Social Capital and Economic Growth: A case study

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Introduction

The dominant basic tools for economic analysis have been Walras model of economic growth and in the growth context, the neo-classical Solow growth model. As powerful as these models have been in the economic analysis theses have proven to be inadequate in explaining development problems. Why in the first place, the economic growth started at all, when during hundreds of thousands of years of human history there was no long term economic growth at all? One answer for all this is that something in the economic institutions have had to be changed in order that the sustained economic growth started. But recent studies have shown, that institutions are not only relevant for economic history and economic development but they obviously have an important role to play in the success of contemporary more developed countries also.

The concept of social capital according to Woolcock (2001) goes back to Hanifan (1916). It became later familiar especially by the work of cColeman (1988) and especially Putnam (1993). One of the modern definitions is Robert Putnam's 'norms and network and network and communication between people' (1993). Comprehensive discussion of social capital can be found in the symposium publication of the OECD (2001a). In this publication five different stocks of assets are specified:

- Produced or physical capital (including buildings, equipments and other hardware, software and the stock of cumulative knowledge)
- Natural capital
- Human capital embodied in individuals
- Social capital, and
- A final composite category containing public and private institutions and social arrangements

Human and Social Capital

Human capital theory states that knowledge supplies individuals with greater cognitive skills, making them more productive and increasing their potential and efficiency to carry out activities (Becker, 1964; Mencer 1974). Putnam considers that the affective bond among actors and the external connections they establish are useful in obtaining resources and improving confidence in the organisation. From a business perspective, social capital supplies connections that make it easy to discover opportunities and identify, gather and attribute scarce resources (Greene and Brown, 1997).

Burt (1997) argues more vehemently that human capital needs social capital, saying the former becomes worthless without the opportunities to apply it afforded by the latter. Anderson and Miller (2003) show that human capital and social capital are interrelated in several ways which leads entrepreneurs endowed with a high level of human capital to be more likely to relate to other people of the same level, with similar tastes and personal influence. In contrast, businessmen with a lower socio-economic level came off worse in terms of social relations, and were more likely to relate to who are more limited in terms of human capital, which has implications on their activity and chances of developing the firm.

Chapter 1: Literature Review

Three different forms of capital-**human capital**, defined by the OECD (1998, p.9) is "the knowledge, skills, competences and other attributes embodied in individuals that are relevant to economic activity." It is measured by the duration of schooling and the level of education across surveys. Its origin can be traced to the work of Theodore Schultz and Gary Becker in the 1960s. **Cultural capital** is a more academic notion, closely identified with Pierre Bourdieu (1986). It refers to the credentials and cultural assets embodied in individuals and families. It has been used to explain the reproduction of social hierarchy, as elite families endow their children with the cultural capital which enables them to maintain their elite position and it has also been used to explain how some manage to use education to move from no-elite to elite positions.

The third is **social capital** which owes its prominence to the works of Robert Putnam in political science (1993, 1996), James Coleman in education psychology (1988) and Francis Fukuyama in economic history and sociology (1996) as well as to the active patronage of World Bank. However, its origin goes back way further to the works of Adam Smith and Montesquieu (Sturgess 1997, Woolcock 1998, Schuller et al. 2000). For the majority of writers it has been defined in terms of networks, norms and trust and the way these allow agents and institutions to be more effective in achieving common objectives. Social capital has been used to explain a wide range of economic phenomena, including general economic performance, levels of crime and disorder, immigrant employment and health trends.

Summarizing these three forms of capital we have-human capital focuses on the economic behaviour of individuals, especially on the way their accumulation of knowledge and skills enables them to increase their productivity and earnings. The underlying implication is that investment in knowledge and skills brings economic returns individually and therefore collectively. Cultural capital focuses on the way power structures are reproduced. It functions as an explanatory theory and offers no judgement on the process of reproduction. Social capital focuses on networks: the relationships between and within them, and the norms which govern these relationships. However, strong ties can also be dysfunctional, excluding information and reducing the capacity of innovation.

The *narrowest concept* of social capital is associated with Putnam where he views it as a set of "horizontal associations" between people: social capital consists of social networks and associated norms that have an effect on the productivity of the community. While originally this concept was limited to associations having positive effect on development, recently it has been relaxed to include groups that may have undesirable outcomes as well, such as those with rent-seeking behaviour. The key-feature in this definition is that it facilitates coordination and cooperation for the mutual benefit of the members of the association (Putnam 1993).

The *second concept* and a broader one was put forth by Coleman (1988), who defined it as a variety of different entities with two elements in common: they all consist of a social structure, and they facilitate certain actions of actors- whether personal or corporate actors- within the structure. This broadens the concept to include vertical as well as horizontal associations and also the behaviour among other entities such as firms. Vertical associations are characterised by hierarchical relationships and an unequal power distribution among members.

The most *encompassing view* of social capital includes the social and political environment that enables norms to develop and shape social structure. In addition to the largely informal and often localised horizontal relationships, this view also includes the more formalised relationships such as the government, the political regime, the rule of law, the court system and the rule of law. This focus draws upon North (1990) and Olson (1982) who have argued that political institutions have an important effect on the rate and pattern of economic development.

Human capital theory states that knowledge supplies individuals with greater cognitive skills, making them more productive and increasing their potential and efficiency to carry out activities (Becker, 1964; Mencer, 1974). Putnam (2000) considers that the effective bond among actors and the external connections they establish are useful in obtaining resources and improving confidence in the organisation. From a business perspective, social capital supplies connections that make it easy to discover opportunities and identify, gather and attribute scarce resources. Burt (1997) argues more vehemently that human capital needs social capital, saying the former becomes worthless without the opportunities to apply it afforded by the latter. Anderson and Miller (2003) show that human capital and social capital are interrelated with a high level of human capital to be more likely to relate to other people of the same level with similar tastes and personal influence. In contrast, businessmen with a lower socio-economic level came off worse in terms of social relations, and were more likely to relate to people who are more limited in terms of human capital, which has implications on their activity and the chances of developing the firm.

Associations and institutions provide an informal framework to organise information sharing, coordination of activities and collective decision making. Bardhan (1995) has argued that what makes this work is peer monitoring, a common set of norms and local-level sanctions. Countries with similar endowments of natural, physical and human capital have achieved very different levels of economic performance. So have regions or cities within countries and even communities within regions or cities.

Case I: the high growth rates of the East Asian economies, relative to other parts of the world can only in part be explained by conventional factors such as investments in human and physical capital and technology. Government policies provided an enabling environment characterised by institutional arrangements and organisational designs that enhanced efficiency, exchange of information and cooperation between the government and industry.

Case II: in a study of Italy, Putnam argues that the higher density of voluntary associations among people in northern Italy explains the region's economic success relative to southern Italy.

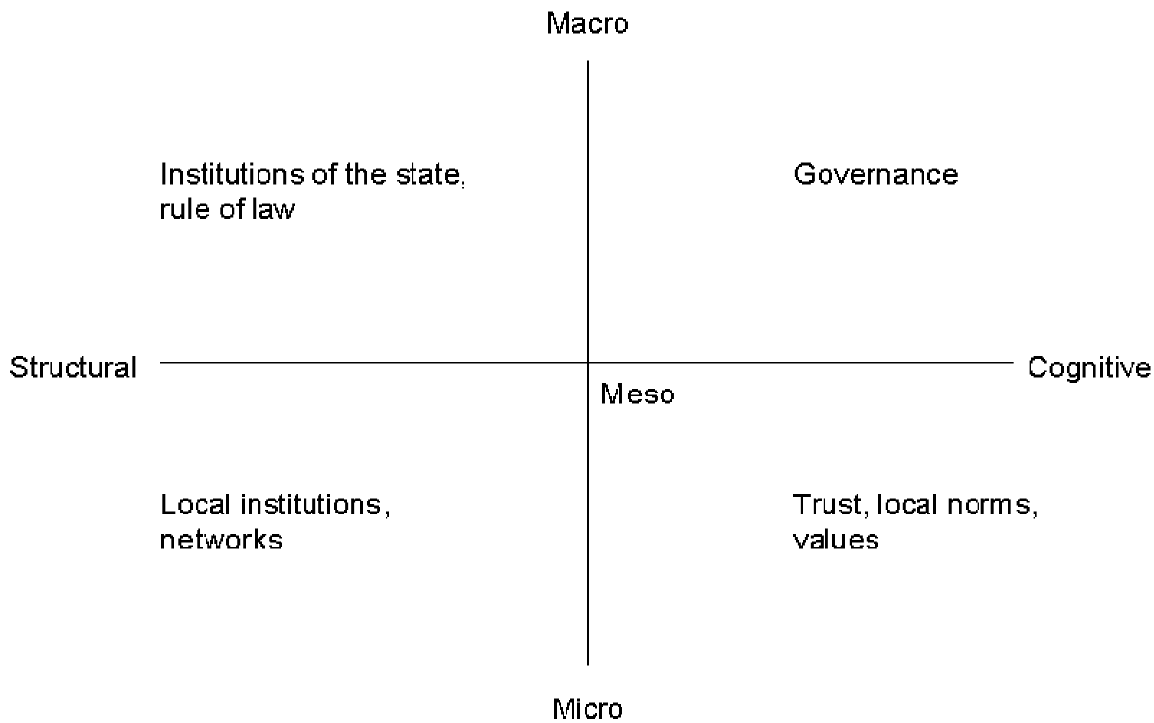
Case III: in Gujarat, violent confrontations between local people and government officials over the way forests were managed led to economic stagnation. After communities were mobilised and joint forest management was instituted, conflicts declined and land productivity and village income rose. (Putnam and others, 1993)

Each of the above cases displayed an aspect of social capital which had an important role to play on the progress of the economy and society. However, it is also visible from the above cases that the definition of social capital will differ for differing context and hence right from the beginning, social scientists had a dilemma arriving at a consensus on defining the concept and role of social capital. The term has found its way into economic analysis as late as the 1990s.

Considering the above three cases, there are some inherent features common in all which helps us draw out a basic framework of the concept of our research:

- All link the economic, social and political spheres. They share the belief that social relationships affect economic outcomes and are closely affected by them
- All recognise the potential created by social relationships for improving development outcomes but also recognise the danger for negative effects. Which outcome prevails depends on the nature of the relationship and the legal and political context
- All focus on relationships among economic agents and how the formal or informal organisation of those can improve the efficiency of economic activities.
- All imply that "desirable" social relationships and institutions have positive externalities

Social capital is public good in character and has implications for its production. Like all public goods, it will tend to be under produced relative to the social optimum unless the group responsible for its production can internalize the externality involved. In most cases, it is not costless to produce social capital. It requires resources-especially time. Which group is best suited to producing social capital depends largely on the scope of the created externality and thus the size of the group needed to internalize it. The amount of social capital that will be produced depends on the opportunity cost of time and the expected return from social capital. Which group is best suited for producing social capital depends largely on the scope of the created externality and thus the size of the group needed to internalise it effectively and avoid free riders.



Source: Grootaert and van Bastelaert (2000b)

Macro-level Social Capital: civic associations promote efficient market outcomes by sharing information, aligning individual incentives with group objectives and improving collective decision making. This micro-focus on markets is however only a part of the story. Market outcomes can be influenced by the macroeconomic and political environment as well. The latter can be an enabling environment, enhancing the effect of civil associations but the macro environment can also undo the effect of local-level social capital.

The ways in which social capital affects macroeconomic outcomes have been investigated in the "new institutional economies" framework associated with North, and with the "aggregated social capital" argument associated with Olson. He argues that low-income countries cannot obtain large gains from investment, specialization and trade because they lack the institution that enforce contracts impartially and secure property rights over the long run.

The importance of macro-level social capital is illustrated dramatically in some of the transition economies of Eastern Europe and the former Soviet Union. The sudden disappearance of the government from many social and economic functions has led to collapse of trust and forced people to rely on local networks and informal associations. In Russia this transition has led to what has been called an "hourglass society" (Rose 1995c). At the base there is a rich social life, consisting of strong informal networks relying on trust between friends. At the top, there is a rich political and social life among elite. However the links between the top and the base are very limited and characterised by civic distrust.

Micro-level Social Capital: social capital at the micro level is defined as horizontal associations or hierarchical networks. Intense horizontal networks are an essential form of human capital (Putnam 1993). In his later works, Putnam suggested shortening the list to include only certain types of horizontal networks. Compared to secondary groups where members have frequent face-to-face contact, tertiary and mailing list organisations are considered less capable of upholding or generating social capital. However, as outlined earlier, micro-level social capital is of less significance unless the enabling environment makes those organisations stand. Empirical investigations on the economic growth of 29 countries over three-year period (1980-1982) made Knack and Keefer conclude that civic cooperation and trust are associated with higher economic performance; organisation activity is unrelated to trust.

Sociologists generally agree that the shape of any network-horizontal or vertical, homogenous or heterogeneous, formal or informal-does not by itself indicate much about the nature of human relationships within that network. Quoting Granovetter (1985:p485-491), "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. While social relations may indeed often be a necessary condition for trust and trustworthiness, they are not sufficient to guarantee these." What is social capital in one context can be unsocial capital in another. It is hardly surprising then that an analysis studying social capital in different contexts have identified different network forms to be associated with social capital formation.

The cognitive elements of social capital-relating to norms, values, attitudes and beliefs-must be assessed separately and in addition to its structural elements-relating to networks, roles, rules and precedents. While cognitive elements incline people towards such mutual collective action, structural elements of social capital facilitate (Uphoff 2000; Krishna 2000). Both structural and cognitive dimensions matter and they must be combined to represent the aggregate potential for mutually beneficial collective action that exists within any community.

1. a. Second Generation collective action theories

Theories of collective action concern settings in which there is a group of individuals, a common interest among them and a potential conflict between the common interest and each individual's interest. Collective action problem arises whenever individuals face alternative courses of actions between short term self regarding choices and ones that, if followed by a large enough number of individuals in a group benefits all.

Solving the dilemma of collective action is not easy, whatever others do, and an individual is always better off in the short run by choosing not to cooperate with others. The Prisoners Dilemma game characterises this situation succinctly. Many models of collective action based on behavioural or evolutionary game theories still use the solution concept of the standard non cooperative game theory to address new kinds of questions that are particularly relevant to social capital research.

E.g. one of the main concerns of behavioural game theory is the problem of social motivations which has a direct implication to the discussions of trust and trustworthiness.

E.g. the problem of endogenous preferences, a key issue in the evolutionary game theoretic approach to collective action that provides a way to model the historical interaction between the institutional structures and the quality of citizenship described by Putnam.

The variants of Prisoners Dilemma game in the standard non cooperative game theory, provides ample examples where the expectations of others behaviour in collective action situations can be reduced to others factors. Repetitive interaction among individuals a sign of a robust network and an important form of social capital provides incentives to individuals to build a reputation of being trust worthy.

Dense horizontal networks referred to as bonding social capital with the capability of efficiently transmitting information across the network members also create incentives to behave in a trustworthy manner even for those who have only selfish motivations. Suppose that, though the transactions between A And B is not of repetitive nature, there are other agents C and D who obtain information about the transaction and condition their future transactions with A on whether A behaves trustworthily in their transaction with B.

Anirudh Krishna (2002) and Mark Baker (2005) provide carefully researched studies of local communities in India and how social capital enables local residents to engage in challenging forms of collective action.

The process of producing economic growth as understood requires a combination of several types of capital. Social capital is one of them but it has a unique feature in that it also enhances the efficiency of the combination process itself. According to Putnam, "social capital enhances the benefits of investment is physical and human capital" (1993). In other words, it is not just an input in the production process but also a shift factor of the entire function similar to the role played by technology. The application of social capital in the development is not a distribution-neutral process. The better organised segments of society may well succeed in affecting economic policy to their own advantage and to the detriment of other groups or even to the society at large.. In principle there is no guarantee that enhancing social capital will lead to a more equitable society. This is similar to what happened initially when accumulation of human capital started: earlier acquiring human capital was an elite privilege which led to inequality of economic outcomes. Gradually as the accumulation became more widespread and universal, the distribution of benefits became equalised. The same process is likely to happen with social capital.

Chapter 2: Conceptualization of this Study

The international Herald Tribune of June 21-22, 1986, contained an article on South Korean student activism. It described the development of such activism as “Radical though is passed on in clandestine ‘study circles’, groups of students who may come from the same high school or hometown. These study circles serve as the basic organizational unit for demonstrations and other protests. To avoid detection, members of different groups never meet, but communicate through an appointed representative.”(Coleman, 1988). This description of the basis of organisation illustrates social capital of two kinds. The “same high school or hometown” provides social relations on which study circles area later built. The study circles themselves constitute a form of social capital that appears valuable in expressing opposition in any political system. The organisation that makes possible these activities is an especially potent form of social capital. The above and other examples will illustrate that social capital has economic and noneconomic outcomes.

What Coleman and other sociologists defined as social capital needed theoretical development. To use it as a conceptual tool, it needs to needs given a theory to stand on. Due to the openness in defining of a particular structure to be a social capital, researchers have had the flexibility to use a variety of approaches to the same concept. Hence to stay away from conceptual dilemma, this research adopts Coleman’s definition of social capital and follows it up in the empirical study. According to him, social capital is understood as inhering in the relations between actors and among actors as referring to the forms of social capital. Forms of social capital then are relationships. For example family provides one form of social capital. Relations in school or neighborhood represent other form of social capital.(Mier, 1999)

2. a. Social capital in the creation of human capital

Financial income and parental education are two determinates of child wellbeing rooted in a long tradition of sociological and economic research. These resources have been titled financial and human capital respectively. James Coleman had suggested a third type of capital which can have equally important effects on child wellbeing, especially on the level of their education attainment. Coleman had argued that resources that facilitate the wellbeing are borne of relationship between the economic actors. Coleman had suggested that connectedness between children, his/her family, friends, community and school could result in higher education achievement. This connectedness, a product of social relationships and social involvement, generates social capital. Relationships have two components-its structure and its quality. While the structure of the relation may affect the quality (structure of family can affect the level of parent-child bonding), the quality of relationship is not determined by the structure. In our study, we're trying to look at relationships and the way they assist children-families provide assistance through their involvement in the lives of the children. Relationships at schools can enhance the educational performance. Relationship with friends can assist children in attaining outcomes.

Information Channels-an important form of social capital is the potential for information that inheres in social relations. Information is important in providing a basis for action for a certain actor in a given environment. But acquisition of the information is costly. One means by which information can be acquired is by the use of social relations that are maintained for other purposes. Women in their mid-age obtain information from their friend circle of similar women especially about fashion and entertainment. Sometimes it is cost saving to hear the news from friends rather than spending time on reading the newspaper. Thus social relations that constitute a form of social capital provide information at a lesser cost (implicit and/or explicit) which then facilitates a certain type of action.

Distinctions- the key distinction between human and social capital is that the former focuses on individual agents and the latter on relationships between them and the networks they form. In an economic context, the inclusion of social capital draws attention to the fact that individuals and their human capital levels are not separate entities alienated from social units or organizations. This is an obvious but an underrated fact. The acquisition of skills, its implementation by agents depends on the values and behavioural patterns within which the agent operates. In models of human capital, we observe a direct linear relation-investment is made, either in time or money and economic returns follow. This has had considerable appeal in literature both for its methodological appeal and acceptability. On the other hand social capital has a much less linear approach and its returns are less visible.

Although the distinctions between the two forms is clear, it is however being understood in economic sociology that social capital in the present generation plays an important role in the creation of human capital in the next generation. The literature is relatively scarce on the issue. Apart from the pioneering work of James Coleman, studies on understanding the role of social capital in human capital has been not considered in the economic context due to issues of compatibility, non-linearity and political acceptance. This paper makes an attempt to understand the relation of social capital with human capital through the channels of relations and networks affecting the level of education acquired by individuals.

<u>Social capital in the family</u>- in the examination of the effects of the various factors on school achievement, "family background" has been considered a single entity. But analytically, it can be separated into three different components: financial capital, human capital and social capital. Financial capital is approximated by the annual household income. It provides the physical resources that aid achievement. Human capital is measured by education level of parents which creates the environment for cognition development in a child. Social capital however is different from these two. The social capital of the family is the relation between the parents and their children and if other members are included, then those relationships as well. Thus if the human capital of the parents is not embodied in the relations, it then becomes irrelevant to the child's educational growth. The effect of lack of social capital within the family can have different outcomes on the education of a child.

<u>Social capital outside the family</u>- the social capital that has value for a young person's development does not reside solely within the family circle. It can be found outside the family circle as well in the community where children reside. This can be examined by

observing families that have moved often. This involves changing of schools and change in social relations.

These can also be termed as bonding and bridging social capital. Recent writings have noted that all forms of social capital are not equally important and there exists differences between bonding and bridging social capital. Bonding social capital occurs within a neighborhood of homogenous individuals. It is a necessary antecedent for the development of more powerful form of bridging social capital. Bridging capital is what Paxton (1999) refers to as cross-cutting ties. Bridging social capital occurs when members of one group connect with members of other groups to seek or access information. (Larissa Larsen, 2004, p. 3). The dual nature of social capital leads to dual effects on education outcomes as theory suggests. A study by Daniel Parecki, "Effect of Bridging and Bonding Social Capital on Female Literacy in India" shows that social capital is an elusive topic of study in India since the traditional measures are nearly absent here. Putnam measured social capital by counting the number of voluntary associations in towns and villages (Serra 2001). However, such type of analysis of households cannot be applied in India because only 13% of individuals/ households belong to even one organization. Though measurement of formal networks has been the traditional method, they do not apply in the case of India. Anirudh Krishna chose to measure involvement in informal networks because organizational involvement is not visible in India. To directly measure social capital, Krishna devised an index that used six indicators of social cohesion between villagers. His survey included levels of trust, reciprocity and collaboration. In order to measure bridging social capital Daniel Parecki used Peter Mayer's Institutional Performance Index (Mayer 2001) for capturing bridging social capital. IPI measures state's strength of physical infrastructure, medical services, education, enforcement capacity, bureaucratic independence and welfare provision. The IPI was used to show the level of bridging social capital in a state. To measure bonding social capital, the paper focused on the effect of insular families on women. Spousal violence and age of females' first marriage was used. The study by Daniel Parecki revealed that states with high bridging capital have high female literacy rates whereas states with high bonding capital have low female literacy rates. The study also made it clear that per capita income and bridging and bonding social capital have a deeper understanding and understanding these links could improve research in this area.

2. b. Methodology

It is essentially important to integrate complementary data collection techniques when trying to analyse a complex and innovative concept such as social capital. Qualitative methods such as participant observation, life histories, in-depth interviews and focus group research have long been used to elucidate values, perceptions, attitudes and opinions of individuals providing scope for in-depth examination of relationships and behaviours. These encompass the “cognitive” elements and they are also useful to for identifying and evaluating the nature of trust in communities. Coupling results from survey data, qualitative indicators can provide a deeper understanding of what individuals, households and communities regard as social capital. Survey data generates a broad overview while institutional mapping provides a more nuanced understanding of institutional characteristics. Applied together, quantitative and qualitative techniques can provide a more complete and convincing rendering of the institutional landscape.

Instruments used to scale social capital must be reasonably broad so that they can be applied within different contexts. But breadth of application must go together with conceptual rigour and analytical precision. Determining the directionality of social capital impact on development indicators is a first step in operationalizing social capital. It can play a dual role in development, both influencing and being influenced by project outcomes. For example, the capacity of microcredit programs to promote high levels of trust and mutual support among their participating borrowers is one of the main characteristics of their operational success. In turn, studies have also found that repayment rates are higher among group-lending systems with higher level of social capital where borrowers have close trust networks. So we have two questions to be considered here-

Can development projects improve levels of social capital among communities, households and/or institutions? In this case, social capital may be considered a **dependent** variable. Project activities that increase institutional strengthening among local level institutions, community capacity building and participation, and household participation and benefits allocation will increase levels of collective action, trust, solidarity and a host of other dimensions of social capital.

Do pre-existing levels of social capital affect project outcomes? To answer this question, social capital may be considered an **independent** variable where social capital is a determinant or atleast a key input that affects project success. in Indonesia, for example, pre-existing social capital was found to be positively associated with community-based water projects for piped water systems that require more skills for operation and maintenance and more collective action for system that cross land and municipal boundaries.

Meaningful use of indicators requires a conceptual framework within which they can serve to assess a current state, to measure linkages between policy and outcome variables and to assess policy options.

Desirable properties of indicators

- Be developed within an agreed on conceptual and operational framework
- Be clearly defined and easy to understand
- Be subject to aggregation
- Be objective
- Reflect input, process or outcome

Practically, the selection and development of indicators for social capital can proceed along two lines: (1) according to the breadth of relationships and institutions involved; and (2) according to the types of impact social capital has on the development process in which the key dimensions are growth, equity and poverty reductions. To capture the full scope of social capital, measurement has to occur and indicators need to be developed at the micro and macro levels. At the <u>micro</u> level, the impact of social capital has to be assessed primarily by the extent to which the association or institution contributes to making more efficient market outcomes possible by reducing information or incentive problems, or to provide the "optimum" amount of public goods by making efficient collective decision. Significant and growing evidence exists that local associations and networks have a positive impact on local development and the well-being of households.

Townsend (1994) work in India has shown that such capital enhanced the ability of the poor to allocate resources and increase resilience to hazards. A study of 750 households from 45 Tanzanian villages suggests that social capital makes a significant contribution to household welfare. Multivariate regression analysis established that village-level social capital was a key contributor to household welfare even after taking into account the size of household, male schooling, female schooling, household assets, market access, etc.

At the macro level, social capital becomes the fourth category of capital in the production function (with physical, natural, and human capital). Its contribution to economic growth, investment or equity can be assessed in two ways. A first approximation is obtained from accounting-type production function models. Separating social capital from human capital requires a direct estimation of human capital. This has not yet been done successfully. In principle, the advantage of the residual approach is that it identifies the contribution of social capital in its entirety.

e.g. - for the East Asian miracle, growth accounting models could explain only 17% to 36% of difference in the growth performance between East Asia and other parts of the world.

2. c. Measurement of Social Capital

The household survey is the instrument used for generating quantified indicators of social capital, measuring individual households stock of and access to social capital, and aggregating these figures appropriately to generate community level measure of social capital.

Both the cognitive and structural dimensions of social capital are assessed, and they are aggregated appropriately as they are found to be related within the contexts studied. The household survey should be carried out among a random sample taken from the population of interest. Hence it is useful to have or to develop a list of all households in the community and then draw a random sample from the list. Factor analysis technique is generally useful for the purpose of aggregation.

In this survey for our research, we measure bonding capital by examining the effect of parental decision on the educational level of children and bridging capital by examining the effect of professional networks and career counselling on education attainment. We attempt to look at the level of trust on relations both within and outside the family for the information received. Given the financial capital measured by annual household income, the education level of children as a factor of bonding and bridging capital is the attempt of this study.

While we have argued that social capital affects market outcomes and macro outcomes, the absence of a market for social capital due to its public good character makes valuation inherently difficult. Finally, it should be pointed out that number of authors in their research have blurred out the difference between human and social capital by taking both to be embodied in people and hence using a set of indicators on person characteristics as opposed to accounting for measure of association and institutions.

Chapter 3: Data for the survey

The research uses individual questionnaire on a sample of (   ) students based in Pune. The selection of the sample is purely randomized without any prior bias. The only criteria set for this survey is that the respondent is a Masters level student and is currently in the process of finishing the course enrolled in. This selection criterion for the survey has been set in order to have a uniform time scale for all the sample units. This will allow the research to be based across time over the data sample. Hence it is explicable that our research is based on primary data collected through individual questionnaire.

The questionnaire looks at the information networks used by students according to our distinction made earlier for the research i.e. social capital within the family and social capital outside the family. The available information networks depend on the level of trust one has. This is the second part of the survey- to assess whether students have been affected by decisions in the past and what level of trust they have on the information they have received earlier from the networks. Due to subjectivity of the responses plausible in such kind of survey, the data codifies the statements into quantitative values. The profile of the respondents can be an influence on the answers recorded due to the heterogeneous nature of our society. Every region, class, ethnicity has its own social construct and this reflects in the education outcomes of the children. Thus, the survey has an inherent heterogeneity among its sample units. Students belonging to different cultural backgrounds will reflect differences in the level of trust they have on the information networks. Another inherent hypothesis is that respondents with higher human capital level in the family have a higher level of human capital and aim to aspire higher in general.

Admitting that the data set for the research is limited, the survey has tried to incorporate the aspect of social capital in Indian societal context and how is it pivotal in the level of human capital (education) an individual acquires over his/her lifetime.

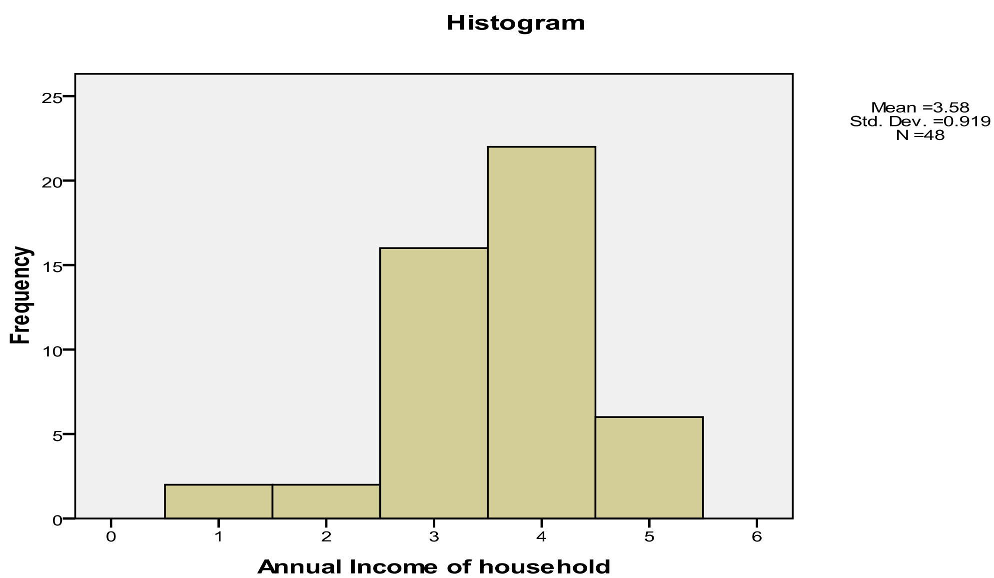
Chapter 4: Findings and results

In research, it may so happen that the variables of interest are ordinal in nature. One can rank the values but the real distance between the categories is unknown. Imposing strict responses in the survey may harm the quality of the research and the results of the survey. In this case, use of Ordinary Least Square (OLS) method for analysis is not applicable because the variables do not follow normality, which is the required basis of using OLS estimates. Logistic regression is an approach to prediction similar to OLS regression. However, in the case of Logistic regression, we are concerned with predicting a dichotomous outcome. The situation posses problems for the assumptions of OLS that the error variances that the residuals are normally distributed. When using logistic regression, we need to make an algebraic conversion to arrive at our usual linear regression equation.

Another difference between OLS and logistic regression is that there is no R^2 to gauge the variance accounted for in the overall regression model. Instead, we use a chi-square test to indicate how well the logistic model fits the data. In our case also, we are adopting the use of Logistic regression instead of following the OLS method because of the nature of the responses and the type of variables entering into the function.

At an intuitive level, the research wanted to look at how education decisions are shaped by our surroundings and predict future outcomes on past decisions made. One important factor to be kept in mind is the level of financial capital of the household in shaping the education outcomes. We proceed with the assumption that families with higher level of income (measured annually) have a higher probability of influencing the decision of the children.

Figure 1



The above figure shows that in our sample survey of fifty (50) units, majority of the respondents belong to families with an annual income in the range of 6 lakh- 12 lakh p.a. the implications of this will be detailed later.

Figure 2

Pearson Chi-Square Tests

		Who took the decision on choice of subjects after 10th
Decision on the type of schooling	*Chi-square*	*26.180*
	df	*6*
	Sig.	*.000*[*,a,b]

A chi-square test for the association of the variables has been carried out. It shows a considerable association between the 'decision on the type of schooling' and 'who takes the decision' regarding the choice of subjects after 10th. The chi-square value shows a high level of significance- in other words a significant association. Thus the decision on the type of schooling has an effect on how the choice of subjects after 10th standard is made. From our survey, it has revealed that parental decision during schooling years has an effect on higher-secondary level of education, even if it is an implicit level.

For logit regression, we use pseudo R^2 test, namely Cox and Snell R square and Nagelkerke R square which is similar to ordinary R square in OLS regression. When we run a logit regression over the parameters, it is seen that the level and quality of education is significantly associated with the choice of graduate course of study and the subsequent satisfaction over that decision.

Figure 3

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	HowwasthechoiceofGraduationcoursemade	-.298	.302	.977	1	.323	.742
	Howwillyoujudgeonthestreamofstudyofgraduation	-1.691	.788	4.609	1	.032	.184
	Constant	.401	.569	.496	1	.481	1.493

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	HowwasthechoiceofGraduationcoursemade	-.298	.302	.977	1	.323	.742
	Howwillyoujudgeonthestreamofstudyofgraduation	-1.691	.788	4.609	1	.032	.184
	Constant	.401	.569	.496	1	.481	1.493

With a decrease in the level of satisfaction on the stream of graduation study, the quality of education overall gets reduced. With a pseudo R square value of 0.204 (Nagelkerke), the model is not offering a strong explanation to the dependent variable altogether. We need to take our analysis further. The analysis turns more robust when we change our dependent dichotomous variable. Future career decision based outside the family circle is explained by the trust on the information gathered so far and the effect of that information on education.

Figure 4

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Doyoubeleiveintheinformationrecievedfromprofessionalnetworks(1)	-2.485	1.137	4.780	1	.029	.083
	Hasyourlevelandqualityofeducationbeenaffectedbytheinformationgat	.811	.998	.661	1	.416	2.250
	Constant	.288	1.289	.050	1	.823	1.333

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Doyoubeleiveintheinformationrecievedfromprofessionalnetworks(1)	-2.485	1.137	4.780	1	.029	.083
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	Constant	.288	1.289	.050	1	.823	1.333

With a decrease in the trust level on the information received from professional networks, the basis of future career decisions based on bridging social capital is reduced. Similarly, an overall effect on the level and quality of education till the present period will have a significant impact on future decisions regarding which networks to choose- either the social capital available within the family or the social capital outside the family. Upon focusing on gender, our analysis tells us that females (girl student) are less likely to rely on professional networks (bridging social capital) for their education decisions in the future. They tend to stick to their family and friend circle. This brings out important issue- women do not have equal trust on the outside family bounds as men do. This is an outcome not from our analysis, but from our society. Our society has shaped different types of networks for men and women and thus the levels of trust on the networks build around us differ for males and females. However, a higher satisfaction with the present stream of study across both the genders raises the probability of studying further; be it either through professional networking or through tacit information received through family and friends. Which network we choose depends on our role in society (gender roles).

Returning to our graph of the income of households, we'd now like to see how the level of financial capital affects educational outcomes. A chi-square test between annual income of households and the decision on the type of subjects chosen after 10^{th} shows a significant relation. This can be forecasted to show that higher educational outcomes depend on the income of the households. And from our sample survey, the research confirms to the literature that a higher level of human capital stock among the parents ensures a higher level of financial capital of the family. This in turns feeds into higher investment on the education of the children.

A final piece of logit regression tells us that future decision unanimously is effected on the type of education we acquire today. This holds an implicit view that the education attainment until now is primarily based on decisions within the family.

Chapter 5: Limitations of this research

Several factors could not be accounted for in our analysis from the data collected through our survey. Parameters relating to the ranking of networks could not be analyzed owing to the limitations of understanding and lack of knowledge acumen. Similarly, the recorded variables and their values need a better statistical justice. Segregation of the values into bonding and bridging social capital would simplify the understandings and put the research domain in a better perspective.

At the outset, we had limited ourselves to a sample of fifty units collected from certain colleges of Pune. A more widespread framework of analysis requires a large panel data set. This is only possible if the research is carried out at a more personal level based on interactions with the respondent units for a time bound scale. Social capital in economics is difficult to quantify and providing a structure is difficult. Due to its sociological roots, it is better for the research to be of qualitative in nature and let the data reveal richer insights into the working of networks in society. The variability in the responses is a result of the heterogeneous nature of our society. Every class/caste and region has its own roots and social structure. Hence the networks are unique for a given class of citizens. This creates information asymmetry-information available in one network may not flow into another network. Thus, information networks are not common to all citizens. This in the first place itself created heterogeneity in the results as we cannot draw a uniform conclusion i.e. one-size fits all strategy.

Use of logit and other variants of the class of Generalized least Square Models offer a better understanding of such dichotomous nature of data. As stated earlier, use of OLS would result in futile results which could offer no explanation. The dichotomous nature of dependent variables proves to be tricky as to how to interpret the findings. Failure of normality assumptions makes interpretation of coefficient estimates non-typical in nature. Since all these factors and others were resulting for the first time payable to the nature of the research, the interpretations are limited by the biasness of the researcher.

Chapter 6: Conclusion

The research had set forth to gauge the level of trust society as a whole has on its surrounding environment. Trust is an important factor, as pioneered by the study of James Coleman has shown. The effect of social capital on human capital outcomes is important both from an individualistic point of view as well as from the economy's perspective.

As an individual, we're faced with a humongous amount of information in our day to day life on various aspects. Singling out education related information; we've been fed with choices and decisions regarding the type of schooling to pursue and the subjects to study. As we grow and mature our information channels diversify. It then depends as to which network does an individual considers for availing information and processing for his/her own self development. From an economy perspective, social capital can affect economic outcomes through its link with human capital. Having known the human capital- growth linkage in the works of Theodore Schultz and Gary Becker, it no doubt that a higher level of human capital in the economy can check for the diminishing returns to labour and capital. But in developing countries today, what needs to be done is to look backwards into the factors shaping the human capital outcomes. Society plays a major role in shaping up of individuals.

This research has looked at the trust levels on different type of information we receive. Bonding and bridging social capital are the two type of social capital formalized in theory. For our study, we operationalized it into as "parental decision", "friends", "immediate relatives", "professional/career guidance" and "personal decision". What is striking from our survey is that if not parents, majority of education related decisions are self-decided. Such a finding can be interpreted as telling us that individuals in our society are more self-motivated and self-initiated. This is completely from a sociological angle. Apart from this, all major findings indicate that future education decisions depend on the level of education acquired till date. Whether we trust professional networks also depends on the satisfaction level from our previous outcomes. Although majority of the respondents switched to personal-based decisions after higher-secondary level of education, in future we'd definitely trust on professional guidance. Thus, the findings are not exhaustive and further conclusions can be drawn.

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