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Social Capital at the Individual Level
A Reduced Form Analysis

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Abstract

This paper studies demographic variation in social capital investment. A specific focus is the effect of income on social capital. Findings show that once the endogeneity of income is accounted for, it does not seem to have an independent effect on social capital investment.

Key words: Social capital, Neoclassical investment model, Stock and flow, Endogeneity of income

1. INTRODUCTION

Social Capital has been an active field of research in the social sciences for quite some time now. Among sociologists there is a greater awareness of the fact that in social sciences our focus is overwhelmingly on, what Granovetter [1985] called, an *undersocialized* man. Economists have been somewhat sluggish in appreciating the social aspects of the economic man. Recently, however, there has been a surge in the so called *social economics* to address social issues, and among them, social capital has been one of the most talked about pair of words.

One of the frequently discussed issues in social capital literature is the relationship between income and social capital. At the aggregate levels, a number of papers studied this relationship in the in the context of growth (Knack and Keefer [1997]). Even at the individual level – which is the focus of this study – there exists a substantial amount of research claiming a variety of ways that income affects social capital. In this paper, social capital is defined such that it is conducive to the neoclassical investment framework. The hypothesis that is being tested is whether income affects social capital investment. One limitation of the existing studies is that they treat income as exogenous. This paper accounts for the possibility that income is endogenous. The findings show that once the endogeneity of income is accounted for, it does not seem to have an independent effect on social capital investment.

Social capital – at the individual level, which refers to a system of interpersonal networks [Dasgupta 2002] – enhances cooperation, collaboration, and coordination. Several studies have found social capital to have real impacts on job search, entrepreneurship, and creation of economic opportunities. People rely on social networks as informal insurance and

derive satisfaction from socializing [Lin et al. 2001, Dasgupta 2002, Durlauf and Fafchamps 2004].

The early research on social capital is somewhat marred by the lack of a precise definition consistent with the mainstream theoretical traditions. Recent development in the network literature has paved way for definitions of social capital conducive to rigorous theoretical treatment. Section 2 of this study is devoted to a detailed discussion of the concept of social capital that is well-defined and consistent with economic theories.

One of the reasons why social capital has generated widespread interest is that researchers have been consistently documenting the importance of social capital. From the individual level to the aggregate economy, social capital matters in all walks of our lives. Section 3 reviews some of these findings. This study, however, is focused on social capital at the individual level. Apart from discussing the individual outcome of social capital, Section 3 also discusses the importance of studying social capital at the individual level.

Measurability of social capital is a contentious issue in the social capital literature. The tentativeness of the early research in clearly defining social capital certainly contributed to this. However, network definition of social capital, which is the definition used in this study, provides adequate guidance for empirical measures of social capital. The General Social Survey (GSS), 1972-2002, is a unique survey that provides information about interpersonal networks and socializing behaviors of the respondents. This information is used to create network measures of social capital. Section 4 discusses the data in the GSS and these social capital measures.

Section 5 carries out some descriptive analysis to study the demographic variation in social capital investment. A specific focus of this paper is the effect of income on social capital.

To spend time with friends and neighbors, high income individuals will have to give up more in terms of earnings, i.e., high income people have a higher opportunity cost of investment in social capital (see Munasib [2005] for a detail analysis of the opportunity cost of social capital investment). There are some less obvious channels as well. Higher income individuals are more likely to have a home security system and thus not invest in the alternative of having their neighbors watch their house. Similarly the insurance motive for bad times could be less effective with higher income as better access and processing capacity of information, it may be cheaper to substitute for social capital with financial instruments.

Watkins (2003) study minority low income mothers and elaborates how they use social capital for *support* and *leverage*. As in the case of immigrants there is a popular notion that minorities have stronger intra community ties that may remain even after controlling for income (or education in present study). There might be a tendency to ‘stick together’ as a defense against the general disadvantages of being minorities in a segregated society. Thus, it might be less costly for non-whites to make at least intra community contacts. Boisjoly, Duncan and Hofferth (1995) finds that families living in poor neighborhoods reported greater access to social capital, primarily in friend-based networks. Putnam (1995) presents a similar case where church-going inner-city kids benefit from high levels of social capital.

Effect of income is likely to be positive on social capital (one of the channels would be education which is likely to yield high return on social capital). Once education is controlled for the positive effect of income would be reduced. Another important aspect is age that is often captured by income. So, the first econometric issue is whether sufficient controls have been used in the study.

The second econometric issue is endogeneity of income. A plethora of studies find that social capital matters in a wide range of economic situations.¹ This implies that we cannot treat income as exogenous.

This study makes a number of contributions to the social capital literature. It uses measures of social capital that are precise and exploits the network information in the GSS.² The reduced form analysis using these social capital measures sheds light on the demographic variation of individual level social capital and contradicts the importance of income in social capital investment that was often claimed in the existing literature.

2. SOCIAL CAPITAL DEFINED

2.1. Early Definitions: An Embarrassment of Riches

As Fukuyama [2000] aptly puts it about social capital, “*there are multiple alternative understandings of this intellectually fashionable but elusive concept.*” Glenn Loury [1977] has been one of the first to use the term *social capital*. In Loury’s conceptualization, social capital represents the consequences of social position in facilitating acquisition of the standard human capital characteristics. It is much in the same spirit that George Borjas [1992] uses the concept, although he calls it *Ethnic Capital*. His basic idea is that skills of the next generation depend on the quality of the ‘ethnic environment’. What this concept appeals to is some kind of an unobservable that is ‘social’ in nature; it is *something* in the community or group or, perhaps,

¹ See section 3 for details. For instance, an often cited example is Narayan and Pritchett [1996] who find that, in a sample of Tanzanian villages, higher levels of associational memberships are related to higher incomes.

² Munasib [2005] uses these measures at the individual levels. Costa and Kahn [2001] used the same measures of social capital. However, they used it at the aggregate level and not to study the individual’s decision mechanism.

among people that is different from the other forms of capital and that it has nontrivial real effects. Needless to say, this kind of a definition is much less precise than what is needed to make the concept operational.

Sociologists and political scientists have been much more enterprising in defining this unobservable from many different angles. Some of the widely used definitions are presented below.

“... social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them...”

Robert Putnam (2000)

“Social capital can be defined simply as an instantiated set of informal values or norms shared among members of a group that permits them to cooperate with one another. If members of the group come to expect that others will behave reliably and honestly, then they will come to *trust* one another. Trust acts like a lubricant that makes any group or organization run more efficiently.”

Francis Fukuyama (1999)

“...a variety of different entities, with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions of actors—whether personal or corporate actors—within the structure.”

James Coleman (1988)

“Social capital is an attribute of an individual in a social context. One can acquire social capital through purposeful actions and can transform social capital into conventional economic gains. The ability to do so, however, depends on the nature of the social obligations, connections, and networks available to you.”

Pierre Bourdieu (1986)

Fukuyama’s definition represents view that used to be the popular view of social capital where social capital is characterized as the level of trust within the group which promotes

cooperation. Nan Lin is generally opposed to identifying social capital with trust.³ James Coleman [1999], like Lin [2001a, 2001b] and Burt [2000], uses concepts of *social ties* and *social networks* but mostly to emphasize the importance of the micro aspects of social capital; Coleman's notion of social capital, however, is fundamentally different from that of Lin and Burt.⁴ Putnam generally mixed both the concepts of *trust* and *network* without being very precise or concrete about either.⁵ It is Bourdieu's definition that is closest in spirit to an individual based neoclassical treatment.⁶

This lack of a coherent set of definitions in the early years may have given rise to the tendency among empirical researchers to label everything social as 'social capital.' To quote Serageldin and Grootaert [1999], "Examples of social capital are easier to provide than one specific definition." This apparently paradoxical statement actually highlights a lack of guidelines as to what constitutes social capital. A general criticism by many of the researchers comes in the form of a point of contention to some of Coleman's remarks: "Social capital is defined by its function." "It is not a single identity, but a variety of different entities having two characteristics: they all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure."

This notion of social capital creates confusion because the cause is defined by the effect. Coleman's examples of social capital would include trustworthiness in the closed Jewish community of wholesale diamond sellers that decreases need for elaborate insurance, bringing customers to each other as a gesture of goodwill in Cairo's money exchange market,

³ There is opposition to using the 'Trust' definition among economists as well. Durlauf [2000] expresses concern about the intermixing of concepts such as 'norms or reciprocity' and 'trustworthiness'.

⁴ Lin and Burt's views will be discussed in the next section.

⁵ In fact, Fukuyama [2000] criticizes Putnam's thesis showing that Putnam's results are driven by societal trust component and not the societal network component.

⁶ Bourdieu's conceptualization of social capital, however, is more in line with his theory of 'cultural capital' that has not been a popular view in the social capital literature.

organizational power in diffusion of information and mobilization through social circles among radical South Korean students, attitudes of responsibility towards each other's children in Jerusalem, etc. Lin [2001a, 2001b] and Durlauf [2000] criticize it being a 'functional' characterization. Trustworthiness may be considered a form of social capital but then bringing customers to each other as a gesture of goodwill in Cairo's money exchange market is a 'norm of reciprocity'. Trustworthiness and norms of reciprocity are distinct concepts and may or may not be lumped together under a common heading. In fact, some of the norms of reciprocities may be viewed as effects of trust or social capital in general.

Coleman's notion of social capital, therefore, might run the risk of allowing almost everything 'social' to be identified as social capital. Coleman [1999] argues, "The social capital of the family is the relations between children and parents (and, when families include other members, relationships with them as well)." There is also a view that suggests that social capital includes the social and political environment that enables norms to develop and shapes social structure. This view accommodates formalized institutional relationships and structures such as governments, political regimes, the rule of law, court systems, and civil and political liberties.⁷ If one looks at the list of examples of social capital in the literature it becomes clear how all encompassing social capital is thought to have been. It is, therefore, important to use a narrower and more precise definition of the concept. Such definitions are indeed available in the recent literature as will be discussed in the following sections.

The first issue discussed in this study is the conceptualization of social capital where it is more narrowly and sharply defined. Having said that, the more pressing reason why a micro-foundation is desirable, in fact, is because we need an explanation – and possibly an

⁷ The impact of this more broadly defined concept of social capital on macroeconomic outcomes has been investigated by North [1990] and Olson [1982].

understanding of the mechanism – for endogenous formation of social capital. This will allow us to formulate explicit models of individual behaviors (micro decision making) and examine how they translate into the aggregate level (the macro variables). In this study, however, we will concentrate exclusively on the individual and not address the aggregation issues.

An ‘individual’ is the focus of analysis here. One group of researchers is generally opposed to characterizing social capital at the individual level. Fukuyama [2000], for instance, asserts that, “. . . social capital is a relational phenomenon that can be the property of groups, local communities, and nations, but not individuals. *We* can be rich or poor in social capital, I can’t”. Unfortunately, little theoretical basis has ever been cited to support such claims. Studying social capital at the individual level not only facilitates an optimization framework,⁸ but also makes social capital analysis comparable to the economic idea of capital. As we will see in the following sections, social capital defined in terms of social networks opens up opportunities to discuss social capital at the individual level.

In general, definitions of social capital can be divided into two groups: *trust/cooperation view* and the *Network view*. It is the latter view that has been adopted here. A discussion of the trust/cooperation view and a comparison between the two views are in Appendices A1 and A2.

2.2. The Network Definition of Social Capital

Because the focus here is essentially on the individual we concentrate on the individual level definition. The essence of the so-called Network view of social capital is that people who

⁸ Needless to say, optimization at the individual level is the most common practice. In fact, it so ubiquitous that Glaeser et al. [2002] argues, optimization and individual based analysis are sometimes treated as synonymous. Glaeser et al. [2002] discusses studying social capital at the individual and at the group level in some detail.

are better connected do better. Therefore, to identify social capital of an individual, we look at a person's social relationships.

Definition 2.2.1: Network⁹

At any point in time t , an individual is variably connected to other individuals as a function of prior contact, exchange, and attendant emotions. An individual's network consists of all these connections.

Definition 2.2.2: Usefulness of Network

Information: Social ties and contacts (network) help obtain access to useful information.

Influence: Networks can be used to exert influence on other individuals. Suppose A has a tie with B and B with C . A may be able to exert influence not only on B but, perhaps, on C as well.

Insurance: Social ties and contacts can work as insurance policies during bad times.

Non-economic aspects: Social ties and contacts have associated with them returns of a non-economic nature such as prestige, respect, recognition of entitlement of resources and other attributes, etc.

Direct utility: The activities of network building have intrinsic values in the sense that they may directly enter into individual's utility function.

All forms of exchange are inherently embedded in social relationships. This concept is similar to the concept of *closure* in Burt [2001]. The closure argument is that social capital is

⁹ This definition is constructed in light of Burt [2001].

created by a network of strongly interconnected people. The remaining three definitions are taken from Woolcock [1998].¹⁰

Definition 2.2.3: Embeddedness¹¹

For the individual, embeddedness refers to intra-community ties.

One clarification is in order here. First and foremost, what do we mean by a community (or group) and what are the criteria for group formations? We can think of a Metropolitan Statistical Area (MSA) or a neighborhood as the operational concept of a community. In that case geographical location is the criteria for group formation. One could also argue that one's economic activity should be the criteria for group formation and a firm or a business organization should be considered a group.¹² Groups can be distinguished on many criteria. Burt [2001] uses *network criteria* that define information redundancy to distinguish groups. We can also set up our own criteria and define groups or communities. As it turns out, due to data limitations, we will not have to worry about the criteria for group formation. We will remain agnostic about the idea of a community (or a group) and simply assume that there exist well-defined criteria that label each individual into various groups.

Now, intra-community ties are not the only variety of social ties that an individual has.

As in Burt [2001] there is also the argument of *structural holes*. This argument is that social

¹⁰ Woolcock [1998] has a detailed discussion of the concept of social capital and how it can be addressed within the framework of mainstream economic research. Although the definitions are developed in the context of development issues, they are generalized enough to be used as a generic definition.

¹¹ Mark Granovetter's notion of *embeddedness* has been adopted here [Granovetter, 1985]. His embeddedness hypothesis is a rather general one that claims that desired social and economic outcomes are achieved through interaction between social, economic, physical and environmental conditions. In Granovetter's words, "Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relations." [Granovetter 1985, page 487]. The crucial element of the concept of embeddedness is its contextualization. This definition describes the specific context in which Woolcock [1998] uses the concept.

¹² Burt (2001) presents evidence of social capital within business organizations.

capital could also be created by a network in which people can broker connections between otherwise disconnected segments. We, therefore, also look for *autonomous* relations that the individual has.

Definition 2.2.4: Autonomy

For the individual the autonomous relationships refer to extra-community ties or linkages.

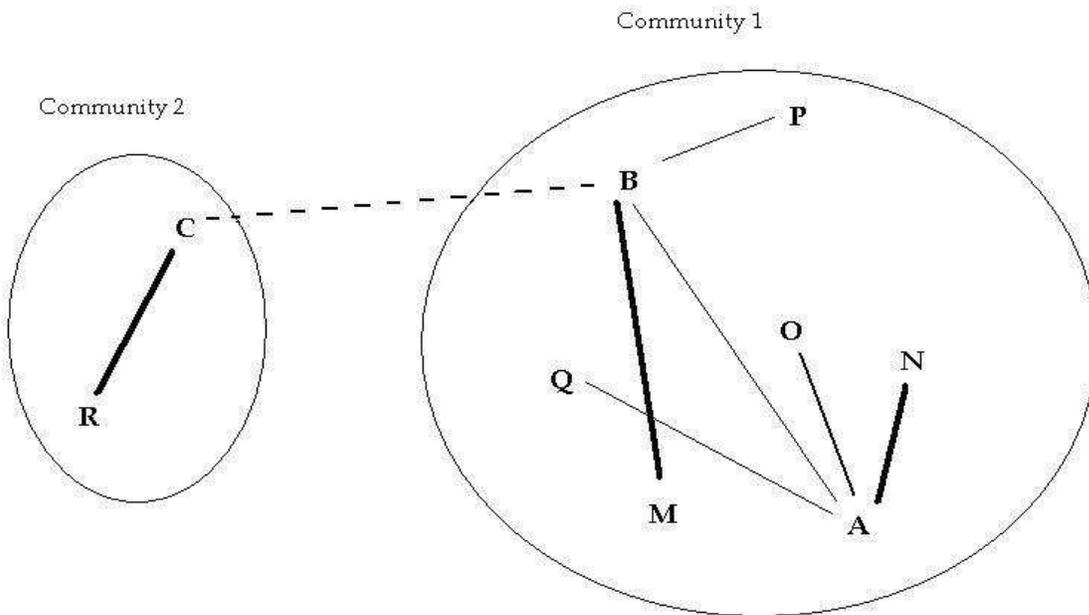


Figure 1: Networks of Individuals A, B and C

Figure 1 shows networks of individual A, B and C. The thickness of the lines shows the strength of ties while the positions of the agents in the boxes represent positions in the economy. In the above case A does not have extra community ties while B and C do. Networks within the community have the usual network benefits, but extra community ties open up possibilities of different dimensions. B and C have some additional dimensions to their network that A does not have. Take B, for instance. First of all, his connection with community 2 gives him an advantage with respect to information access; not only can he obtain a higher volume of

information because of his diverse contacts, the accuracy of his information is also likely to be greater. Secondly, *B* is in a position to bring together otherwise disconnected contacts, which might give him a disproportionate say. And last but not the least, the fact that having an extra community network yields such benefits makes *B* a valuable contact in the networks of other individuals (such as *A* or *C*).

Definition 2.2.5: Social Capital

Social capital at the individual (micro) level consists of all the social ties – intra and extra community – that the individual possesses at a point in time.

Although the focus in this study is entirely on the individual – for the sake of completeness – the definition of social capital at the macro level is presented in Appendix B.

2.3. Characterization of Social Capital

To translate the above definition into the framework of neoclassical economics we need to take a closer look at the concept of capital and verify whether and how the concept of social capital can be addressed using the neoclassical capital theory.

2.3.1. Fitting into the Mainstream Investment Framework

One of the reasons why many social characteristics and traits are often considered forms of social capital is that they fit the following general characteristics of capital.

Definition 2.3.1: Characteristics (C)

(C1) Stock-flow concept: Social capital is a stock generated by a flow. This emphasizes a feature of accumulation or decumulation, or, in other words, an

evolution over time. In the long run it is endogenous, but almost exogenous (predetermined) in the short run.

(C2) It is useful, and

(C3) It can be destroyed or reduced abruptly.¹³

These characteristics allow for a large number of social attributes to be labeled social capital. For instance, some researchers have argued that cultural aspects such as ‘nationalism’ or individual characteristics such as ‘status’ are examples of social capital. The argument for nationalism brings up the issue of the so-called ‘East Asian miracle’ where nationalism has arguably been a contributor in the production function. It can certainly be destroyed or reduced abruptly, and perhaps, it may even be viewed as a stock-flow concept. Similar arguments are applicable for status to establish that it also satisfies (C1)-(C3). However, if we want to use a neoclassical capital theory, it would be necessary to impose the following general structure on top of the above-mentioned characteristics.

Definition 2.3.2: Structure (S)

(S1) The individual is the smallest denomination in the analysis.

(S2) The individual takes purposeful actions (investments) to maximize her rewards.

(S3) At each point in time these actions (which are flows) cause accumulation of ‘stock’ (of social capital).

(S4) There is a return on social capital stocks (and flow) which constitutes an incentive mechanism for the individual’s decision making.

Needless to say, neither nationalism nor status would fit into *Structure (S)*. Nationalism would not satisfy (S2); it is difficult to think of nationalism arising from a typical individual’s optimum decision making. Nationalism may also not satisfy (S1) in the sense that it may just be

¹³ Capital should have the property that it can be destroyed or reduced abruptly with a shock (or shocks).

a cultural phenomena or a background variable. Status, on the other hand, may be considered a ‘return on social capital’ and not a form of social capital itself.

The remainder of this section discusses the implications of Definitions 2.2.1-2.2.5, (C1)-(C3) and (S1)-(S4). Before that, however, a qualification must be made. By imposing *Characteristics (C)* and *Structure (S)*, it is not being argued that there are no significant differences between social capital and other forms of capital, namely, physical and human capital. In fact, social capital is different from the other forms of capital in substantive ways. These differences are discussed in section 2.3.2.

Arrow [1999] argues that *social capital does not require material sacrifice*. This is true under the notion where inherent social qualities of individuals such as charisma are viewed as forms of social capital. In fact, charisma is an *innate ability* that is comparable to *cultural capital*, a concept promoted by Pierre Bourdieu. Cultural capital includes language, accent, manner, familiarity with religious rituals etc. There are other references of these attributes that are often cited in the literature (Loury [1977] or Borjas [1992], for instance). Bourdieu himself includes in the category of social capital attributes such as titles. Now, all these attributes are not always subject to choice and are often obtained without sacrificing an alternative. And this does not meet the qualifications of a ‘purposeful action’. The definition used in this paper, therefore, is more precise. It is important to restrict ourselves to attributes that individuals acquire with purposeful actions. Charisma, title, or one’s ethnic heredity may influence these actions and their results. But they should be viewed as *innate ability* of the individual and not their stock of social capital. What needs to be underscored is that when we emphasize purposeful actions that individuals take to make social relationships, there arise the question of making real sacrifices of resources such as time and money.

The question of identifying returns from the form of capital, in fact, brings up an important issue, namely, that of the ‘functional’ characterization of social capital. In many studies the distinctions among flows of investment, stocks and returns are not explicitly made. In the definitions above the idea is to restrict purposive actions only to the actions that are taken to create and maintain social ties and contacts. The objective behind this is to avoid the problem of a ‘functional’ characterization where the distinction between cause and effect is often blurred. As a result, according to this definition, status – an attribute Glaeser et al. [2002] view as a form of social capital – would, in fact, be treated as a ‘return’ to investments in social capital and not a form of social capital itself.

(C1)-(C3) and *(S1)-(S4)* sharpens the concept of social capital. In many studies the distinctions among flow, stock, and returns are not explicitly made. In the definitions above there is an emphasis to restrict the actions to only those that are taken purposefully and the objective behind these actions is to create and maintain social ties and contacts. To see why this is crucial, we can focus on an argument put forward in Glaeser et al. [2002]. They define individual social capital as a person’s social characteristics including social skills, charisma, and the size of the Rolodex. Their underlying assumption, therefore, is that social capital incorporates purely intrinsic ability such as charisma, attributes obtained by purposeful actions such as the Rolodex, and social skills which could easily be considered a form of human capital obtained, at least in part, from schooling. They lump all these together because they argue that these attributes are practically indistinguishable. One of the reasons behind this confusion is a lack of careful and formal definition of social capital. Under definitions 2.2.1-2.2.5, *(C1)-(C3)*, and *(S1)-(S4)*, the emphasis is on identifying clearly what is a stock, what is a flow, and what is a return. This view would consider a large Rolodex to be a large (stock) of social capital and

rule out charisma, popularity, and various social skills. Charisma – it has been argued - is primarily an innate ability and social skills could easily be considered a form of human capital obtained, at least in part, from schooling. An attribute such as popularity could be viewed as a return on investment in social capital. In fact, popularity is probably a result of a combination of charisma, social skills, and investment in social capital.¹⁴

Definitions 2.2.1-2.2.5, (C1)-(C3), and (S1)-(S4) help avoid the problem of a ‘functional’ characterization where the distinction between cause and effect is blurred. Social capital should not be defined by what it does. Many norms of reciprocity are often considered social capital. Social norms are results of a complex mix of history and social interaction. Some social norms could be influential in governing social capital investments while in some other cases social capital can affect shaping of some of these norms. Thus, by the definitions used here, norms of reciprocity are not social capital themselves.

2.3.2. Social Capital is Different from Other Forms of Capital

Social capital may not be fungible. Arrow [1999] asserts, one cannot transfer his social capital to someone else (nontransferable).¹⁵ Usual notion of borrowing and lending may not apply to social capital. The contribution of social capital to production may not be as direct as the other forms of capital. Another crucial difference is that social capital may also have some intrinsic or direct consumption value, in which case social capital becomes a consumption good

¹⁴ A person can have a lot of charisma and a high level of social skills, but if he does not take the initiative to mingle with others and take the purposive action of connecting with people, it is obviously impossible to acquire popularity.

¹⁵ The same, however, also apply to most forms of human capital. Furthermore, some social capital may in fact be transferred. For example, father’s business network may be readily available to the son for assuming fathers business.

and an investment good at the same time. This makes individuals motivation for investment in social capital far more complex.

Solow [1999] points out that physical capital has a rate of return and can be readily measured by summing past investments net of depreciation, which is not necessarily true of social capital. In fact, Ostrom [1999] points out that social capital need not even depreciate with use the way physical capital does. In important instances, making use of social capital increases the stock of social capital available for future use. Models of incomplete information help explain how bonds strengthen with use and thus, receiving a favor can strengthen a bond. The notion that owing someone a favor may be advantageous is not counterintuitive in strategic models where receiving a favor signals the availability of a compatible trading partner. Using social capital also has positive *third party effects*. Expanding your network indirectly increases social capital of your associates by giving them access to a larger network.

How does social capital differ from human capital? In fact, some researchers have called social capital the ‘social part of human capital’. The fundamental differences come from what constitutes social capital. The conceptualization of both forms of capital may be close, but what constitutes stocks, flows and returns are quite different. However, the philosophical debate as to whether social capital should be considered a separate form of capital or just another dimension of human capital is not terribly relevant for this study. Whatever the nomenclature may be, the fact remains that people make social ties and contacts and we want to study the systematic patterns of this behavior.

Social capital doesn’t have to be benign. To quote Durlauf [2000], “To the extent that social capital constitutes a set of mechanisms which describe how intra-group relationships

reinforce certain types of behaviors, one cannot conclude that any presumption exists as to whether this enforcement is or is not desirable.”

Social capital among the members of organized crime is, arguably, rather high, which could be quite detrimental to people outside this organization. Social capital could also be viewed as one of the reasons for racial isolation to perpetuate, at least during segregation. While a white individual who violated segregation norms could be subject to sanctions, by upholding racist ideology the same person can acquire and maintain a large amount of social capital. Thus, each individual in the white groups may have high levels of social capital but at the aggregate level one of the embodiments of these high levels of social ties is a social ill.

3. WHY IS SOCIAL CAPITAL IMPORTANT?

Studies demonstrated that social capital can explain a broad range of social and economic phenomena. It has been treated as the missing link in a variety of social science research. Unfortunately, there has also been a tendency to overuse the concept of social capital; it has been called upon to explain just about anything. The range of circumstances in which social capital is brought up as an explanation is truly remarkable. In what follows a brief literature review illustrates some of the conjectures and findings about the effects of social capital. It shows that social capital is such an essential and integral part of the social and economic mechanisms that it can, by no means, be bypassed. But, at the same time, it also demonstrates widespread abuse of the concept. It will be argued later in this chapter that the source of this abuse is primarily an absence of a satisfactory micro-foundation.

3.1. Social Capital and the Economy

Putnam (1993, 1995, 2000)

Putnam has been the most influential in social capital research with his books *Making Democracies Work* (1993), *Turning In Turning Out* (1995), and, the most widely quoted *Bowling Alone* (2000). Three core claims that Putnam made created, on the one hand, widespread interest about social capital, but, on the other hand, extensive criticism from various corners. First – and it has been argued by many others as well – that social capital matters for societal cooperation, coordination, and collaboration. For instance, the labor market for the poor may be characterized by the absence of social capital (labor market connections) or the event of church-going may be an explanation for success of some of the inner-city youths. The second claim is that social capital may have significant political consequences. Social capital, defined as social network and cultural norms, is believed to facilitate political participation and good governance. And finally, the third, and the most contentious claim is that, social capital has declined in post-war America. The decrease in social capital is a reason behind the increased crime rate, decreased voters participation rate, and long period of decreased philanthropy in the U.S. Helliwell and Putnam [1995] measure ‘civic community’ by a composite index of newspaper readership, the density of sports and cultural associations, turnout in referenda, and the incidence of performance voting. They show that, holding initial income constant, regions of Italy with a more developed civic community had higher growth rates over the 1950-1990 period. Putnam [2000] presents a variety of summary statistics and anecdotal evidence to describe social capital incidences and trends in the U.S.

Fukuyama [1995, 2000]

Fukuyama claims that the differences between countries in their social capital (in this case, trust) can explain the differences in their ability to create new corporations and associations. He also supports some of Putnam's claims about the connection between societal trust and democracy and good governance. Using the *World Values Survey* he carries out a cross country comparison using primarily correlation analysis and summary statistics to demonstrate the basic claim about the positive effect of social capital on a civic society.

Knack and Keefer [1997]

Knack and Keefer treats societal trust and civic norms as social capital, which they actually consider to be mirror images of each other. Their claim is that social capital matters for measurable economic performance. Using the World Values Surveys for a sample of 29 market economies, they carry out an analysis in the spirit of growth regressions¹⁶ to show that social capital variables exhibit a strong and significant relationship to growth. Although they do not find that memberships in formal groups, which is Putnam's measure of social capital, is associated with trust or with improved economic performance, they do find evidence that trust and civic norms are stronger in nations with higher and more equal incomes, with institutions that restrain predatory actions of chief executives, and with better-educated and ethnically homogeneous populations.

Serageldin and Grootaert [1999]

They argue that social capital is the missing link in the explanation for the East Asian economic miracle. Social capital is the underlying phenomena in the economic

¹⁶ Besides OLS they sometimes use 2SLS to minimize endogeneity problems.

disparity between northern and southern Italy and the recent economic upturn in Somalia. Besides the subsequent land productivity increase social capital is responsible for the mobilization of communities and formation of joint forest management that led to cessation of violence between local people and government officials over forest management in Gujarat, India.

Paldam and Svendsen (2000)

They claim that social capital led to successful cooperative movements in Denmark between 1850 and 1900, in Tanzania during the colonial days, and in Bangladesh in recent years. Social capital is responsible for decentralization and cooperation that takes place within successful firms. In their view, elements in the society that facilitate institution building, especially in the LDCs, represent social capital and, the implication is that the lack of social capital is one of the reasons behind the collapse of the socialist soviet system.

Others

Coleman [1999] claims that social capital is an explanation for children's school drop out rate (social capital within the family). In Furstenberg and Hughes [1995], Coleman's concept of social capital is argued to have played a part in enabling youth at risk to negotiate their way out of disadvantage. Narayan and Pritchett [1996] find that, in a sample of Tanzanian villages, higher levels of associational memberships are related to higher incomes. Goldin and Katz [1999] show that social capital facilitated the rise of high school in the Midwest of the USA.

Most empirical researchers who studied the effect of social capital used various proxies of social capital and tried to relate them to an observed outcome. This approach has been

criticized heavily by many.¹⁷ In general, there is a lack of appropriate and adequate micro-foundation in social capital research. As Durlauf [2000] emphasizes, there is a “... lack of attention to the nature of individual decision-making.” An understanding of the purposeful behavior requires an “... explicit formulation of the constraints, preferences and beliefs that determine an individual’s choice. This choice-based perspective can then be used to ask how individuals are influenced by the choices of others or the past behaviors of a given individual. Without going through this type of analytical exercise, one cannot develop a satisfactory causal theory of the relationship between social capital and observed behavioral patterns.” Therefore, a researcher of social capital must address the individual’s decision mechanism in a direct manner. Neoclassical capital theory has been extensively used to address issues of physical and human capital [Lucas 1978, Ben-Porath 1967, Heckman 1976]. Studying social capital using the same framework is a natural extension.

3.2. Social Capital at the Individual Level

3.2.1. Review of Literature

Social capital at the individual level refers to the social connectedness of the individual; it is a system of interpersonal networks [Dasgupta 2002]. These networks influence market outcomes through the channeling of information and reduction of search costs. In a large number of instances, mutually beneficial trades take place not through the market but due to these interpersonal relationships.

¹⁷ See Durlauf [2000, 2002] and Sobel [2002] for some of these criticisms.

Diverse areas of research emphasize the beneficial aspects of social networks.¹⁸ Networks serve to channel information about new technology, employment, and market opportunities. Networks of businessmen help circulate information about breach of contract in the business community and thereby enabling business groups to penalize and exclude cheaters. Social capital reduces incentive problems in teams by circulating information about effort levels. In the literature on knowledge spillover, social ties and contacts play a crucial role not only in dissemination of ideas but also in the cross breeding of ideas through social interaction [Jacobs 1969, Krugman 1991].

Role of social capital in entrepreneurship is well documented. Bosma, Praag, Thurik, and Wit [2004] show that on a sample of Dutch entrepreneurs, higher levels of a business founder's social capital are associated with greater performance of the firm. Figueiredo, Guimarães, and Woodward [2002] show that social networks may play a role in location preferences of the entrepreneurs. They argue that personal ties and friendships attach investors to their existing business locality.

In the context of search costs, the most widely discussed outcome of social networks is in the labor market where interpersonal relationships process information about jobs and job applicants [Granovetter, 1995]. Labor economists have long recognized that workers find jobs through social networks. Personnel researchers argue that employee referrals are a useful device for screening job applicants. Montgomery [1991] uses an adverse selection model to show that workers who are well connected might fare better in getting a job than poorly connected workers and that firms hiring through referrals might earn higher profits. Based on a

¹⁸ Barr [2000], Fafchamps and Minten [1999], Granovetter [1975, 1995], Montgomery [1991], Rauch and Casella [2001], Fafchamps [2004], Greif [1993], Johnson, McMillan and Woodruff [2000], Kandori [1992] and McMillan and Woodruff [2000], Wade [1987, 1988].

number of studies, he finds that approximately 50 percent of all workers employed at the time found their jobs through social networks.

A number of studies show that social networks play crucial roles in creation of economic opportunities. Utilizing data on research proposals submitted to the National Science Foundation (NSF) Economics Program over a 5-year period, Feinberg and Price [2004] argue that social capital stock of grant applicants enhance their access to research resources by increasing the probability of being awarded a research grant. Social capital has been argued to be a crucial ingredient in the functioning of successful cooperative movements in Denmark between 1850 and 1900, in Tanzania during the colonial days, and in Bangladesh in recent years [Paldam and Svendsen, 2000]. Furstenberg and Hughes [1995] argue that social capital plays a positive role in the individual outcomes especially in case of disadvantaged youths.

Networks also deliver several non-market benefits. They often work as insurance during bad times as people can fall back on personal connections for financial as well as other supports. Carter and Maluccio [2003] in a study of South African households showed that households with more social capital seemed better able to weather shocks. Social networks are an integral part of everyday life where people do each other favors such as baby sitting or airport drop-off in situations where the market option is not immediately available (or costly). Social ties and contacts have other non-economic returns such as prestige, respect, and social recognition of wealth and other attributes [Lin, Cook, and Burt, 2001].

Social networks have implications in personal well-being. An important motivation for individuals to engage in socializing is the satisfaction from interacting with others [Durlauf and Fafchamps 2004]. Dasgupta [2002] describes socializing as 'pleasurable activity'. In the General Social Survey, when asked how important it is for close friend to be enjoyable

company, 48 percent responded that it is ‘extremely important’, 40 percent responded ‘very important,’ and 10 percent responded ‘fairly important’.

3.2.2. Theoretical Approach to Analyzing social capital formation: Literature Review

One type of literature where social ties and contacts become relevant is the social interaction literature. As Blume and Durlauf [1998] emphasize, the basic issue in this literature is the collective behavior of a group of interacting, heterogeneous agents. In terms of substantive departures from other types of economic modeling, the interaction-based approach focuses on direct interdependencies that arise through the joint participation of economic actors in a set of markets. Thus, this literature appeals to the embeddedness hypothesis of Granovetter [1985] in a more direct way. The various types of interactions that have been the primary area of study in this literature are generally the interactions that are not mediated by market structures. Standard examples include peer group and role model effects or interdependent preferences.

The approach taken in this study to investigate social capital diverges from the social interaction literature in a fundamental way. We start with the premise that the focus is on the individual; what we want to examine is how the individual behaves to create and maintain social contacts over her lifecycle where her objective is to maximize lifetime net returns. Having said that, there is no denying that community level variables are influential determinants of social capital formation of the individual and that there are intricate issues involved that the interaction literature emphasizes. However, individual decision making regarding social capital merits attention in its own right.¹⁹ The objective of this paper is

¹⁹ Glaseser et al. [2002] emphasizes this point.

studying the mechanism of the individual's social capital formation and its lifecycle issues. For simplicity, various neighborhood effects and related complexities are assumed away.

There are two parallel literatures on groups and networks that are relevant for the concept of social capital. The first one is the literature on cooperation, while the other is the literature on networks. The issues they address are very similar but how they look at the problems is rather different. The research on cooperation is more in line with the trust/cooperation view of social capital. The basic motivation of that research stems from the fundamental principles of repeated games where cooperation is easier when individuals expect to interact more often in the future. In this literature, the concept of networks is more closely related to the idea of groups.

The conceptualization of social capital in this literature is different from that described in section 2. Following Annen [2003], social capital is defined as a player's (a person or an organization) reputation for being cooperative in a social network where a social network is a set of players and a pattern of information and/or goods among these players. The issues in this literature are different too. First of all, a large part of the debates involve the sustainability of cooperation, punishment and community enforcement, and search for conditions under which cooperative strategies are evolutionary stable (North [1991], Kandori [1992], Nowak and Sigmund [1998], Boyd and Richerson [1989]). Issues of group formation are also widely discussed; Landa [1981], Carr and Landa [1983], and Cooter and Landa [1984] discuss optimal club formation. There is also the consideration of network exchange and relative efficiency between network exchange and impersonal market exchange (Kranton [1996], Kali [1999]).

The network approach to social capital is closest to a theoretical attempt at analyzing social capital at the individual level. Lin [2001], Burt [2001] and Woolcock [1998] discuss this

approach. In chapter 2, this is the approach that has been adopted to define social capital. In the network literature, it is the sociologists that address the particular problem of social capital while the economists are more concerned with the theoretical foundation of networks.

The social network literature is quite mature and has flourished in a big way in the recent years.²⁰ This predominantly theoretical literature concentrates on formalizing networks. The focus in this literature is on outcomes of networks, network formation, stability and efficiency of networks, network values and their allocation, etc. As tools these theories borrow heavily from cooperative game theory. The dynamic models in this literature (Watts [1997], Jackson and Watts [2002]) address questions such as stability of networks.

Although this research is careful with the conceptualization of social capital, there is an absence of formal modeling of the evolution of social capital over an individual's lifecycle that can be tested using data. That is exactly what is attempted here. In doing so, we'll appeal to the standard dynamic model of investment in the practice of neoclassical economics. In the network approach – although not among economists but among sociologists – quite a large amount of empirical research exists.²¹ However, none of them attempted structural estimation.

The model that is presented in the next section is inspired by Glaeser et al. [2002] where a dynamic programming framework is used with the individual as the decision maker who takes the environment around him as given. However, as will be discussed in the subsequent sections, Glaeser et al. [2002] model is a rather restrictive special case of the more generalized model presented below. The most important departure from Glaeser et al. [2002], however, is in the conceptualization of social capital. First of all, a very different definition has been

²⁰ A great reference is a survey by Mathew Jackson [2003].

²¹ Lin, Cook and Burt (eds.) [2001] *Social Capital: Theory and Research* presents a number of empirical research papers.

adopted here and, secondly, Glaeser et al. [2002] do not adequately address the fact that social capital is different in some substantial ways from the other forms of capital.

5. EMPIRICAL MEASURES OF SOCIAL CAPITAL AND SOME DESCRIPTIVE ANALYSIS

This chapter describes the General Social Survey (GSS), 1972-2002, which is the data source in this study. The latter part of this chapter is devoted to some reduced form analysis focusing on demographic variations in social capital investment.

5.1. The General Social Survey

The General Social Survey (GSS), 1972-2002, is a repeated annual cross-section of 1372 to 2992 adult respondents (between age 18 and 89). This survey has demographic information, information on education and so on. What makes this survey unique and the preferred data source for this paper is that it asks direct and specific questions about social networks.

5.1.1. Network Measures of Social Capital

A number of simplifying assumptions have been made in order to utilize the data from the GSS that would make the network definition of social capital presented in chapter 2 operational for the lifecycle model of chapter 4. Only the 0-1 links are considered here. A 0-1 link refers to network links where all that matters is the existence of a link and not the intensity of the links. In many situations, especially when links represent friendships, intensities of links may be important. This restriction is motivated by data constraints. The GSS does not have

information about the intensities of links. Much of the literature on network formation has dealt with links that are either present or absent with no intensities associated with them [Jackson, 2003]. The estimation that follows focuses only on the number of links that each respondent has and is not concerned with the entire network. Although both intra and extra community ties are considered, no distinction is made between the two types of ties.

The GSS reports “the number of close friends that the respondent has” at the time of the interview.²² These variables measure accumulated social capital of the individual at a point in the individual’s lifecycle. This information is available for years 1986, 1998 and 2002. Pooling all these years we have multiple observations of number of friends for each age between 22 and 80. This allows for a lifecycle of 59 years to be studied.²³ This variable is labeled *stock of friends*.

Flows of investment measure the actions that the individual takes to build up a stock of friends. The GSS asks “how frequently the respondent spends an evening with friends and neighbors”.²⁴ The frequency of meeting friends and meeting neighbors are combined together to construct a total investment measure for each person. It is the ‘number of meetings a year with friends and neighbors (who are friends)’. This information is available for years 1974-75,

²² Notice that this information only counts the number of friends and thereby measures the number of 0-1 links. It does not contain information about the social characteristics of friends, and the nature and intensity of ties.

²³ As explained earlier, the horizon has been chosen in light of the estimates of National Vital Statistics Reports. The reason observations are started from age 22 is because there are no college graduates in the GSS who are less than 22 years old.

²⁴ These variables have been used by other researchers such as Costa and Kahn [2001]. However, they used these variables for aggregate as opposed to individual level analysis. The variables take values from {0,1, . . .,6} where, 6 = almost daily, 5 = several times a week, 4 = several times a month, 3 = once a month, 2 = several times a year, 1 = once a year, 0=never. In this paper these variables have been converted to ‘number of meetings a year’ with the following assumptions: 6 = 365 times a year, 5 = 156 times a year (i.e. 3 times a week), 4 = 60 times a year (5 times a month), 3 = 12 times a year, 2 = 6 times a year, 1 = once a year, 0 = never. Experiments with different assumptions such as 6 = 312 times a year (i.e. 6 times a week), 5 = 104 times a year (i.e. 2 times a week) and so on do not change the results in any significant way.

1978, 1982-83, 1985-86, 1988-91, 1993, 1994, 1996, 1998, 2000, and 2002. The years have been pooled yielding multiple observations of the number of meetings for each age between 22 and 80 (again, over a 59-year lifecycle). The natural logarithm of this variable is labeled *log of the number of meetings* that is the investment flow in social capital.

These measures of social capital focus on the strongly ‘social’ aspects of the social networks. They do not include networks at the workplace. Under the assumption that networking activities in the work-place are work-related activities, networks at the work-place are kept aside in this study. For analysis of work-related networks see Borghans, Weel, and Weinberg and [2005].

5.2. Demographic and Neighborhood Variables

Table 1 is a description of the demographic and neighborhood variables. Not all the information is available for all the years. The table below presents a subset of the data for which all the variables are non-missing.²⁵ All the monetary variables are deflated by Consumer Price Index (CPI) to year 2000 dollars.

5.3. Demographic and Neighborhood Characteristics: Hypothesis

The next order of business is to examine the determinants of social capital investment. Some of the demographic and neighborhood variables will be considered potential candidates.

²⁵ In chapter 6 when structural parameters are being estimated the number of observations is significantly increased because fewer covariates are required for that estimation.

Table 1: Descriptive Statistics

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>St. dev</i>	<i>Min</i>	<i>Max</i>
Log number of meetings	17775	3.90	1.51	0.00	6.60
Proportion of sample from 1977	17775	0.07	0.26	0.00	1.00
Proportion of sample from 1978	17775	0.07	0.26	0.00	1.00
Proportion of sample from 1982	17775	0.08	0.28	0.00	1.00
Proportion of sample from 1983	17775	0.07	0.26	0.00	1.00
Proportion of sample from 1985	17775	0.07	0.26	0.00	1.00
Proportion of sample from 1986	17775	0.07	0.25	0.00	1.00
Proportion of sample from 1988	17775	0.04	0.21	0.00	1.00
Proportion of sample from 1989	17775	0.04	0.20	0.00	1.00
Proportion of sample from 1990	17775	0.04	0.20	0.00	1.00
Proportion of sample from 1991	17775	0.05	0.21	0.00	1.00
Proportion of sample from 1993	17775	0.05	0.22	0.00	1.00
Proportion of sample from 1994	17775	0.09	0.28	0.00	1.00
Proportion of sample from 1996	17775	0.09	0.28	0.00	1.00
Male	17775	0.44	0.50	0.00	1.00
Black	17775	0.13	0.34	0.00	1.00
Other race	17775	0.03	0.18	0.00	1.00
Age 21-29	17775	0.21	0.41	0.00	1.00
Age 30-39	17775	0.25	0.43	0.00	1.00
Age 40-49	17775	0.19	0.40	0.00	1.00
Age 50-59	17775	0.14	0.35	0.00	1.00
Age 60-69	17775	0.12	0.32	0.00	1.00
Age 70-80	17775	0.09	0.28	0.00	1.00
Married	17775	0.57	0.49	0.00	1.00
First generation	17775	0.06	0.24	0.00	1.00
Second generation	17775	0.13	0.34	0.00	1.00
Third or older generation	17775	0.81	0.39	0.00	1.00
College graduate	17775	0.23	0.42	0.00	1.00
College dropout	17775	0.24	0.43	0.00	1.00
High school or less	17775	0.53	0.50	0.00	1.00
Population (100,000)	17775	3.48	11.86	0.00	78.95
Real household income (\$10,000)	17775	5.27	4.62	0.06	27.30
Regional income (\$10,000)	17775	4.21	0.47	2.99	5.08

5.3.1. Gender

Since we are dealing with individual's behavior regarding social ties there are many reasons why males and females might differ in their behavior in terms of the social ties they make and maintain. One source of these differences would be purely historical and cultural that determines how men and women pursue social ties and contacts. Historical and cultural factors also determine economic aspects of interactions. In a study on business start-ups and gender differences Renzulli and Moody [2000] show that a high proportion of females in the network or being female are critical disadvantages facing potential small business owners. This implies that it could be costlier for a woman to build networks. Gender is generally controlled for in studies where determinants of social capital are examined (for example, Lindstrom et al. [2002], Subramanian, Lochner and Kawachi [2002]).

5.3.2. Immigration Status

It is generally argued that mobility and distance from previous social capital stocks would negatively affect investment in social capital.²⁶ Immigrants, by this notion, would have a natural disadvantage in social capital investment; they have moved to a place where most things are unfamiliar and their previous social connections are at a prohibitive physical distance. Furthermore, immigrants may be subject to discrimination and alienation that could hinder their social capital investments. Woolcock [1998], however, introduces an interesting twist on the issue. Initially immigrants are protected by their closed community, but as they move out of their closed community they are exposed to discrimination and alienation. This

²⁶ DiPasquale and Glaeser [1999] argue that homeownership (by way of reducing mobility) raises investments in social capital. Physical distance and travel costs reduce social connection and thereby investments and stocks of social capital [Glaeser and Sacerdote 1999, Putnam 2000].

would suggest that being a first generation immigrant may be advantageous vis-à-vis a second generation immigrant.

On the other hand, Stanton-Salazar and Dornbusch [1995], studying Mexican-origin students, argue that bilingual students may have unique advantages in acquiring the institutional support that is needed for success in school and social mobility.²⁷ In other words, there could be certain advantages of being an alien in acquiring social capital. This, in a way, indicates to the popular notion that immigrants have stronger intra community ties.²⁸ These ties arise partly from cultural familiarities and partly from insurance motives.

5.3.3. Education and Income

The connection between human capital and social capital is much discussed in the social capital literature. There can be a number of sources through which education can affect social capital investment. Buerkle and Guseva [2002] shows that the social component of education – friends, acquaintances and other connections accumulated while in school – is nontrivial and significant.²⁹ People who have spent more time in school made valuable contacts relatively easily; it will be much more costly for a person to acquire similar contacts without going to school. Given that the schooling decision is generally considered a self selection [Cameron and Heckman 2001], one can argue that people who stay in school longer have a lower cost of investment in social capital. Glaeser et al. [2002] points out another connection:

²⁷ Stanton-Salazar and Dornbusch [1995] study data on the information networks of Mexican-origin high school students. They find that there exists some evidence of the relationship between grades and status expectations, and measures of social capital but the language measures yield the strongest associations.

²⁸ Woolcock [1998] elaborates upon this with examples of Chinese and Korean communities.

²⁹ Using data from Czech and Polish samples of the *Social Stratification in Eastern Europe after 1989 General Population Survey*, they show that social capital accumulated in school reduce the uncertainty inherently present in the hiring process and eventually translates into higher income.

individuals with higher levels of human capital may have better communication skills and exposures making it easier for them to make contacts. The reduced form regressions in Glaeser et al. [2002] show that education has a positive effect on social capital formation.

At the same time, given the strong correlation between income and education, there is an opportunity cost channel that would have a dampening effect; a better home security system can substitute for one's time spent getting to know one's neighbors better. Another reason for higher opportunity cost for people with higher levels of human capital is insurance; it may be cheaper for them to substitute social capital with some other instruments as insurance for bad times.

5.3.4. Race

It is often argued in the literature that race is an important determinant of social capital formation.³⁰ Whether race matters or not is obviously important but what is a more pertaining question is the underlying social and economic factors that race embodies. Using trust as a social capital proxy, researchers have found that blacks are more likely to report mistrust.³¹ A symmetric result may not hold while using the network measures of friendship related variables. In fact, it is quite possible that the opposite is true. Dominguez and Watkins [2003] study minority low income mothers and elaborates how they use social capital for 'support' and 'leverage'. As in the case of immigrants there is a general notion that minorities have stronger intra community ties that may remain even after controlling for income (or education in the present study). There might be a tendency to 'stick together' as a reaction against the general

³⁰ Using the *Multi-City Study of Urban Inequality* Smith [2003] shows that white men are likely to mobilize extra-community, white, male, and influential contacts.

³¹ See Subramanian, Lochner and Kawachi [2002], or Putnam [2000].

disadvantages of being minorities in a stratified society. Thus, it might be less costly for non-whites to make non-white contacts.

5.3.5. City Size

When people decide how to behave, they take into account the social, economic and legal implications of their action (which is part of the *embeddedness thesis* of Granovetter [1985]). These implications depend on the environment in which the decision is being made. Social capital is also subject to strong interpersonal complementarities in investment; having a friend could be more useful if that friend has more friends. Glaeser et al. [2002] argue that people who belong to an environment with more social capital will tend to invest more in social capital themselves. Subramanian, Lochner and Kawachi [2002], using trust perception as the social capital variable, show that there is significant variation across neighborhoods.³²

Social capital is generally considered to be heavily influenced the population size of a neighborhood. Hofferth and Iceland [1998] show that social capital is more common among families in rural communities than urban communities.³³ There could also be a *population composition effect* whereby lower income inequality and higher ethnic homogeneity is associated with higher levels of social capital (membership in particular).³⁴ The reduced form equation tests for these neighborhood differences.

³² They use *1994-95 Community Survey of the Project on Human Development in Chicago Neighborhoods* (PHDCN).

³³ Using data from the 1988 wave of the Panel Study of Income Dynamics, they find that families living in rural areas are more likely to exchange exclusively with relatives.

³⁴ See Alesina and La Ferrara [2000], Knack and Keefer [1997], Costa and Kahn [2001].

Table 2: Reduced Form Regressions

<i>Dependant variable: log of number of meetings</i>				
<i>Explanatory variables</i>	OLS		2SLS	
	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>
Constant	4.6462	0.0000	4.6509	0.0000
Year dummy for 1977	0.1948	0.0000	0.1933	0.0000
Year dummy for 1978	0.1549	0.0010	0.1551	0.0010
Year dummy for 1982	0.0911	0.0400	0.0956	0.0470
Year dummy for 1983	0.0934	0.0460	0.0905	0.0480
Year dummy for 1985	0.0844	0.0740	0.0820	0.0770
Year dummy for 1986	0.1428	0.0030	0.1438	0.0030
Year dummy for 1988	0.0335	0.5510	0.0343	0.5370
Year dummy for 1989	-0.0541	0.3370	-0.0541	0.3400
Year dummy for 1990	0.0315	0.5860	0.0261	0.6560
Year dummy for 1991	0.0607	0.2740	0.0651	0.2690
Year dummy for 1993	0.0741	0.1720	0.0713	0.1780
Year dummy for 1994	0.0146	0.7380	0.0130	0.7610
Male	0.0700	0.0020	0.0657	0.0090
Black	-0.0392	0.2490	-0.0308	0.5000
Other race	-0.0787	0.2210	-0.0702	0.3140
Age 30-39	-0.4428	0.0000	-0.4517	0.0000
Age 40-49	-0.6674	0.0000	-0.6855	0.0000
Age 50-59	-0.8155	0.0000	-0.8337	0.0000
Age 60-69	-0.8003	0.0000	-0.8027	0.0000
Age 70-80	-0.8725	0.0000	-0.8679	0.0000
Married	-0.5581	0.0000	-0.5861	0.0000
First generation	-0.0836	0.0910	-0.0816	0.1230
Second generation	0.0844	0.0130	0.0815	0.0230
College graduate	0.0149	0.6450	-0.0040	0.9470
High school or less	-0.1287	0.0000	-0.1126	0.0420
Population (100,000)	0.0020	0.0420	0.0019	0.0500
Real household income (\$10,000)	0.0055	0.0450	0.0157	0.5930
Regional income (\$10,000)	0.0089	0.7210	(Instrument)	
No. of observation	17775		17775	
R^2	0.0843		0.0850	

5.4. Reduced Form Analysis

Table 2 presents reduced form regressions in the spirit of an exploratory analysis. Two regressions are reported. The dependent variable is the log of the number of meetings with friends and neighbors, which measures the socializing behavior of the respondents. Among the explanatory variables, the omitted categories are year dummy for 1996, white, age group 21-29, third or older generation immigrants, and college drop-outs.

In the OLS regression, household real income is significant. However, because of well documented economic benefits of social capital, an instrumental variable regression is also reported where household real income is instrumented with regional real income (9 regional categories). The discussion below is in terms of the instrumental variable regression (the first stage of the 2SLS regression is reported in Appendix C).

In the instrumental variable regression real income no longer matters. Variables that do matter are: year, sex of the respondent, age, marital status, education, and population size of residential location. The year dummies show that compared to the early years in the survey, socializing has declined in the later years. The coefficients of the age spline show a steady decline in socializing over age. Males socialize more than women, singles socialize more than married people, second generation Americans socialize more than first generation immigrants as well as those who are third generation or older, college graduates socialize more than those who did not attend college. And, finally, socializing increases with size of the residential location.

6. SUMMARY AND CONCLUSION

This paper studies social capital accumulation at the individual level. It adopts the network view of social capital that is conducive to an individual-based treatment. The definition fits the concept of social capital into the investment framework. This allows us to study the stock and flow of social capital separately. This paper also studies the determinants of social capital investment. In particular, it looks at income as a determinant. The findings show that income ceases to matter once the fact that it can be endogenous is accounted for.

APPENDIX A: THE TWO VIEWS OF SOCIAL CAPITAL

A1. The Trust/Cooperation View

Trust/cooperation view is the more popular view of social capital. A number of celebrated empirical studies adopted this view – Putnam [1993, 1995, 2000], Furstenberg and Hughes [1995], Knack and Keefer [1997], and Narayan and Pritchett [1999], to name a few. The trust/cooperation view takes more of an institutional approach. It emphasizes the existence and functioning of informal relations and non-market interactions. Paldam [2000] makes an attempt to organize all these considerations into a series of coherent steps that clarify much of the ambiguities that arise whenever a concept takes an interdisciplinary trip from Sociology to Economics.

Definition A1: Trust/cooperation Definition of social capital

- (1) *Ease of Cooperation definition of SK: Agents' ability to work voluntarily together with others in his group.*
- (2) *Trust: Mutual expectation that arises within a community based on common shared norms.*
- (3) *Assumption: Trust \Leftrightarrow Ease of Cooperation + error³⁵*
- (4) *Trust definition of SK: Amount of trust the agent has in others and the amount of goodwill the agent possesses with others.*

³⁵ This is not a mathematical relation. The idea is similar to approximating function f with a Taylor expansion g that gives an error term e : for instance, $f \cong g \Leftrightarrow f = g + e$. Furthermore, the word 'trust' as such doesn't restrict itself to a positive interpretation such as trust between friends. One can 'trust' a burglar to rob him. However, we shall rule out such confusions arising from semantics and only allow for 'positive' trust as defined by this assumption.

[Trust Payoff definition – amount of benefits agent can draw on his goodwill³⁶]

(5) *Social capital of the group: Some weighted average social capital of all agents within the group.*

(6) *Measurement/Proxy: Density of a variable pertaining to social capital.*

Example: Putnam's instrument.

[Putnam's Instrument – A measure of associations with voluntary organizations is a proxy for individual social capital while the density of voluntary organizations in the group is a proxy for group social capital.³⁷]

Paldam [2000] emphasizes that 'trust' can have multiple dimensions. Two important dimensions of trust are, *generalized trust* and *special trust*. Generalized trust is defined as 'trust towards people in general', while special trust is the 'trust in known people or in particular institution(s)'. Suppose that trust at the individual level is the proxy for micro social capital while trust at the societal level is the proxy for macro social capital. Also suppose that within the group, people know each other or are able to check each other's trustworthiness at a negligible cost from people they already trust. Then all trust within the group takes the form of special trust. However, at the macro level trust has to take the form of generalized trust.

To measure trust, a number of studies³⁸ have used the question "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" This is a question about individual's expectation of trustworthiness averaged over a

³⁶ It is generally a monetary question such as "How much money do you think you can borrow from your friends" or "How much money will you be willing to lend your friend". As such there is always a problem of truthful revelation with this approach.

³⁷ Because organizations differ in terms of the intensity of contacts the individual has, appropriate *intensity weights* are required to calculate this measure.

³⁸ Glaeser, Laibson, Scheinkman, and Soutter [1999], Inglehard et al. [1998], Fukuyama [2000].

number of situations.³⁹ It does not measure the quantity of trust the agent has in others in her group. It also does not say anything about her trustworthiness with the others in her group. Therefore, it may be a proxy for generalized trust but cannot be a proxy for special trust. To calculate trust at the micro level we need to ask the individual “How many people (within the groups that you belong to) do you trust and how many people in these groups trust you?” Then, to examine how micro trust gets translated into macro trust, we need a theory that tells us exactly how answers to these two questions are related. There is no *a priori* reason why they should be related. One piece of evidence that emphasizes this point is the following.

The most widely used proxy in the social capital literature has been Putnam’s instrument. It is generally used as a macro proxy. If Putnam’s instrument shows a high score, we should expect a high level of generalized trust. However, as Paldam [2000] argues, some studies have found areas with low generalized trust to have high special trust in some fields. It has been consistently documented that Latin less developed countries, despite having some high special trust measures, have lower generalized trust measures than Germanic/British developed countries. We, therefore, cannot overlook the need for a plausible theory to describe the relationship between generalized trust and special trust before we start using them as macro and micro proxies, respectively.

The other aspect of trust/cooperation definition that the above argument emphasizes is that we also need a justification for using Putnam’s instrument. The following section discusses the limitations of Putnam’s instrument.

³⁹ Glaeser, Laibson, Scheinkman, and Soutter [1999].

A1.1. Criticism of Putnam's Instrument as a Social Capital Proxy

Membership in voluntary organizations is the so called 'Putnam's Instrument'. Putnam's instrument is vulnerable to the following criticisms raised in Paldam [2000], Sobel [2002], and Fukuyama [2000].

Although a relationship might exist between the density of voluntary organizations and trust among people, no theoretical attempt has been made in the current body of social capital literature to show exactly where this relationship is coming from or how it fits into the decision-making process of the rational, self-interest maximizing individual.

The dividing lines between voluntary organizations, businesses and government organizations are not as obvious as calculations of Putnam's instruments require them to be. Voluntary organizations and government organizations are often closely linked. While sometimes voluntary organizations may be instruments of some government organizations operations (ministries may create voluntary organizations to obtain a pressure group), in other times government organizations may turn into voluntary organizations (Bolivian 'agricultural syndicate'). Businesses often hide behind fronts that make them look like voluntary organizations. Voluntary organizations may turn into businesses over time. Sometime businesses and voluntary organizations are closely linked. AOL is a business but various chat groups or newsgroups are voluntary organizations. This also raises the question whether online voluntary organizations should be included, and if so, how would they be measured since internet activities are so difficult to identify and keep track of.

Memberships in voluntary organizations with weak intensity could also be difficult to keep track of. Especially in developed countries, voluntary organizations exist with memberships that cost little and demand little contact. Such voluntary organizations may claim

a large membership while many people do not even remember that they are members. The justification for using intensity weights come from the fact that, while such voluntary organizations exist, there are voluntary organizations that are very demanding and come to dominate lives of it's members (church affiliations, for instance). However, the practical problems of choosing these weights are going to be high and subject to heavy value judgments.

The fact that social capital does not have to be benign also creates a conceptual problem. Many of these organizations are criminal, racist and violent⁴⁰ and should be assigned negative weights. However, the malign voluntary organizations, more often than not, operate under a clandestine existence and hence would end up with zero weight in most practical purposes.

A2: Trust/Cooperation Versus The Network View

Whenever a question of comparison arises it is important to be clear about the criteria that are being used; in the present case, the adopted paradigm is neoclassical investment theory.

As a starting point, we need an individual-based treatment of the problem. This facilitates tracking down causalities and the problems of 'functional' characterization and *ad hoc* proxies do not arise. Neoclassical capital theory allows for an individual-based treatment. It also has the advantage of clearly identifying stocks, flows, and returns. This could effectively reduce the tendency to label everything 'social' as social capital.

However, as we try to fit trust/cooperation view into the same framework, the first problem we face is the idea of 'group'. The concept of group is essential for the logic and

⁴⁰ Klu Klux Klan, Michigan Militia, etc.

mechanism of the formation of social capital under the trust/cooperation view. The fundamental logic behind the trust/cooperation view is that members *within a group* are interacting with each other, which creates trust and cooperation; and that trust and cooperation are useful in a ‘production’ sense. Under the network view, we look at each individual and her own network. Each individual has an incentive and preference to create a network because it is useful; the concept of group is no longer operationally important.

It might be possible to use the concept of trust in the individual-based network framework. We can think of investment in social capital to be actions that build trustworthiness and finding people who can be trusted. The stock of social capital could be the number of people the individual trusts and the number of people who trust him. Returns on these investments, then, can be viewed as cooperation that the individual can create out of his ‘trust network’. Another argument is that trust should be considered a *contextual variable* that affects social capital formation where social capital is defined by the network view. This is a line of argument that Subramanian, Lochner and Kawachi [2002] put forward. They suggest that “trust can be seen more as a predisposed factor that leads to the creation of social capital rather than being a component of social capital itself.”

One common criticism of social capital research is that social capital is a byproduct of ‘other’ activities and that it is not the result of conscious efforts by the individual. People make friends because making friends increases their utility; social ties that are created because of that are externalities. A more realistic view would be to consider the action of making friends to have a two-fold motive – having a good time as well as making useful contacts to reap economic and non-economic returns. Adopting the network view this study makes an attempt to resolve this issue by emphasizing the intrinsic value of social capital investment.

In terms of measurability, the networks of an individual may be observed under the definitions used in this study, whereas ‘trust’, in a sense, is a fundamentally an abstract concept. For the former we found a direct measure from the GSS, but for the latter various indirect proxies will have to be used. The problem with any proxy is that it needs some qualification. Most studies that adopt the trust/cooperation view use generalized trust and/or Putnam’s instrument. One might want to demand a theoretical justification for using those variables as proxies. As mentioned in Appendix A1, there are not obvious proxies of the trust/cooperation view of social capital.

Some limitations of the trust/cooperation view, however, may carry over to network view as well. Aggregation problems arise from social capital externalities and the fact that social capital does not have to be benign. Under the network view, if we calculate naïve density functions over the stocks and flows of the individuals to calculate the aggregate social capital of a community, we remain agnostic about the externalities they generate and whether they are benign or not.

APPENDIX B: SOCIAL CAPITAL AT THE MACRO LEVEL⁴¹

Definition B.1: Embeddedness

For the economy as a whole, embeddedness refers to the state-society relationship.

Definition B.2: Autonomy

At the economy level, autonomy refers to organizational integrity such as institutional coherence, competence, and capacity.

⁴¹ These definitions are reproduced from Wookcock [1998].

Definition B.3: Social Capital (SK)

SK at the economy (macro) level consists of the state-society relations and organizational integrity.

Note that, it is not obvious from the above definition whether the macro concept of social capital is some sort of aggregation over social capital of all the individuals in the economy. Theoretically, the macro level of social capital *should be* some sort of aggregation calculated across all the individuals in that community. However, social capital is unique, and serious conceptual and practical problems exist when it comes to the issue of aggregation. The definition above basically suggests the use of *proxies* to identify social capital at the macro level. It remains to be seen exactly what mechanism translates social capital from individual level as described in chapter 2 to the notion of macro level of social capital as defined in definitions B.1-B.3.

It is beyond the scope of this study to address the aggregation issues. However, just to get a flavor of the obstacles that aggregation face, we can think of the following features that social capital has. First, social capital is associated with very high levels of externalities; when an individual joins a network other members of the network benefit. Secondly, a source of potential complexity would come from the fact that social capital is not necessarily benign, as discussed in section 2.3.2. This implies that a simple aggregation would not result in the true measure of aggregated social capital. Thirdly, note that social capital is subject to very high level of interpersonal complementarities – if *A* makes friends with *B*, *B* has made a friend in *A* with very little investment (may be by simply acknowledging *A*'s initiatives). These complementarities imply large social multipliers [Glaeser et al. 1999, Glaeser et al. 2002, Glaeser and Scheinkman 2000].

APPENDIX C: FIRST STAGE ESTIMATES OF THE 2SLS REGRESSION

Table 3: First Stage Estimates of the 2SLS Regression

Dependant Variable: Real household income (\$10,000)		
	Coefficient	p-value
Constant	-0.4641	0.1420
Year dummy for 1977	0.1493	0.2430
Year dummy for 1978	-0.0241	0.8510
Year dummy for 1982	-0.4350	0.0000
Year dummy for 1983	0.2772	0.0310
Year dummy for 1985	0.2318	0.0740
Year dummy for 1986	-0.1018	0.4360
Year dummy for 1988	-0.0723	0.6390
Year dummy for 1989	0.0082	0.9580
Year dummy for 1990	0.5279	0.0010
Year dummy for 1991	-0.4308	0.0050
Year dummy for 1993	0.2729	0.0670
Year dummy for 1994	0.1562	0.1920
Male	0.4238	0.0000
Black	-0.8251	0.0000
Other race	-0.8222	0.0000
Age 30-39	0.8649	0.0000
Age 40-49	1.7620	0.0000
Age 50-59	1.7732	0.0000
Age 60-69	0.2299	0.0390
Age 70-80	-0.4480	0.0000
Married	2.7400	0.0000
First generation	-0.2013	0.1380
Second generation	0.2886	0.0020
College graduate	1.8448	0.0000
High school or less	-1.5769	0.0000
Population (100,000)	0.0025	0.3500
Regional income (\$10,000)	0.8719	0.0000
No. of observation		17775
R^2		0.3

BIBLIOGRAPHY

- Alesina, Alberto, and LaFerrara, Eliana. 2000.** Participation in Heterogeneous Communities. *The Quarterly Journal of Economics* 115(3): 847-904.
- Barr, A. 2000.** "Social Capital and Technical Information Flows in the Ghanaian Manufacturing Sector," *Oxford Economic Papers*, 52 (3), 539-59.
- Benabou, Roland. 1996.** "Heterogeneity, Stratification, and Growth: Macroeconomic Effects of Community Structure." *American Economic Review* 86: 584-609.
- Ben-Porath, Yoram. 1967.** "The Production of Human Capital and the Life Cycle of Earnings." *The Journal of Political Economy* 75: 352-365.
- Bertsekas, Dimitri. 1987.** *Dynamic Programming: Deterministic and Stochastic Models*. Prentice-Hall.
- Boivin, Jean and Marc P. Giannoni. 2003.** "Has Monetary Policy Become More Effective?" NBER Working Paper 9459.
- Borghans, Lex; Weel, Bas ter; and Weinberg Bruce. 2005.** "People People: Social Capital and the Labor-Market Outcomes of Underrepresented Groups," Ohio State University Working Paper.
- Borjas, George. 1992.** "Ethnic Capital and Intergenerational Mobility." *The Quarterly Journal of Economics* 107: 123-150.
- Borjas, George. 1995.** "Ethnicity, Neighborhoods, and Human-Capital Externalities." *American Economic Review* 85.
- Bosma, Niels, Mirjam van Praag, Roy Thurik, and Gerrit de Wit. 2004.** "The Value of Human and Social Capital Investments for the Business Performance of Startups," *Small Business Economics* 23. 227-236.
- Brueckner, Jan K. 2000.** "Urban Sprawl: Diagnosis and Remedies." *International Regional Sciences Review* 23.
- Buerkle, Karen and Alya Guseva. 2003.** "What do you Know, Who Do You Know? School as a Site for the Production of Social Capital and its Effects on Income Attainment in Poland and the Czech Republic," *American Journal of Economics and Sociology*, 61(3), 657-680.
- Burt, Ronald S. 2001.** "Structural Holes versus Network Closure as Social Capital," in Nan Lin, K. Cook, and R. S. Burt (eds.), *Op. cit.* 31-56.
- Carroll, Christopher D. 1992.** "The Buffer-Stock Theory of Saving: Some Macroeconomics Evidence," *Brookings Papers on Economic Activity* 2, 61-156.
- Carter, Michael R. and John A. Maluccio. 2003.** "Social Capital and Coping with Economic Shocks: An Analysis of Stunting of South African Children," *World Development* 31(7) (2003), 1147-1163.
- Charles, K. and Kline, P. 2002.** Relational Costs and the Production of Social Capital: Evidence from Carpooling. *NBER WP9041*.
- Christiano, Lawrence J., Martin Eichenbaum, and Charles L Evans. 2001.** "Nominal Rigidities and the Dynamic Effect of a Shock to Monetary Policy," NBER working paper 8403.
- Christine L. 1999.** "What is Social Capital? The Determinants of Trust and Trustworthiness." *NBER WP 7214*.

- Costa, D. and Kahn, M. 2001.** Understanding the Decline in Social Capital, 1952-1998. *Kyklos*.
- Dasgupta, Partha and Serageldin, Ismail. 2000.** *Social Capital: A multifaceted Perspective*. The World Bank: Washington, D.C.
- Dasgupta, Partha. 2002.** "Social Capital and Economic Performance: Analytics," mimeo, Faculty of Economics, University of Cambridge.
- Davis, Donald R. 1998.** "The Home Market, Trade, and Industrial Structure." *American Economic Review*.
- Dietz, Robert D; Haurin, Donald R, and Weinberg, Bruce. 2001.** "A Review of Neighborhood Effects: Models, Methodology, and Empirical Results." *OSU Working Paper*.
- Dixit, Avinash. and Pindyck, Robert. 1994.** *Investment Under Uncertainty*. Princeton University Press.
- Dumais, Guy; Ellison, Glenn; and Glaeser, Edward. (1997).** "Geographic Concentration as a Dynamic Process." *NBER WP 6270*.
- Durlauf, Steven N. and Fafchamps Marcel. 2004.** "Social Capital," *NBER Working Paper 10485*.
- Durlauf, Steven N. 2002.** "On the Empirics of Social Capital." *The Economic Journal* 112 (November): F459–F479.
- Durlauf, Steven N. and Marcel Fafchamps. 2004.** "Social Capital," NBER Working Paper 10485. Forthcoming in *Handbook of Economic Growth*, P. Aghion and S. Durlauf (eds.) (Amsterdam: North Holland).
- Fafchamps, Marcel and B. Minten. 1999.** "Relationships and Traders in Madagascar," *Journal of Development Studies* 35 (6), 1-35.
- Fafchamps, Marcel. 2004.** *Market Institutions in Sub-Saharan Africa* (Cambridge: MIT Press).
- Feinberg, Robert M. and Gregory N. Price. 2004.** "The Funding of Economics Research: Does Social Capital Matter for Success at the National Science Foundation?" *Review of Economics and Statistics* 86 (1), 245-52.
- Figueiredo, Octávio, Paulo Guimarães, and Douglas Woodward. 2002.** "Home-Field Advantage: Location Decisions of Portuguese Entrepreneurs," *Journal of Urban Economics* 52, 341–361.
- Fukuyama, Francis. 1995.** *Trust*. NY: Free Press.
- Fukuyama, Francis. 2000.** "Social Capital and Civil Society." IMF Working Paper WP/00/74, April.
- Furstenberg, Frank F. Jr. and Mary Elizabeth Hughes. 1997.** "The Influence of Neighborhoods on Children's Development: A Theoretical Perspective and a Research Agenda," *Indicators of children's well-being* (New York: Russell Sage Foundation), 346-71.
- Glaeser, Edward L. 1997.** "Learning in Cities." *NBER WP 6271*.
- Glaeser, Edward L. 1999.** "Learning in Cities," *Journal of Urban Economics* 46, 254-77.
- Glaeser, Edward L. and Jose A. Scheinkman. 2000.** "Non-market Interactions," NBER Working Paper 8053.
- Glaeser, Edward L., David Laibson, and Bruce Sacerdote. 1999.** "Why is There More Crime in Cities?" *Journal of Political Economy* 107.

- Glaeser, Edward L., David Laibson, and Bruce Sacerdote. 2002.** “The Economic Approach to Social Capital,” *The Economic Journal* 112, F437–F458.
- Glaeser, Edward L., David Laibson, Jose A. Scheinkman, and Christine L. Soutter. 1999.** “What is Social Capital? The Determinants of Trust and Trustworthiness,” NBER Working Paper 7214.
- Glaeser, Edward L.; Laibson, David, and Sacerdote, Bruce. 1999.** “Why is There More Crime in Cities?” *Journal of Political Economy* 107.
- Glaeser, Edward L.; Laibson, David, and Sacerdote, Bruce. 2002.** “The Economic Approach to Social Capital.” *The Economic Journal* 112 (November): F437–F458.
- Glomm, Gerhard, and Ravikumar, B. 1992.** “Public Versus Private Investment in Human Capital: Endogenous Growth and Income Inequality.” *The Journal of Political Economy* 100: 818-834.
- Granovetter, Mark. 1985.** “Economic Action and Social-Structure – The Problem of Embeddedness.” *American Journal of Sociology* 91 (3): 481-510.
- Granovetter, Mark. 1995.** *Getting a Job: A Study of Contacts and Careers*, 2nd Edition (University of Chicago Press).
- Greif, A. 1993.** “Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition,” *American Economic Review* 83(3), 525-548.
- Haurin, Donald R. 1980.** “The Regional Distribution of Population, Migration, and Climate.” *The Quarterly Journal of Economics*, XCV, No. 2.
- Heckman, James J. 1976.** “A Life-Cycle Model of Earnings, Learning, and Consumption.” *The Journal of Political Economy* 84: S11-S44.
- Heckman, Lochner, Lance and Taber. 1998.** “Explaining Rising Wage Inequality: Explorations with a Dynamic General Equilibrium Model of Labor Earnings with Heterogeneous Agents.” *Review Of Economic Dynamics* 1: 1-58.
- Helpman, Elhanan and Krugman, Paul. 1985.** *Market Structure and Foreign Trade*, The MIT Press.
- Helsley, R. W. and W. C. Strange. 1990.** “Agglomeration Economies and Matching in a System of Cities.” *Regional Science and Urban Economics*, 20: 189-212.
- Henderson, Vernon. 2000.** “The Effects of Urban Concentration on Economic Growth.” NBER WP 7503.
- Henderson, Vernon; Shalizi, Zmarak; and Venables, Anthony J. 2000.** “Geography and Development.” London School of Economics and CEPR Working Paper.
- Jackson, Matthew O. 2003.** “A Survey Models of Network Formation: Stability and Efficiency,” in “*Group Formation in Economics: Networks, Clubs, and Coalitions*,” edited by Gabrielle Demange and Myrna Wooders. Cambridge University Press: Cambridge. (Forthcoming).
- Jacobs, Jane. 1969.** “Strategies for Helping Cities.” *American Economic Review*, Part I, Sept. 1969, v. 59, issue. 4, pp. 652-56.
- Johnson, S., J. McMillan, and C. Woodruff. 2000.** “Entrepreneurs and the Ordering of Institutional Reform: Poland, Slovakia, Romania, Russia and Ukraine Compared,” *Economics of Transition* 8(1), 1-36.
- Kandori, M. 1992.** “Social Norms and Community Enforcement,” *Review of*

- Economic Studies 59, 63-80.
- Kevin, Murphy M. and Welch, Finis. 1992.** "The Structure of Wages," *Quarterly Journal of Economics*, Vol. 107, No. 1, pp. 285-326.
- Knack, Stephen, and Keefer, Philip. 1997.** "Does Social Capital Have an Economic Payoff? A Cross-country Investigation." *The Quarterly Journal of Economics* 112:1251-1288.
- Krugman, Paul R. 1991.** *Geography and Trade*, Cambridge, MA: The MIT Press.
- Krugman, Paul R. 1995.** *Development, Geography, and Economic Theory*, Bradford Books.
- Lin, Nan; Cook, Karen, and Burt, Ronald (eds.). 2001.** *Social Capital: Theory and Research*. Alden Gruyter: New York.
- Loury, Glenn C. 1977.** "A Dynamic Theory of Racial Income Differences." in *Women, Minorities, and Employment Discrimination*, (eds.) Phyllis Wallace and Annette M. La Mond. Lexington, MA: Health, pp. 153-86.
- Lucas, Robert E. Jr. 1978.** "Asset Pricing in an Exchange Economy." *Econometrica* 46: 1429-1445.
- Manski, Charles F. 2000.** "Economic Analysis of Social Interactions." *Journal of Economic Perspectives* 14: 115-136.
- Marcel, Fafchamps and Bart, Minten. 2002.** "Returns to Social Network Capital Among Traders." *Oxford Economic Papers* 54(2).
- McMillan, J. and C. Woodruff. 2000.** "Private Order Under Dysfunctional Public Order," *Michigan Law Review* 98(8), 2421-2458.
- Miranda, Mario, and Fackler, Paul. 2002.** *Applied Computational Economics and Finance*. MIT Press.
- Montgomery, J. 1991.** "Social Networks and Labor-Market Outcomes: Toward an Economic Analysis," *American Economic Review* 81 (5), 1408-1418.
- Narayan, Deepa and Pritchett, Lant. 1996.** "Cents and Sociability: Household Income and Social Capital in Rural Tanzania." World Bank Policy Research Working Paper No. 1796.
- National Center for Health Statistics. 2004.** *National Vital Statistics Reports*. Volume 52, number 14. February 18, 2004.
- Ostrom, Elinor, and Ahn T. K. 2002.** "A Social Science Perspective on Social Capital: Social Capital and Collective Action," mimeo, Workshop in Political Theory and Policy Analysis, Indiana University.
- Ostrom, Elinor. 1999.** "Social Capital: A Fad or a Fundamental Concept," in Dasgupta and Serageldin (eds). Op. cit. pp 172-214.
- Overman, Henry G.; Redding, Stephen; and Venables, Anthony J. 2001.** "The Economic Geography of Trade, Production, and Income: A Survey of Empirics." London School of Economics and CEPR Working Paper.
- Paldam, Martin and G. Svendsen. 2000.** "An Essay on Social Capital: Looking for Smoke Behind the Fire," *European Journal of Political Economy* 16, 339-366.
- Paldam, Martin. 2000.** "Social Capital: One or Many? Definition and Measurement," *Journal of Economic Surveys* 14(5), 629-53.
- Paxton, Pamela. 1999.** "Is Social Capital Declining in the United States? A Multiple Indicator Assessment." *American Journal of Sociology* 105:88-127.
- Putnam, Robert D. 1995.** "Tuning In, Tuning Out: The Strange Disappearance of

- Social Capital in America,” *PS: Political Science & Politics*, December, 664-683.
- Putnam, Robert D. 2000.** *Bowling alone: The collapse and Revival of American Community*. Simon and Schuster.
- Rauch, J. and A. Casella. 2001.** “Overcoming Informational Barriers to International Resource Allocation: Prices and Group Ties,” *Economic Journal* 113(484), 21-42.
- Robison, Lindon; Schmid, A. and Siles, Marcelo. 2002.** “Is Social Capital Really Capital?” *Review of Social Economy* 60(1).
- Ruud, Paul A. 2000.** *An Introduction to Classical Econometric Theory*. Oxford University Press: New York, Oxford.
- Sobel, Joel. 2002.** “Can We Trust Social Capital?” *Journal of Economic Literature* Vol XL. Page 139-154.
- Solow, Robert M. 1999.** “Notes on Social Capital and Economic Performance,” in Dasgupta and Serageldin (eds). *Op. cit.* pp 6-10.
- Survey Documentation and Analysis Archive, GSS Cumulative Datafile 1972-2002.** University of California, Berkeley. Available at: <http://sda.berkeley.edu:7502/cgi-bin/hsda?harsda+gss02>.
- Taber, Christopher. 2000.** “Tax Reform and Human Capital Accumulation: Evidence from an Empirical General Equilibrium Model of Skill Formation.” *Working Paper, Northwestern University*.
- Venables, Anthony J. and Limao, Nuno. 2001.** “Geographical Disadvantage: A Heckscher-Ohlin-von Thunen Model of International Specialisation.” Policy Research Working Paper no 2256, World Bank.
- Wade, R. 1987.** “The Management of Common Property Resources: Finding a Cooperative Solution,” *World Bank Research Observer* 2(2), 219-34.
- Wade, R. 1988.** “The Management of Irrigation Systems: How to Evoke Trust and Avoid Prisoners’ Dilemma,” *World Development* 16(4), 489-500.
- Weinberg, Bruce. 2002.** “Experience and Technology Adoption.” *OSU Working Paper*.
- Woolcock, M. 1998.** “Social Capital and Economic Development: Toward a Synthesis and Policy Framework,” *Theory and Society* 27, 151-208.