharan Africa. They were concerned to account for differences between its economic performance and that of East Asia since the 1960s.

capital is a component of human capital, which in turn means that it can be thought of as a factor of production. It should be noted though that in poor countries, where labour markets can malfunction badly, or can even be non-existent, attributing returns to the various factors of production is especially problematic. But even if we were to leave that problem aside, we know from our earlier discussion that interpersonal networks give rise to externalities. This makes the translation from micro-behaviour to macro-performance an especially difficult subject.

To illustrate, consider a simple formulation of economy-wide production possibilities. Let individuals be indexed by j (j = 1, 2, ...). Let K denote the economy's stock of physical capital and L_j the labour-hours put in by person j. I do not specify the prevailing system of property rights to physical capital, nor do I describe labour relations, because, to do so would be to beg the questions being discussed here. But it is as well to keep in mind that in a well-developed market economy K would be dispersed private property, in others K would be in great measure publicly owned, in yet others much would be communally owned, and so forth. It is also worth remembering that in market economies labour is wage based, that in subsistence economies "family labour" best approximates the character of labour relations, and that labour cooperatives are not unknown in certain parts of the world, and so on.

Let h_j be the human capital of person j (years of schooling, health). His effective labour input is then $h_j L_j$. h_j is what one may call "traditional human capital"; that is, for the moment we leave aside the networks to which j belongs. For notational ease, it helps to interpret physical capital as "manufactured" capital, comprising such items as factories and buildings, roads and bridges, machines and cables, and so on. In short, I ignore natural capital here.

Human capital is embodied in workers. Given the economy's knowledge base and institutions (the latter I take here to be the engagements brought about by the interpersonal networks), human capital in conjunction with physical capital produces an all-purpose output, Y, which we may call gross national product (GNP). Each of the aggregate indices requires for its construction prices for the multitude of components that make up the aggregate. In industrial market economies, the required prices are typically market prices. When externalities are pervasive, the construction of such indices poses special problems. Let us therefore assume away problems of aggregation by imagining the economy to possess a single good Y. Problems nevertheless remain in measuring the pathways that link micro-behaviour to macro-performance. Let us study them.

8.1 Scale vs. Change

Write $H = \Sigma_j(h_j L_j)$. H is aggregate human capital. Let us now suppose that output possibilities are given by the relationship,

$$Y = AF(K, H), \qquad (A > 0), \tag{1}$$

where F is the economy's aggregate production function. F is non-negative and is assumed to be an

increasing function of both K and H.[51]

In equation (1) A is the scale factor of the production function. Economists refer to it as the "total factor productivity" of the economy and regard it as a combined index of institutional capabilities (including the prevailing system of property rights) and publicly-shared knowledge. A macro-economy characterized by the production function F would produce more if, other things the same, A were larger (that is, if publicly-shared knowledge were greater or institutional capabilities higher). Of course, the economy would produce more also if, other things the same, K or h_j or L_j were larger. In short, technological possibilities for transforming the services of physical and human capital into output, when embedded in the prevailing institutional structure of the economy, account for equation (1).

Consider now a scenario where civic cooperation increases in the community: the economy moves from a bad equilibrium-system of mutual beliefs to a good one (Section 5). The increase would make possible a more efficient allocation of resources in production. The question arises: would the increase in cooperation appear as a heightened value of A, or would it appear as an increase in H, or as increases in both?[52]

The answer lies in the extent to which network externalities are like public goods. If the externalities are confined to small groups (that is, small groups are capable of undertaking cooperative actions on their own - with no effect on others - and do take such actions in the good equilibrium), the improvements in question would be reflected mainly through the h_js of those in the groups engaged in heightened cooperation. On the other hand, if the externalities are economy wide (as in the case of an increase in quasi-voluntary compliance in the economy as a whole owing to an altered set of beliefs, even about members of society one does not personally know), the improvements would be reflected mainly through A. Either way, the directional changes in macro-performance (though not the magnitude of the changes) would be the same. Other things the same, an increase in A or in some of the h_js - brought about by whichever of the mechanisms we have considered - would mean an increase in GNP, an increase in wages, salaries, and profits, and possibly an increase in investment in both physical and human capital. The latter would result in faster rate of growth in output and consumption, and, if a constant proportion of income were spent on health, a more rapid improvement in health as well.[53]

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[51] For notational simplicity, I have suppressed time subscripts from Y, A, K, H, h_j, and L_j.

[52] As is well known, it would not be possible to separate the two influences if the production function has the Cobb-Douglas form, $AF(K, H) = AK^a H^b$, where a, b > 0. In the text I assume that the production function is not "Cobb-Douglas".

[53] In the text I am assuming implicitly that wage rates, salary rates, and profit rates are monotonically increasing functions of the marginal products of L_j, h_j, and K, respectively. In a perfectly competitive world, the former three quantities would equal the latter three, respectively.

8.2 Interpreting Cross-Section Findings

Let us now connect the above macroeconomic account to the findings from less aggregated data. In his analysis of statistics from the 20 administrative regions of Italy, Putnam (1993) found civic tradition to be a strong predictor of contemporary economic indicators. He showed that indices of civic engagement in the early years of this century were highly correlated with employment, income, and infant survival in the early 1970s. Putnam also found that regional differences in civic engagement can be traced back several centuries and that, controlling for civic traditions, indices of industrialization and public health have no impact on current civic engagement. As he put it, the causal link appears to be from civics to economics, not the other way round. How does his findings square with the formulation in equation (1)?[54]

The same sort of question can be asked of even less aggregated data. For example, Narayan and Pritchett (1999) have analysed statistics on household expenditure and social engagements in a sample of some 50 villages in Tanzania, to discover that households in villages where there is greater participation in village-level social organizations on average enjoy greater income per head. The authors have also provided statistical reasons for concluding that greater communitarian engagements result in higher household expenditure rather than the other way round.

To analyse these findings in terms of our macroeconomic formulation, consider two autarkic communities, labelled by i (= 1, 2). I simplify by assuming that members of a community are identical.[55] Denote the human capital per person in community i by h_i. By h_i I now mean not only the traditional forms of human capital (health and education), but also network capital. I denote by L_i the number of hours worked by someone in i, by N_i the size of i's population, and by K_i the total stock of physical assets in i. Aggregate output, Y_i, is,

$$Y_i = A_i F(K_i, N_i h_i L_i). \tag{2}$$

Improvements in civic cooperation are reflected in increases in A, or h, or both. It follows that if civic cooperation were greater among people in community 1 than in community 2, we would have $A_1 > A_2$, or, $h_1 > h_2$, or both. Imagine now that the two communities have the same population size, possess identical amounts of physical capital, and work the same number of hours. GNP in community 1 would be greater than GNP in community 2 (i.e., $Y_1 > Y_2$). More generally, an observer would discover that, controlling for differences in K and L, there is a positive association between a community's cooperative

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[54] Putnam stressed the importance of civic engagement for making government accountable and responsible.

[55] This is a privilege theorists are able to enjoy to good advantage. By assuming that potentially different entities are identical, we are able to avoid having to "control for differences" in those same entities. The assumption permits us to better understand statistical correlations within multivariate relationships.

culture (be it total factor productivity, A_i, or human capital, h_i) and its mean household income (Y_i/N). This is one way to interpret the finding reported in Narayan and Pritchett (1999).

Consider now a different thought-experiment. Imagine that in year 1900 the two communities had been identical in all respects but for their cooperative culture, of which community 1 had more (i.e., in 1900, $A_1 > A_2$, or $h_1 > h_2$, or both). Imagine next that, since 1900, both A_i and h_i have remained constant. Suppose next that people in both places have followed a simple saving rule: a constant fraction s_K (> 0) of aggregate output have been invested each year in accumulating physical capital. (For the moment I imagine that net investment in human capital in both communities is nil.)[56] In order to make the comparison between the communities simple, imagine finally that the communities have remained identical in their demographic features. It is then obvious that in year 1970 community 1 would be richer than community 2 in terms of output, wages and salaries, profits, consumption, and wealth.

Notice that we have not had to invoke possible increases in total factor productivity (A_i) or human capital (h_i) to explain why a cooperative culture is beneficial. In fact, I have deliberately assumed that neither A_i nor h_i changes. It is the <u>scale</u> of total factor productivity and human capital that has done all the work in our analysis of the empirical finding, we haven't had to invoke secular improvements in them to explain why a more cooperative society would be expected to perform better economically.[57]

8.3 Network Inefficiencies

As the communities in our thought-experiment are both autarkic, there is no flow of physical capital from one to the other. This is an economic distortion for the combined communities: the rates of return on investment in physical capital in the two places remain unequal. The source of the distortion is the enclave character of the two communities, occasioned in our example by an absence of markets linking them. There would be gains to be enjoyed if physical capital could flow from community 2 to community 1.

Autarky is an extreme assumption, but it isn't a misleading assumption. What the model points to is that, to the extent social capital exclusive, it inhibits the flow of resources, in this case a movement of physical capital from one place to the other.[58] Put the other way, if markets don't function well, capital does not move from community 2 to community 1 to the extent it ideally should. When social

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[56] It can be argued that the extent to which people save for their future is itself an influence of social capital: people would save more if they trusted their institutions to protect their savings. I abstract from such effects because to include them would merely re-inforce the argument I am about to offer in the text.

[57] For a different perspective from the one I am advocating here, see Solow (1995), who suggested that if social capital is a potent force in economic development, it should find itself reflected in growth in total factor productivity. In the text I have shown that there needs be no growth in the A_is for social capital to influence economic performance.

[58] A similar argument can be advanced as regards labour mobility.

networks within each community block the growth of markets, their presence inhibits economic progress (section 7).

9 Conclusions

In this essay I have argued that social capital is most usefully viewed as a system of interpersonal networks. If the externalities network formation gives rise to are localized, social capital is an aspect of human capital, in the sense economists use the latter term. However, if network externalities are more in the nature of public goods, social capital is a component of total factor productivity. There is no single object called social capital, there is a multitude of bits that together can be called social capital.

Just as the productivity of manufactured or natural capital depends on the use to which they are put, the worth of social capital depends on the kinds of activities in which members of networks are engaged. This is why writings on social capital so frequently have been studies of institutions. I have argued, however, that to identify social capital with institutions is a mistake: institutions emerge from networks, they are themselves not the networks. Examples were offered to show that any given system of networks can in principle give rise to any one of several sets of engagements. Thus, networks harbour multiple equilibria. Each equilibrium is characterized by a distinct institutional structure, involving a distinct set of human relationships. Institutions are distinguished not only by the rights, obligations, and responsibilities their members enjoy and harbour, the viability of institutions is dependent on the extent to which members trust one another to fill their roles. Mutual trust is the key to cooperation, social capital is merely a means to creating trust. It was argued, however, that trust can be created by other means too (e.g., by external enforcement of agreements). This is why I began the essay with the concept of trust. Since trust (or a lack of it) is based on the beliefs people have about one another, institutions are associated with the beliefs that sustain them. To put it in another way, institutions are formed and held together by the beliefs members hold about one another and the world. Beliefs are the link between social capital and institutions and, more generally, between social capital and culture. I have argued that this explains why it is so hard to tell apart writings on social capital from those on culture (especially, civic culture) and why it is so easy to slip from speculations on the demands of social capital to thoughts on the imperatives of culture. Though they are related in ways that we have identified in this essay, social capital, trust, culture, and institutions are different kinds of objects. They should not be conflated.

References

Apfell Marglin, F. and S.A. Marglin, eds. (1990), <u>Dominating Knowledge: Development, Culture and Resistence</u> (Oxford: Clarendon Press).

Arnott, R. and J.E. Stiglitz (1991), "Moral Hazard and Nonmarket Institutions: Dysfunctional Crowding Out or Peer Review?", <u>American Economic Review</u>, 81, 179-190.

Arrow, K.J. (1963), "Uncertainty and the Economics of Medical Care", <u>American Economic Review</u>, 53, 941-73.

Arrow, K.J. (1972), "Gifts and Exchanges", <u>Philosophy and Public Affairs</u>, 1, 343-62.

Arrow, K.J. (1973), "The Theory of Discrimination", in O. Ashenfelter and A. Rees, eds., <u>Discrimination in Labor Markets</u> (Princeton, NJ: Princeton University Press, 1973).

Arrow, K.J. (1974), <u>The Limits of Organization</u> (New York: W.W. Norton).

Arrow, K.J. (2000), "Observations on Social Capital", in P. Dasgupta and I. Serageldin, eds., <u>Social Capital: A Multifaceted Perspective</u> (Washington, DC: World Bank).

Bala, V. and S. Goyal (2000), "A Non-Cooperative Model of Network Formation", <u>Econometrica</u>, 68, 1181-1229.

Baland, J.-M. and J.-P. Platteau (1996), <u>Halting Degradation of Natural Resources: Is There a Role for Rural Communities?</u> (Oxford: Clarendon Press).

Banerjee, B. (1983), "Social Networks in the Migration Process: Empirical Evidence on Chain Migration in India", <u>Journal of Developing Areas</u>, 17, 185-196.

Banfield, E. (1958), <u>The Moral Basis of a Backward Society</u> (Chicago: Free Press).

Bates, R. (1990), "Capital, Kinship and Conflict: The Structuring Influence of Capital in Kinship Societies", <u>Canadian Journal of African Studies</u>, 24, 151-164.

Besley, T. and S. Coate (1995), "Group Lending, Repayment Incentives and Social Collateral", <u>Journal of Development Economics</u>, 46, 1-18.

Binmore, K. and P. Dasgupta (1986), "Game Theory: A Survey", in K. Binmore and P. Dasgupta, eds., <u>Economic Organizations as Games</u> (Oxford: Basil Blackwell).

Blume, L. and S.N. Durlauf (2001), "The Interactions-Based Approach to Socioeconomic Behavior", in S.N. Durlauf and H. Peyton Young, eds., <u>Social Dynamics</u> (Cambridge, MA: MIT Press).

Bromley, D.W. <u>et al.</u>, eds. (1992), <u>Making the Commons Work: Theory, Practice and Policy</u> (San Francisco: ICS Press).

Burt, R.S. (1992), <u>Structural Holes: The Social Structure of Competition</u> (Cambridge, MA: Harvard University Press).

Caldwell, J.C. (1969), <u>African Rural-Urban Migration</u> (Canberra: Australian National

University).

Carrington, W.J., E. Detragiache, and T. Vishwanath (1996), "Migration and Endogenous Moving Costs", <u>American Economic Review</u>, 86, 909-930.

Coase, R.H. (1960), "The Problem of Social Cost", <u>Journal of Law and Economics</u>, 3, 1-44.

Coate, S. and G.C. Loury (1993), "Will Affirmative-Action Policies Eliminate Negative Stereotypes?", <u>American Economic Review</u>, 83, 1220-1240.

Coleman, J.S. (1988), "Social Capital in the Creation of Human Capital", <u>American Journal of Sociology</u>, 94, 95-120.

Coleman, J. (1990), <u>Foundations of Social Theory</u> (Cambridge, MA: Harvard University Press).

Cosmides, L. and J. Tooby (1992), "Cognitive Adaptations for Social Exchange", in J.H. Barkow, L. Cosmides, and J. Tooby, eds., <u>The Adapted Mind: Evolutionary Psychology and the Generation of Culture</u> (Oxford: Oxford University Press, 1992).

Dasgupta, P. (1988), "Trust as a Commodity", in D. Gambetta, ed., <u>Trust: Making and Breaking Cooperative Relations</u> (Oxford: Basil Blackwell).

Dasgupta, P. (1993), <u>An Inquiry into Well-Being and Destitution</u> (Oxford: Clarendon Press).

Dasgupta, P. (2000), "Population and Resources: An Exploration of Reproductive and Environmental Externalities", <u>Population and Development Review</u>, 26, 643-690.

Dasgupta, P. (2001), <u>Human Well-Being and the Natural Environment</u> (Oxford: Oxford University Press).

Diamond, P. (1982), "Aggregate Demand Management in Search Equilibrium", <u>Journal of Political Economy</u>, 90, 881-894.

Douglas, M. (1982), "Cultural Bias", in M. Douglas, ed., <u>In the Active Voice</u> (London: Routledge & Kegan Paul).

Douglas, M. and B.C. Isherwood (1979), <u>The World of Goods</u> (New York: Basic Books).

Ellison, G. (1993), "Learning, Local Interaction, and Coordination", <u>Econometrica</u>, 61, 1047-72.

Eshel, I., L. Samuelson, and A. Shaked (1998), "Altruists, Egoists, and Hooligans in a Local Interaction Model", <u>American Economic Review</u>, 88, 157-179.

Fudenberg, D. and E. Maskin (1986), "The Folk Theorem in Repeated Games with Discounting or with Incomplete Information", <u>Econometrica</u>, 54, 533-56.

Fudenberg, D. and J. Tirole (1991), <u>Game Theory</u> (Cambridge, MA: MIT Press).

Fukuyama, F. (1995), <u>Trust: The Social Virtues and the Creation of Prosperity</u> (New York: The Free Press).

Fukuyama, F. (1997), <u>Social Capital</u> (Tanner Lectures, Brasenose College, Oxford); Mimeo., Institute of Public Policy, George Mason University.

Gambetta, D., ed. (1988), <u>Trust: Making and Breaking Cooperative Relations</u> (Oxford: Basil Blackwell).

Gambetta, D. (1993), <u>The Mafia: A Ruinous Rationality</u> (Cambridge, MA: Harvard University Press).

Glaeser, E., B. Sacerdote, and J. Scheinkman (1996), "Crime and Social Interactions", <u>Quarterly Journal of Economics</u>, 111, 507-548.

Goody, J. (1982), <u>Cooking, Cuisine and Class: A Study in Comparative Sociology</u> (Cambridge: Cambridge University Press).

Goody, J. (1998), <u>Food and Love: A Cultural History of East and West</u> (London: Verso).

Granato, J., R. Inglehart, and D. Leblang (1996), "The Effect of Cultural Values on Economic Development: Theory, Hypotheses, and Some Empirical Tests", <u>American Journal of Political Science</u>, 40, 607-31.

Granovetter, M.S. (1973), "The Strength of Weak Ties", <u>American Journal of Sociology</u>, 78, 1360-1380.

Granovetter, M.S. (1974), <u>Getting a Job: A Study of Contacts and Careers</u> (Chicago: University of Chicago Press).

Greif, A. (1994), "Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies", <u>Journal of Political Economy</u>, 102, 912-50.

Hayami, Y. (1997), <u>Development Economics: From the Poverty to the Wealth of Nations</u> (Oxford: Clarendon Press).

Hayami, Y. (1998), "Toward an East Asian Model of Economic Development", in Y. Hayami and M. Aoki, eds., <u>The Institutional Foundations of East Asian Economic Development</u> (London: Macmillan).

Hirschman, A. (1984), "Against Parsimony: Three Easy Ways of Complicating Some Categories of Economic Discourse", <u>American Economic Review</u>, 74 (Papers & Proceedings), 88-96.

Iversen, V. (2002), "Autonomy in Child Labour Migrants", <u>World Development</u>, 30.

Knack, S. and P. Keefer (1997), "Does Social Capital Have an Economic Payoff: A Cross Country Investigation", <u>Quarterly Journal of Economics</u>, 112, 1251-1288.

Krugman, P. (1991), "History versus Expectations", <u>Quarterly Journal of Economics</u>, 106, 651-667.

Landes, D. (1998), <u>The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor</u> (New York: W.W. Norton).

La Porta, R., F. Lopez-de-Silanes, A. Schleifer, and R. Vishny (1997), "Trust in Large Organizations", <u>American Economic Review</u>, 87 (Papers & Proceedings), 333-8.

Levi, M. (1988), <u>Of Rule and Revenue</u> (Berkeley, CA: University of California Press).

Lindbeck, A. (1995), "Welfare State Disincentives with Endogenous Habits and Norms", <u>Scandinavian Journal of Economics</u>, 97, 477-494.

Lindbeck, A. (1997), "Incentives and Social Norms in Household Behaviour", <u>American Economic Review</u>, 87 (Papers & Proceedings), 370-377.

Lindbeck, A., S. Nyberg, and J.W. Weibull (1999), "Social Norms and Economic Incentives in the Welfare State", <u>Quarterly Journal of Economics</u>, 114, 1-36.

Luhmann, N. (1988), "Familiarity, Confidence, Trust: Problems and Alternatives", in D. Gambetta, ed., <u>Trust: Making and Breaking Cooperative Relations</u> (Oxford: Basil Blackwell).

Madajewicz, M. (1997), "Capital for the Poor: the Role of Monitoring", Mimeo., Department of Economics, Harvard University.

Narayan, D. and L. Pritchett (1999), "Cents and Sociability: Household Income and Social Capital in Rural Tanzania", <u>Economic Development and Cultural Change</u>, 47, 871-889.

Ogilvie, S. (1997), <u>State Corporatism and Proto-Industry: The Wurttemberg Black Forest 1580-1797</u> (Cambridge: Cambridge University Press).

Ostrom, E. (1990), <u>Governing the Commons: The Evolution of Institutions for Collective Action</u> (Cambridge: Cambridge University Press).

Ostrom, E. (1996), "Incentives, Rules of the Game, and Development", <u>Proceedings of the Annual World Bank Conference on Development Economics, 1995</u> (Supplement to the <u>World Bank Economic Review</u> and the <u>World Bank Research Observer</u>), 207-34.

Platteau, J.-P. and Y. Hayami (1998), "Resource Endowments and Agricultural Development: Africa versus Asia", in Y. Hayami and M. Aoki, eds., <u>The Institutional Foundations of East Asian Economic Development</u> (London: MacMillan).

Posner, R.A. (1980), "A Theory of Primitive Society, with Special Reference to Law", <u>Journal of Law and Economics</u>, 23, 1-53.

Powell, W. (1990), "Neither Market nor Hierarchy: Network Forms of Organization", <u>Research in Organizational Behaviour</u>, 12, 295-336.

Powell, W. and P. Brantley (1992), "Competitive Cooperation in Biotechnology: Learning Through Networks?", in N. Nohria and R. Eccles, eds., <u>Networks and Organizations</u> (Cambridge, MA: Harvard University Press).

Przeworski, A. (1991), <u>Democracy and the Market</u> (Cambridge: Cambridge University).

Putnam, R.D., with R. Leonardi and R.Y. Nanetti (1993), <u>Making Democracy Work: Civic Traditions in Modern Italy</u> (Princeton, NJ: Princeton University Press).

Putnam, R.D. (2000), <u>Bowling Alone: The Collapse and Revival of American Community</u> (New York: Simon & Schuster).

Rauch, J.E. (1996a), "Networks versus Markets in International Trade", Working Paper 5617, National Bureau of Economic Research, Cambridge, Massachusetts.

Rauch, J.E. (1996b), "Trade and Search: Social Capital, <u>Sogo Shosha</u>, and Spillovers", Working Paper 5618, National Bureau of Economic Research, Cambridge, Massachusetts .

Rawls, J. (1972), <u>A Theory of Justice</u> (Oxford: Oxford University Press).

Schelling, T. (1978), <u>Micromotives and Macrobehaviour</u> (New York: W.W. Norton).

Seabright, P. (1997), "Is Cooperation Habit-Forming?", in P. Dasgupta and K.-G. Mäler, eds., <u>The Environment and Emerging Development Issues, Vol. II</u> (Oxford: Clarendon Press).

Sen, A. (1977), "Rational Fools: A Critique of the Behavioural Foundations of Economic Theory", <u>Philosophy & Public Affairs</u>, 6, 317-344.

Sethi, R. and E. Somanathan (1996), "The Evolution of Social Norms in Common Property Resource Use", <u>American Economic Review</u>, 86, 766-88.

Solow, R.M. (1995), "But Verify", <u>The New Republic</u> (September 11), 36-39: Review of F. Fukuyama, <u>Trust: The Social Virtues and the Creation of Prosperity</u> (New York: The Free Press, 1995).

Solow, R.M. (2000), "Notes on Social Capital and Economic Performance", in P. Dasgupta and I. Serageldin, eds., <u>Social Capital: A Multifaceted Perspective</u> (Washington, DC: World Bank).

Starrett, D. (1976), "Social Institutions, Imperfect Information, and the Distribution of Income", <u>Quarterly Journal of Economics</u>, 90, 261-84.

Stiglitz, J.E. (1990), "Peer Monitoring in Credit Markets", <u>World Bank Economic Review</u>, 4, 351-366.

Triandis, H.C. (1991), "Cross-Cultural Differences in Assertiveness/Competition vs. Group Loyalty/Cooperation", in R.A. Hinde and J. Groebel, eds., <u>Cooperation and Prosocial Behaviour</u> (Cambridge: Cambridge University Press).

Weber, M. (1930), <u>The Protestant Ethic and the Spirit of Capitalism</u> (London: George Allen & Unwin).

Weibull, J.W. (1995), <u>Evolutionary Game Theory</u> (Cambridge, MA: MIT Press).

Wildavsky, A. (1987), "Choosing Preferences by Constructing Institutions: A Cultural Theory of Preference Formation", <u>American Political Science Review</u>, 81, 3-21.

Wildavsky, A. (1994), "How Cultural Theory Can Contribute to Understanding and Promoting Democracy, Science, and Development", in I. Serageldin and J. Taboroff, eds., <u>Culture and Development in Africa</u> (Washington, D.C.: World Bank).

Wintrobe, R. (1995), "Some Economics of Ethnic Capital Formation and Conflict", in A. Breton,

G. Galeotti, P. Salmon, and R. Wintrobe, eds., <u>Nationalism and Rationality</u> (Cambridge: Cambridge University Press).