Social Capital as a Determinant of School Participation

in Rural India: A Mixed Methods Study

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ABSTRACT

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Social capital is a resource that provides access to other resources in the community. If social capital can be harnessed locally in communities, it will have the potential to enhance community development. This mixed methods study uses econometric models and Hierarchical Linear Modeling approaches in the quantitative section, along with case study in the qualitative tradition. The study investigates the forms of social capital and its association with school participation. While the quantitative sections use nationally representative survey data, the qualitative data collection is based in one of India's most marginalized districts, Jhabua (with an overall literacy rate of 37 percent), and attempts to observe how social capital plays out in this district in rural India which is dominated by "tribal" or indigenous populations. This study is also an empirical validation of the components of social capital as described in the literature. The quantitative sections find a small but significant association between specific components of social capital and school participation indicators. Social capital in turn is mainly explained by household income, adult literacy and caste and religious affiliations of the household. The qualitative section highlights the disconnectedness between social capital and education in reality. It also showcases some of the negative aspects of social capital in the communities.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

GLOSSARY

Block: For administrative purpose every district has been divided into a number of sections. These are called community development blocks or CD blocks or in short blocks.

District: Districts are the administrative subsections of states in India.

Dropout rate by grade: Percentage of pupils or students who drop out of a given grade in a given school year. It is the difference between 100% and the sum of the promotion and repetition rates (UNESCO, 2008).

Five Year Plans: The economy of India is based in part on planning through its five-year plans, developed, executed and monitored by the Planning Commission. With the Prime Minister as the ex officio Chairman, the commission has a nominated Deputy Chairman, who has rank of a Cabinet minister. The tenth plan completed its term in March 2007 and the eleventh plan is currently underway (Wikipedia as accessed on 25th July, 2010).

Gram Panchayat: Gram panchayat or local self government at village level is the lowest layer of government in the panchayati raj system. It usually consists of two or three revenue villages depending on their proximity to each other. The elected village government (gram panchayat council with the gram pradhan as its head) is formed at the gram panchayat level.

Gram Sabha: the Gram panchayats holds meetings twice a year where all the village residents are invited.

Jan Sunvayi: At the Block level, regular meetings are held in the presence of the Janpadhs and the Panchayats to settle any grievance that the villagers might have.

Net enrollment ratio (NER): Enrollment of the official age group for a given level of education, expressed as a percentage of the population in that age group (UNESCO, 2008).

Panchayat/Panchayati Raj System: According to the 73rd amendment of the Indian Constitution panchayat or panchayati raj system is the structure of autonomous government at the local level. It is a democratic institution closest to the people, having governmental power. As per the Constitutional Amendment there is provision to setup three tier panchayat (district, block and village level) in big states and two tier panchayat (district and village level) in small states where the population is not more than 2 millions (Wankede & Sengupta, 2005).

Primary education: Grades 1 to 5 for India (UNESCO, 2008).

State: India, as a country is divided into a number of administrative sections called the states. At present there are 28 States and 7 Union Territories in India.

Survival rate by grade: Percentage of a cohort of students who are enrolled in the first grade of an education cycle in a given school year and are expected to reach a specified grade, regardless of repetition (UNESCO, 2008).

VEC: Village Education Committee. It is mandated by law that each school should have a community-school partnered Village Education Committee. Usually they help in making decisions regarding mid day meals. But their existence and decision making power varies across the country.

Zilla Parishad: Zilla Parishad is the topmost level of panchayati raj system. It is a democratically elected body, which is in charge of the entire district (Wankede & Sengupta, 2005).

CHAPTER I

INTRODUCTION

This chapter presents a background of the educational issues of India and the South Asian region. The next two sections discuss the research problem that this paper attempts to address and describes the purpose of this study. This is followed by a description of the patterns of school participation in India.

Background

South Asia reported around 8 million children out of school in 2010 which is a dramatic decline from 31 million in 1999 (UNESCO, 2010). While India has witnessed a rapid increase in school access and participation (net enrollment ratio is 90 percent in 2005), there has been a slow progress towards school completion. The Annual Status of Education Report (ASER), a survey administered in collaboration with NGO's across rural India, indicates that in 2009, 4 percent of children in rural India were reported out of school. By the Government of India mandate, no child is asked to repeat a primary grade in a government school, therefore the main reason for the low rates of school completion is dropping out of school. The survival rate to the last grade in 1999 was 62 percent and increased to 79 percent in 2005 (UNESCO, 2008). The drop out rates for grade 1 for India is around 14 percent and decreases to around 4 percent by grade 3.

Traditionally, literature divides the contextual factors that influence school participation and continuation into two parts: cultural and economic. Cultural factors

provide a sociological explanation to the phenomenon-like parental attitude towards schooling, schooling of the girl sibling, the household decision-making or bargaining process, female autonomy in the household and caste discrimination. Economic sources on the other hand are limited to household income, expenditure, school fees and other education related fees, etc. The cultural and economic factors may originate either within a household or a community. Although these are critical factors in influencing school participation and continuation, they do not comprehensively include all of the social dynamics that have the potential to impact parental decisions regarding education. This paper addresses an important, yet not much discussed determinant of school participation in India-social capital.

Social capital, as defined in the literature, implies using the strength of networks to create a unique communal identity that helps to mobilize individual resources toward achieving a common goal (Cattell, 2001; Forrest & Kearns, 2001; Lin, 1999; Woolcock, 2001). This would imply that your neighborhood and community influence your decisions. For example, in the context of education, if your community has an active Parent-Teacher Association then you are more likely to be aware of educational issues and take the initiative to be a part of your child's school activities.

In this study, I am interested in contextualizing and defining social capital in the Indian setting and observing its linkages to school participation. It is often observed that collective action drives most household decisions at the micro level, for better or for worse. This collective action is formed by the social networks present in the neighborhood. Literature suggests that connected networks stimulate the flow of ideas

which becomes critical pieces of information at the household level. Specifically, for the quantitative section of this study, I use a large cross-sectional household survey to study the relationship between social capital (variable of interest) and school participation (initial enrollment, current enrollment and years of schooling as the dependent variable) for 6 to 14-year-olds in rural India. For the qualitative study, the questions that I am interested in exploring are, first, what are the empirically driven components of social capital in the Indian rural tribal context? Second, how does social capital manifest itself in education, through membership in formal and informal social groups or networks (e.g. local government agency, parent teacher association etc)? The two research questions help to understand the relationship between social capital and education.

This study will be a useful contribution to the existing literature to fill gaps in the measurement of social capital. It will also be one of the first studies in India to test the hypothesis of social capital influencing the creation of human capital. The findings will be helpful to come up with multiple models to harness social capital through collectives (PTAs, local government bodies, self-help groups, etc.). These could then become effective mediums to spread educational awareness.

Problem Statement

The problems addressed in this study have two dimensions: conceptual and practical. On the conceptual side, this paper responds to the fuzziness in the definition of social capital as presented in prior studies. Literature indicates that the use of the term "social capital" has been plagued by conceptual murkiness. The foundational statements in the social capital literature -primarily of Coleman (1988, 1990) and Bourdieu (1986) -

were relatively brief and imprecise, leaving subsequent researchers free to develop discrepant meanings of the same term (Hovrat, Weininger, & Lareau, 2003, p. 321). This study will therefore bring more clarity in defining social capital.

On the practical side, the paper develops the measurement of social capital and its contextual adaptation to the Indian setting. The measurement and the actual application also raises many questions, such as 'must the measurement of social capital necessarily vary by national, regional or ethnic setting?' (Krishna & Shrader, 2002, p. 17). This question remains unanswered in the piecemeal discussions of the topic in the literature. This study intends to contextualize social capital to the Indian setting. Prior to this study, there has been only one attempt to develop an index of social capital in the Indian context, but was not in relation to measuring education (Krishna, 2002). The present study will help to craft out the definition of social capital in the Indian setting with the intention of using it to measure indicators of education like the years of schooling, current enrollment and initial enrollment.

My preliminary fieldwork in Delhi slum communities suggests that parents show interest in education, but lack information in the ways they can participate in schools. In one of the focus group sessions from my pilot study, I asked a group of 20 mothers about the type of discussions they have in their parent teacher meetings (PTAs). All parents attended the meetings, and the main discussion centered around the teachers' complaints about their children's lack of academic progress. Parents are asked to teach their children at home but this often becomes difficult as they are not educated themselves. This is followed by the usual administrative procedure of parents signing the meeting's

attendance sheets for school records. I asked them if they were afraid to visit the schools. Most parents replied in the affirmative, since they were apprehensive of what the teacher might ask for, and being uneducated, they would feel embarrassed. The parents explained that they have never even seen their children's classrooms as they are restricted to the office area in the school. This finding is also supported by Schneider, Teske, and Marschall (2000) who mention that information about local schools is more costly to gather since education is a complex "product" and its quality is hard to judge. The authors also mention that even if the parents have some knowledge of school functioning, it is most often inaccurate. The authors mention that there is also inequitable distribution of information about the local school that varies by the socio-economic status of the parents, with the low income families having very little information. Therefore, with no information about the schools, even if the parents want to help the school by using their collective power through PTA's, there are usually no clear guidelines as to how parents should proceed. This value of information is also studied by Jensen (2010), where he conducts an experiment which provided Business Process Outsourcing (BPO) to women in randomly selected Indian villages. This intervention was designed to improve the knowledge and awareness about jobs among women. The results showed an increase in employment among young women, with no effect on older women and men of any age.

This collective power became visible when deciding the school their children should go to. "We had heard earlier that the school is good because of our neighbor's children. And they had told us that the education is good in the school" (Parent Focused Group, Summer 2009). Their responses also underscore the disconnect between the school and the community. If a school has a certain reputation, parents would generally

respect it. There seems to be no other way to find out about the quality of the school. In such a situation, it is easier for the parents to follow others, "If some people tell me that a school is good, then I just follow everyone and get my child admitted there" (Parent Focused Group, Summer 2009). There are some who seek information on purpose from the local residents, "…but the shopkeeper outside my house says that you should get your children enrolled in a government school …"(transcript). The common elements that seem to emerge from the findings of the pilot study is that people tend to ask other community members about schools, but then do not acknowledge the fact that the community helped them to make a decision. Therefore, informal networks do play a part, but are not necessarily acknowledged. Also, they are trapped in a sub-optimal equilibrium if they belong to a poor neighborhood. The disconnect between the school and the community widens once the children are in the school because of the parent's apprehensiveness to communicate with the teachers. This fear stems from shame about being illiterate but also because of the lack of innovative strategies to make use of the existing school-community linkages like the PTAs; commonly assembled merely for teachers to scold parents on their children's poor performance rather than used as an authentic vehicle for preparation.

Statement of Purpose

The purpose of this mixed methods study is to understand how social capital influences school participation for marginalized households in rural India. A mixed method design is used for this study that involves two parts: first, a quantitative phase of the study, where nationally representative survey data will be used to test the hypothesis that social capital (treatment) is positively associated with school participation

(dependent variable) for rural India. The second is a qualitative phase which includes interview and field observation notes that help to explore the social capital phenomenon for local government bodies and parent groups in the Jhabua District, in the state of Madhya Pradesh. The reason for using mixed methods is to provide a more holistic treatment to investigating the link between social capital and school participation in India.

This study aims to summarize how the concept is framed and measured in the literature. It attempts to provide a macro view to explain how social capital is perceived in the literature and describe the different ways to measure it. The study uses the theoretical framework of social capital and crafts the operational definition based on contemporary pivotal literature (Baron, 2000; Durlauf, 2004; Forrest & Kearns, 2001; Glaeser, Liabson, Scheinkman, & Soutter, 1999; Grootaert, 2003; Glaeser, 1999; Halpern, 2005; Krishna, 2002; Putnam,1993). This structure will attempt to be particularly useful for scholars as it will provide a macro framework to understand the concept of social capital. It will also provide a comprehensive treatment to summarize the measurement of social capital in the literature.

Preliminary fieldwork suggests that at the micro level, 'neighborhood effects' play an important role in collective decision-making regarding schooling. My prior exploratory study also suggests that family social networks significantly explain the variations in the years of schooling (Iyengar & Sherman, 2007). We analyzed data for six metropolitan cities in India and ran a two-stage least square regression model to show that social networks have a significant and positive effect on the years of schooling for individuals below the age of 18. For this study, using a secondary household survey data,

I will be constructing an index to measure social capital and estimate its influence on the years of schooling of individuals. The quantitative methods used in the study are the Hierarchical Linear Models and Probit Models. For the qualitative section, the target population will be the Jhabua District from the State of Madhya Pradesh in central India. The purpose of this part will be to conduct an exploratory study to investigate the different forms of social capital present in formal and informal ways within marginalized communities. Using the case study approach under the qualitative tradition, this part attempts to illustrate the key elements which shape parental decision-making regarding children's schooling. As a pilot study, I have collected interview and focus group data to conduct an exploratory analysis, the results of which will inform the design of the qualitative section of my dissertation.

The study will help marginalized communities acknowledge the strength of social capital for improvements in school participation. The findings will be helpful in coming up with multiple models to harness social capital through collectives (PTAs, local government bodies, self-help groups, etc.). These could then become effective mediums to spread educational awareness. Schneider et al. (2000) support this claim by defining what they call a "marginal consumer" (p. 52). Assuming that a perfectly competitive market ensures market efficiency, in the school system these marginal consumers or parents would create pressure to make the system more efficient. Therefore, strengthening the community's local bodies and PTAs could be an effective instrument to increase school participation and improve school quality. The qualitative part of the study will help to understand how locally elected government bodies, e.g. the village

Panchayat[1], Village Education Committees[2] and the Parent Teacher Associations (PTAs), proactively participate in education-related issues. This study will be one of the first in India to test the hypothesis of social capital influencing the creation of human capital. It will also be a useful contribution to the existing literature in filling in the gaps in the measurement of social capital.

School Participation in India

India is one of the four fast growing developing countries commonly known as the BRIC (Brazil, Russia, India and China) economies. However, its education indicators show a mixed picture. India has 22 percent of the world's population, but 46 percent of the world's illiterates and is home to a high proportion of the world's out-of-school children (Kingdon, 2007). Forty-five percent of the total population in India is illiterate (Census, 2011). Table 1 indicates the numbers of literates by their education level. Of the individuals who are literate, 26 percent have below-primary-grade education, 16 percent have education up to middle grades (6-8), and 14 percent are tenth-grade graduates.

Recently India has also reported a decrease of almost 15 million out-of-school children after the 2001 launch of the *Sarva Shiksha Abhiyan* (Universal primary education) program (UNESCO, 2010). The launch of the Mid-Day Meals centrally sponsored program in 1995 could be a reason for the increased enrollment but the quality

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[1] Village Panchayats are the last tier of locally elected government bodies in the decentralized government system in India.

[2] It is mandated by law that each school should have a community-school partnered Village Education Committee. Usually they help in making decisions regarding mid day meals but their existence and decision-making power varies across the country.

of the meals varies by state (Dreze & Goyal, 2003). The Gross Enrollment Ratio (GER)[3]

for primary education increased from 93 percent in 1999 to 112 percent in 2007, and for

secondary education (lower and upper secondary together) this increase was from 44

percent to 55 percent for the same years (UNESCO, 2010). Despite these increases in the

GER, the major challenge for India now is school continuation. Figure 1 confirms that it

is possible to expect that from every 100 children who are age 6 years, 89 percent will

enter the first grade of primary school at the correct age. Of these, only 66 percent will

continue till grade 5. Out of those who manage to remain in school and complete fifth

grade, 84 percent will transition from primary to secondary school (UNESCO, 2010).

Education for All (EFA) is a multinational commitment initiated by UNESCO

aiming to meet the education needs of children by 2015. How far is India from meeting

the EFA goals in 2015? The EFA Development Index (EDI) combines indicators of

universal primary education, adult literacy, gender parity, and equality and education

quality. The EDI score for India is lower than 0.79, and the two critical indicators that are

pulling it down are survival rates to grade 5 and low adult literacy (UNESCO, 2008). The

range of the EDI is from .995 for Norway and the United Kingdom to .409 for Chad.

India is among the 25 countries in the world with the lowest levels of EDI, along with

Bangladesh, Nepal, and Pakistan from the South Asian region. Table 2 shows that over

the years from 1981 to 1999 the drop-out-rates have gone down, but the country still has

a long way to go to reach the EFA goals by 2015.

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[3] The Gross Enrollment Ratio (GER) is calculated by expressing the number of students enrolled in primary, secondary, and tertiary levels of education, regardless of age, as a percentage of the population of official school age for the three levels.

Education has consistently been the lagging indicator of development in India. Figure 2 suggests that the absolute deprivation[4] in education remains extraordinarily high throughout South and West Asia despite the progress of the past decade (UNESCO, 2010). There are also marked gaps in learning achievement linked to socio-economic status. A difference between an individual's home language from the official language of instruction is also commonly associated with lower test scores.

In terms of actual counts, there are 190,582,581 children in the age group of 6 to 13 years, out of which 4.28 percent are out of school (Government of India, 2009). The rural component of this figure is higher with 4.53 percent of children out-of-school, similar to statistics in the Annual Status of Education Report (ASER) 2009, which reports a figure of four percent for children aged 6 to 14 years (ASER, 2009). Please refer to Table 3. Government of India (2009) figures show that at the national level, 7.67 percent of the estimated Muslim population were out of school, 5.60 percent of the estimated Scheduled Tribe population were out of school, 5.96 percent for Scheduled Castes and 2.67 percent for Other Backward Castes (OBCs). This indicates that caste might be one of the factors of educational deprivation, as suggested by UNESCO (2010) as well. Among the children who are out of school, 74.89 percent are those who never went to school, and 25.11 percent dropped out of school after one or more years. It is important to note that among the dropouts the highest percentage is of those who dropped out after completing grades 1 (19.64 percent) and 2 (19.55 percent). This is followed by those who

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[4] Educational deprivation is measured by the EFA Development Index (EDI). The index is a combined measure of Net Enrollment Rates (NER) in primary education, adult literacy rate, gender parity, and survival rate to grade 5. EDI ranges from 0 (high educational deprivation) to 1(no educational deprivation) (UNESCO, 2005).

dropped out after grade 5 (19.17 percent). Therefore, the analysis of this paper takes into consideration the age group in estimating school participation rates.

In the age group of those 11-13 years old, 5.23 percent are out of school as compared to 3.69 percent in the age group of those 6-10 years old. Gender differences among the out-of-school children show that in the age group of those 6 to 10 years old indicates that there are marginal differences (3.40 percent are boys, 4.04 percent are girls). For the age group of those 11-13 years, the gap widens; 5.79 percent of girls and 4.77 percent of boys are out of school. The ASER survey of 2009 reports a slightly higher magnitude of 6.8 percent for out-of-school girls between the ages of 6 to 14 in rural areas. The most commonly reported reason for dropping out of school was poverty/economic situation of the household (27.09 percent), followed by "child too young to attend school" (25.94 percent). 7.41 percent reported that the child had to supplement household income and 7.36 percent mentioned that child needed to help in domestic work. Around 6 percent reported that they felt that education was not necessary for them. For girls, the reason "needed to help in domestic work" was higher than for boys, whereas the boys had a marginally higher percentage for "child to supplement household income". The next chapter also discusses some of the factors that households consider while making schooling decisions.

CHAPTER II

LITERATURE REVIEW

It is hardly possible to overrate the value...of placing human beings in contact with persons dissimilar to themselves, and with modes of thought and action unlike those with which they are familiar....Such communication has always been, and is peculiarly in the present age, one of the primary sources of progress. — John Stuart Mill (Woolcock, 2001, p. 67)

The literature review section is divided into the following parts. This chapter first presents an overview of the term social capital and tracks its progress in recent literature. Since social capital is used in a variety of context, the next section narrows the focus on the literature that discusses social capital and education. The following section discusses the influence of households as a unit on education in India. To get a better understanding of the multidimensional aspect of social capital, the next section presents a detail account of the various components of social capital as used in the literature. The last section presents the different methods of measuring social capital.

Overview

Over the years, there has been a consistent increase in articles that have explored social capital in varied contexts. See Figure 3. The reviewed literature covers two main areas, including (1) components of social capital and (2) measurement of social capital. These two components follow a broader discussion on social capital where the links

between social capital, development and education are investigated. Since households are the unit of analysis for social capital generation and accumulation, literature on household decision-making regarding education is also discussed.

Since social capital is multidimensional, it is housed within two theoretical paradigms. Some dimensions of social capital fall under the structural functionalism paradigm as it includes institutions, formal and informal networks, governance and trust and values. Structural functionalism emphasizes the differentiation of roles and ways of assigning people to them; communication systems, shared symbolic systems, shared values and mutual cognitive orientations which promote stable systems (Feinberg & Soltis, 1998). "…[The] structural functional sociology emphasized the necessity for societies to rigorously socialize their populations, even to the point of promoting common symbols, values and emotions, in the urgent context of (naturally based) survival" (Feinberg & Soltis, 1998, p. 71). Parson (1948) argued that social action is voluntary and subjective, yet patterned into a certain logical structure and that this patterning occurred through similar normative orientations of actors in terms of their norms, beliefs and values. The second paradigm that helps in explaining the negative aspects of social capital is Neo-Marxism. A local organization in a neighborhood could become non-inclusive or form ghettos impeding societal cohesion and development. The hegemony of one class over the collective of the other is a form of negative social capital.

The literature does not indicate one clear definition of social capital, however there seems to be a general agreement that social capital has two broad divisions: first, structural social capital includes social structures, organizations and institutions; second,

cognitive social capital is based on mental processes and psychology in the domain of ideas, and includes particular norms, values, attitudes and beliefs (Cattell, 2001; Forrest & Kearns, 2001; Lin, 1999; Woolcock, 2001). Therefore, the structural (embeddedness), opportunity (accessibility) and action-oriented (use) aspects of social capital reinforces an identity and recognition to an individual (Forrest & Kearns, 2001; Lin, 1999). These parameters are further explained using Grootaert's (2002) framework in the literature review section of this paper. Angrist and Acemoglu (2000) call this collective action a positive "Social Multiplier," whereas Banerjee (1992) describes this social behavior as "herd externality." He says that individuals tend to ignore information and join the herd which indicts a negative externality onto the population (Banerjee, 1992). The main essence of social capital, as observed from the definitions, is in using the strength of networks to create a unique communal identity which helps to mobilize individual resources toward achieving a common goal. In the context of education, this could be a parent teacher association coordinating their activities to promote student learning, or a local government body discussing the quality of education in local village school. In a larger context, this community-driven action could translate into economic or political development.

Social Capital and Education

The link between social capital and education is studied under varied contexts and using different methodologies.

Schneider et al. (2000) suggest that to assume that individuals are "atomistic" actors who make decisions about schooling independent of their social network is

seriously flawed. Parental social networks are usually comprised of family members and extended families that form a strong kinship network (Smrekar, 1996). Networks also include relatively close friends, neighbors and parents of other children in their child's school, and church members, families who are active in particular sports and the upper-middle class families with physical boundary affiliation to their neighborhoods (Schneider et al., 2000). They further clarify that parents are embedded in networks of information that are highly stratified by education.

Social networks provide a cheap and useful source of exchanging information (Schneider et al., 2000; Smrekar, 1996). However, it is important to note that it is probably not the actual friendship between parents that affect student achievement (Schneider et al.,2000). Rather, children who live in this kind of community may be benefited by the support, guidance and common values created by these relationships among parents (Adams, 2006). Adams (2006) showed that children who were living in communities where a greater number of parents knew the parents of their children's friends, had higher math scores on average. Coleman (1990) describes this in terms of "reciprocated exchange" (in Sampson, Morenoff, & Earls, 1999, p. 635). He notes that individuals may know each other, but rarely exchange information of interest. Material exchange and information exchange leads to better social support and a more productive social network. There seems to be a dependence on the types of networks to get information, which may imply that parents residing in a poor neighborhood are more likely to be exposed to low quality information. In the Indian rural context, since most of the parents are not educated, informal interpersonal communications become the primary

source of information. The government schools in the area do not have any open days or any such event for the parents to get information about the school.

Bourdieu's theory of cultural capital might be useful in explaining the importance of social class in parental interaction with the school (Bourdieu, 1970). He believed that schools are a medium in propagating the cultural heritage of the society. Therefore, the most dominant elements of culture form the cultural capital of the school. This dominant culture can be broken down into its habitus of social traits and abilities. Schools are a "harmonious way to transmit the cultural heritage" and help to set all the rules and structures that would be followed in the school (Bourdieu, 1970, p. 57). Bourdieu emphasizes that by doing so, the equilibrium in the society would be maintained. There would be controlled mobility and the labor classification would be maintained to carry out economic activities in the society. His work has been further studied by Lareau (1989) who asserts that a higher social class provides parents with more resources to intervene in schooling (Lareau, 1989, in Smrekar, 1996).

An interesting distinction in how social capital is perceived is its dependency on its contextual setting. The social environment plays an important part, be it family, neighborhood or the school itself. Inner-city neighborhoods and their impact on school completion rates have been studied by many researchers (Ainsworth, 2002; Ensminger, Lamkin, & Jacobson, 1996). Studies in this genre use the term 'neighborhood effects' as a type of social capital and propose policy interventions like collective socialization and institutional development which makes the mediation process much stronger (Ainsworth, 2002). Other studies use schools as their setting to create social capital (Chattopadhay,

2007; Stanton-Salazar & Dornbusch, 1995). Chattopadhay (2007) focuses on schools as the environment to create social capital and observes its effect on adolescent students from schools in Brazil.

There are two ways to capture the relationship between social capital and education. The first is by estimating the impact of education on social capital which was initially discussed by Putnam (1993) with some later extension to the study (Helliwell & Putnam, 1999; Heyneman, 2002; Putnam, 1995). Putnam's (1993) analysis shows that education is one of the most important predictors of political and social engagement. The reverse has also been studied, where social capital is the independent variable that impacts education (Coleman, 1987, 1988; Crane, 1991; Ensminger, Lamkin, & Jacobson, 1996; Lalive & Cattaneo, 2006; Teachman, Paasch, & Carver, 1997). This literature uses school choice decisions, school continuation or drop-outs and achievement as indicators of education. Coleman (1987) in his paper "Families and Schools" first discusses the strong social capital around families of children going to catholic schools. Later, Coleman (1988) in his seminal paper, "Social capital in the creation of human capital" uses three forms of social capital: obligations and expectations, information channels and social norms that could have a potential impact on the incidences of school dropouts. Teachman, Paasch, and Carver (1996) note that the type of school (Catholic school) the children attend is greatly influenced by the social capital of the family. Hovrat et al. (2003) observe parent networks and use an ethnographic approach to demonstrate how these networks confront problematic school conditions.

Other studies show that social capital does not directly influence educational outcomes, rather mediates the effect. Teachman et al. (1997) indicate that social capital mediates the effect of parental financial capital and human capital on leaving school. The authors use parent-child and parent-school interactions, as well as family structures to show that social capital indirectly effects the school continuum. They also find that social capital interacts with the financial and human capital of parents to determine school continuation. Along similar lines, family social capital mediates the effect of early childhood outcomes through family resources (Parcel & Menaghan, 1994).

The link between social capital and education has also been empirically tested in the literature before. Knaul (1999) defined social capital in the context of Bogota in terms of parental time spent with their children, activities of engagement (sports, reading, outings with their children, etc.), their intensity (hours) as well as indicators of parental perception on the importance of education. The author also included social capital indicators of the community, like neighborhood problems with gangs, drugs and other measures of violence, and found that the impact of the family and community social capital on school drop-outs are robust, controlling for the family's financial and human capital.

In a similar study, Gootaert, Oh and Swamy (2002) investigate why school attendance in Burkina Faso is low even though expansion of education had been a priority of the government (10-15 percent of the government expenditure is allocated to education). One of the reported problems was limited community participation in education, whereas in their social life people showed extensive cooperation with regards

to the allocation of land, water, mutual insurance and pooling of labor. The authors use regression analysis to estimate the impact of PTA meetings on school attendance (the dichotomous variable). The authors found that one extra PTA attendance per household is associated with an increase of 3.5 percentage points in the probability that the child attends school. In a related study, Gugerty and Kremer (2002) conducted experimental studies to observe the impact of school-related development assistance on "building" social capital in Kenya. They examined three projects that attempted to build social capital that were undertaken by a Dutch NGO. One project involved no participation (provided textbooks to schools for two years), one involved considerable community participation (provided block grants to school committees) and one involved organizational and management training for indigenous community organizations (through women's groups). The authors found that the textbook program and grants to school committees did not substantially affect school committee and parent attendance, but both improved teacher attendance efforts. Neither did the women's group program improve the indicators of social capital. The authors concluded that we should be cautious about programs that deliberately attempt to "build" social capital. The study uses attendance at PTAs and school committee meetings as well as parental contributions to school projects as indicators of social capital (the outcome variable).

Household Decision Making Regarding Education

Since schooling decisions are influenced by the community, a deeper understanding of household and neighborhood factors that influence education is necessary. In 2004, I was a part of a UNICEF funded project which conducted a "retrospective" study to understand household decision-making regarding schooling. The

data consisted of household surveys for 144 households (247 children) in resettlement colonies[5] in East Delhi. The survey included questions such as who are the children who remain in one school through one stage (primary, middle, etc.) and who are the children who move around? How much of this is based on a child's academic performance; how much on family characteristics? The analysis indicated that there are three nested loops that influenced the child's schooling history; the community, the household and the child. Neither of the three factors are mutually exclusive and affect decisions simultaneously. At the community level, if the community had Tamil language-speaking families who migrated from Southern India, they preferred a Tamil medium school for their children. In this case, the distance to the school did not matter as much as the medium (the Tamil). At the family level, important events such as migration to their home village during harvest season, a birth/death in the family, siblings attending the same school and the family's average education level affects schooling decisions. The third loop is related to the child's own attributes, for example, the child likes to attend the same school as her friends, or she drops out because she doesn't like her class-teacher or faces discrimination in school (Nambissan, 1996).

There is yet more evidence that the household decision-making regarding education is influenced by three sets of factors: the child, the family and the neighborhood. Family characteristics that negatively influence schooling decisions are an economically marginalized and minority status, family illness, migration patterns, caste, parental education and returns to child labor (Chudgar, 2006; Chatterji, 1975 in Chugh, 2004; Nayar, 1997; Dreze & Kingdon, 2001). Interestingly, female headed households

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[5] The resettlement colonies are constructed by the Delhi Government to provide low cost housing to slum dwellers.

tend to have a higher education attainment (Chudgar, 2006). On the psychological side, the insecurity concerning a girl child, lack of parental motivation to send their children to school or negative behaviors of teachers and schoolmates may result in school dropouts (Chugh, 2004; Chatterji, 1975 in Chugh, 2004 ; Kamath, 1993). Chugh (2004) points out that the reason most parents are reluctant to send their child to school is usually because the road to school is considered dangerous for girls to take on a daily basis and the parents don't want to take the risk. At the community or neighborhood level, certain district[6] characteristics, community's beliefs about female education and residing in slum clusters in the cities adversely influence their decisions about schooling (Boissiere, 2004; Chudgar, 2006; Kingdon, 2007; Mukhopadhyay & Suri, 1998 in Chugh, 2004). At the individual level, the order of the siblings play just as important a part in their schooling, where the older sibling may drop out of school to look after the younger sibling (Chudgar, 2006). Other factors like a lack of interest in studies also adversely influences school participation (Chatterji, 1975 in Chugh, 2004).

Moving away from this demand-side model of decisions based on households is the supply-side model. The supply-side factors are all school-related factors that influence household decision-making based on educational barriers. Stemming from the Seventh All India Education Survey (NCERT, 2006b) in 2002, there were only one-fifth as many secondary schools (those with grade 10 classes) as the number of primary schools (Kingdon, 2007). Banerji (2000) indicates that the inadequacy of the school system to attract and keep children in schools is more crucial than the economic constraints of the household. Boissiere (2004) also notes that the demand for education is a function of perceived direct and indirect school costs (loss of household labor) which

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[6] India has 35 states and 7 union territories which are further divided into 602 districts.

outweigh the benefits of literacy and numeracy. A deeper understanding of social capital may help in understanding some of the missing links.

Social Capital and its Components: Methodology of the Literature Review

To determine how social capital impacts parental decision-making in schooling patterns in India, the first step would be to understand what constitutes 'social capital' and how it has been defined in the literature so far. The purpose of this section of the literature synthesis is to parse different components of social capital. This literature review is a synthesis of 64 articles culled from journals, edited books, book sections, etc. The methodology for the literature review is as follows. I categorized the social capital definitions using the following framework: very general and complex statements describing broad categories of the concepts were placed under the 'Constructs' category. Note that the constructs are not mutually exclusive and may tend to overlap. More specific elements of the definitions were placed under the 'Domains' category. If the author presented examples on how these domains were operationalized, they were placed under the 'Indicator' category.

For example, Pretty (2003) describes social capital in terms of "relations of trust, reciprocity and exchanges, common rules, norms and sanctions as well as connectedness, networks and groups" (p. 1). This was defined as a social capital construct. The author further sub-classifies as follows: "Three types of connectedness have been identified as important for the networks within, between and beyond communities. These are called bonding, bridging and linking types of social capital" (p. 2). Therefore, bonding, bridging and linking types of social capital are the domains in my classification category. The author further provides indicators of connectedness which show how these domains are

measured or become visible: "Households with greater connectedness have been shown to have higher incomes (Krishna, 2002; Narayan & Pritchett, 1996; Wu & Pretty, 2003), better health, educational achievements and longevity (Fukuyama, 2000), improved social cohesion (Schuller, 2001) and lead to more honest government" (Putnam, 2000, p. 2). These were categorized as indicators. It is not necessary that all three categories need to be complete for each author, as it depends on the details provided by the author in each category. I used in-vivo text to do the classification and created an excel database for these classifications.

Following the creation of the database, I used QSR NVIVO 8 software to code the constructs and the domains. The coding procedure is used as a data reduction strategy which helped to synthesize the classification and map out the frequency of each of the constructs and domains. I used in-vivo unstructured coding for this process.

The literature synthesis is based on Grootaert and Bastelaer's (2002) framework of social capital. This framework is elaborated on in Figure 4, used after the coding and the synthesizing, i.e. after completing the coding of the literature. The framework is modified by including non-cognitive along with cognitive outcomes on the X axis, where the cognitive aspects would be covered in quadrant II and the non-cognitive part included in quadrant IV. Apart from governance in quadrant II, the quadrant is extended to include other positive and negative outcomes of social capital and its effect on domains like cognitive abilities, social control, routine activities, cooperation and coordination. This framework is useful to understand the macro view of social capital.

Literature Synthesis: Overview of the Results

Table 4 presents the coding patterns using the NVIVO software. It shows the constructs or labels, sub-constructs if any and the corresponding domains. The data presented in the table are the number and percentage of references corresponding to their constructs and domains using the unstructured coding. Percentages are calculated out of the total number of references coded (total number of references coded = 714) from 64 articles. Please note that the number of references for the construct labels is not a summation of the number of references for the domains under the same construct. The constructs are coded independently of the domains, since some articles do not break down the construct into its corresponding domains. For example, for the cooperation and coordination construct, there are 28 references that were coded, their corresponding article sources not breaking the construct down into its domains. But there were articles that described the sub-domains in detail, which have been coded and reported independently. In other words, the number of references for the construct will not match the summation of the references to the corresponding domain.

Table 4 presents the constructs and the domains that define the components of social capital. Table A in the Appendix helps to define each of these components. Table 4 indicates that among all of the constructs and domains, the most references were for interpersonal trust (with 56 references), followed by social and civic norms (with 51 references), social control (with 46 references), structural group membership (with 47 references) and neighborhood-ecological effect (with 42 references). The data indicates that mutual trust, structural group membership and neighborhood factors form an important part of the social capital construct. Social capital is also explained by social

and civic norms and a means to exert social control also in line with Bourdieu's concept of cultural capital. This analysis presents the importance given in the literature to certain aspects of social capital over others. It is important to note that the link between education and social capital is given by the construct of cognitive abilities, which only has 11 references in the literature. This study will address the existing gap in the literature and will ascertain and highlight the ways that the link between social capital and education can be strengthened to have a positive impact on education. The discussion of the constructs in detail will follow.

Sub-classification in terms of constructs and domains

The presentation of the description of categories of social capital will follow Grootaert and Bastelaer's (2002) framework as shown in Figure 4.

Quadrant 1: Institutions of the state, rule of law; at the intersection of Macro and Structural

The constructs or labels drawn from the literature synthesis that correspond to quadrant 1 are: Structural institutional mechanism and social and civic norms.

Structural and institutional mechanism

As defined in the literature, "The structural category, broadly speaking, is associated with social organization of various kinds and particularly with roles and rules..." (Carroll, 2001, p. 7). The domains under this construct, as derived from the coding process, are the diversity of institutions, efficacy of the institutions, institutional

resources and the vertical hierarchical organization. Institutions in the social capital literature are defined in terms of their hierarchical structure. Refer to Appendix Table A for descriptions of each domain. Quadrant I comprises higher order institutions with authority, most likely with the state involvement. Figure 5 shows the number of references to these domains in the literature database.

The graph shows that the highest number of references in this category is for the vertical hierarchical organization. "Coleman (1988, 1990) has argued that social capital can include 'vertical' associations as well, characterized by hierarchical relationships and unequal power distribution among members" (Grootaert, 1999, p. 5). All the references which describe the associations as 'vertical' and 'hierarchical' were coded under this category. The rest of the domains like the efficacy of the institutions describe how well the hierarchical institution performs, resources that the institution possesses which can be utilized to enhance social capital, and finally the diversity of membership that the hierarchical institution entails. The indicator of the vertical and hierarchical organizations "encompasses formalized institutional relationships and structures, such as governments, political regimes, the rule of law, court systems, and civil and political liberties" (Serageldin & Grootaert, 1997, p. 46).

Social and civic norms

Durlauf (2002) states that, "Social capital can be simply defined as an instantiated set of informal values or norms shared by members that permit them to cooperate with one another" (p. 1). Edwards, Franklin, and Holland (2003) mention that "…social capital leads people to act in the interests of the collective "public" good, not just self-interest"

(p. 85). There are 51 references to the civic norms in the literature based definitions of social capital. Yet none of the authors provide an operational indicator of how these norms can be observed in reality.

Quadrant II: Governance; at the intersection of macro and cognitive outcomes

Grootaert and Bastelaer's (2002) framework defines this quadrant in terms of governance. For this analysis, I have adopted a broader view which incorporates the potential uses and benefits of social capital. Woolcock (2002) defines social capital under two dimensions: first, by the sources of social capital (e.g., through networks, groups, etc.); second, by the potential uses of social capital (e.g., cooperation, trust, etc.). Quadrant II is best suited to describe the potential uses of social capital that fit the macro and cognitive lens.

Potential uses of social capital divide into the following constructs: cognitive abilities, cooperation and coordination, routine activities and social control. Cognitive abilities . There are only 11 references in the literature database on this construct, validating the fact that there is a gap in the literature that connects the impact of social capital on cognitive abilities. Cognitive abilities in this section refer to school outcomes indictors like school continuation/drop out rates, early childhood outcome indicators, etc[7]. The link between education and social capital was first studied by Putnam (1993), followed by some of his later extensions to the study (Helliwell & Putnam, 1999; Putnam, 1995). His analysis shows that education is one of the most important predictors of political and social engagement. On the other hand, Teachman

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[7] The non-cognitive abilities such as attitudes, behaviors, beliefs, etc. are grouped under the construct labels as the psychological sense of community, discussed under quadrant IV.

(1997) shows that social capital mediates the affect of parental financial capital and human capital on leaving school. The authors use parent-child interactions and parent-school interactions, as well as family structures, to show that social capital indirectly affects school continuum.

Cooperation and coordination

This factor had multiple references in the literature review database (28 references) and was further broken down into the following domains: diffusion of innovation, economic development, efficacy of collective interest, information dissemination, political efficacy and problem solving. Multiple authors refer to these domains in the literature, their essence being that, "Strong networks enable communities to solve collective action problems by breeding cooperation and easing coordination" (Bhrehm & Rahn, 1996, p. 999). The graph given below presents the number of references of these domains. Figure 6 shows that political effectiveness is one of the main uses of social capital. Also, that the main attribute as originally described by Grootaert and Van Bastelaer's (2002) framework is governance. Other potential uses are economic development, information dissemination, low crime rates, problem solving, etc.

Routine activities

This was another construct that was not well represented in the database, with only 2 references. Sampson, Morenoff, and Gannon-Rowley (2002) mention that social capital helps people perform their routine activities.

<u>Social control</u>

   The social control construct taps into the negative aspects of social capital. The main source of this construct is from Bourdieu's concept of cultural capital as a means to cultural reproduction. Edwards, Franklin, and Holland (2003) states that, "Here, social ties constitute a means for social control through the generation and sustenance of norms of approved social behaviour, and the sanctioning of disapproved behaviour" (p. 85). Stanton-Salazar and Dornbusch (1995) examine how students' grades and educational and occupational expectations are related to forming ties with teachers. The authors make the point that these social relationships become critical to gaining institutional support which may be biased to particular sections of the student population. Social control was represented 49 times in the database.

<u>Quadrant III: Local institutions, networks at the intersection of the structural and micro</u>

Quadrant III is shared by two constructs: civic engagement and neighborhood-ecological effect.

<u>Civic engagement</u>

   Civic engagement or social participation is further classified into structural group membership which "includes the composition and practices of local level institutions…that serve as instruments of community development. Structural social capital is built through horizontal organizations and networks…" (Bain & Hicks, 1998 in Krishna & Shrader, 1999). These local organizations are unlike the formal institutional structures as described in Quadrant 1, but can still be categorized into horizontal and vertical organizations. Indicators of the local organizations are, "local religious

organizations; neighborhood watch programs; block groups, tenant associations or community councils; business or civic groups; ethnic or nationality clubs; and local political organizations" (Sampson et al., 1999, p. 207). This type of structural group membership was referred to in the literature 47 times.

The structural group membership construct is further broken down into domains which present different dimensions of the group characteristics: Density of membership, type of horizontal and vertical organizations, inclusiveness, diversity, intensity and nature of activities. Figure 7 provides the number of references of each category. The nature and intensity of activities had the highest number of references (26 references). It is promising to see that the inclusive nature of the group was referred to 22 times in the literature. Therefore, social capital, as defined in the literature, pertains to inclusion of individuals rather than having closed but tight-knit groups.

Neighborhood- ecological effect

Neighborhood effect has been widely studied in the literature. Social capital enhancement through a neighborhood effect can occur through multiple pathways, one of which is through "kinship/friendship, ties [which] measure the number and relative proportion of friends and relatives that respondents reported living in the neighborhood factor" (Sampson, Morenoff, & Earls, 1999, p. 207). This 'neighborhood activism' is broken down into the following domains: within family networks and ties (indicator: parent-child interactions); informal horizontal relationships (indicator: neighbors chatting with each other); level and density of social ties. This construct attempts to tap into informal networks and associations through the attribute of spatial proximity. It was

referred to 42 times in the social capital literature. The breakdown of the number of references is as shown in Figure 8.

The label that best describes these attributes is the 'psychological sense of community' (Lochner, Kawachi, & Kennedy, 1999). "Social capital, as defined by its principle theorists (Coleman, 1990; Putnam, 1993a,b), consists of those features of social organization such as networks of secondary associations, high levels of interpersonal trust and norms of mutual aid and reciprocity which act as resources for individuals and facilitate collective action" (Lochner et al, 1999). This affective construct is broken down into the following components: attitudes, behavior, expectation of reciprocity, group identification, interpersonal trust, predispositions, shared values and beliefs, social cohesion and social relationships. Figure 9 present the frequencies of references.

Interpersonal trust dominates the distribution for this construct followed by expectations of reciprocity and shared values and beliefs. The psychological sense of community is one of the most predominant constructs that has been referred to in the literature multiple times.

Measuring Social Capital

Empirical literature on social capital supports a wide use of methods. One of the earliest works in this direction is by Inkeles and Smith (1974) who constructed a modernization scale for individuals in six developing countries and used the term "societal modernization" which they broke down into "early socialization" and "late

socialization" as a proxy for social capital formation (Inkeles & Smith, 1974, p. 313). The authors define early socialization in terms of the father's education, own education, ethnicity and urban or rural origin. Late socialization includes occupation, standard of living, urban experience and mass media exposure. Their analysis shows that the father's education plays a major role in determining the level of the son's education. In general, the late socialization variables had a higher influence on the individual's modernity scale than early socialization variables. Other interesting aspects of being modern and having a particular level of social capital was depicted through the individual's interest in political activities, e.g., took part in political events-voting, often contacted the governmental and political agencies and joined organizations that made him an "active participant citizen" (Inkeles & Smith, 1974, p. 312).

Multiple studies have used mixed methods to investigate the phenomenon of social capital (Chattopadhay, 2007; Dudwick, Kuehnast, Jones, & Woolcock, 2006; Ferguson, 2004; Grootaert, 1999). Under the quantitative tradition, multi-level modeling has been used often, since social capital formation has a hierarchical structure being derived from structural and local institutions acting upon neighborhoods, communities and households (Bhrehm & Rahn, 1996; Holian, 2003; Sampson, Morenoff, & Gannon-Rowley, 2002; Sampson et al., 1999). Principal Component Analysis is used to factor and analytically identify the multi-dimensional components of social capital (Bhrehm & Rahn, 1996; Holian, 2003; Nyangena & Sterner, 2008). Creation of a heterogeneous social capital index and using it as the treatment variable in regression analysis is another approach to quantify social capital (Knack, 2002; Maluccio, Hadded, & May, 1999; Narayan & Pritchett, 1999; Nyangena & Sterner, 2008). The heterogeneity is in terms of

the inclusive and exclusive nature of the family, the associational life of the family - the

groups they join, the types of groups, number of groups and the types of activities

(Narayan & Pritchett, 1999). Creating an index of social capital not only makes the

concept more quantifiable, but by including multiple attributes the concept has become

quite comprehensive. The literature has also highlighted the endogeneity issue in terms of

the relationship between education and social capital or the reverse causality problem that

exists between family income and social capital (Grootaert, 1999; Knack, 2002; Narayan

& Pritchett, 1999;). Many social scientists have used pure qualitative inquiry to observe

how social capital promotes actions under different contexts (Cattell, 2001; Horvat et al.,

2003; Krishna & Shrader, 1999).

Construction of the social capital index

The index of social capital helps to quantify the overall concept and its

constituents and also will be able to incorporate variables that customize the

measurement of social capital to the Indian setting. The literature discusses the use of

multiple techniques for measuring social capital. These include construction of a

normalized multiplicative or additive social capital index or using individual components

of social capital derived by using factor analysis. However, "unfortunately the conceptual

and theoretical literature on social capital has not yet provided a sufficiently refined

model to justify one approach or the other" (Grootaert, 2002, p. 90). In general, the social

capital indices as presented in the literature are constructed based on multiple-member

and local-organization characteristics as described below. Although using an index of

social capital creates a comprehensive measure of social capital, it also manages to hide the significance of each underlying component.

The justification for using a multiplicative index is that the effect of the number of organizations to which one belongs may not be independent of the internal degree of diversity of the organization and the way it functions (Grootaert, 2002). The effects are assumed to interact. However this is debated, as the "homogeneity is well regarded in some contexts, while heterogeneity is thought to represent more social capital in others. The context provides the referents that are used to measure social capital in others" (Krishna, 2002, p. 83). A study in Indonesia also used a multiplicative index and found it to be significant in explaining household expenditure per capita (Grootaert, 1999). In Bolivia an additive index was significant in explaining household welfare (Grootaert & Narayan 2000).

Construction of an index of social capital is not a new technique in its measurement and is used in multiple studies (Grootaert, 1999; Maluccio, Haddad & May, 2000; Narayan & Pritchett, 1999). These studies construct an index which is organization-or association-based. The main components of the index are structural social capital, cognitive social capital, and collective action. Structural social capital includes three key dimensions: the density of memberships, diversity of memberships, and the extent of participation in the decision-making process. The attitudinal and behavioral component of social capital is further broken down to solidarity, trust and cooperation, and conflict and conflict resolution.

Some indicators of structural social capital, such as the cases of Ghana and Uganda, focus on group characteristics (Narayan & Cassidy, 2001 in Grootaert & Van

Bastelaer, 2002). Other examples are in the form of informal networks and established

roles which helped the community deal with crises situations (crop disease, etc.) and

disputes (dealing with common pastures) for India (Krishna & Uphoff, 1999 in Grootaert

& Van Bastelaer, 2002); number of groups (Narayan & Pritchett, 1999) and density

(number of members in a group) (Maluccio, Haddad & May, 2000). The indicators also

include kin heterogeneity (whether group members belong to the same family) (Narayan

& Pritchett, 1999); income heterogeneity (range of income of group members) (Narayan

& Pritchett, 1999) and gender heterogeneity (percentage of the most important groups

which are mixed gender) (Grootaert & Oh, 1999 in Grootaert, 2002; Maluccio, Haddad &

May, 2000).The internal heterogeneity of the group is a score ranging from 0 to 8 on the

three most important associations (groups) in the communities surveyed. This score was

based on an individual's neighborhood, kin group, occupation, economic status, religion,

gender, age, and level of education (Grootaert, 1999).

Other components of structural social capital are related to the type of

organization and its functioning such as group functioning indicators used in the context

of Tanzania (Narayan & Pritchett, 1999), group decision making and voluntary

membership (Narayan & Pritchett, 1999), community orientation of associations

(whether voluntary organizations or not) (Grootaert,1999), and performance indicators in

the content of South Africa (the average reported performance of the most important

groups) (Maluccio, Haddad & May, 2000). There are others like, frequency of meeting

attendance (a normalized index which measures the average number of times someone

from the household attended group meetings) (Grootaert, 1999), members' effective

participation in decision making (showing democratic means) (Grootaert, 1999), and payment of dues (Grootaert, 1999).

The attitudinal aspects of social capital are usually measured in terms of trust, as in the cases of Ghana, Uganda, and India (Krishna & Uphoff, 1999 in Grootaert & Van Bastelaer, 2002; Narayan & Cassidy, 2001). Grootaert (1999) constructs an index of six dimensions of social capital in the context of cognitive indicators to capture certain norms and attitudes that represent a sense of solidarity and mutual trust. This indicates the value placed in the unity of settling disputes. Swamy, Grootaert, and Oh (1999) used the percentage of households who believe that they can obtain assistance beyond immediate household relatives as an indicator of solidarity in times of crises in Burkina Faso.

Collective action has been used restrictively, as it is seen as more of an outcome of social capital. Grootaert (1999) used frequency of participation in collective action at the village and the neighborhood level in the context of Indonesia. Some other factors are everyday sociability, volunteerism and togetherness for Ghana and Uganda (Narayan & Cassidy, 2001 in Grootaert & Van Bastelaer, 2002). A combination of these factors has been used as an index of social capital as mentioned earlier.

Other studies have used factor analysis to define and measure individual components of social capital (Bhrehm & Rahn, 1996; Nyangena & Sterner, 2008; Onyx & Bullen, 2000; Piazza-Georgi, 2001). Onyx and Bullen (2000) use a hierarchical-factor analysis to validate components of social capital in five Australian communities. Their analysis indicated eight unrelated factors: participation, social agency or pro-activity in a social context, trust and safety, neighborhood connections, family-and-friends connection,

tolerance of diversity, value of life, and work connections. Nyangena and Sterner (2008) employed principal components analysis (PCA) using Kenyan data to isolate and measures the social capital embedded in multiple indicators and construct a household-specific social capital score. The authors find PCA useful to identify latent, non-observable factors such as social cohesion and trust that are important ingredients of social capital. Similar to Nyangena and Sterner (2008), Bhrehm and Rahn (1996) use a confirmatory factor analysis to validate four components of social capital: civic participation, interpersonal trust, confidence in government, and life satisfaction.

Measuring social capital in India

"Measures of social capital that are relevant for one set of cultures might be quite irrelevant for others" (Krishna, 2002, p. 56). However, "both structural and the cognitive dimensions matter, and they must be combined to represent the aggregate potential for mutually beneficial collective action that exists within any community" (Krishna, 2002, p. 66). Norms (cognitive social capital) may not be related directly to social capital but may be considered as "certain manifestations that accompany social capital in this setting" and need to be accounted for (Krishna, 2002, p. 55). But the specific dimensions of structural and cognitive social capital need to be operationalized based on the context. This still raises questions about the type of networks (structural social capital) that should be considered (Krishna, 2002). For example, should more weight be added to formal as compared to informal groups, small versus large groups, or strong versus weak ties? No general agreement has been reached yet. Krishna (2002) further states that the problem lies in considering only the networks to measure social capital. Furthermore, Krishna (2002) emphasizes that some of the norms that are not associated with identifiable

network types get disregarded in these calculations, while networks that are not linked with any particular cooperative norm get lumped within the proxy measure. Therefore, norms and networks should be treated separately and, like networks, norms are context-oriented. This study categorizes social capital into "Active Social Capital", which is the structural part, and "Latent Social Capital", which is the norm component.

In India before independence in 1947, development of rural areas was neglected. Since the 1970s vastly expanded budgetary provisions have been allocated to rural development (Krishna, 2002). This author reports that funding for rural development programs expanded seven-fold (in inflation-adjusted terms) in the period from 1980 to 1995. Expansion included the establishment of a vast number of District Rural Development Agencies (DRDAs), government programs on initiating rural credit saving groups, establishment of cooperatives, and women's groups among other institutions. Therefore, indicators to measure structural social capital are included in the study. Also, it is important to note that in the Indian rural context it does not make sense to incorporate density as a measure of social capital (Krishna, 2002). This is because nearly every formal organization is linked to a state agency; thus density of the organization will not mean much (Krishna, 2002). For instance, the Woman and Child Welfare Department is responsible for the women's groups; the sports and education ministry officials set up youth groups. Therefore, internal heterogeneity and density of a government-linked association in the rural Indian context would not mean much in terms of proactive and voluntary nature of the individuals.

Social capital and school attainment

Indicators of educational outcomes such as educational attainment, educational achievement, and education-related psychosocial factors are commonly used in the literature that links social capital to educational outcomes (Dika & Singh, 2002). The authors maintain that common indicators for educational achievement are usually cognitive outcomes such as test scores for math, science, history, reading, and writing ability. Some of the psychosocial factors used in previous literature are homework effort, engagement and motivation indicators (like class cutting), and educational aspirations. Indicators of educational attainment are dropout rates, high school graduation rates, college and school enrollment rates and years of schooling.

Using a logistic regression with GPA and years of schooling for the High School and Beyond 1980 and 1982 data sets, Lopez (1996) estimates the influence of household factors including the educational aspirations of the parents, the number of times parents visit classrooms, PTA attendance as well as school-related factors like teacher's interest in the student in and outside class, counselors' perceptions and other similar variables (Dika & Singh, 2002). Dyk and Wilson (1999) use the path-analysis method for a longitudinal data set to estimate the impact of socio economic status, household size, mother's aspirations, and parental interactions on educational attainment (in terms of years of schooling) (Dika & Singh, 2002). Kalmijn and Kraaykamp (1996) use Ordinary Least Squares with years of schooling as the dependent variable to estimate the influence of cultural capital indicators on racial inequality in schooling. Their findings show that a significant increase in parental cultural capital across birth cohorts (from 1900 to 1960), especially among Blacks, indicates that exposure to "high-status culture" (e.g., parents

attending plays and classical music performances,, visiting museums and similar activities) is associated with higher levels of schooling and that the integration of Blacks into high-status culture has contributed to the Black-White convergence in schooling.

This study will observe the effect of a contextualized measure of social capital on school participation. Similar to Dreze and Kingdon (2001), the indicators of school participation are initial enrollment, current enrollment, and years of schooling or grade attainment. Other educational outcome measures including test scores are not reliable in the Indian setting since it is mandatory for the government schools to promote all students to the next primary school grade irrespective of their test performance. Also, since the study uses a household survey, test scores are not a part of the data collected. School attainment measures such as drop-out at grade 10 or graduating tenth grade used in previous studies are not feasible, since children drop out at earlier grades, thus making each school year significant in the analysis.

The next two chapters use the literature review to inform the study's methods and present the analysis and results.

CHAPTER III

METHODS

Quantitative Section

The three methods used for this study are the econometric analysis and the

Hierarchical Linear Model in the quantitative tradition and case study which is a

qualitative study. This chapter discusses the quantitative section which includes the

research questions, data-setup, models, results and conclusions for each of the methods.

The chapter concludes by presenting a combined synopsis of the two quantitative

methods.

Research Questions

For the econometric exercise this study attempts to answer the following research

question: What is the relationship between social capital and school participation? Where,

school participation(dependent variable) has three indicators, first, did the child ever

attend a school, second, is the child currently enrolled in a school, and third, how many

standard years has the child completed (grade attainment)[8]. A factor analytic index of

social capital (variable of interest) is constructed based on the literature driven

components of social capital. The models estimate the relationship of the social capital

index (variable of interest) with school participation indicators (dependent variable).

Since the data used for this study is cross-sectional, any causal interpretation will be hard

to establish. However, for estimation purposes, a possible reverse causality between

social capital and education is taken into consideration. An instrumental variable

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[8] The sample had very few students repeating a grade. There is also a government mandate that all children should be promoted to the next grade for primary school.

approach using probit-IV method using the two step approach is used to parse out the

effect of social capital on education. To check the endogeneity, appropriate post

estimation procedures are used.

The questions that I am interested in investigating using Hierarchical Linear

Modeling (HLM) are. First, how does school participation vary by social capital

indicators after taking into account measures of individual and village characteristics? Do

individuals from households with higher social capital do better with respect to the school

participation indicators? Second, what is the relationship between school participation

and household characteristics after controlling for individual and village-level

characteristics? Third, what individual characteristics matter for school participation

within households?

Theoretical Framework for Social Capital

Let U_i be the utility function defined as the following,

$$U_i(A_i, A_{i-1}) = \alpha + \beta_1 A_i + \beta_1 A_{i-1} + \varepsilon_i \qquad\qquad (3.1)$$

Where, A_i is the action of individual (i) and A_{i-1} is the action of the neighbors.

Therefore, the utility derived by the individual is dependent on his/her own actions as

well as the actions of his neighbors.

Now, $A_i = \theta_i + f(x_i)$, where $f(x_i)$ is a linear function of all the covariates in the

model. These include the individual, household and school attributes. The individual's

own action is a function of his/her background characteristics.

From (3.1) we also know that the individual's utility has two components, his/her own action and the action of the neighbors. The theoretical model to be tested in this paper is that individual actions are derived functions of the neighbors' actions. Therefore defining it mathematically we have:

$$A_i = \gamma_i + f(A_{i-1}) \tag{3.2}$$

But on the other hand, we also note that neighbors' actions also depend on the individual's action.

$$A_{i-1} = \phi_{i-1} + f(A_i) \tag{3.3}$$

The main essence behind this framework is that the individual's utility is also dependent on the interactions with his/her neighbors. In this paper, different constructs of this interaction are taken into account to test whether these constructs have the statistical power to influence indicators of education.

Social Capital Estimation Consideration

The model estimating an outcome expressed as years of schooling, as a function of individual characteristics of the student, the cumulative influence of family inputs and the social capital of the family can be written as:

$$S_i = \alpha + \partial SN_i + \beta X_i + \varepsilon_i \tag{3.4}$$

where S_i is years of schooling for student $_i$, X_i is a vector of individual, family background and geographical influences, SN_i is household's social capital, and ε_i is an error term.

If social capital is randomly distributed, or at least not systematically correlated with unobserved factors influencing both the choice of the specific network and the level of schooling, then equation (3.4) provides an unbiased estimate of the social network effect, ∂.

However, social capital is often itself a matter of individual choice or determined by previous choices; therefore, the social capital becomes an endogenous variable. The household's social capital could have an influence on child's education, and at the same time, a child's education could impact household's social capital in terms of having more school based networks and participation in PTAs etc. Therefore in order to parse out the effect of social capital's impact on education, we would need an instrumental variable that is correlated with social capital and not with school participation indicators. Thus, if individuals select into certain groups on the basis of unobserved factors such as motivation or ambition, and if these factors are, in turn, correlated with the outcome(school participation), this approach will yield biased estimates of the social capital effect, which can be expressed as:

$$\text{cov}(SN_i, \varepsilon_i) \neq 0$$

This calls for an instrumental variable strategy. Denote the characteristics that effect social capital as Zi a linear function of social capital can be written as:

$$SN_i = Z_i + V_i \tag{3.5}$$

For the exogenous predictors of social capital appearing in equation (3.5), assume strict

exogeneity:

$E(\varepsilon_i | Z_i) = 0$, this condition implies that ε_i is uncorrelated with values of Zi.

The objective is to find an instrument that is highly correlated with social capital

but which is not correlated with the error term.

In previous studies social capital is used as a predictor of household welfare,

poverty, rural development etc (Grootaert & Narayan, 2000; Krishna, 2002; Narayan &

Pritchett, 1997). The problem of endogeneity has been widely acknowledged in past

estimations. Since the formation of networks and associations can be costly, households

with higher income can devote more resources to network formation and thus gain social

capital (Grootaert, 2002). This would create an upward bias in the OLS estimation of

household welfare as an outcome of social capital. To resolve this reverse causality issue,

Narayan and Pritchett (1997) for Tanzania used generalized trust as an instrument of their

social capital index with dependent variable being household income. Grootaert, Oh and

Swamy (1999) proposed three instruments, a constructed index of trust, length of

residence in the village and trend of membership in associations (based on the number of

associations each individual was a member of). However, as defined in the literature trust

is a component of social capital itself and is used as one of the variables of interest rather

than an IV. Based on the literature review trust is an important component of social

capital and thus not including it in the analysis would lead to omitted variable bias.

Length of residence in the village could be used as an IV, but the IHDS data on length

showed very little variation with 98 percent of the sample indicating that they had lived

in the same village for more than 50 years. Membership trends was not included in the

original survey, thus had to be ignored. Other potential candidates as suggested by

Grootaert (2002) are ethnic and religious diversity of the community; density and

effectiveness of institutions in the community; the community's involvement in the

procurement of social services and infrastructure; traditional authority (traditional council

of village elder etc) and past community involvement. In India, ethnic diversity in the

form of religious and caste affiliations account for large differences in school

participation rate and should be used as a covariate rather than an IV. Other measures

listed here were not included in the IHDS survey, but have been incorporated in the case

study section.

Data Description

The data used are from the India Human Development Survey 2005, which is a

nationally representative, multi-topic survey of 41,554 households in 1,503 villages and

971 urban neighborhoods across India. The mode of data collection includes coded, on-

site observation; a cognitive assessment test; face-to-face interview; and an on-site

questionnaire. Two one-hour interviews in each household covered topics concerning

health, education, employment, economic status, marriage, fertility, gender relations, and

social capital. The data were collected by the National Council of Applied Economics

Research in collaboration with researchers from the University of Maryland at College

Park.

A sub-sample of this cross-sectional data set is used in this study. This subsample

includes 28, 465 individuals between the ages of 6 to 14. The total number of households

and villages are 14,252 and 1389 respectively residing in 244 rural districts. Since 72

percent of India is rural, this study concentrates only on the rural subpopulation. Also since India is a diverse country, social capital in the rural context would be completely different from the urban definition of social capital; therefore, only rural households were selected. The sample is restricted to individuals between 6 to 14 as the recently enacted Right to Education (RTE) Act 2009 outlines the main responsibility of the state and the central government to disburse funds to guarantee free and compulsory education for children between the ages of 6 to 14 (Gazette of India, 2009).

Data Imputation

As is common in survey data, cases had missing values on more than one measure; however, no systematic patterns of missing values were found. Therefore, I used a multiple imputation technique to replace the missing values (Acock, 2005). The STATA command "ice" uses multiple imputation method to replace the missing value. Monte Carlo Simulation-based regression estimations (with replacement) is used for imputation and also takes into account the normality of the variables. Values of some variables were truncated at the edges to make the measure meaningful. All covariates variables including the dependent variable and the interaction terms between the dependent and the covariates were included in the missing value imputation process (Acock, 2005). This method is considered to be superior to more traditional methods of pair or case-wise deletion, replacement by the mean, or single imputation methods (Acock, 2005; Royston, 2005).

Data Setup

The unit of analysis is the individual. However, the survey data is hierarchical in nature with household and village characteristics aggregated for each individual. For instance, more than one individual is surveyed in each village and will share the same village level characteristics. Therefore in this case, the standard errors of the estimates will be off (usually underestimated), giving false positive results on statistical significance. STATA provides a specific procedure to treat clustered data, where the data is set up with defined survey specifications. The svyset command is used to define the data as a survey data and is generally considered superior to simply clustering of data when it is known that the data source is a survey (STATA 2010)[9]. Since the survey data has clustering both at the household level and the village level, The India Human Development Survey 2005 documents provide details of the primary sampling unit (PSU) which is the first unit to be sampled and provides the design weights. The data contains 1389 villages in 244 strata or districts. There were few districts (23 in number) which had only one village surveyed had to be excluded from the sample because of non-representativeness. Also svyset STATA command required more than one PSU or village in each strata.

Weights

Since the survey data have clustering both at the household level and at the village level, the India Human Development Survey (IHDS) 2005 documents provide the details of the primary sampling unit (PSU), which is the first unit to be sampled and provides the

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[9] The simple regression command with clustered standard errors did not seem appropriate as clustering is both at the household level and the village level, keeping in mind the hierarchical structure. Svyset takes clustering at different levels into account.

design weights. At the individual level I used the design weights that the IHDS (2005) provided. However, since different sub-samples of only the rural data set are drawn from the survey, I created a new weight based on the sample mean of the weight. I expect that the constructed weight at the individual level will represent the true population of rural India. At the household level the IHDS (2005) does not provide any weights. I could compute these weights, if I knew the total households in rural India, but these data are not available.

Construction of Variables

Measures

The primary objective of the paper is to observe the association of social capital with school participation, controlling for individual, household, and village level characteristics. I focus on three indicators of school participation. First, initial enrollment which is a dichotomous variable taking the value 1 if the child has ever been enrolled in a school, 0 otherwise. Second, current enrollment which is a dichotomous variable taking the value 1 if the child is currently enrolled in school, 0 otherwise. Third, years of schooling which is the highest number of years of schooling completed by the child.

These research questions are similar to Dreze and Kingdon's (1999) work on estimating the determinants of school participation in rural India. However, this study is different from Dreze and Kingdon (1999) and others who have previously estimated school participation in rural India, firstly because social capital variables are unique to this study, and secondly, this study is based on a much more recent nationally representative dataset and has a larger sample size than most of the previous studies.

The survey asked the question *Has [Name] ever attended school?* Out of the total, 11.08 percent (3, 155) had never attended school. For current enrollment the survey question asked, *Is [Name] currently enrolled in school or college?* Out of the total, 5.94 percent (1,692) were not currently enrolled in school. For years of schooling, the question was, *How many standard[10] years has the individual completed?* The dependent variable is the standard years (school years) that the individual has completed. Table 5 shows distribution of the standard years of education with respect to the age of the individual in the sample.

Ideally, in India children get enrolled in grade 1 when they are six years old, grade 2 when they are seven years old, and, by the time they are 14, they should ideally be in grade 9. The table above indicates three main points: First, there are individuals who have completed more years of education than their age, implying that they started school earlier. For example, there are 237 individuals who have completed two years of education at age 6, when their appropriate age-grade match should be completion of grade one (one year of education). These children started school at a younger age. Secondly, there are many individuals who have fewer standard years of schooling compared to their age. For instance, there are 102 individuals who are 12 years of age and have only completed one standard year of education. Lastly, the sample also includes individuals who are between 6 to 14 years and have not completed a single year of schooling (5,391). The age-grade grid shows that not all individuals have completed the age-appropriate years of education. Also, it must be kept in mind that younger-age children are expected to have fewer years of education. Thus, the analysis in this paper needs to be cognizant of the different ages of the individuals.

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[10] In India "Standard" is used for school "Grades".

It is also important to consider the fact that a child could be contributing to the access to social capital of the household by having higher social capital by providing more social networks at school and at health centers. For instance, parents may be encouraged to be a part of the school PTA which could improve their active and latent social capital (for example, more confidence in schools). Thus, as the child becomes older, parents get more opportunities to interact with other parents and build social capital. Given these factors, it may be unfair to treat children of different ages alike, as the parents of a younger child have not gotten as many opportunities as the parents of an older child. Therefore, the analysis in the paper uses different subsamples to run the regression models and also uses a set of age-appropriate dummies to control for specific age groups.

For estimating the relationship between social capital and standard years of education, the ideal data set would have all individuals at a particular age and then estimate how different levels of social capital have influenced different years of education for each individual. Doing this, would account for the fact that, when individuals are young, their parents have not gotten an equal number of opportunities to improve their social capital score as parents of older children have had. Thus, standard-years-of-schooling cannot serve as the dependent variable for the entire sample.

Another approach is that of controlling for this age-confounding factor by transforming the dependent variable to grade-for-age, i.e., the grade in which a child of a given age is studying. However, Dreze and Kingdon (1999) suggest that this approach would be subject to criticism, as some Indian states have a policy of automatic promotion of children at the primary level. In these states the students in primary grades have to take

the yearly exams and their performance is graded. However, no student is retained in the same grade. They also suggest that the age data is unlikely to be very precise considering that the majority of the respondents are not educated. Mothers remember the season of birth and weather and could associate major events around child-birth which reminds them of approximate date. However, they since this data set particularly selects individuals from ages 6 to 14, a couple of months deviation from the actual birthdate could create huge differences in the results. Therefore, to control for this age-confounding factor, this paper limits the grade-attainment estimation to children between the ages of 11 and 14 when they are expected to complete primary school.

Although completed-standard-years is a policy-relevant variable, it also has certain limitations. For example, rural India has continuous seasonal migration within the school year. Children migrate with their families and come back to their village during certain agricultural seasons. Often children get dropped from the list of enrolled children, as they stay away for more than three months in a school year. Therefore, for a child to complete one standard year may take more than one academic year. In most cases the children are not enrolled in age-appropriate grades. Also, completed-standard-year does not provide information about the literacy levels of individuals. However, since this study limits itself to promoting school participation or reducing school drop-outs, it becomes a valid measure to use.

Independent variables

Independent variables are grouped under the following categories: Active Social Capital Component, Latent Social Capital Component, Individual Characteristics,

Household Characteristics, and Village Characteristics. A detailed section on the Social

Capital Components (variable of interest) follows later in this chapter. This section

focuses on the other characteristics. Tables 6 to 8 present the descriptive statistics by each

of the school participation indicators. Appendix Table B also shows similar information.

Individual characteristics (level 1)

The Tables above show female disadvantage in terms of school participation

indicators. Table 7 shows that among the individuals who never attended school, a

majority (56 percent) were females. Table 8 also shows that 54.31 percent of the

individuals who are currently out of school are females. As expected, the majority of the

individuals are single. Tables 7 and 8 also individuals who are single are more are more

likely to be currently enrolled or initially enrolled in school. Though, majority of the

sample has a single status. Tables 7 and 8 show that as age increases, it is more likely for

individuals to drop out of school. This is likely to be the case, as child labor is common in

rural India where teenage boys migrate to cities for work. For teenage girls early

marriage and responsibility for looking after younger siblings at home are common

reasons for dropping out. Table 8 shows that individuals of ages 12 to 14 are more likely

to out of school. Similarly, Table 7 indicates that if the age is squared, suggesting

exponential age increase, the individual is more likely to have never enrolled in school in

the age group of 6 to 14.

Household characteristics (level 2)

Household indicators include caste/religion (dichotomous) variables which are the

common caste classifications used in past research (Vanneman, et al., 2006). The caste

and religious variables show that Brahmins (highest caste amongst the Hindus) and Other Hindu High Castes have a higher percentage of individuals who have been initially enrolled in school than the rest of the castes, and this difference is statistically significant. Also the OBC (Other Backward Castes) have a higher percentage (35.48%, as compared to 31% in the never-enrolled category) in the Initially Enrolled in School category because of the affirmative action benefits like government subsidies to cover the cost of school, whereas Dalits, Tribal, and Muslim populations have a majority of the individuals in the never-enrolled category. The same caste/religion disadvantage of the marginalized castes is observed for the current enrollment in school indicator. SES measures like household assets and log of per capita expenditure of the household indicates that individuals who are initially enrolled in school have a statistically significant higher mean of household assets (9.85) and household expenditure (6.25) than individuals who are not initially enrolled in school. For the latter the household assets mean is 6.54 and that of household expenditure 5.93. The same is also true for current enrollment and years of schooling. Another factor that indicates statistically significant difference is the number of educated adult males and females in the household. Families with a higher number of educated adult females have a statistically significantly higher mean score for individuals who are initially enrolled than not (3.12 compared to .76). Similarly, for the number of adult males in the family, it is 5.75 for individuals initially enrolled in school compared to 2.68 for those who were not. The same statistically significant advantage is observed with current enrollment in school.

<u>Village characteristics (level 3)</u>

Village-level characteristics include multiple measures[11] of village infrastructure facilities[12] which have been clustered together to construct weighted indices using factor analysis. In general, the more facilities the village has, the higher the mean for school participation is, and the difference between the means is statistically significant. It is interesting to note that individuals who are initially enrolled in school have a statistically significant higher mean of the village population density indicator than individuals who are not. However, the reverse is true if the area of the village increases, that is, the mean measure of the area of a village is significantly higher for individuals not initially enrolled in school than for individuals who are initially enrolled in school. This makes sense, as school enrollment drops if a child has to walk a long distance to reach the school; however, if the population increases, schools cannot put a limit to the school enrollment.

Operationalizing Social Capital for this Study

As mentioned earlier that construction of the social capital index is often used in the literature (Grootaert, 1999; Maluccio, Haddad & May, 2000; Narayan & Pritchett, 1999). As the literature suggests the two main components of any social capital index are

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[11] The categories include presence of a police station, market, bank branch; Public Distribution Shop (PDS) are government run fair shops, general market shops, post office; presence of agricultural cooperative, local government hall to conduct meetings; trade unions, self-help groups, credit saving groups; government programs on immunization, health checkups, early childhood education; safe water, sanitations, improved stoves for cooking; other government programs for women's welfare, non-formal education for adults, skill development; agricultural extensions, forestry, small-loans credit programs; national old-age programs, widow and disability pensions; private hospitals, private maternity center and other government medical facility; health sub-center, private Clinic but with untrained doctors, private pharmacy, private untrained nurses; availability of other facilities including electricity, landline phone, mobile phone, long distance phone booth, frequency of buses and a railway station.

structural social capital and cognitive social capital. Therefore to operationalize active social capital, this study includes two components: networks and membership in formal organizations. For the networks part, the study includes the question, "Among your acquaintances and relatives, are there any who…1. are doctors or nurses or who work in hospitals and clinics, 2. are teachers, school officials, or anybody who works in a school, 3. are in government service (other than doctors, teachers, above)?" For the membership component the study includes membership in women's groups *(Mahila Mandals)*; youth clubs, sports groups, or reading rooms; trade unions; business or professional groups; self-help groups; credit or saving groups; religious or social group or festival society; caste association; development group or NGO; and agricultural, milk, or other co-operatives. Additionally, the participation variable is also included as it denotes active social capital. This is covered by the questions: In the most recent national election, did you vote? Have you or anyone in the household attended a public meeting called by the village panchayat? Is anyone in the household an official of the village panchayat?

To measure the cognitive aspects (norms, values, trust) in the Indian context, four broad measures are used: local trust and conflict, local crime, confidence in institutions, and recipient of public provisions. These are similar to the attitudinal components used in previous literature which are usually measured in terms of trust, as in the cases of Ghana, Uganda, and India (Krishna & Uphoff, 1999 in Grootaert & Van Bastelaer, 2002; Narayan & Cassidy, 2001). Under local trust and conflict the following indicators are used: First, "In this village do people generally get along with each other, or is there some conflict or a lot of conflict? "The possible responses range from "lot of conflict"[1], "some conflict"[2], and "get along"[3]. Second, "In some communities, when there is a

water supply problem, people bond together to solve the problem. In other communities, people take care of their own families individually. What is your community like?" The responses are "bond together to solve the problem[1] and "each family solves individually" [2]. Third, "In this village how much conflict would you say there is, among the communities/castes that live here?" The responses are "lot of conflict?" [1], "some conflict?"[2], and "not much conflict?"[3]. To tap into local crime the following indicators used are: First, "During the last twelve months, was anything stolen that belonged to you or to somebody in your household?" Second, "During the last twelve months, did anyone break into your house or illegally get into your home?" Third, "During the last twelve months, did anyone attack or threaten you or someone in your household? " Fourth, "How often are unmarried girls harassed in your village?" The responses to this fourth question are "rarely/never" [0], "sometimes" [1], and "often" [2]. The confidence measure included a rating of confidence in the following institutions: politicians, military, police, state governments, newspapers, village panchayats, schools, hospitals, courts, and banks. Additionally, the latent component included variables that indicated some use of public programs such as having a life and health insurance policy. All items that were not originally positively oriented were rescaled in the analysis with ascending order of the response scale showing positive attribute.

After identifying the survey items under the structural and affective components of social capital, factor analysis method was used to validate these items. Other studies have used factor analysis to define and measure individual components of social capital (Bhrehm & Rahn, 1996; Nyangena & Sterner, 2008; Onyx & Bullen, 2000; Piazza-Georgi, 2001). The EFA procedures employed a Principal Axis Factor Extraction method

followed by promax rotation. Previously, Piazza-Georgi (2001) has also used promax rotation to construct a composite factor of social capital. Since the underlying factors of social capital are related, oblique rotation was used. I used separate factor analysis for the active and the latent social capital variables. The number of factors was determined by examining cumulative percent variance explained and theoretical alignment of empirically-derived factors. Both factor loadings (standardized regression-coefficients) and structure coefficients (correlations of items with factors) were examined. A cut-point of 0.30 was used to identify items with loadings salient to a factor. Factor interpretation was conducted against the theoretical construct meanings. Items were grouped based on theoretical and empirically-derived scale structure to examine descriptive statistics and Cronbach's alpha reliability. The validated factors are weighted (with weights generated through the factor analysis) and standardized. See Tables 9 and 10 for further details.

The analysis includes only those components of social capital that are reliable (alpha reliabilities close to 0.60 or higher). Table 11 presents that data for this analysis. Therefore, the components of the active social capital used in the analysis are index of social networks, index of membership in groups (e.g., women's group. credit savings groups, and self-help groups), and membership in religious or social groups, festival groups, and caste associations. The components of latent social capital that are included in the analysis are the index of confidence in politicians, police, state government, village panchayat (local level government agency), and institutions such as schools and hospitals, for example.

Table C in the Appendix presents pairwise correlations between social capital indices and years of schooling (dependent variable). This Table presents a preliminary

analysis to check the sign and magnitude of the correlation between the variable of interest and the dependent variable (school participation indicators). Please note that correlation coefficients with 5 percent significance levels or better are shown, rest are left blank. Social networks, women's self-help groups and participation in government programs show 9-10 percent correlation with years of schooling at the 5 percent significance level. It is also interesting to note that the social capital index has a significant and positive correlation of 0.13 with the number of adults in the household and with number of educated female in the household (0.28) and with males (0.25) (not reported in the paper). Social capital index is also significantly correlated with households with higher income proxies –log of per capita consumption of the household (0.25) and with household assets (0.28). The magnitudes of the correlation coefficients with social capital index suggest modest correlations, but are worth pursuing. High significance levels may also be due to large sample size used in the study, but is nevertheless this excise is useful as a preliminary step to observe the sign and the magnitude of correlation.

Limitations of the Indices

Although the social capital index (both active and latent) attempts to cover both the structural and cognitive domains of social capital, data availability limits its comprehensiveness. For instance, the structural index could include aspects of networks that relate to rules, roles, and precedents which have not been included. The internal structure of the association, such as the types of participation in community meetings of the groups, would have been helpful in this regard. These may include, for example,

assuming a leadership role, using democratic means to elect the leaders, inclusive nature of the group. However, since a majority of the groups are state- or local-government managed, the internal structure of the organization does not pose a serious threat. Another structural component discussed in the literature is informal networks. In the rural Indian context people participate in informal networks very frequently, and, because the registration process is costly and time consuming, people have little incentive to convert their networks to formal associations (Krishna, 2002). However, these networks vary from region to region within India and are difficult to measure.

Checking for Heterogeneity in the Sample

Since this dataset is cross-sectional, it becomes even more important to understand the characteristics of the sampled individuals better. Propensity Score (PS) technique is used to observe the similarities in the sample characteristics between the individuals who have social capital and those who are lacking in social capital. It is important to note that for the purpose of this paper, PS is used to check the overlap of the individuals who have social capital with those who don't by comparing all the pre-treatment covariates. The second part of the PS method used for estimating the regression adjusted propensity matched estimates is not included in the study. Also the matching is done on the overall sample, rather than using a more sophisticated sub-classification or strata based division of the sample to produce more efficient matching patterns.

PS is used to check if individuals who have social capital are very different in certain characteristics than individuals who do not have social capital. The matching

method also helps to identify any outliers between the two groups. The variable of interest is the Social Capital index (SCI). A detailed description of the construction of the index is given in the next section. I used PS to check whether the sample had any outliers in terms of the covariates. If the sample were to be divided between individuals with high social capital (treatment group) and individuals with low social capital (control group), this method would check whether the individuals are almost alike with respect to all the other covariates. In other words, the check would establish whether the sample has sufficient overlap between the treatment and the control groups with respect to all the covariates or based on the propensity scores whether there are individuals who are inherently different from the rest of the sample who would affect the estimation done later on. The PS method also helps to take a closer look at the sample and detect the presence of outliers, if any.

A bivariate variable of the SCI is constructed by splitting the index at the mean. The SCIs with values equal to or greater than the mean have a value of 1, otherwise their value is 0. This variable is the treatment variable and is used to divide the sample into two halves. PSs are generated by matching all the covariates. It is important to note that the exhaustive list of covariates is all pre-treatment variables, where the treatment is the Social Capital assignment. The matching procedure on all the covariates indicates sufficient overlap. This is also shown in Figures 10 and 11.

The graphs show a good level of overlap and thus none of the cases were dropped. All the cases were on-support (had a reasonably good match). Thus, the PS method indicates that, with SCI as the treatment variable, the rest of the covariates are the same across both the treatment (SCI=1) and the control groups (SCI=0). The overlap indicates

that the individuals with high social capital and the individuals with low social capital are similar in characteristics. However, it does not suggest that the difference in the treatment status is random. In other words, it does not suggest that social capital is randomly assigned to the treatment and the control group. Therefore, the problem of endogeneity between social capital and the standard years of education still holds and needs further investigation. Also PS method cannot resolve the problem of un-observables in the estimation.

A further investigation into who are these individuals who have higher social capital is given in Appendix Table D. The Table helps to highlight some of the differences between households who have high social capital and others. The data is divided into five quantiles based on the active social capital index (SC-Index) with Quantile five having the highest value of the index and Quantile one the lowest value. The table indicates that the mean standard years of schooling is higher in quantile five than the lower quantiles.

Other covariates (not included in the table) show that there are fewer Muslim and marginalized caste households in quantile five. The households are larger in family size with more adults and more married females in the household. SES indicators like household assets, log of per capita consumption and income of women in the household all increase in the highest quantile as compared to the lower ones. Amongst the village characteristics, villages with higher population and more houses have more social capital. Also, villages with access to phone service, more educational institutions (except madarsas, institutions for girls, and vocational centers) more electricity per day have

higher social capital. On all other village infrastructure indices, villages endowed with better facilities belong to the higher social capital quantiles.

Regression Analysis Results

The three educational outcomes considered in this paper are initial enrollment (ever enrolled in a school), currently enrolled in a school and the standard years of education (grade attainment). For all the regression models, it is important to consider that for an individual whose age is 7 years, his/her expected years of education will be lower than an individual whose age is 11 years. Thus, as mentioned earlier, younger children should not be penalized for having fewer years of education. For initial and current enrollment, ages 6 to 14 are taken as the reference group since 6 to 14 is the typical school going age group. To control for age bias, all regressions models use age dummies. Since the dependent variables are binary, logit or probit analyses could be used as an estimation framework. I have used the probit model in this paper[13]. The years of schooling, or the highest grade attainted has to be treated carefully for the following reasons. Dreze and Kingdon (1999) indicate that if the never-enrolled children are discarded from the OLS estimates of grade attainment there is a potential selection bias issue. This is because there might be parents who only enroll children with higher abilities; this could lead to a spurious impression that economically marginalized children are doing quite well at school. The authors suggest that selection bias arises from the fact

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[13] As a robustness check, I ran logit models also and found the level of significance for all the variables to be the same as that of probit. There were no unexpected sign reversals as well. I used probit to be able to use 2SLS framework with IV using a STATA module. The survey setting in STATAT "SVYSET" doesn't include a 2SLS with IV module for logit. For the additional analysis probit models was more useful.

that enrolled children have unobserved characteristics that affect grade attainment, and are correlated with observed characteristics. Therefore to avoid this selection bias issue, like Dreze and Kingdon (1999), the never enrolled children are also included in the regression model estimating years of schooling.

Another consideration while estimating the years of schooling is the age confounding factor as explained earlier. To control for this, years of schooling is estimated for a subset of individuals with ages ranging from 11 to 14 years. Also, dummy variables are included in the model to control for each year. For the ordered probit model, following Dreze and Kingdon (1999)[14], I have used the following categories, 0 for children who have zero years of schooling (also including never enrolled children); 1 for children who have not completed the primary stage (i.e. five years of schooling) and 2 for children who have completed the primary stage.

This section presents the regression models used in the paper.

Model 1:

$$\Pr(EverEnrol) = \beta_0 + \beta_1 Active\_SC + \beta_2 Latent\_SC + \beta_3 Indl + \beta_4 HH + \beta_5 Village + \varepsilon$$
(3.6)

Where, *Active_SC* are the active social capital components, *Latent_SC* are the latent social capital components as discussed before. *Indl* represent individual characteristics such as age, marital status, gender and interaction term between females and age. *HH* are household characteristics such as caste and religious affiliations, socio-economics status of the household measures in terms of log of consumption per capita

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[14] A simple OLS model could be used as well replacing the probit in this case. However, the ordered probit model was particularly useful in observing the effect on each of the age categories.

and assets and adult literacy measures such as the number of educated adult males and females in the household. The *Village* level controls include standardized indices of infrastructure facilities in the villages. The dependent variable is a dichotomous variable of ever being enrolled in school which takes the value 1 if the individual was initially enrolled in a school and 0 otherwise. Model 1 uses a probit technique to estimate the likelihood of ever being enrolled in school. The results are shown in Table 12. Separate analysis by gender is also shown in Table 12.

Next, I estimate the likelihood of being currently enrolled, controlling for all the individual, household and village level factors. Table 13 presents the results of the probit model with current enrollment as the dichotomous variable.

Model 2:

$$\Pr(CurrentEnrol) = \beta_0 + \beta_1 Active\_SC + \beta_2 Latent\_SC + \beta_3 Indl + \beta_4 HH + \beta_5 Village + \varepsilon$$

(3.7)

Where, the dependent variable is current enrollment which is a dichotomous variable having the values 1 if the child is currently enrolled in school, 0 otherwise. The variables of interest are *Active_SC*, active social capital components, *Latent_SC*, the latent social capital components. Controls include *Indl*, which is a vector of individual characteristics, *HH* and *Village* are vectors of household and village level characteristics.

Looking across the regression results in Tables 12 and 13, there is a high degree of consistency in the results, as also pointed out by Dreze and Kingdon (1999) that any

sign reversals are uncommon. I discuss the social capital variables (variables of interest), household, village and individual level characteristics in the following section.

Social capital variables

The results for the likelihood of ever being enrolled in school indicates that if the household members participate in groups like women's credit groups, self-help groups or other women's group then the individual is .8 percentage points more likely to be ever enrolled in a school, holding all other factors constant. See Table 12. This result is consistent across both females and males. The latent social capital factor –confidence in schools and hospitals also significantly and positively affects the likelihood of being ever enrolled in a school. The results indicate that households who have confidence in these institutions are .8 percentage points more likely to send their children to school. The social capital variables influence enrollment in school by small magnitudes, nevertheless are significant. Table 13 shows that the likelihood of an individual to be currently enrolled decreases by .4 percentage points if the household is a member of religious or social group or festival society and caste association. This effect is marginally significant for females, but fades out for males. Membership in women's groups and also having social networks does not significantly influence the probability of currently being enrolled in school. It is surprising to find that having confidence in village local government, state government and police makes it .4 percentage points less likely to be currently enrolled in school, holding all other factors constant.

In general the results from Tables 12 and 13 show that active social capital component like membership in groups (women's group, self-help, credit saving) and

latent social capital component like confidence in schools and hospitals show small, but

significant and positive effects on the probability of the initial enrollment in school.

Whereas, household membership in religious or social group or festival society and caste

association, and confidence in politicians, police, state government, village panchayat

have a negative and significant effect on the probability of currently being enrolled in

school. Religious affiliations would promote children going to religious institutions like

Madarsas and other non-formal schools which may reduce the probability of being

enrolled in a formal school. Similarly, latent factors like confidence in politicians, police,

state government may show some elements of corruption and disbelief in the governance

system.

Individual factors

As expected, females are less likely to be ever enrolled in school as compared to

males. Tables 12 shows that females are 3.6 percentage points less likely to be initially

enrolled in schools than males, holding all other factors constant. However, this effect is

negative, but not significant in estimating the probability of currently being enrolled

(Table 13). Table 13 shows that as compared to the omitted age group (age 7), older

children from ages 11 to 14 are less likely to be currently in school, holding all other

factors constant. More specifically, the probability of current enrollment in school is 19

percentage points lower for children at age 14 than children who are 7 years old (omitted

variable). This effect is stronger for males than for females probably because older boys

tend to become wage earners and migrate to cities. Table 12 also shows a similar age

effect in estimating the probability of initial enrollment. Table 13 shows that the

interaction effect between age and female shows that older females are .2 percentage points less likely to be currently in school than their younger male counterparts, holding all other factors constant.

Household factors

Household factors tend to perform better than the village level characteristics as they are better predictors of the individual's educational outcomes. As expected, caste and religious affiliations strongly predict the likelihood of children being ever being enrolled in school. Table 12 suggests that all castes are at a disadvantage as compared to the Brahmins (highest caste for Hindu's and the omitted category). In other words, even after controlling for all other characteristics, Other Backward Castes (OBC), Dalit, Tribal and Muslims are less likely to be ever enrolled in a school as compared to the Brahmin (Omitted variable). The marginal effects show that the magnitude of being disadvantaged is greater for Muslims than other castes, compared to the Brahmins. The estimates for the probability of currently being enrolled also show that for Muslims in particular the results are quite discouraging, they are 8.7 percentage points less likely to be currently enrolled in school as compared to a Brahmin family, controlling for other factors.

Table 12 suggests that across gender, males show more caste sensitivity than females to predict the probability of initial enrollment in school. However, Table 13 shows contrasting results, comparing the results across gender, females are much more adversely affected by caste than males in predicting the probability of currently being enrolled in school. For instance, the tribal population is 3.5 percentage points less likely to ever enroll their male child as compared to the Brahmin family, holding other factors

constant. For females this figure is negative and significant but lower in magnitude (5.0 percentage points). The caste and religious factor also significantly influences the likelihood of being currently enrolled. Therefore, caste is a critical determinant of school participation, ceteris paribus, but it has a stronger negative and significant influence on males (as compared to females) in determining the probability of initial enrollment, whereas it is a stronger negative and significant effect for females for predicting the probability of currently being enrolled.

Jayachandran (1997) suggests that intergenerational same-sex effects are stronger than cross-sex effects, i.e. boys schooling is more responsive to father's education than to mother's and vice-versa for girls (in Dreze and Kingdon, 1999). This effect is particularly true number of educated female adults (21+) in the household. Table 12 shows that with an additional educated adult female in the household, a female child in the household is .9 percentage points more likely to be ever enrolled in a school, holding other factors constant. This effect is .3 percentage points for the sons to be ever enrolled in a school. Similarly, Table 13 shows that households with an additional educated adult female, their daughters are .3 percentage points more likely to be currently enrolled in school, with no significant effect on the sons', holding all other factors constant. However, this intergenerational same-sex effect is much weaker for the highest educated male in the household. Thus having educated adult females in the family improve their daughter's school participation more than their sons, although this effect is positive and significant for both sons and daughters. This is result also supports Dreze and Kingdon's (1999) results that the largest inter-generational effect is that of adult female education on girl's school participation.

As expected, as household income and assets increase, the likelihood of children (across gender) ever being enrolled in school also goes up, holding other factors constant. However, an increase in household assets increases the likelihood of school participation for females by a greater magnitude than their male counterpart. Other household factors like households with a larger number of children are less likely to get their children ever enrolled in schools.

Village characteristics

The number of hours of electricity in the village, the more likely are children to be ever enrolled in school. Specially, an additional hour of electricity increases the probability of an individual to be ever enrolled in school by .1 percentage points, holding all other factors constant. Similarly, if the village has government preschool programs (for immunization, health checkups, food meals, growth monitoring, early childhood) then the children are more likely to be ever enrolled in school, holding other factors constant. Presence of other amenities like safe water, sanitations and improved stoves improves the likelihood of children ever being enrolled by 1.2 percentage points, holding all other factors constant. Likewise, Table 13 shows that a one percent increase in the water and sanitation amities improves the likelihood of being currently enrolled in school by .6 percentage points, holding all other factors constant. However, the presence of other government employment programs, women's welfare, non-formal education program (adult education), skill development decreases the likelihood of children ever being enrolled in school. The presence of trade union and, self-help groups, credit savings also improves the likelihood of children ever being enrolled in school. Overall, the influence

of village level factors on the likelihood of ever being enrolled in school is stronger and more likely significant than the likelihood of being currently enrolled in school.

The final model is an ordered probit model with the dependent variables as a categorical variable (No schooling=0; 1-4 years of schooling=1; >=5 Years of schooling =2). This model only takes into consideration the 11 to 14 year olds. This subsample also included 1199 individuals with no schooling, 3213 individuals with 1-4 years of schooling and 8255 with more than five years of schooling. The first category of children with no schooling, are essentially the children who have never been enrolled in school. The results are shown in Table 14 which includes separate models for males and females.

Model 3

$$\Pr(Years\_Schl) = \beta_0 + \beta_1 Active\_SC + \beta_2 Latent\_SC + \beta_3 Indl + \beta_4 HH + \beta_5 Village + \varepsilon$$

(3.8)

Where, the dependent variable is an ordinal variable with the following values, No schooling=0; 1-4 years of schooling=1; >=5 Years of schooling =2.

The regression result, as shown in Table 14 indicate that being from a Muslim family has a negative influence on the likelihood of having more years of education, as compared to Brahmin families. However, it was surprising to find that the disadvantage of the other castes as compared to Brahmins weakens, rendering the variables to be less significant in explaining the variance in years of schooling. Older ages are more likely to have higher number of years of schooling as compared to a 11 year old.

Other household characteristics had similar effects as the previous regression models, like having a larger number of children in the family reduces the likelihood of having more years of education. We see evidence of weaker cross-generational effect with higher level of education of the adult females in the family making no significant difference in the years of schooling of males. However, higher levels of education for adult males have a significant and a positive influence on years of schooling across gender.

Household assets and household income significantly and positive improve the likelihood of having more years of education. Among the village characteristics, safe water, sanitations, improved stoves, forestry services, hours of electricity per day, and government preschool programs (for immunization, health checkups, food meals, growth monitoring, early childhood) tend to promote higher years of schooling, holding other factors constant.

Social capital factors

For the entire sample, like previous models, the active social capital component - membership in groups (women's group, self-help, credit saving) and latent social capital factor- confidence in schools, hospitals that influence the years of schooling significantly predict the probability of having more years of schooling (Table 14). The magnitudes of the effects are given below.

The marginal effects are given in Tables 15-17. The marginal effects represent the slope or change in the dependent variable for a one unit increase in the independent variable if the probability curve were linear at that point. The value of the marginal effect

depends on the level of all variables in the model. The results are largely similar to the results for currently enrolled and ever-enrolled. The marginal effects indicate that membership in women's groups, self-help groups and credit saving groups increase the likelihood of having years of schooling more than 5 years by .20 percentage points (Table 15). Marginal effects for zero years of education or less than five years of schooling are negative. Similarly for the latent social capital factor, confidence in schools and hospitals the likelihood of having more than five years of education is 1.9 percentage points. However, both these social capital components do not significantly predict years of schooling for the male sub-sample. For the female sub sample the latent social capital component- confidence in institutions like schools and hospitals, increases the likelihood of having more than primary education by 2.2 percentage points.

Additional Analysis Using an Instrumental Variable

As discussed before, the problem with the probit analysis could be that of endogeneity. There is a possibility of reverse causality where the household's social capital could have an influence on the individual's education, and at the same time, the individual's education could impact household's social capital (e.g. by having more school based networks or by participating in the PTAs etc). Therefore in order to parse out the effect of social capital's association with education, we would need an instrumental variable that is correlated with social capital and not with school participation. The instrumental variable method is used to check for endogeneity with one of the dependent variables-currently enrolled in school as the dependent variable. Since the models are similar, the endogeneity effect is expected to give the same results with other dependent variables.

The estimand in the two stage probit model is the Intention To Treat effect (ITT), which is given by E[Y(Z=1) - Y(Z=0)], where Z is the treatment assignment and Y is the outcome. In the IV model, through the treatment (social capital) we can only get the probability of the compliers E[D(Z=1) - D(Z=0)], where D is the probability of the assignment, and not the actual number of people who complied.

The form of estimand in the IV model is given as:

$$IVwald = \frac{ITT}{\%\ compliers} = \frac{E[Y(Z=1) - Y(Z=0)]}{E[D(Z=1) - D(Z=0)]}$$

An extension of this form by adding covariates and for a continuous treatment variable will have the Wald estimate take the ratio of the coefficient for Z in E[Y|Z,X] and the coefficient for Z in E[D|Z,X].

The instruments used to check for the presence of endogeneity are number of hamlets in a village, area of the village in hectare units and the distance to the nearest town. The model estimating the probit model with the IV is given below.

Model 4:

$$Active\_SC = \alpha_0 + \alpha_1 Dist\_Town + \alpha_2 Area + \alpha_3 Hamlets + \alpha_4 Indl + \alpha_5 HH + \alpha_6 Village + \eta$$
(3.9)

$$Latent\_SC = \delta_0 + \delta_1 Dist\_Town + \delta_2 Area + \delta_3 Hamlets + \delta_4 Indl + \delta_5 HH + \delta_6 Village + \lambda$$
(3.10)

$$\Pr(Current\_Enroll) = \alpha_0 + \beta_1 IActive\_SC + \beta_2 ILatent\_SC + \beta_3 Indl + \beta_4 HH + \beta_5 Village + \varepsilon$$
(3.11)

Where, *IActive_SC* and *ILatent_SC* are instrumented active and latent components of social capital which are coming from the first stage equations (3.9) and (3.10). The instruments in equation are distance to the nearest town (*Dist_town*), number of hamlets

in a village (*Hamlets*) and area of the village (*Area*). Other controls include, *Indl* – a vector of individual characteristics, *HH* and *Village* are vectors of household and village level characteristics. The dependent variable is current enrollment which is a dichotomous variable having the values 1 if the child is currently enrolled in school, 0 otherwise.

Intuitively it would make sense that the number of hamlets, village area and distance from the nearest town would be correlated with social capital, but may not have a direct impact on the child's school enrollment. The education for all (SSA) government mandate ensures that each village has a school so that children don't have to travel to nearby cities. As per the government mandate, there should be a school within one kilometer radius of the nearest habitation. Also it is mandatory for the school headmasters to enroll all children in the village. Therefore, school enrollment and continuation is ideally independent of the population or the area of the village. Thus it is more likely that the distance to the nearest town, number of hamlets and area of the village is correlated with social capital rather than the child's education.

Another assumption included in the IV-probit model is that from all the components of social capital, I have included two components –membership in a women's group and confidence in institutions like schools and hospitals. This is because I had to pare down all the components of social capital in order to run the exclusion test with using three instruments. The selection of the two components of social capital is based on previous regression results. This could have a potential positive bias in the results since the two components of social capital have positive association with school participation in the previous regression results. Since from a policy perspective I am more

interested in finding ways in which social capital could contribute towards improving school participation, I included social capital components that are likely to have a positive association. Also membership in women's groups and confidence in schools and hospitals are social capital components that can be mediated by policy changes unlike membership in religious groups. Therefore, because of the policy implications of these specific social capital variables, they were likely candidates for the IV-probit model. However, this purposive selection of specific social capital components based on previous results could cause a potential bias in the estimation error, but so would selection of any other component.

The IV-probit model uses Newey's[15] two-step minimum chi-squared estimator rather than the usual MLE. This econometric approach has been used in many other areas of empirical research, as for instance in Ribar (1994) and more recently in McKenzie and Rapoport (2004) (as cited in Campos & Giovannoni, 2006). This estimator is used for probit models where one or more of the continuous independent variables are endogenous[16]. Adkins (2008) mentions that this technique has become one of the standard ways to estimate the models to obtain consistent estimators, when the MLE is not available. The IV probit model with MLE does not converge and the iterations never end. This is a common problem when the instruments exceed the endogenous regressors in an IV-probit[17] model.

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15 Newey, W. (1987), "Efficient Estimation of Limited Dependent Variable Models with Endogenous Explanatory Variables" Journal of Econometrics vol. 36, pp. 231-250.

16 http://aura.abdn.ac.uk/bitstream/2164/10/1/ISSN%200143-04-02.pdf; http://www.learneconometrics.com/pdf/GC2009.pdf

17 http://www.stata.com/statalist/archive/2006-06/msg00590.html

The probit model with IV include the two social capital indices that were significant in all previous equations-membership in women's groups and confidence in institutions like schools and hospitals. These variables were instrumented by the number of hamlets in a village, area of the village in hectare units and the distance to the nearest town. The results of the regression are presented in Table 18.

The IV results shows that both the active social capital component (membership in groups) and the latent social capital component (confidence in institutions) do not explain the variability in the current enrollment significantly. Individual factors such as age suggest that older children are less likely to be currently enrolled in school as compared to younger children. This result holds in the non-IV regression also. As expected, household assets significantly predict the probability of current enrollment, holding all other factors constant. The number of adult educated males in the household also has a positive and significant influence on the probability of current enrollment. However, surprisingly, number of educated adult females in the family does not significantly explain the variation in probability of being current enrolled.

A formal post estimation test is the Wald test of exogeneity[18]. The test asks whether the error terms in the structural equation and the reduced-form equation for the endogenous variable are correlated. If there are multiple endogenous variables, then it is a joint test of the covariances between the k reduced form equations' errors and the structural equation's error (STATA archive[19]). In the two-step estimator, in the second stage we include the residuals from the first-stage OLS regressions as regressors. The Wald test is a test of significance on those residuals' coefficients. The reported Wald

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[18] http://www.rasmusen.org/x/2006/10/11/wald-tests-of-group-significance-and-of-exogeneity/
[19] http://www.stata.com/statalist/archive/2006-01/msg00126.html

chi2(2) = 5.40 with Prob > chi2 = 0.0673, thus rejecting the null that the error terms are correlated.

Next, I also test for the validity of the instruments with the Amemiya-Lee-Newey[20] minimum chi square statistic. The null hypothesis of valid instruments (i.e., they are uncorrelated with the error term in the structural equation) is not rejected (p=0.4701). Therefore it is validated that the instrument is not correlated with the dependent variable directly but influence it through the instrumented variables.

The first stage equation includes the instruments that significantly explain the variance in social indices but does not have a direct relation with the individual's current enrollment status. In other words, for the exclusion restriction to be satisfied, the instrument is related to the treatment and it is only related to the outcomes through its impact on the treatment. A necessary (though not sufficient) condition for this instrument to be valid is that the instruments are a predictor for the dependent variable (current enrollment) conditional upon the other exogenous regressors entering the determination of the dependent variable. To test this empirically, I estimated correlations between the outcome (current enrollment), the instruments (number of hamlets, are of the village, distance to the nearest town) and the treatment variable (social capital). If the exclusion restriction holds, then the correlation between current enrollment status and the instruments should be negligible or smaller in magnitude than the correlation between the instruments and social capital variables. The Pearson's correlation coefficients between current enrollment and number of hamlets, area of the village and distance to the nearest town are .0021, .0087 and -.0026 respectively. We would expect the correlation

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[20] http://www.tinbergen.nl/discussionpapers/09088.pdf. The Amemiya-Lee-Newey test results for over-identification of instruments were generated using Baum, Schaffer, Stillman and Wiggins' (2006) overid.ado programme for Stata. http://ideas.repec.org/c/boc/bocode/s396802.html

coefficient between social capital indices and the instruments to be higher. The correlation coefficient between memberships in groups and number of hamlets, area of the village and distance to the nearest town ranged .063, .089 and .027 and with confidence in institutions like schools and hospitals is it -.06, -.03 and -.04 respectively. They are all higher in magnitude than the correlation between the dependent variable and the instrument.

The first stage regression results both indicate that the instruments significantly explain the variance in the dependent variables (membership in associations and confidence in institutions).Also the R^2 of the first stage regression models are not alarmingly low (.103, .057) which gives an indication that the instruments are correlated with the social capital index thus reducing the possibility of weak instruments. Block, Hoogerheide and Thurik (2009) test for the statistical significance of the instruments by using the F statistics greater than 10 cut-off rule to decide the strength of the instrument[21]. The F statistics of the first stage regression yields the values of 66.24 and 35.39 which clearly exceed the cut-off.

The post estimation tests on the instruments and models seem satisfactory. However it would be erroneous to completely believe in the exclusion restriction. For example, the proximity to the nearest town opens up more schooling options (e.g. private schools) which the parents might consider. Older children, especially males, could be encouraged by the parents to study in a "better" school in the nearest town. There might be other such cases that need to be considered. Other possible threats to the validity may include factors like safety issues for girls to travel far to reach school. Therefore in this

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[21] A value of 10 means that the IV bias is less than 10% of the OLS bias (Kennedy, 2008 in Block, Hoogerheide and Thurik, 2009)

case, the area of the village and the number of hamlets in the village would directly influence the school participation behavior. Large villages are also more likely to have overcrowded schools, which again may reduce the individual's incentive to attend schools. There could also be a possibility that individuals who live closer to town may have both higher social capital as well as school participation rates. Living closer to town may give the individual access to wider social networks mainly due to the higher density of population in the cities. The individual could participate in many organized groups which are unavailable in the rural areas (e.g. trade unions etc). A wider variety of schools to choose from in cities, as is the case in India, may provide more incentives to the individuals to improve school participation. Cities tend to have private schools, schools run by trusts, local language focused schools among others which may not be available in the rural setting. Thus these cases suggest that there are possible pathways that show correlation between the dependent variable (school participation) and the instruments which ignore the exclusion restriction.

Hierarchical Linear Models Analysis

Research Questions

The questions that I am interested in investigating using Hierarchical Linear Modeling (HLM) are. First, how does school participation vary by social capital indicators after taking into account measures of individual and village characteristics? Do individuals from households with higher social capital do better with respect to the school participation indicators? Second, what is the relationship between school participation

and household characteristics after controlling for individual and village-level characteristics? Third, what individual characteristics matter for school participation within households?

Analytic Approach

Hierarchical linear modeling (HLM) is used to examine the relationship between social capital and school participation, controlling for all other individual, household, and village level factors. Analysis of such multi-level data could have the following biases: aggregation bias, misestimated standard errors, and heterogeneity of regression slopes (Guo & Zhao, 2000; Lee, 2000; Raudenbush & Bryk, 2002). For a household survey such as this, embedded hierarchical structures need to be taken into account. For example, in this case individuals are nested within households which are nested within villages. Therefore, at the individual level analysis household and village characteristics are aggregated. This may cause an aggregation bias. Moreover, there may be more than one individual in a household, and, similarly, more than one household constitutes a village. Some groups might be more homogenous than others; therefore, the variance of the group components would differ.

Furthermore, individuals from a household share more in common than individuals from a different household. Thus, the assumption of independence of observations (i.e. the random errors are independent, are normally distributed, and have constant variance), which is a basic statistical assumption, cannot be used here (Raudenbush & Bryk, 2002). Running an OLS regression in this case would underestimate the standard errors (risk of type I error), and the OLS estimators are not the Best Linear Unbiased Estimators (BLUE). Therefore, it would be advisable to use

cluster-adjustments which allow observations within clusters to be correlated. Since for this paper clustering is done over households and villages, the STATA module, *svyset,* adjusts for the clustered standard errors as well as accounts for the multi-level survey sampling plan. The svy STATA command incorporates the weights, clustering by strata to obtain correct standard errors.

Therefore, compared to single-unit methodologies such as OLS, HLM attempts to solve the above mentioned problems. HLM uses Maximum Likelihood Estimates (MLE) to run regression models for each group by estimating its own intercept and its own slope (Raudenbush & Bryk, 2002). This takes care of the variances within groups and obtains estimates close to each group's mean with higher reliability. Therefore, HLM takes into consideration variation not only in the intercept but also in the slope estimates for each group. Primo, Jacobsmeier, and Milyo (2007) suggest that HLM allows an analysis of the explanatory power of a model by estimating the variance components directly. That is, it enables to measure the portion of a dependent variable's variance that is attributable to level 1 (i.e. at the individual level) versus level 2 (i.e. at the household level). But the authors add a word of caution that the assumptions of the HLM are quite stringent and have to be met to produce believable results. Another advantage of using HLM appears when the data are unbalanced in their contexts, .e.g., different sample sizes in households and villages[22]. HLM also works best when there are fewer cross-level interactions in the model. This would be a good technique for a cross-sectional data set as it also checks on heteroskedasticity by taking into account different levels of analysis.

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[22] http://www.stat.columbia.edu/~cook/movabletype/archives/2007/11/clustered_stand.html

Analytic Models

The nested structure of the research question - estimating the effect of household characteristics such as social capital on school participation − coupled with the IHDS data structure suggests the need for a HLM approach. A three-level HLM structure (individuals nested within households and households within villages) is used. In level 1 (within households) the individual's school participation indicators (ever-enrolled, currently-enrolled, and years–of-schooling) is modeled as a function of the characteristics of the individuals within their families. All of the three school participation outcomes are at this level. Therefore, there are three models. Level 2 in all the models consists of the variables of interest (social capital) and the rest of the household characteristics. Level 3 has all village level factors as covariates.

Since two of the outcomes variables, ever-enrolled-in-school (initial enrollment) and current–enrollment-in-school, are dichotomous, the variable logit HLM model is used. Odds-ratio will be used to interpret the model results as they present the change in the odds of a particular type of enrollment relative to the reference category that is associated with a one-unit change in a particular independent variable—holding constant all other variables (Perna & Titus, 2004). An odds-ratio greater than one represents an increase in the likelihood of school participation, whereas an odds-ratio less than one represents a decrease in the likelihood of type of school participation under consideration. The third outcome-years of schooling is a treated as a continuous variable and a basic model is used.

In all the three models all individual variables are grand-mean centered. At the

household level, except for the caste/religion dummy variables, rest of the variables are

grand-mean centered. At the village level all variables are grand-mean centered.

Therefore, the results maybe interpreted for individuals having average characteristics. .

For the outcome variable ever-enrolled-in-school, centered age (age minus the

mean of age) and the square of the centered age are used as covariates at level 1. For the

outcome variable currently-enrolled-in-school individual age dummies from age 6 to age

14 are used as covariates. For the years-of-schooling outcome variable, individual level

dummies for ages 11 to 14 are used as covariates. This is done to control for the age-

confounding factor, as noted before.

HLM Model

I have used a three-level, random-intercept model for each of the school participation

outcome variables. The intercept at each level is modeled based on the covariates

appropriate at the relevant level. The model is given below.

Level 1:

$$Y_{ijk} = \pi_{0jk} + \pi_{1jk}(X_{ijk}) + ... + e_{ijk}$$

Level 2:

$$\pi_{0jk} = \beta_{00j} + \beta_{01j}(W_{jk}) + ... + r_{jk}$$

$$\pi_{1jk} = \beta_{10j}$$

Level 3:

$$\beta_{00j} = \gamma_{000} + \gamma_{001}(Z_k) + ... + u_j$$

$$\beta_{01j} = \gamma_{100}$$

$$\beta_{10j} = \gamma_{200}$$

Where,

Y_{ijk} is the predicted school participation for the individual i in household k and village j;

π_{0jk} is the intercept for individual i in household k and village j;

π_{1jk} is the relationship between the variable of interest (X=Social Capital) and the

predicted school participation for individual i in household k and village j. This vector of

variables also includes other household characteristics.

γ_{000} is the average village intercept.

γ_{001} is the relationship between Z (village level variables) and the predicted school

participation for village k. This is a village level slope.

The list of variables for each level is given in Table 6-8. I follow a random-

intercept model for this study. The level 1 intercept, π_{0jk}, is allowed to vary across

households, but the associated slopes are constrained with all other individual

characteristics to be equal across households. Similarly, the household level

intercept, β_{00j}, is allowed to vary across villages, but the household level slopes are fixed.

Thus, in this model only the equation for the intercept represents variation between

households and villages. This model will help to address the research question regarding

whether social capital is associated with school participation. The coefficients β_{01j} shows

the influence of household factors on school participation. Similarly, the coefficients, γ_{001},

assess whether village characteristics are effective in raising school participation.

Results from the HLM Analysis

The results for the three school participation indicators are given in Tables 17-19. The random coefficient model helps to answer the following questions, first, how does school participation vary by social capital indicators after taking into account measures of individual and village characteristics? Do individuals from households with higher social capital do better with respect to the school participation indicators? Second, what is the relationship between school participation and household characteristics after controlling for individual and village-level characteristics? Third, what individual characteristics matter for school participation within households? This section discusses the results for each of the question. Refer to Tables 19-21.

The relationship between social capital and school participation

The first research question is how does school participation vary by social capital indicators after taking into account measures of individual and village characteristics? Let us first see the unadjusted models, where I add only the social capital variables and observe their association with school participation. Model 1 in Table 19 suggest that a one standard deviation increase in social capital network index is associated with a 50 percent increase in likelihood of being initially enrolled in a school (p<.001). Participation of the household in women's self-help and credit group also increases the likelihood of being initially enrolled by 17 percent (p<.001). Amongst the latent social capital factors, a one standard deviation increase in having confidence in schools is associated with a 17 percent increase in the likelihood of being initially enrolled (p<.05).

Table 20 presents the results with current enrollment as the dependent variable. The unadjusted model (model 1) shows similar results as the unadjusted model in Table 19. The only difference being that none of the latent social capital factors significantly explain the variation in the probability of being currently enrolled. Also one of the active components of social capital, membership in religious groups, explain the variation in the probability of being currently enrolled in school. Amongst the active social capital factors, a one standard deviation increase in social networks increases the probability of being currently enrolled by 36 percent (p<.001). Also being a part of a women's self-help group is also associated with a 13 percent increase in the likelihood of being currently enrolled (p<.001). Being a part of a religious group is associated with a 7 percent decrease in the likelihood of being currently enrolled (p<.001). Table 21 Model 1 presents the unadjusted results that show the association between social capital with years of education as the dependent variable. The Table suggests that the active components of social capital significantly explain the variation in the years of schooling of the individual. Model 1 in Table 21 indicates that a one standard deviation increase in the active component of social capital-social networks, on average, increases the years of schooling for an individual by .45 years (p<.001). Similarly for participation in women's group, the years of schooling for an individual increases by .12 years (p<.001). Having more confidence in schools also associated with having more years of schooling, however with the much smaller magnitude (.08 years).

To better understand the association of social capital with school participation, lets us look at models that introduce other household factors along with the social capital variables. Table 19, Model 2 introduces as controls the caste and religious affiliations of

the household. The results show drop in the magnitudes of the social capital variables. Therefore suggesting that the association between social capital and the probability of being initially enrolled weakens as caste and religious affiliations are introduced in the mode. This implies that some of the social capital effect is explained by caste and religious factors. Model 2 in Table 19 indicates that after adjusting for caste and religious factors, a one standard deviation increase in the social capital index for networks is associated with a 39 percent increase in the likelihood of being initially enrolled (p<.001). Similarly, a one standard deviation in the participation in women's groups is associated with a 18 percent increase in the likelihood of being initially enrolled, holding religious and caste factors constant (p<.001). The latent social capital factor, confidence in institutions like schools and hospitals is also associated with an increase the in the probability of being initially enrolled by 17 percent, holding caste and religious factors constant (p<.001). The caste factors show that the Brahmins are at an advantage in terms of the probability of being initially enrolled. For instance, Muslims are almost 83 percent less likely than Brahmins to be initially enrolled in schools (p<.05). Similarly, for the rest of the caste and religious factors, except for Christians, Sikhs and Jains.

Table 20 Model 2 suggests that the association of social capital and the likelihood of being currently enrolled becomes weaker but remains significant, as compared to Model 1 after introducing the caste and religious affiliation into the unadjusted model. The results show that a one standard deviation increase in social capital network index is associated with a 29 percent increase in the likelihood of being currently enrolled in a school, after controlling for caste and religious affiliation of the household (p<.001). A one standard deviation increase in the participation in women's group increases the

likelihood of being currently enrolled nearly 12 percent, holding other factors constant (p<.001). Also a one standard deviation increase in the participation in religious groups decreases the likelihood of being currently enrolled by 5 percent, holding other factors constant (p<.001). The caste factors show a disadvantage as compared to the Brahmins in the likelihood of being currently enrolled.

Table 21 Model 2 shows the results of the association between social capital and years of schooling, after adjusting for caste and religious factors. In this model again, the social capital networks index drops as compared to Model 1 in Table 21, however remains significant in explaining the variation in years of schooling. The results from Model 2 suggests that a one standard deviation increase in the active component of social capital-social networks, on average, increases the years of schooling for an individual by .38 years, holding the caste and religious affiliations constant (p<.001). This effect is smaller than that of the unadjusted model (Model 1, Table 21). However, the caste and religious affiliation does not take away the magnitude of the association between participation in women's group and school enrollment. Model 2 shows that a one standard deviation increase in women's group, on average, increases the years of schooling for an individual by .13 years, holding caste constant (p<.001). Caste factors by themselves show an interesting pattern. Unlike results from Table 19 and Table 20, other high castes among Hindus are not at a disadvantage as compared to the Brahmins. Also Other Backward Castes (OBC) is now only marginally significant in explaining the relationship between castes and years of schooling. However, the disadvantage of being Muslim, Dalits or Tribals as compared to being a Brahmin still continues.

Now let us observe the association between social capital and school participation controlling for other important household characteristics like adult literacy and socio-economic status of the household. By doing this we will be able to observe how much of the unadjusted magnitude of association between social capital and school participation is explained by the introduction of the socio-economic characteristics and adult literacy indicators in the household. Model 3, Table 19 shows that the magnitude of the social capital coefficients drops significantly as compared to the un-adjusted model, however remain significant. This drop is much more than the drop in magnitudes with the introduction of the caste factors in Model 2. Model 3 shows that a one standard deviation increase in social capital network index is associated with a 11 percent increase in the likelihood of being initially enrolled in a school, holding constant the household's SES and adult literacy measures ($p<.001$). Participation of the household in women's self-help and credit group also increases the likelihood of being initially enrolled by 12 percent, holding constant the household's SES and adult literacy measures ($p<.001$). Amongst the latent social capital factors, a one standard deviation increase in having confidence in schools is associated with a 12 percent increase in the likelihood of being initially enrolled, holding other factors constant ($p<.005$). Both SES measures (log of consumption per capita and household assets) and adult literacy measures for males and females significantly explain the variation in initial enrollment. Especially with SES measures, this effect is large. For instance, a one standard deviation increase in the log of consumption per capita is associated with a 46 percent increase in the likelihood of being initially enrolled in a school, holding other factors constant ($p<.001$).

A similar trend is observed when the dependent variable is current enrollment. Table 20 Model 3 suggests that the SES and adult literacy measures explain away a large portion of the unadjusted social capital index magnitudes in Model 1. Model 3 results show that after adjusting for SES and adult literacy measures, a one standard deviation increase in the social capital index for networks is associated with a 12 percent increase in the likelihood of being currently enrolled (p<.01). Similarly, a one standard deviation in the participation in women's groups is associated with a 9.6 percent increase in the likelihood of being currently enrolled, holding SES and adult literacy factors constant (p<.01). Like in earlier models in Table 20, none of the latent social capital factors significantly explain the variation in current enrollment. Like Model 3 in Table 19, SES and adult literacy measures significantly explain the variation in current enrollment. Similar pattern is observed when years of schooling is the dependent variable. See Table 21 Model 3. The social capital index magnitudes drop significantly as compared to the unadjusted model (Model 1) and also when caste and religious factors are introduced (Model 2). The results from Model 3 suggests that a one standard deviation increase in the active component of social capital-social networks, on average, increases the years of schooling for an individual by .08 years, holding SES and adult literacy measures constant (p<.01). This effect is smaller than that of the unadjusted model (Model 1, Table 21). Model 3 also shows that a one standard deviation increase participation in women's groups in the active component of social capital-social networks, on average, increases the years of schooling for an individual by .11 years, holding SES and adult literacy measures constant (p<.001). The latent social capital factor –confidence in institutions like schools and hospitals is marginally significant in explaining the

association between social capital and years of schooling. Like the results in Table 19 and Table 20, the SES and adult literacy measures significantly explain the variation in years of schooling.

Till now we have observed the differences in the magnitudes of the coefficients of the social capital index as we sequentially added the caste religious factors (Model 2) and the adult literacy measures (Model 3). In Model 4 incorporates all household characteristics to be able to observe the social association between the social capital factors and the school participation indicators. Model 4 across all the Tables 19-21 indicate that the magnitudes of the social capital coefficients drop further if we include as controls all caste and religious associations, SES measures, adult literacy indicators along with other household characteristics. This implies that the household factors absorb most of the social capital effect on school participation. Models 2 and 3 across all Tables explained in detail also help to observe which of the household characteristics take away of the social capital effect on school participation indicators. Model 5 introduces individual level characteristics along with all controls from Model 4. Model 4 across all Tables 19-21 show that introducing individual factors does not drive down the magnitudes of the social capital variables. However, they significantly explain the variation in the school participation indicators.

The final model (Model 6) includes all individual, household and village level characteristics. Table 19 indicates that even after adjusting for the individual, household, and village level covariates, a one standard deviation increase in the social capital networks index is associated with an 8.6 percent increase in the likelihood of initial enrollment in school (p<.05). Amongst the latent indices of social capital, the results

show that a one standard deviation increase in the confidence in institutions (e.g., schools and hospitals) is associated with an almost 11 percent increase in the likelihood of initial enrollment in school, holding all other factors constant (p<.01).

Model 6, Table 20 shows that a one standard deviation increase in the active component of social capital (i.e. social networks) increases the likelihood of current enrollment by almost 9 percent, adjusting for all individual, household, and village level factors (p<.01). Similarly, a one standard deviation increase in the index of membership in groups (e.g., women's group, self-help, credit saving) increases the likelihood of current enrollment by almost 9.6 percent, controlling for all other factors (p<.01). Finally, a one standard deviation increase in the participation in religious groups reduces the likelihood of current school enrollment by 10 percent, even after adjusting for all other covariates (p<.01).

Model 6, Table 21 indicates that a one standard deviation increase in the active component of social capital-social networks, on average, increases the years of schooling for an individual by .09 years, holding all other factors constant (p<.01). Also a one standard deviation increase in the index of membership in groups (e.g., women's group, self-help, credit saving) is associated with an increase of 0.05 years of education, controlling for all other covariates (p<.05). However, the latent components of social capital (index of membership in groups (religious or social group or festival society and caste association); index of confidence in schools, hospitals; and index of confidence in politicians, police, state and village governments) do not significantly explain years of schooling.

Relationship between school participation and household characteristics

The following section addresses the second research question, which is, what is the relationship between school participation and household characteristics, after controlling for individual and village level characteristics? For this question only the final model, Model 6 is considered.

The between-households Model 6 in Table 19 and Table 20 suggests that caste and religious affiliations, socio-economic status of the family, and adult education are important predictors of school participation. More specifically, Muslims are around 64 percent less likely to be initially enrolled in school compared to Brahmins, even after controlling for all other individual household and village level characteristics (p<.001) (Table 19, Model 6). Other backward castes are around 45 percent less likely to be initially enrolled compared to Brahmins, controlling for all other factors (p<.001). The results show that all caste/religion are far worse off as compared to the Brahmins in predicting the probability of initial enrollment, holding all other factors constant. Table 20 also shows similar results, where all other castes and religions show a disadvantage as compared to Brahmins in predicting the probability of current enrollment, holding all other factors constant. This disadvantage of being a Muslim also shows up in Table 21 in estimating the years of schooling. Adjusting for other covariates, on average, Muslims tend to have 0.77 fewer years of schooling than Brahmins (p<.001). The association between years of schooling and other castes such as OBC, Tribals and Dalit is negative, but not significant.

Other household factors such as the number of educated adult members in the family have a significantly positive influence over school participation indicators. If the

household adds one additional educated adult female, the likelihood of an individual being initially enrolled in school increases by 6.3 percent, holding all other factors constant (p<.001) (Table 19, Model 6). Similarly, an additional educated adult male increases the likelihood of initially being enrolled by 9.1 percent, holding all other factors constant (p<.001) (Table 19, Model 6). Table 20 suggests that an additional educated adult female in the family increases the likelihood of an individual being currently enrolled by 3.5 percent (p<.001). Likewise, for the addition of an educated adult male, the likelihood of being currently enrolled increases by 5.2 percent (p<.001). Similarly, Model 6, Table 21 suggests that, controlling for all other factors, individuals from households with an additional educated female have .03 more years of education, after adjusting for all other factors (p<.001). Also, individuals from households with an additional educated male, on average, increases the years of schooling of the individual by .08 years, controlling for all other factors (p<.001). As expected, larger families may show a negative association with school participation. Table 21 shows that individuals from households with an additional child, on average, tends to have 0.10 fewer years of schooling than individuals from smaller families (p<.001).

Households' economic status improves school participation. An additional one-point increase in the log of consumption per capita of the household increases the likelihood of an individual to be initially enrolled in school by 28 percent, after controlling for all the individual, household, and village level factors (p<.001) (Table 19, Model 6). Another proxy for household wealth—household assets—shows similar trends in both Tables 19 and 20. An additional one-point increase in the log of consumption per capita of the household, increases the likelihood of being currently enrolled by 36 percent,

after controlling for all the individual, household, and village level factors (p<.001) (Table 20, Model 6). For years of schooling Table 21, Model 6 also shows that, on average, wealthier households (which is indicated by higher consumption levels) tend to have .24 more years of schooling, even after controlling for other individual, households and village level characteristics (p<.001).

The relationship between individual characteristics and school participation

The third research question is what individual characteristics matter for school participation within households? Model 6 in Table 19 indicates that controlling for individual, household, and village measures, females are almost 45 percent less likely than males to be initially enrolled in school, holding all other factors constant (p<.001). This disadvantage is also carried forward in estimating the probability of being currently enrolled in school, where females are 24 percent less likely to be currently enrolled in school, after controlling for covariates at all levels (p<.001) (See Table 20, Model 6). Understandably, being married is not a significant factor in determining the probability of initial enrollment, but it significantly explains being the probability of currently enrolled, holding other factors. Similarly, even after controlling for individual, household, and village level measures, being divorced or separated drops the odds of being currently enrolled by almost 77 percent (Table 20, Model 6). Table 19 also shows similar trends. Being married tends to reduce the years of schooling, on average, by 2.19 years, holding all other factors constant (p<.001).

Age shows a non-linear association with school participation indicators. Adjusting for covariates at all levels, a one-year increase in the age of the individual increases the

odds of being initially enrolled by almost 14 percent (p<.001) (Table 19, Model 6). However, age squared is associated with an 8 percent decrease in the likelihood of initial enrollment, holding all other factors constant (p<.001). This implies that older children are less likely to be initially enrolled in school as compared to younger children. Model 6, Table 20 also suggests that older children are less likely to be currently enrolled in school as compared to 7–year-olds, controlling for all other individual, household, and village level factors. Table 19 indicates that controlling for all other factors, older females are 9 percent less likely to be initially enrolled in school (p <.001). In a similar vein, older females are 7 percent less likely to be currently enrolled in school, controlling for all other individual, household, and village level factors (p<. 001) (Table 20, Model 6). Table 21 suggests that as age increases, the number of years of education also increases. For instance, on average, while holding other variables constant, 14 year olds tend to have 2.26 more years of schooling as compared to 11 year olds (p<.001). But Model 6, Table 21 also shows that she is a disadvantage for girls' education. The results indicate that, on average, older girls seem to have 0.15 more years of schooling than the rest, holding all other factors constant (p<.001).

Discussion

Econometrics Analysis

Some trends emerge across all the three models (initial enrollment, current enrollment, years of schooling). Social capital influences school participation. Specifically, confidence in institution and membership in groups influence years of

education and initial enrollment. However, this effect weakens in the prediction of current enrollment. Surprisingly, confidence in politicians, state, police decreases the likelihood of current enrollment, holding other factors constant. The reason for this negative effect is not very clear. It may be because if households have confidence in the governance system, the value of being educated may decrease. That is, it could be the belief that since governance systems are already in place, there is little that education could do to further improve the existing system. Affiliation to religious groups also decreases the likelihood of being currently enrolled in school because of the availability of other schooling options (both formal and non-formal).

Females are less likely than males to be initially enrolled in a school; this maybe due to the motivation factor of the parents who tend to favor boys education (PROBE team, 1991). But once enrolled in school, this effect dies off. Older girls are less likely to be initially enrolled, currently enrolled or have more years of education. Early child marriages and the older girl looking after the siblings, doing all the household work while the mother and father are away are plausible reasons to observe this effect. In general older children (both boys and girls) are less likely to be enrolled in school for similar reason. This may imply that the chances of initial enrollment and current enrollment are fewer if the individual are older. But once the individual is attending school, as expected, the number of years of schooling increases with age. It is important to note the "vintage effect" with respect to the age variables. In the last five to eight years India has shown a remarkable increase in providing access to schools through the SSA national plan as well as the mid-day meal schemes. Children who are now 12-14 year old didn't get as many educational opportunities as their counterfactual (children who are currently younger).

Therefore, it is not just due to age that we see a schooling disadvantage of older students, it is also due to other systemic changes.

Across all the three models, the caste effect plays an important role. All castes are at a disadvantage as compared to the Brahmins and this effect is strongest in the initial enrollment. In estimating the years of schooling, this effect decreases, but the disadvantage for the Muslim population still remains predominant. A similar conclusion was drawn by Kingdon (1998) who found that conditional on school enrollment, the years of education of scheduled-caste (SC) students are no lower than those of other students (Dreze & Kingdon, 1999). However many qualitative studies on classroom dynamics indicate the continued disadvantages of non-Brahmin castes at school (Bhatty, 1998; Clarke, 2003; Kaul, 2001; Nambissan, 1998; Page, 2006; Rao, Cheng & Narain, 2003; Singal, 2008).

Indicators of socio economic status like per capita income and household assets improve the likelihood of school participation. Education level of the household members improves school participation as also reported in Indian education literature (Chudgar, 2009). Larger families with more dependants have a consistent negative impact on school participation. Amongst the village factors, apart from the infrastructure facilities like availability of safe water, improved cooking stoves, electricity, presence of self-help groups, trade unions, credit saving groups consistently help in improving the likelihood of school participation.

Hierarchical Linear Models Analysis

The results from all the three Tables (19-21) (with outcomes- initial enrollment, current enrollment and years of schooling) all show that, in general, the association between social capital and school participation is positive. Social capital in the form of social networks has a positive and a significant association with school participation. Therefore, the types of people the households knows, in this case, a teacher or school official, doctors or nurses and individual in other government service, makes it more likely for children to attend schools. Other active social capital components such as the household's membership in groups (women's group, self-help group, credit saving group) is likely to improve current enrollment and years of schooling of the children. This may also be linked to the fact that parents (especially mothers) get more exposure to discussions around why education is necessary for their children. Interaction with other group members may happen to encourage school participation. However, this effect is not significant for initial enrollment of children. Latent factors of social capital such as confidence in institutions like schools and hospitals promote the initial enrollment of children into school. More confidence in schools in providing education would promote parents to get their children enrolled in school. However, confidence as a factor to promote more years of schooling is positive but not a significant factor in the analysis.

Models presented include variables in a sequential form. The econometric exercise showed that among all factors, the households' SES measures, adult literacy and caste and religious affiliations explain the variation in social capital. Therefore, in the

HLM section, the variables were introduced using the same logic. Across Tables 19-21, the magnitudes of the coefficient of social capital decreases more when household socio-economic factors and adult literacy measures are included as compared to when only caste factors are included. The magnitude of the social capital indices reduces more when household SES, adult literacy and caste measures are all included in the model. This implies that most of the social capital effect on school participation is explained by household SES and adult literacy measures followed by the households' caste and religious affiliations. In terms of policy interventions, this result is promising, since promoting adult literacy could drive both social capital in the community as well as improve school participation. Individual characteristics, such as age, gender, marital status, though significant in explaining school participation do not lower the magnitudes of the social capital coefficients. These results support the claim that school participation especially in the Indian context is a household driven decision process.

Like in the econometric results, household factors explain a large proportion of the variability in school participation. Wealthier, smaller and more educated households are likely to promote their children's school participation indicators. Education level of the household members improves school participation as also reported in Indian education literature (Chudgar, 2009). For the models that estimate the probability of initial enrollment and current enrollment, caste and religious factors seem to be an important driver of school participation. Compared to Brahmins, all other castes are at a disadvantage in terms of school participation. For Muslims, this disadvantage is still predominant in the estimation of years of schooling. A similar conclusion was drawn by Kingdon (1998) who finds that conditional on school enrollment, the years of education

of scheduled-caste (SC) students are were no lower than those of other students (Dreze & Kingdon, 1999). However many qualitative studies on classroom dynamics indicate the continued disadvantages of non-Brahmin castes at school (Bhatty, 1998; Clarke, 2003; Kaul, 2001; Nambissan, 1998; Page, 2006; Rao, Cheng & Narain, 2003; Singal, 2008).

The econometric results also show that females are less likely than males to be initially enrolled in a school; this may be due to the motivational factor of the parents who tend to favor boys' education (PROBE team, 1991). But once enrolled in school, this effect fades off. Individual characteristics such as being a female or the interaction with age and female has a negative and significant association with school participation. Older children are less likely to be initially or ever enrolled; as compared to a 7 year old, they are less likely to be currently enrolled in school. However, older children tend to have more years of schooling as compared to an 11 year olds. It is important to note that this trend may be because of the above mentioned "vintage" effect.

There are several other possibilities for further research related to social capital and education especially in India's context. For instance, this analysis suggests factors that support school participation, controlling for factors like social capital. It will be interesting to observe whether the same factors also explain the variability in social capital. Therefore, deriving the factors that also support social capital may help in identifying policy related factors. Planned interventions could help support communities to build social capital as well as school participation. For instance, if parental education explains a large part of social capital, and as we have seen that it influences school participation, adult literacy programs could be further strengthened. However, there could be factors like caste and religious affiliations that are not policy variables, but may be

highly correlated with both social capital and school participation. Conducting a sub-group analysis on different caste and religions groups may help to explain the relationship between years of schooling and social capital in greater depth.

Explaining the Small Magnitudes of Social Capital

The regression results and the HLM analysis both suggest that the social capital magnitudes are small in explaining the variation in the school participation indicators. Therefore, in this section by sequentially adding variables to the model, I investigate the variation in the explanatory power of the social capital indices along with other variables in the model. But before doing this, I start by keeping the social capital index as the dependent variable and observing who are the individuals who have social capital? The OLS regression results are given in Appendix Table E. The results indicate that the number of adult educated males and females in the household significantly explain the variation in social capital, although by small magnitudes. An additional literate male in the household increases the social capital by .02 units, holding all other variables constant. Similarly an additional literate female in the household increases the social capital by .04 units, holding all other factors constant. Also richer households with more household assets and income tend to have a higher social capital measure and this relationship is significant. A unit increase in the log of consumption per capita increases the social capital of the household by .47 units and this effect is significant. From the religious and caste factors, being a Christian or a Jain negatively influences social capital as compared to being a Brahmins by .5 units. Surprisingly, other caste and religious factors do not

show significant effects. Therefore it appears that social capital is influenced by affluent households with higher levels of adult literacy and belonging to certain castes.

Now that we know what factors influence social capital, the next step is to see which of these variables take away a larger explanatory power from social capital. Refer to the Appendix Table F. Keeping the dependent variables as current enrollment in school, I add on the composite social capital index. The results indicate that the social capital variable increases the probability of currently being enrolled in school by 0.95 percentage points and is significant holding all other factors constant. To this model I added the adult literacy variables and found that the social capital index does not significantly explain the variation of current enrollment. The marginal effect of social capital drops to .2 percentage points, whereas, the adult literacy variables are both significant in the analysis. To the original model with social capital index as the only explanatory variable, I add caste dummies. In this model social capital variable still significantly explains the probability of being currently enrolled along with caste dummies which are also significant. Therefore the caste variables do not explain away the effect of social capital on the education indicator. Lastly to the original model with social capital index as the only explanatory variable, I include household assets and log of per capita consumption and found that the social capital index loses its explanatory power, whereas the household socio-economic measures significantly explain the variation in the probability of being currently enrolled. Thus more than the castes, the household's socio-economic factors and adult education levels of the household drive the social capital effect. The HLM results (Tables 19-21) also show similar results. The magnitudes of the SC indicators drop most when household income, assets and literacy measures are added (Model 3).

These combined with caste and religious affiliations (Model 4) further reduce the SC magnitudes.

Additionally, as mentioned before, the IHDS (2005) survey was not designed to capture social capital specifically. Therefore the social capital indices have their set of limitations as well. Moreover, it becomes difficult to compare the results with other studies as well. For example, Krishna & Uphoff (1999) construct an India based measure of SC, but their sample population is adult. For others, the context is very different- Lopez (1996) uses a logistic regression with GPA and years of schooling, to estimate the influence of household factors including the educational aspirations of the parents, the number of times parents visit classrooms, PTA attendance as well as school-related factors like teacher's interest in the student in and outside class, counselors' perceptions and other similar variables. Furthermore, the method of analysis maybe very different- Dyk and Wilson (1999) use the path-analysis method for a longitudinal data set to estimate the impact of SES, household size, mother's aspirations, and parental interactions on educational attainment (in terms of years of schooling). The next chapter discusses the research questions and summarizes the findings using a case study.

CHAPTER IV

METHODS

Case Study Analysis

Chapter IV presents the case study analysis which is based in a socio-economically marginalized rural district in India. The chapter includes background of the district, research questions, a description of the data sources and analysis and discussion of the results.

Background

On development indicators such as literacy, age of women at (first) marriage, infant mortality, and nutritional status of women, Madhya Pradesh in central India is counted among the least developed states in India. Madhya Pradesh hosts the largest tribal[23] population in India (10 million, i.e. one fourth of the total state population) (Adak, Bhattacharya, Ghosh, Pal, Bharti, & Vasulu, 2000). There are 46 tribal[24] groups in Madhya Pradesh, with 7 tribes. The highest proportion of the tribal population in the State resides in the Jhabua district. The district is primarily rural with about 1313 inhabited villages and has almost 89 percent tribal constitution. Jhabua is located in the western most part of Madhya Pradesh, touching the state of Rajasthan in the north, Gujarat in the west and Maharashtra in the south. Refer to Figure 1in the Appendix for

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[23] Officially called "Scheduled tribe" as listed in the government charts of "Primitive" and "Backward castes" as per Government of India's terminology.

[24] The meaning of the term "tribal" for this study pertains to a small group of indigenous population concentrated in a secluded geographical area. This population celebrates their own rituals and customs which maybe very different from the rest of India. They are organized in hierarchical groups and have community leaders that usually are hereditary posts.

the map of the region. It is the seventh least developed district in India with an overall

adult literacy of about 36.9 percent and female literacy of 25.7 percent (GOI, 2009). Fifty

nine percent of the residents live below the poverty line[25].

Low literacy levels and school drop-out problems are much more severe for the

tribal population than others in India (Sujatha, 2000; Tiwari, 2004). The Scheduled

Tribes (ST) are ethnic minorities recognized by the Indian Constitution. Around 8 percent

of the total population belongs to the Scheduled Tribe and there are 573 such tribes that

are recognized (Sujatha, 2000). Schooling becomes an issue as they usually reside in

scattered habitations located in remote and inaccessible hilly areas. The government has

taken multiple steps through the Five Year Plans to prioritize their development needs. In

education, starting with the National Policy on Education (1986) priority has been given

to opening primary schools in tribal areas including residential schools, the need to

develop curriculum and material in the tribal language, along with other educational

incentives keeping their lifestyles in mind (Sujatha, 2000). However, even after these

initiatives the tribal literacy continues to be very low.

A nationally representative education survey-Annual Survey of Education Report

(ASER) indicates that in 2009, out of the total children surveyed between the ages of 6 to

14 years, 23 percent were out of school (state average is 2.2 percent and the national

average is 4.0 percent). Grades third to fifth, Hindi language learning levels in Jhabua

show that children who can read letters, words or more are around 57 percent as

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[25] The national planning government agency, the Panning Commission of India estimate the Poverty Line
on a regular basis. The much debated poverty estimates help to get a sense of the economically
marginalized population in India. The Planning Commission of India used the 61st round of the National
Sample Survey (NSS) to define the criterion that households that have monthly per capita consumption
expenditure below Rs 356.35 for rural areas and Rs. 538.60 for urban areas are defined to be living below
the Poverty Line.

compared to a state average of 87 percent and a national average of 64 percent. For the same grades, ability to solve simple subtraction problems puts Jhabua at 42 percent as compared to a state average of 82 percent and a national average of around 56 percent.

To improve the districts' access to schools and learning levels, the state government has taken a number of initiatives. Student hostel facilities are provided to the students to avoid travelling long distances, and special programs have been institutionalized to promote girls' education. Under the Education Guarantee Scheme[26], the government has built new schools to reach out to a catchment area of one kilometer. However some factors that are responsible for poor educational achievement are older girls dropping out to take care of their siblings, early marriages for girls, social customs hindering female mobility after puberty, migration and support in labor and work in the fields and complexities of tribal life no coherent education policy has been formulated for the sub-population (Mahapatra, 2000; Sujatha, 2000). Jhabua also has a child labor incidence of 25.5 percent with 90 percent of the child labor force working in the agricultural fields and a higher female working population[27] (Lieten, 2002).

There are other structural factors such as education of the district being the purview of the Tribal Welfare Ministry which oversees all tribal development areas such as education. However, the department lacks expertise in educational planning, administration and particularly monitoring. The Department of Education, the sole

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[26] Education Guarantee Scheme (EGS) is an important component of *Sarva Shiksha Abhiyan* (Education for All) to reach out to the out-of school children. EGS addresses the inaccessible habitation where there is no formal school within the radius of one kilometer and at least 15-25 children of 6-14 years age group who are not going to school are available (http://india.gov.in/sectors/education/education_guarantee.php).

[27] Most males travel to major cities to search for employment there.

authority at the state level, is responsible for all the planning and implementation regarding curriculum, textbooks, teacher recruitment and transfer etc. Therefore the school calendar does not represent tribal festivals and holidays. Other school infrastructure problems, lack of context in the curriculum, medium of instructional teaching and teacher non-availability are other hindrances to improving school participation and literacy among the ST's (Nambissan, 1994, 1996; Sujatha, 2000).

Jhabua as a Case Study

The history of Jhabua started to emerge in the sixteenth century when the Islamic rulers started a mission to bring the local residents, the Bhils, under Emperor Jehangir. The Bhil leader Jhabbu Naik (who lent his name to the region) vigorously fought against the Islamic empire. Since then the Bhils have fought many battles with the Mughal rulers, the Marathas and later the British (1817-18). A detailed chronological account of the history of Jhabua is presented in the Appendix Figure 2. Bhil uprisings continued till the First Indian war of Independence (1857) where Bhil leaders sided with the Indian freedom fighters. However the rulers of Jhabua took the side of the British. The known history of Bhils is thus of vigorous struggles against any external influence or domination (Bajaj, 2008).

The two most predominant tribes in Jhabua are the Bhil and the Bhilala[28]. The Bhil are organized into a number of patriarchal clans. They include 11 subgroups. Traditionally they practice polygamy. The Bhilala are a mixed tribe which sprang from

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[28] The Bhils and the Bhilals have references in the Hindu mythological scripts like the Mahabharata and the Ramayana.

marriages between Rajput[29] men and Bhil women and is divided into 4 sub-groups. They

speak the "Bhili" dialect mixed with Malwi Hindi (Shrivastava, 2006). The tribal

numbers are fast declining because of the influence of Christianity, Buddhism and other

religions. For many, Christianity is a way to escape from being treated as "untouchables"

and "impure" (Sedwal & Kamat, 2008). Their main occupation is agriculture and cattle

rearing, but because of the development of roads in the area, the agriculture and cattle

rearing areas have been reduced (Shrivastava, 2006). There is seasonal agriculture in the

region, and because of the lack of water in the summer months, most families migrate to

the neighboring state of Gujarat. Poorly designed poverty elimination programs of the

government, corruption at various levels of the compensation distribution channels, and

lack of awareness and education have resulted in a poverty trap for the tribals.

Indebtedness is common among the tribals of Jhabua, which often leads to exploitation

by the money lenders (Amanullah & Sharma, 1987).

The resident tribes of Jhabua have a very active community life with all their

rituals and festivities conducted in the public sphere (Bajaj, 2008; Shrivastava, 2006).

Symbolic of popular culture is the *haat*, which is a weekly market in larger villages and

town in the district (around 60). Along with its economic significance, the *haat* is an

important ritualistic and festive occasion for the tribals, which is accompanied by dancing

wearing silver jewelry, fine clothes, and also weaponry.

The tribal community's most important festival is the *Bhagoria* spring festival.

This festival is closely associated with the *haat*. *Bhagoria* is the name of the dance that is

performed in a group. It is said that many young men and women find partners while

performing the dance. Bright red and florescent yellow are common color clothes for this

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[29] Rajputs belong to the upper castes in the neighboring state of Rajasthan.

occasion. Festivals in Jhabua are celebrated as community events; the festivities are held in common places, in the weekly *haat*, village squares or village temples (Bajaj, 2008; Nahar, 1981; Shrivastava, 2006). The day after Bhagoria is celebrated by the community praying to the deity *Gal-Bapji,* for the protection against all diseases (Shrivastava, 2006).

Not only do the tribal communities celebrate and pray together, they also work together. During the harvest season, the farmer community collectively decides on a schedule of harvesting all fields in the village. That is, instead of working on their own fields, they all harvest a field and move together to another field, until all are harvested. This practice is repeated every year and is called the *halama*. The associated custom of *arji-paraji* denotes that labor which is loaned for urgent agricultural purposes, the family receiving such a loan needs to pay back when required. Such exchange allows the Bhils to avoid hiring labor for money. Even the irrigation system called the *Pat of Sakri* is constricted and maintained jointly by farmers. The Bhils also have their own judicial system which they call the *jati-panchayats*. These are un-official village meetings that settle the disputes within the communities. It is believed, that the faith in these panchayat proceedings is such that even in the cases that are settled in the secular national judicial courts system in India, the parties do not believe that full justice has been done till the verdict is passed by the *jati-panchayats* (Bajaj, 2008). The Bhils have a belief that disputes must not be continued and must be settled by the *jati-panchayats.* These customs emphasize social discipline and cohesion within the Bhil society(Bajaj, 2008).

From the land where group identify led to historic battles, the survival of the tribe from ancient history, to present day communal festivities, celebrations to pray and undoubting faith in a judicial system that runs parallel to the states judicial system,

Jhabua showcases social capital in the Indian context. Selection of a community that is rich in social capital, it will be interesting to observe if the same is translated to the education system of the region or not.

Research Questions

This exploratory study helps to define and contextualize the components of social capital in the Indian setting. The study also attempts to answer two main research questions: First, what are the empirically driven components of social capital in the Indian rural tribal context? Second, how does social capital manifest itself in education, through membership in formal and informal social groups or networks (e.g. local government agency, parent teacher association etc)? The two research questions help to understand the relationship between social capital and education.

The study uses qualitative inquiry as opposed to quantitative since the research questions lends themselves to asking "how " is the process of social capital enacted in the sampled villages through formal and informal means and "how" is the link between social capital and education played out in these villages. The "how" questions are related to understanding the "processes" of social capital and education and thus lend themselves to a qualitative study (Morse & Richards, 2002). The purpose of the study is to understand social capital and the link to education to fill the existing gap in the literature. Villages in rural India form the sample range for this study since more than 70 percent of Indians live in rural areas (Census of India, 2001). However, the results of this study are not generalizable to all rural populations in India.

Conceptual Framework

This detailed conceptual framework is in the form of a Logic Model which shows the multi directional, non-linear links between different variables as per the social capital theory. Refer to Figure 12. Logic models are flow-charts that identify major components and variables that define a particular hypothesis, and show how these variables might inter-relate and influence outcomes desired in specified populations (Chen, 1990; Weiss, 1997). In doing so, logic models reveal the implicit and explicit assumptions underlying particular hypothesis (or their logic of operation), making it easier for researchers to specify the defining variables, formulate questions and test hypotheses about various inter-relationships and effects. Once developed, the links in logic models help researchers ask the right questions at appropriate points on the entity of interest, identify important variables/constructs for observation, and develop rational foundations to inform both exploratory or confirmatory inquiry. As constructs become better defined, logic models help specify empirically-testable causal pathways by which the various component elements are expected to inter-connect, leading to both expected or unexpected outcomes

The variables are grouped under the contextual, input, process and outcome variables. The list of variables are taken from Brooks-Gunn's (1993) 'ecological model' that demonstrates the effects of neighborhoods, families and their resources on child development. The listed factors have the potential to impact education and/ or social capital.

Contextual variables: The contextual variables are background characteristics of the families and the communities. For example, the family size variable (nuclear or extended)

could impact the social capital of a family. Similarly, for the community, total population, castes/religious distributions would be a potential factor that influences social capital formation.

Input variables: The input variables are divided into two categories-schools and the communities. The community supports in the form of infrastructure facilities which include water, healthy, and presence of societies in the village provide essential resources for a healthy functioning community. Similarly, resources at schools are inputs which help the schools to function well.

Process variable: The process variables are divided into active and latent components of social capital. Active social capital variables require the individual or communities to show active involvement as a community, whereas latent social capital encompasses passive factors that an individual may possess. Examples of latent social capital are having a sense of group identification attributable to religion or caste; active social capital would entail solving a community wide problem with the help of cooperation and coordination among villagers. These factors are mediators between the inputs or the contextual factors that could catalyze the outcomes in a certain direction.

Outcome variables: The outcome variables are divided into proximal and distal outcomes. Proximal outcomes are outcomes observed in the near future which could take the form of more parental and community involvement in education related issues. The distal outcomes may take longer to materialize. Some examples of these outcomes are increase in school enrollment, attendance and years of schooling.

Methods

The case study approach under the qualitative tradition has been used to analyze the data. A case study approach is useful since the cases (individual respondents) are in a bounded system which are the villages and situated in a context (Creswell, 2007). Typical of a case study, multiple data sets are used and themes are analyzed and triangulated using all the data sources. Villages have been randomly selected. Purposeful sampling is used to select the village leader from each village, followed by convenience sampling to select the cases in the village (Morse & Richards, 2002).

The main data collection techniques involved group interviews and semi-structured individual interviews, open ended discussions, along with field observations, village mapping etc. The protocols for the interviews are adapted from instruments used in previous social capital literature. The interviews were conducted in Hindi. The group interviews were mainly with villages leaders (like the Panchayat heads, Tadvis etc) and other community members like NGO representatives etc. These interviews helped to get the leaders consent to collect data from the village. The main questions in the list asked about presence of infrastructure in the village (electricity, water, communication service, transportation, markets etc), list of institutions in the village (number of schools, hospitals (private, government) etc), presence and functioning of the other organizations such as NGOs, other groups or collectives, presence and functioning of government programs, perception about the role of the panchayats, migration patterns, any form of collective action or solidarity seen in the past, other forms of community support, identification or the main problems the community faces, and relationship between organizations

and the community. There was a separate section on education which included presence and functioning of the facility.

Semi-structured individual interviews were conducted with at least two to three households in each village. This included questions on household characteristics such as migration patterns of the household, asset ownership. It also included aspects of structural social capital in terms of sociability of the household, trust patterns, solidarity, participation in organizations or community groups, type of participation, contact with other networks, patterns of exclusion from organization, government programs etc, previous collective action, latent social capital indicators such as solidarity, mutual trust and cooperation and conflict resolution. A separate section included the household's perception of education.

The group interviews and the semi-structured individual interviews is supplemented with open discussion with the community members to get information to make village maps. Discussions also included perception about the status of schools, learning levels of children and the community involvement in schools. The members also discussed customs, festivals that they celebrated together.

The interview scripts in Hindi were translated and transcribed in English. QSR NVIVO 8 software is used to analyze the qualitative data. The data is analyzed to get an empirical understanding of the components of social capital. Using the NVIVO 8 software I looked for evidence in the interview that related to the theoretical components of social capital that are literature driven. I also looked for evidence of social capital that are empirically derived, i.e., from the interview transcripts itself. For instance, participation in local government groups is seen as a positive aspect of social capital. But the interview transcript showed that this may not

be positive always. There are cases where the local government leader (*Sarpanch*) used his or her

powers to exploitatively. Therefore I added a negative domain for "political efficacy" which

earlier had only the positive aspects as per the literature. The theoretical and empirically driven

components of social capital are then mapped using the Grootaert and Van Bastelaer's (2002)

conceptual framework of social capital. Additionally, direct quotations are added to the text to

provide a better understanding of the context.

Confidentiality and Anonymity

Ethics is a large component of this research. Since I was new to the region, I took the

help of local NGO members to reach a village and to talk to the village leaders. The NGO

member initiated contacting the leaders which gave me the opportunity to explain the purpose of

the study. This study is approved by the Institutional Review Board (IRB) at Teachers College.

Interview protocols for data collection are accompanied by a consent letter. As per the IRB

guidelines, the consent letter was read to all the participants before the data collection. They

either gave verbal approval which is tape recorded or signed on the consent form. The consent

letter clearly explains aspects regarding confidentiality, risks and possible harms to participants.

All action on the part of the respondents was voluntary on nature. The respondents were not

compelled to respond to the questions, if they do not want to. No kind of force or compulsion

was added to perform the data collection. There was no harm caused to the respondents.

Upon completion of the data collection, there was no kind of mental or physical harm

inflicted to the respondents because of the responses they provided. There was also a complete

guarantee of anonymity and confidentiality provided to the respondents. The respondents were

assured that the answers they provide will not be shared with anyone with their names and contact details revealed. This study does not mention the respondent's original names. At any point, if the respondents did not feel the need to answer the questions, they were free and willing to do so. No data collection was done at the cost of jeopardizing the respondents in any manner. The researcher's contact details were made available for any questions regarding the study. All consent forms are safely kept in a locked cabinet at the researcher's permanent residence in India.

An important part of the interviews is also the tendency of providing socially desirable answers. This is true for the behavioral and affective components of social capital. For instance, questions on mutual trust, conflict resolution, instances of collective action may lend themselves to providing socially desirable answers. To avoid this problem, I asked follow-up questions to get more details. Some respondents were able to provide more specific information, others answered generally. I made field notes if the answers were too vague. The gender of the respondents also played an important role for this issue. Women were more likely to provide socially desirable answers than men. This is because they would be immediately opposed by their husbands otherwise. For most part, I managed to conduct interviews with the women inside their houses to avoid others hearing them. But it was not possible in all cases.

Sampling Design

There are 6 existing blocks[30] in Jhabua District: Jhabua, Meghnagar, Thandla, Petlawad,

Rama and Ranapur. To get a representative sample, villages were selected from all the 6 Blocks.

Two to three villages were randomly sampled from an exhaustive list of all the villages provided

by the Census of India (2000). Data is collected from a total of 14 randomly selected villages

scattered across all the six blocks. *Jan Shikshan Sansthan*, a local Jhabua based NGO helped in

identifying the villages and in data collection. Villages are typically hamlets (also called *phalias*)

comprised of scattered sub-communities based on their castes. From the villages selected, all

sub-communities were included in the data collection to gather information on forms of

collective organizations, such as, local government bodies (village education committees, gram

panchayats[31]) and parent teacher associations existing in the village will either be a part of the

structured individual interviews or group interviews.

In each village, the typical data collection activity would include meeting the village

leader who is usually a *panchayat* member or someone educated in the village, more often it was

an elderly person in the village. The meeting was in the open and attracted other members of the

village. Therefore a purposeful sampling technique was to collect information from the village

leader and a convenience sampling technique was used to collect data from the village

community (Morse & Richards, 2002). A group interview method was used to gather

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[30] Districts are further divided into Blocks. Until last year there were 12 Blocks in Jhabua, which were reduced to 6 Blocks in May 2008 for administrative reasons.

[31] The 73rd Constitutional Amendment established the three-tier panchayati raj system in the country, with elected bodies at the village (gram), block(taluk) and the district (zilla) levels. to enable people to think, decide and act for their collective interest, to provide for greater participation of the people in development, to ensure more effective implementation of rural development programs in the state, and to plan and implement programs for economic development and social justice (NCF, 2005).

information for the community survey (Morse & Richards, 2002). The discussion in the

interviews included guided and unguided conversations, formal meeting interactions and

multiple-respondent interviews (Morse & Richards, 2002). The community survey took around

one hour to fill the required information with the village leader being the key informant. This

was followed by a transect walk (Rietbergen-McCracken & Narayan, 1998) across the village to

draw a map of the village with the help of the village members. A random purposive sampling

technique (Miles & Huberman, 1994) was used to conduct semi-structured individual interviews.

The village leader helped in gathering individuals to participate in the interview session. Each

interview lasted for 45-50 minutes. A total of 21 individuals were a part of these semi-structured

interviews (excluding the village leaders). In three villages, only group interviews were

conducted because women were too reserved to talk alone while their husbands were working in

the fields.

Designing Social Capital Tools

The social capital tools are adapted from Grootaert and Van Bastelaer (2002) and

contextualized to the Indian setting. The original survey tool was adapted into interviews and

focused group protocols to collect data for the qualitative section. The social capital instruments

follow the design guidelines and consideration as given by Krishna and Shrader (2002). The

authors lay out the guidelines to tap into social capital by incorporating its multiple dimensions

as well as paying attention to the cultural and other contextual variables. However, in this study

there is a digression from the Krishna and Shrader's (2002) guidelines since the instruments will

also attempt to tap into the factors that link social capital and education, therefore by design will weight the education component considerably.

Data Sources

By definition, a case study incorporates multiple data sources (Yin, 1989). The data used in this case study include the following. First, group interviews with the village leaders and other members of the community including NGO representatives, parent teacher association members and the local government body at the village level. All interviews were tape recorded after the respondent signed the consent form or verbally notified (since most of the respondents were not educated) their consent on the recording. These recordings were in the Bhili language and Hindi and were translated and transcribed to English. The usual procedure of member check of the transcribed and translated was not followed since most of the respondents were not educated or could not read English. To maintain anonymity, this report does not include original names of the respondents.

Second, semi structured household interviews. The same procedure as above was followed. Third, census of India 2001 quantitative survey data. Fourth, open ended discussions with the community to get information on: the education profile of the community and general perception about education. Relevant contextual basic information about the village commonly known to most adults in the village (Krishna & Shrader, 2002). For example, how do the residents define a community, what assets demarcate a community etc. Community maps of the villages and the hamlets to provide the contextual setting and also highlight the physical placement of different social classes and castes in the villages (Krishna & Shrader, 2002).

Descriptive Statistics of the Sample

The data consists of 35 group and semi-structured interviews. The group interviews are one for each village, but the semi-structured household interviews are more than one per village. Out of a total of 20 household interviews, 14 are with females. Usually the village leader is a male with the exception of one village. Table G in the Appendix presents the number of cases per Block, where case is either a group interview or a semi-structured household interview. The list of the villages in the data collection sample along with their corresponding Block names are given in the Appendix Table H.

Profile of the Study Areas: Demographics

This section uses multiple sources of data: Census of India 2000, District Level Household and Facility Survey- DLHS-3 (2007-08) report, author's field notes and author's newspaper writing during the field visit. A overview of the Jhabua demographic profile is given in Appendix Table I.

The population of Jhabua district is 1,394,000 with the decadal growth rate as 23.6 (Census of India 2000 as reported in the DLHS-3). Based on the Standard of Living Index by the DLHS-3, 87.6 percent belong to the low category, 5.7 percent to the medium and only 6.6 percent in the high category. The sex ratio[32] is 986 out of 1000 and percent urban population of only 8.7. Majority of the population (87 percent) belong to the Scheduled Tribe. Female literacy rate (7 years and above) is a mere 25.7 percent, with male literacy rate being 48 percent.

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[32] Sex ratio is the ratio of males to females in a population.

The region has one crop per year pattern because of the lack of water facilities, making migration a common practice in the region. Migrants leave Jhabua every year around the end of the harvest time in late September – November, and come back around planting time in May/June (McQuilling, 2009). Both men and women migrate to neighboring states like Gujarat to become daily wage earners. Interview data suggests that the migrants work on construction sites, in factories which are located both in rural and urban areas. The migrant families leave an elderly member of their family to look after the field crops and the agricultural land back in Jhabua. This migration cycle disrupts the schooling patterns of children as they also migrate with their parents. It has also increased the HIV numbers of the region because the people took rides with the truck drivers who are often infected with HIV themselves. The main source of phone communication is through mobile phones, with no public landline phone available. To make a phone call they usually have to travel to the nearest town or borrow a mobile phone from someone in the village. The local means of travel are private bus between villages. 6 out of the 14 villages have some form of bus service and 4 villages have a bus service within reach.

The 2001 census figures indicate that out of the 1.3 million people in Jhabua, only 397,000 are literate. Excluding the 0-6 year age group, the literacy ratio is around 37 percent which is much lower than the state average of 64 percent (Bajaj, 2008). Literacy among men is higher (48 percent) than women (26 percent). From the 397,000 literate population in Jhabua, 296,000 (75 percent) have studied up to primary level or below and only about 4.5 percent of the literate population have studied beyond primary school. Only about 2.7 percent of the 18+ population have passed the higher secondary level (Bajaj, 2008). Of the 1,317 villages in Jhabua, 1216 have one or more than one primary school, leaving about 101 villages without a school. But

since the villages are scattered and the distance between them is large, it becomes impossible for children to travel to school everyday. Middle schools are even scantier with only about 25 percent of the villages in Jhabua (336) having a middle school (Census of India, 2001).

The demographic data suggests that villages are scattered ranging from a spread of 116 hectares to 406 with the number of households ranging from 65 to 406 and total population of each village from 363 to 2,463. Seven villages had both the Patlias and the Bhils tribes living in the village (but in separate phalias), six with only the Bhil tribe (with separate subtribes living in separate phalias) and only one village with Patlia population alone. The nearest town to the village is on average 12 kilometers (7.45 miles) away. A majority of the villages (nine) have some form of paved road connecting the village to the main high way, with six villages having some form of bus service in the village and three have a bus service less than five kilometers of reach. A medical facility (any form[33]) is only present in three villages. Every village has a primary school (grades 1 to 5), only three villages have a middle school (grades 6 to 8), two villages have a secondary school (grades 9 and 10) and only one has a senior secondary school (grades 11 and 12). None of the villages have a college. A co-operative or a commercial bank is present in only one village. Membership in credit societies or agricultural societies is also very rare.

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[33] Forms of Medical facility range from having the following hospitals and dispensaries- allopathic, ayurvedic, unani and homeopathic. Maternity and Child Welfare Centre, Maternity Home, Child Welfare Centre, Health Centre, Primary Health Centre or Sub- Centre, T.B. Clinic, Nursing Home, Registered Private Medical Practitioners, Subsidized Medical Practitioners, Community Health workers and other medical facilities.

Inside the Village

Bhils have a very active community life, but their houses are very far from each other. Villages in Jhabua are comprised of hamlets called *phalias*. These hamlets are very scattered and may have a distance ranging from five to even eight kilometers between them, as also noted by Shrivastava (2006). Each phalia belongs to a particular sub-tribe or tribe. The phalias and the houses are kept very clean and orderly. The houses have usually mud baked exterior walls, tiled or thatched roofs, and the floor is plastered with mud or cow dung (Shrivastava, 2006). 98 percent are reported to have their own house, and 82.4 percent have own agricultural land (DLHS-3). They are typically one to two room houses with no sanitary or toilet facility in the house. Only 10.5 percent of the residents are reported to have any kind of toilet facility (DLHS-3). Just outside the house, there is an animal shed and a firewood and haystack area (Shrivastava, 2006). The walls of the house and the doors have painted motifs.

The common source of water is the handpump. Electricity is only available for a couple of hours a day, and most people use kerosene lamps. There are no street lights in the village. The village has no police or security service. Each *phalia* had its own handpump as the main source of water. Each village has a government primary school which is in the main phalia, along with the government preschool (*aaganwadi*) and the Public Distribution System (PDS) ration shop. The ration shop is a common meeting place for the village residents and thus becomes the main source of information on government policies and any new event in the village. Very few villages have a market, usually there is the ration shop and a few local shops for their daily needs. Every village has one or more primary school and preschool, but not all have middle schools.

There is no adult education center in the village, thus more than 90 percent of the adults are not

educated and the situation is worse for women. A majority of the villages did not have private

schools in the region because of the low financial capacity of the residents. 95.4 percent of the

girls (age 6-11) and 97.6 percent of the boys are reported to attend school (DLHS-3).

Data collected from the interviews indicate that the common ailments of children under

14 are fever, stomach problems, malnutrition and stunted growth. There were some cases of

flurosis because of the heavy content of fluroride found in the ground water of the region. No

village had any kind of government hospital, and residents usually have to go to the nearest

city/town to reach to one. The residents usually complain that the government hospitals are not

subsidized, and sometimes they have to pay the full market price for the hospital services. The

interview data suggested that each household had more than two children with the average being

five. 75 percentage of women aged between 20-24 report having at least 2 or more children

(DLHS-3). For the same age, 54.4 percent of the women have at least 3 or more children 54.4

(DLHS-3).

Social Organization in the Study Areas

A summary of the organization chart is shown in Appendix Figure 3. The organizational

structure of the government bodies in Madhya Pradesh is as follows. The *Panchayat* is the local

government body which comprises five elected members and oversees the planning and

implementation of government work over a group of neighboring villages. The number of

villages under each Panchayat depends on the distance between them and the population of the

villages. The head of the Panchayat is called the *Sarpanch* with the secretary called the *Sachiv*.

The secretary is responsible for all the paper work and documenting the meeting proceedings.

Both the Sarpanch and the Sachiv are usually male; if not, their husbands handle all the paper

work since women are not educated. The official panchayat meeting is held twice a year and all

village residents are invited. The interview data suggested that generally women do not attend

these meetings unless they are called for a specific task. Groups of Panchayats form a *Janpadh*[34].

The Jhabua district has six Blocks, and roughly each Block has one Janpadh. All the panchayat

proceedings and petitions are handed over to the Janpadh. Above the Janpadh are the District

elected head who preside over all the meetings of the elected Janpadh at the Jhabua District level.

An interesting post which is also government-recognized is the village *Tadvi*, who

resolves small disputes in the village. The village Tadvi has a hereditary right to the post, i.e. the

post is not an elected one but is passed on as a family lineage from one generation to the other

(Shrivastava, 2006). Apart from the government officials at the village level, there is also a

Parent Teacher Association in the village which does not seem to be very active. The reason

given is that the parents themselves are illiterate and cannot make any decisions. Every school,

by law, has a Village Education Committee (VEC). The VEC in reality is translated to a single

member who is a part of the Panchayat and is the education representative in the Panchayat.

Each school also has a Self-help Group[35] (SHG), constituted by a government mandate that is

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[34] Each district is divided into blocks. A Janpadh Panchayat is constituted for each block and consists of members elected from smaller constituencies (between 10-25 members).

[35] Usually SHGs constitute economically marginalized women who have been appointed at the school level for overall implementation of the mid day meal program. The SHGs are recommended by the village panchayat and selected by the Chief Executive Officer of the Janpadh panchayat at the block level. Agreement is signed between the village panchayat, PTA, SHG for the implementation of the program. The cooking cost is released directly in the account of the SHGs (Madhya Pradesh Government report).

responsible for the mid-day meals at the school. During the field visit, some schools had a regular mid-day meal system while a majority did not.

One of the main units of social organization in Jhabua (and India in general) is religion, caste and tribe. 95.4 percent (1.331 million out of 1.395 million) of the total population in Jhabua are Hindus or followers of one or the other tribal religions (Census of India (2001), as cited in Bajaj, 2008). Of the 63.7 thousand non Hindus, 26.4 thousand are Muslims, 27.3 thousand are Christians and 9.3 thousand are Jains. The Christian population has doubled from 1931 to 2001 making them the largest minority in the district. Scheduled castes and tribes are government recognized categories of marginalized tribes and castes. 86.85 percent of the population in Jhabua belongs to the Scheduled Tribes (1.211 million out of 1.395 million) (Census of India, 2001, as cited in Bajaj, 2008). There are not many scheduled castes in the region, (reported only 3 percent). Among the scheduled castes (39,290 in 2001 Census), the majority belong to the lowest category-the *Chamars* (10,522), followed by *Dhanuks* (9, 981) and *Kotwals* (7, 337). Jhabua forms the center of fairly wide region of high Bhil tribe population. Most of the villages in the sample for this study had Bhils alone or both Bhils and Patlias living in the same village. The phalias separated the two tribes and the sub-tribes among them.

Analysis and Results of the Case Study

Components of Social Capital

To answer the first research question, what are the empirically driven components of social capital in the rural tribal Indian setting? The analysis uses components of social capital

from 64 previous studies that have explored the concept of social capital as noted in the literature review section (Table 4). The components are broken down into constructs and domains as explained in the literature review section. Figure 4 describes the social capital framework in a quadrant form.

In this section, these concepts are contextualized using the interview data from Jhabua district. This section helps to draw links between the conceptual concepts of social capital to empirically drawn patterns from the sample villages in Jhabua. The concepts are organized using Grootaert and Van Bastelaer's (2002) framework of social capital as given in Figure above. NVIVO QSR-8 was used to code the data in the categories as shown in the Tables below. The discussion of the constructs in detail will follow.

Sub-classification in terms of constructs and domains

Quadrant 1: Institutions of the state, rule of law; at the intersection of Macro and Structural

The constructs or labels drawn from the literature synthesis that correspond to quadrant 1 are: structural institutional mechanism and social and civic norms. See Table 22.

Structural and institutional mechanism

The domains under this construct, as derived by the conceptual coding process are the diversity of institutions, efficacy of the institutions, institutional resources and the vertical hierarchical organization. Institutions in the social capital literature are defined in terms of their hierarchical structure. Please refer to Appendix Table A for descriptions of each domain in the literature review section. Quadrant I comprises of formal institutions with authority, most likely

authorized by the state. As defined in the literature 'the structural category, broadly speaking, is associated with social organization of various kinds and particularly with roles and rules...' (Carroll, 2001, p.7).

The interview data from Jhabua suggests that the central social organization in the village that has the responsibility of all development work is perceived to be the *panchayat*. Upon being asked the question, "for any development work in the village, like digging up a well, or constructing a road, whom will you go to first?" The respondents in most village usually replied "I will ask the sarpanch *(head of the panchayat)* and then go to the panchayat meeting". The *panch* or the five heads of the panchayat are perceived to be the main "problem solver" in the village. All matters in the village are reported in the panchayat meeting, but there is also a belief that their problems go unattended. In a village that needed a pond to be deepened before summer, they requested the panchayat and the respondent complained that the matter was dismissed by authorities. "The sarpanch does not listen to us. He does what he feels like doing", indicating that the efficacy of the structural mechanism was questionable. The relationship with the panchayats is an excellent depiction of Coleman's (1988, 1990) notion that social capital includes 'vertical associations characterized by hierarchical relationships and unequal power distribution among members' (Grootaert, 1999, p. 5). The indicator of the vertical and hierarchical organizations 'encompasses formalized institutional relationships and structures, such as governments, political regimes, the rule of law, court systems, and civil and political liberties' (Serageldin, & Grootaert, 1997, p. 46).

However, these vertical and hierarchical linkages weaken when it comes to education. I asked them "if the teacher stops coming to the village primary school or is absent for many days,

what would you do?" Only a handful of respondents indicated that they will complain to the *Sarpanch*, whereas most of them said that they will not do anything nor complain to the school principal. Therefore there is a clear disconnect between the central authoritative power of the village and education. None of respondents mentioned that that they would complain to the headmaster or PTA members or the District's Education Department.

Diversity, efficacy and resources of institutions are important domains under the structural and institutional mechanism and play a vital part in the development of social capital. The inefficiencies of the government delivery system are evident from the interview data. Upon being asked the three most critical problems in the village, most of the respondents complained that there was infrequent electricity (only one or two hours a day) and it hampers their work. They also complained about the great distances they need to travel to visit the nearest hospitals. They complained that the hospitals charge them the full rate for medicines and are not subsidized and usually have a shortage of medicine and hospital beds. The third main problem that they often mentioned was the lack of employment in the village requiring travel to other states to become daily wage earners. Inadequate water and roads were also mentioned. Again, very few people mentioned that the low literacy rate is a major problem in the village. Upon being asked if the teachers were sufficient in number in the school, they readily replied that there were two teachers for grades 1 to 5 and that this was sufficient. There were two exceptions to this, which will be discussed in the later section.

> Interviewer: How many primary schools are there in the village?
> Respondent: Only one
> Interviewer: Does it have space?
> Respondent: There is a government school. They are till grade 5
> Interviewer: Is the number of teachers adequate?
> Respondent: There are 2, they are fine. They teach 60-80 children
> Interviewer: Do all children from the village go to school?

Respondent: Yes they all do.

Social and civic norms

Social and civic norms as described in the literature are conditions that help to foster collective action. Durlauf (2002) states that 'Social capital can be simply defined as an instantiated set of informal values or norms shared members that permit them to cooperate with one another' (p. 1). Edwards, Franklin, Holland (2003) mentions that norms help '…social capital leads people to act in the interests of collective "public" good not just self-interest' (p. 85). The Jhabua data presents a negative side of social norms. For example, I asked the respondents "do men and women both attend panchayat meeting?" the respondent replied "they call the women if there is a special meeting on women's programs. They are called then". This norm has been institutionalized which deters the women to participate in any village level decision. I was invited to a Janpadh meeting in Ranapur block. The Chief Executive Officer (CEO), earlier called the Block Development Officer (BDO) presides over the meetings with the elected Janpadhs. A government mandate requires 33 percent of elected members to be women. In the meeting, the elected Janpadh women came with their husbands who occupied the front row and made all the decisions, while the women kept silent. During the data collection process, gender norms were made clear when I was not allowed to talk to women directly without the men of the households being present. Female respondents first checked with their husbands whether their answers were correct or not. Norms included restriction on meeting people; for instance, I asked a female respondent if she spoke with others in the village, she replied "No, I don't go outside. Men go outside, women stay at home". In another instance, I asked "if there needs to be some development work in the village, whom will you contact?" The reply was "my husband will go

to the Janpadh". Women with posts are also not regarded with much esteem. In one of the villages, I asked if the panchayat meetings were held regularly, and the respondent replied by saying "No. A lady is the sarpanch and she has no clue, her husband does everything". In another village:

> Respondent 1: In the gram sabha the talk about all the govt. programs. But we didn't have any gram sabha meetings recently.
> Respondent 2: In the past meetings they didn't tell us about the government programs in the gram sabha.
> Interviewer: Where are these meetings held?
> Respondent 1: In the open.
> Interviewer: Do women go?
> Respondent 1: Women don't go. I don't want to lie

An unsaid civic norm is not to visit the phalia where the Dalits are the lowest in the caste ranks. During my transect walk in one of the villages, I was asked if I needed to go to the Dalit side of the village. It was sort of a warning signal as they wanted me to be aware that the area is not visited frequently. Civic norms in Jhabua foster a negative form of social capital which promotes collective action, but at the same time excludes women and some sections of the society.

Quadrant II: Governance; at the intersection of macro and cognitive

Grootaert and Van Bastelaer's (2002) framework defines this quadrant in terms of governance. For my analysis, I have adopted a broader view which incorporates the potential uses and benefits of social capital. Woolcock (2002) defines social capital under two dimensions: first, by the sources of social capital (e.g. through networks, groups etc); second, by the potential uses of social capital (e.g. cooperation, trust etc). Quadrant II is best suited to describe the potential uses of social capital that fit the macro and cognitive lens.

Potential uses of social capital divided into the following constructs: cognitive abilities, cooperation and coordination, routine activities and social control. See Table 23.

Cognitive abilities

The conceptual coding indicated a limited role of this domain with only 11 references in the literature database on this construct, validating the fact that there is a gap in the literature that connects the impact of social capital on cognitive abilities. This domain highlights the link between education and social capital which was first studied by Putnam (1993), followed by some of his later extension to the study (Helliwell & Putnam, 1999; Putnam, 1995). His analysis shows that education is one of the most important predictors of political and social engagement. This insight had multiple forms in Jhabua. I visited a school in Ranapur Block with only a handful of children sitting in a classroom with no teacher. I asked one of the parents who came to school when they saw me.

> Interviewer: Do they feel that the children will benefit from coming to school?
> Respondent: Its been 2-3 years and the children don't even know all the alphabets.
> Then what is the point of sending the children to school.
> Interviewer: They don't teach in school?
> Respondent: No. The teacher, she teaches, but the head master does not.
> Interviewer: Cant you complain about the master?
> Respondent: We don't understand how to do it. We are not educated.
> Interviewer: So now you don't send your children to school?
> Respondent: There is no benefit. At least in 12 months, my son should be able to
> write his name. But he still doesn't know all the alphabets, then what is the point in
> teaching.

The helplessness of the uneducated parent is evident from the response, which increases the probability of his child dropping out of school and promoting the dysfunctional school by this action. The main reason for a lack of apathy towards the school system is the low literacy levels of the parents in the village.

Co-operation and co-ordination

This construct is further broken down into the following domains: diffusion of innovation, economic development, efficacy of collective interest, information dissemination, political efficacy and problem solving. Economic development, or lack of, was a dominant theme in the Jhabua data. Economic development was linked to cyclical migration which the families undertook each year because of lack of employment. Migration is dependent on the networks with agents who guarantee employment to the migrants in the neighboring states. These agents would visit the villages in Jhabua and would promise jobs to potential migrants. When the agricultural cycle ends, the villagers contact the agents and decide on their travel schedules. There was a general belief that over the years their standard of living has increased and this is made possible because of better education. "Earlier when a letter used to come, we had to go to the nearest town 10 kilometers far for someone to read the letter. Now the situation has improved". There are more literate individuals in the village now as compared to past years. But job opportunities have not kept pace with the growing needs. The theoretical concept of political efficacy in the data was in the form of going to caste a vote at the time of elections. Almost all the respondents, most of whom were not educated, went to cast their vote.

Information dissemination had both formal and informal sources. The informal sources of information were through the ration shop of the village or in the *haat* (local market places), where people generally met. In one of the villages, the women said that they would know if the teacher turned up in the school or not. While drawing water from a handpump near the school, they kept a close watch to see what the children were doing in the school. Other respondents

mentioned that to get any information about the school, they would go to the school itself and ask the headmaster or the teacher. None of the respondents relied on the parent teacher associations or village education committee to gain information about the functioning of the school. Nor did any respondent have any informal or casual conversation about their child's education with each other. Most respondents were not even aware if their local schools had a parent teacher association. A few mentioned that they were aware of a self-help group which consisted of parents that helped with the mid day meal in the school.

> Interviewer: Is there Parent Teacher Association in the village?
> Respondent: It might not be there in the village, it is there in the school.
> Interviewer: I mean that only. It's there in the school?
> Respondent: Yes, it is there in GS.
> Interviewer: Ok. What do they do?
> Respondent: We have not found out what work they do.
> Interviewer: So it is not noticeable what work they do?
> Respondent: No.

In contrast, to get information about a government scheme they would be more proactive to take the help of structural government systems like the Sarpanch or the panchayats. Most villages did not have a community hall (panchayat bhavan) or a common place to watch television. Other sources of information like newspapers, radios and private television were rare.

Multiple authors refer to cooperation and coordination in the literature with the main essence being that 'strong networks enable communities to solve collective action problems by breeding cooperation and easing coordination' (Bhrehm & Rahn, 1996, p. 999). However, the Jhabua data presents an interesting division between tasks that require coordination and cooperation and tasks that do not. For instance, any school related problem is usually dealt with individually or within the family. But if the family or individual needed to borrow money, they

would "ask the neighbors first, if they can't give (*the money*) then will go to the market or to some money lender".

<u>Social control</u>

This construct taps into aspects of negative social capital. The concept shares a common history with Bourdieu's concept of cultural capital. In Jhabua, the Sarpanch has the power to exert control over the village. In an interview, I asked "Have you ever got together to work on some issue?" A villager leader's response was "No one goes to the sarpanch, I am the only one who speaks up. The people get suppressed easily, so there is no voice." In the same village, another respondent mentioned that "we don't attend the panchayat meetings since we don't get along with the Sarpanch". The village Sarpanch has a notorious reputation of exploiting his power.

> Interviewer: Does the sarpanch ask anyone in the village about future planning of the development work in the village? Or does he decide on his own?
> Respondent 1: Now the sarpanch decides everything on his own.
> Repondent 2: Earlier there were big panchayats, 5-6 village and all people would come. Now since they have become small, the sarpanch does things on his own. The CEO (Block Development Officer) also has faults, since he is interested only in paper work and never enquires about anything.

Other reported instances of exploitation by the Sarpanch included cases where a household with income below the poverty line were not given government subsidized food grain from the ration stock, claiming that they were above the poverty line.

> Interviewer: You didn't get ration card?
> Respondent: No we didn't.
> Interviewer: Why?
> Respondent: Because the sarpanch is corrupt.
> Interviewer: Do you collect together and demand for something?
> Respondent: No one can go and demand for things collectively as the sarpanch uses violence.
> Interviewer Did you go to the panchayat meetings?
> Respondent: No I didn't go. They are not useful. If I complain, the sarpanch gets drunk and does violence.

Schools are not devoid of using their way of exerting control. The respondents in many villages

reported that the headmaster would take bribes from the funds that were allotted to the self-help

group to prepare the meals. He would take the PTA representative to the bank and ask him to

draw money and the parent being illiterate would not know the reason for drawing the money.

Other government schemes which promised middle school girls bicycles to ride to school

everyday, did not come through. Or in some cases, the cycles would be built using cheap

materials and would wear out in no time. Edwards, Franklin and Holland (2003) states that 'here,

social ties constitute a means for social control through the generation and sustenance of norms

of approved social behavior, and the sanctioning of disapproved behaviour' (p. 85). Here

corruption is actually leading to social reproduction, despite the state's attempts to mitigate it

through social programs for the marginalized. Such behavior would help the education system to

maintain its status-quo of providing poor quality education and other linked facilities at the cost

of the parents and the children.

Quadrant III: Local institutions, networks; at the intersection of structural and micro

Quadrant III is shared by two constructs: civic engagement and neighborhood-ecological

effect. Woolcock and Narayan (2000) would characterize this quadrant under the "Institutional

View" of social capital. The institutional characterization of social capital suggests that "this

approach argues that the very capacity of social groups to act in their collective interest depends

on the quality of the formal institutions under which they reside" (North, 1990 in Woolcock &

Narayan, 2000). In the case of Jhabua, the efficiency of the local government agencies like

Panchayat plays a critical role in the participation and trust of the villagers in this formal institution. Table 24 presents some of the categories in this quadrant.

Civic engagement

The structural group membership construct is further broken down into domains which present different dimensions of the group characteristics: Density of membership, type of horizontal and vertical organizations, inclusiveness and diversity and intensity and nature of activities. Civic engagement or social participation is further classified into structural group membership which 'includes the composition and practices of local level institutions…that serve as instruments of community development. Structural social capital is built through horizontal organizations and networks…; (Bain & Hicks, 1998 in Krishna & Shrader, 1999). These local organizations are unlike the formal institutional structures as described in Quadrant 1, but can still be categorized into horizontal and vertical organizations. Indicators of the local organizations are 'local religious organizations; neighborhood watch programs; block group, tenant associations, or community council; business or civic groups; ethnic or nationality clubs; and local political organizations' (Sampson, Morenoff, & Earls, 1999, p. 207). Jhabua data shows that many NGOs are working on primary and adult education, micro-credit activities, vocational training, agriculture related activities like wormi-culture etc. The government has also been active in some of these areas and initiated its work by forming self-help-groups that focused on specific social issues. In one of the villages, the key informant was a woman who headed a women's self-help group formed with the help of the Jhabua Forest Department. The group's activities included lending money to the family in need, saving a Rupee a day in the combined

pool. It was interesting to find gender roles prominent here again, where the women had to obtain permission from their husbands to be a part of this group. But the group gave them a sense of confidence that they could help their family financially if the need arises. The membership in most NGOs was open and inclusive, and diversity in the group was celebrated.

> Interviewer: How did you decide that these are the things on which we can take a loan and we can work accordingly? Did you always have formal meetings?
> Respondent 1: First we sat and took a meeting and decided if we will be able to do this or not. All of us said that we can do this and we can work together. We also asked our husbands that they should not drink alcohol and fight with us. They also agreed that we can do this work. We also decided that if any man drinks alcohol, we all women will get together and fight with the man.
> Respondent 2: The group made a lot of social improvements in the village.

Since most of these initiatives were instituted through government policies, that changed when different parties came into power, thus affecting the continuity of the program.

> Interviewer: What is the condition of adult education?
> Respondent: Earlier on under Digvijay Singh *(Previous Chief Minister of the State)*, adult education was improved, but now he is not there. He was there for 10 years, he used to work on adult education. But now adult education programs have stopped.
> Interviewer: So women are not educated?
> Respondent: They learned how to sign early on, but now they have forgotten again. 25 percent of the people are studying, 75 % are illiterate.

The same holds for the NGOs as their programs are dependent on the funds they receive. Due to the lack of continuity in any of these programs, there is no sustainability of the activities these programs initiated.

Other local groups like the Parent Teacher Associations, Self-help Parent Group that helps to prepare the mid day meals, village education committee were not mentioned as a recognized part of local groups in the village. Some respondents reported that they were aware that a PTA and a self-help group exists, but they were not aware of their roles and duties. This finding is similar to a study in Madhya Pradesh which found that parents and school committees

are neither aware of their oversight roles nor participating in school management (Pandey, Goyal, Sundararaman, 2008).

Neighborhood- ecological effect

Neighborhoodeffect has been widely studied in the literature. Social capital enhancement through neighborhood effect can occur through multiple pathways, one of which is thorough 'kinship/ friendship, ties [which] measure the number and relative proportion of friends and relatives that respondents reported living in the neighborhood factor' (Sampson, Morenoff, & Earls, 1999, p. 207). This 'neighborhood activism' is broken down into the following domains within family network and ties (indicator-parent-child interactions); informal horizontal relationship (indicator-neighbors chatting with each other); level and density of social ties. This construct attempts to tap into informal networks and associations through the attribute of spatial proximity. Jhabua data indicates a strong level of family ties. Since the family size is usually large (with more than two children each), the children with their families settle down in the same phalia and work on their family owned fields.

Regardless of the fact that the phalias are extremely scattered, the residents of the phalias had knowledge of their neighboring families in other phalias. The families would often go to the *haat* together or take part in the Bhagoria festival together. Similar cultural practices, rituals and festivals strengthen social ties. In many of my meetings, informal discussions between individuals would mainly include agriculture related issues. For instance, Jhabua witnessed one of its worst drought in the year 2009. Discussions focused around plantations and how the drought was drying out the seeds. However, it was not surprising to find that neither the school

nor education broadly was discussed at all. Since there was only once school in the village, one would imagine that it would naturally be a common concern, but this was not the case.

Quadrant IV: Trust, local norms, values; at the intersection of micro and non- cognitive

The label that best describes these attributes is the 'psychological sense of community' (Lochner, Kawachi, & Kennedy, 1999). 'Social capital, as defined by its principal theorists (Coleman, 1990; Putnam, 1993 a, b), consists of those features of social organization such as networks of secondary associations, high levels of interpersonal trust and norms of mutual aid and reciprocity which act as resources for individuals and facilitate collective action' (Lochner, Kawachi, & Kennedy, 1999). This affective construct is broken down into the following components: attitudes, behavior, expectation of reciprocity, group identification, interpersonal trust, predispositions, shared values and beliefs, social cohesion and social relationships. See Table 25.

The literature treats this construct as an important component of social capital, of which institutional and personal trust are a large part. To tap into the institutional trust component, questionnaires used in Jhabua included questions on trust the individual had on the following entities and their duties: Politicians-to fulfill promises; Military-to defend the country, Police-to enforce the law, State government-to look after the people, Newspapers- to print the truth, Village Panchayats - to implement public projects, schools- to provide good education, Hospitals and doctors-to provide good treatment, Courts- to meet out justice and finally Banks to keep money safe. 39 percent of the responses were positive, closely followed by no trust at all with 37 percent of the responses. If we look at the categories, almost all respondents trusted the schools

that they will provide good education. In general they trusted the government, the panchayats and with less or no trust at all on politicians, hospitals, police, banks and courts.

A majority of the respondents reported that they trusted each other (82 percent) on matters relating to borrowing money in times of need, or if they needed some help, they believed that their neighbors will help them. In a few villages (not generalized to all), trust seems to be function of the tribe. "Since there are Patlias here there is trust among people. Trust is the same" and "Yes, I trust my own caste members and not others". There is a general belief that Patlias are more honest and trust worthy than the Bhils. In a village with only Patlia residents, the respondent reported that they trusted each other because they are from the Patlia tribe. Whereas, Bhils who are said to be victimized and exploited since many years, some reported that they trusted each other while others said that there was no trust, but there were no tribal links to trust in these villages. In the interviews I asked if they trusted the money lenders, since the money lenders are known for charging more interest and thus practicing exploitative practices. The response was again linked to the caste "the money lender is from their own caste, so they trust him. Even if they go in the middle of the night, they get the money from him". Apart from these tribe-based differences which form a large part of group identification which is attributed to social cohesion, the respondents did not complain about any other form of discrimination on the basis of education, income, landownership etc.

In summary, the above Tables help to identify in each village the percentage of instances of each of the conceptual and emergent codes. The tables indicates that in each of the villages, there are higher incidences of the following codes: institutional resources, information, institutional efficacy, efficacy of collective interest, economic development and structural group

membership and networks. Across all the 14 villages civic engagement in the form of structural group membership and networks 6 villages have considerable number of occurrence. Three villages show a high degree of participation in structural groups among all the villages. Development and lack of economic development also have a higher percentage of occurrences. Positive efficacy of collective interest has a higher number of occurrences for five villages out of the total of 14. Concurrently, four villages report no action taken as a part of the collective interest. Two villages also report negative action was taken as a part of the collective interest. More villages (four) indicate that there is a lack of informal horizontal relationships in the village and than those that report presence of informal relationships (three). Social capital in the form of group identification shows a higher percentage of occurrence in five villages. Interpersonal trust among the village residents is spread out to a larger number of villages as compared to incidences of lower level of trust. Incidences of social cohesion are present in more than five villages. Social capital in the form of civic norms is indicated in four villages. The efficacy of structural institutions has both positive and negative aspects, both of which have higher percentages of occurrence. Similarly, institutional resources and lack of institutional resources have a higher number of instances as well.

Findings on the Link between Social Capital and Education

With a better understanding of social capital in the context of Jhabua, this section will focus on answering the second research question, how does social capital manifest itself in education, through membership in formal and informal social groups or networks (e.g. local

government agency, parent teacher association etc)? To be able to answer the questions above, illustrations from two villages –Dev Jhiri and Saluniya Bada have been selected from the overall sample of 14 villages.

Informal networks in the village formed a large part of information dissemination about schools. Coleman (1990) describes this in terms of "reciprocated exchange" (in Sampson, 1999). He notes that individuals may know each other, but rarely exchange information of interest. Material exchange and information exchange leads to better social support and a more productive social network. There seems to be a dependence on the types of networks to get information, which may imply that parents residing in a poor neighborhood are more likely to be exposed to low quality information. In the Indian rural context, since most of the parents are not educated, informal interpersonal communications become the primary source of information. The government schools in the village did not have any open days or any such event for the parents to get information about the school. Information about the school was informally gathered when women would draw water from the nearby handpump and were able to observe what their children were doing. None of the respondents informally discussed or even mentioned education issues like the level of learning or the quality of education amongst each other.

But there was an underlying sense of awareness that all children must go to school. This was a community wide opinion in which some villages took more proactive steps than others. Following is an extract from Dev Jhiri village.

> Interviewer: How do you get to know any information about your school?
> Respondent 1: We appoint people in turns, out of 10 people, and we tell them if there is any problem in the school, they can come and discuss.
> Respondent 2: Our children go to school, we have our people who tell us if the master comes to teach or not. Then they also have their meeting through the palak shikshak Sangh *(PTA)* whose members are

educated people in the village. Then one person is made the President and we tell them if the master doesn't come then we will contact them. Like we have made him responsible and now we ask him if the master comes to the school daily or not. If the master didn't come then we ask him that you didn't come on this date. If the community person says that he came then we catch him.

During the interview, the village leader informed me that if anyone from the village saw children playing outside during school hours, they would ask the child to go to school and also inform the parents that their child was not in school. This was one of the rare cases where the village leader took on the role of ensuring that all children went to school. In the majority of the villages, the leader paid little attention towards education. In contrast, most of the interviewees in the village reported that no one visited their house, nor did they visit any others. But wives would say that their husbands did go to others' houses. It was common to get the response that they never discussed education related issues with each other, but, at the same time, they attended and participated in school related activities. None of the respondents met with a politician before; none participated in a protest or demonstration; none participated in an information session or election campaign; they never read newspapers because of their inability to read; no one notified the police or court about a local problem. But a few said that they attended panchayat meetings (gram sabha) when they were called, and some voted in the last election. The data presented shows that no form of reciprocated material exchange (Coleman, 1989) was required for information about school to be disseminated.

> Interviewer: Do you ask what did the children study?
> Respondent 1: In the evening we ask. But if supposing someone is illiterate he cannot ask.
> Respondent 2: Some parents don't have the experience to ask about what the children studied in school today. Not all parents ask.
> Respondent 1: If someone sees a kid playing and not attending school then he will tell the parent that I saw your kid playing outside and not in school. So you should control you kid, he hasn't gone to school today.
> Respondent 2: The government has given a lot of services, so it is our fault. We don't send our children to school. It is our fault.

The data suggested that each individual was responsible for the village children to attend school. The government school was owned and monitored by the entire village community. This activity was done informally with no external facilitators, thus tapping into social capital sub-consciously.

Data from Saluniya Bada suggested that participation in social organizations prove to be a catalyst to promote education. The government primary school in the village has 300 students with only two teachers. During the mid-day meal, one teacher would help in making the meal and serving the children, leaving only one teacher to manage the entire school's teaching. Parents noticed that a classroom with more than 80 children would be locked from outside without a teacher in the class, just to maintain order in the school. Respondents complained that, as a result, the children did not learn much at school. A local NGO working in the village raised this issue with the school's PTA, and they filed a complaint with the local panchayats. With no action being taken, the PTA members along with the NGO representative went up to the Janpadh meeting at the Block level. At the time of the interview, 3 months had gone by and the PTA members and NGO representative had informed the panchayat officials that if in the next fifteen days no action was taken, they would close down the school and not send their children. The President of the PTA is a woman and was very vocal about the needs of the village school and the government preschool.

> Respondent: There are lots, more than 300. But there are only 2 masters. I went there and saw that the children are just made to sit. I went to Petlawad and gave the papers, but still no one came. What can be done now. I can take the children and put them to do farming. I told them that I will put a lock yet the master hasn't come. I will now see 15 days and then again I will go. Then if nothing happens, I will put a lock. What can be done, if the master is not there to teach the girls and the boys what can be done.
> Interviewer: Now if the teacher doesn't come what will you do?
> Respondent: Nothing has happened until now. I don't know. I will wait for a few days and then I will go again. Otherwise I will put the lock.
> Interviewer: Does everyone go, or only you?
> Respondent: We eight people went.

Saluniya Bada is an example of participation in local social groups like the PTA and being a member of the local NGO, gave the authority to the respondent to take up the initiative and improve the conditions at the school. The village discussed education issues in the general panchayat meetings, made the Sarpanch aware of the education issues in the village, thus making use of all the structural organization bodies with their vertical and horizontal linkages.

> Interviewer: If you need something for the village whom will you ask?
> Respondent: I will talk to the panchayat.
> Respondent: I have to leave all my work and go to school. If they give less food, I go and fight about the food. If they give half then the children don't go to school. They fight with me that why am I saying all these things. No one listens to us if we remain quiet. Please write down that the aaganwadi *(government preschool)* teacher is not regularly coming to the school and that she only gives food and send the children back.

Such forms of linkages are also present in Dev Jhiri, with the only difference that there is no catalyst in the form of NGOs present in the village.

> Interviewer: Do you discuss this *(teacher absenteeism)* in the panchayats also?
> Respondent 1: Yes like in the panchayat meetings they ask if in your school the teacher comes regularly. If they come, then they say that they came. If they dont, then they say that they don't come. Then they check dates, who came on what day etc.
> Interviewer: There is a palak shikshak sangh *(PTA)*, then is there a shikhsa samiti *(Village Education Committee)*?
> Respondent 1: Yes, there is a shiksha samiti and the young meeting. Teachers are also called, like the primary school, the phalia school, balak ashram etc. They are all called and they have a meeting. They are called and asked opinion on what should be done and what not.
> Respondent 2: We also ask the children, what did they give you eat today? What was the quantity like?
> Respondent 1: What did they give you eat? Vegetables, lentils etc? The President of the Palak Shikshak Sangh *(PTA)* also can go and ask. We can also ask the President if they asked or not. Did he ask about the master if he comes regularly or not. What time the school finishes?

In general, the following themes emerge from the data that help us understand the link between social capital and education.

<u>School is not a part of the social consciousness</u>

At the policy level promising steps have been taken. A self-help group instituted to administer the mid-day meal program at the school, a parent teacher association set up to link the school to the community, a village education committee to address any grievances concerning the school. These initiatives are attempts to bring about ownership of responsibility on the community's part towards the school. Therefore it would be hard to believe why a parent would not be proactive towards improving the quality of education in their child's school. Interview data and field observations in this study do not provide evidence of such initiation from the parent's side. The only two exceptions are Dev Jhiri and Saluniya Bada, that provide instances of proactive communities rather than proactive parents.

There are no expectations attached to the schools. The most that parents expect from schools is that their children will be able to read and write. Therefore, going to school does not help the children or their families in any economic way. There is a clear disconnect between schooling and employment. The two main sources of employment, as reported from the interviews, are agriculture and migrating to the neighboring state to become a daily wage earner. For either, higher education is not essential.

> Respondent 1: Most of the time we are in Gujarat, we don't know how much the children are learning. We don't go then we will die of hunger.
> Interviewer: If your child stops going to school then?
> Respondent 1: How will we know, we will be in Gujarat.
> Interviewer: If you don't ask then who will?
> Respondent 2: We can see in front of our own eyes that there is only one teacher and he cannot teach.

Interview data suggest that it is expected that girls will marry early and thus higher education is only for a few (usually males) families who can spare an additional labor help. The struggle for livelihood and occupation around the year takes priority over education. Schools do not help

much in earning a decent living and thus are generally irrelevant in their daily routines. There is

a general belief that education is essential, but its necessity in their daily life is not apparent.

No-way out of poor schools: Resigning to fate

> Interviewer: Do they *(children)* know how to read and write?
> Respondent 1: One day I asked my son, "can you tell me whose name is written next to this phone number." I needed to make a call and he didn't even recognize the name. The number was written and the name of the person was written on top. At least he should tell us what is the name that is written.
> Interviewer: What did you do when the children were not reading?
> Respondent 1: They still go to school.

Respondents seem to be aware of and complain that teachers don't teach, headmasters are

absent and that their children are not learning anything at school. But at the same time, they

show their helplessness and avoid any confrontation to resolve the problem. The helplessness

usually is in the form of "We don't understand how to do it *(complain)*. We are not educated."

Their hesitation to complain is mainly because their communities are so well knit that they want

to avoid unpleasantness in relationships because of education which is relatively a not so

important a sphere. There is trust and dependence among each other shown by the fact that if the

families needed financial help, they would approach their neighbor first. Therefore a complaint

about the school headmaster who is most likely to be the most educated person in the village is

usually disregarded. "The master is from the same village, so it doesn't look good complaining

also. He will start fighting", "They*(teacher and the headmaster)* don't even talk to us so how can

we complain" are the typical responses. A majority of the respondents reported that they do not

complain to anyone if they have a problem related to their children's school. In contrast, if they

have questions regarding a water facility or a ration card, they inquire with the Panchayat. Besides, there are only a handful of private schools which charge a much higher fee than the cost of sending children to government schools; therefore private schools are also not an option in Jhabua. Besides, private schools are in towns which make daily access almost impossible. The only option, which is often exercised, is to drop out of school to help in the fields, cattle grazing or taking care of their younger siblings.

Exclusion of schools from the local village organizations

The interview data indicates that the key institution in the village that plans and implements all government funded development projects is the village panchayat. However the perception is that schools are not a part of the panchayat's responsibility. Figure 6 provides a diagrammatic representation of the hierarchical structure of government organizations. The responsibility of the schools falls under the jurisdiction of the Department of Education, with the District Education Officer being the head and accountable to the District Collector. A completely parallel system that comprises the panchayats, janpadhs and district panchayat (in increasing order of administrative power) is responsible for all the other development projects in the district. A few respondents mentioned that a member of the village education committee is a part of the panchayat, but this varied from village to village. A self-help group consisting of parents and the school headmaster helped with the mid-day meals. But this group again has no links to the

village panchayats. An entire government hierarchical structure of administration does not include school education under its purview.

The existing structure makes the schools accountable only to the Education Department through the school inspectors who regularly visit the school to monitor the activities and collect relevant data. The self-help groups, Parent Teacher Associations (did not exist in most villages) and the Village Education Committee (did not exist in most villages) are government mandated bodies, but run on an adhoc basis accountable to no one. The majority of the respondents either had no information about the existence of these groups or if they did, they had no knowledge of the roles they would play in them. Even if these parent groups existed, their participation was very weak. Other studies show similar observations (Rao, 2009; Wankhede & Sengupta, 2005). Rao (2009) uses survey data from 26 villages in tribal district in the state of Andhra Pradesh and comes to the same conclusion. Nearly 50 percent of the respondents reported that they were not aware of the existence of a school management committee (similar to PTAs). If they did exist, the study indicates that 90.4 percent of the members of the committee were not even aware of their role of forming school plans, more than 50 percent of the teachers/headmasters were not aware that they were the conveners of these committees and 50.4% of the respondents were not aware about their own membership in the committee.

Exceptions to this generalization in Jhabua are Saluniya Bada and Dev Jhiri. In general, the panchayats are responsible for all other government projects and are not oriented to the functioning of the schools. Interview with Ranapur Block Janpath officials indicated that earlier the schools were under the panchayat's jurisdiction, and the headmaster and teachers were accountable to them also. Now since they are only accountable to the school inspectors from the

Education Department who often do not belong to the same village, the quality of education has

gone down. The interviews with the headmasters suggested that the school inspectors visit the

school at least one to two times a month. The janpadhs mention school related problems like

teacher absenteeism, mid-day meals, low pupil attendance are discussed in the *gram sabha*[36]

meetings presided by the panchayats, but since any solution will only come from the Department

of Education, these issues are treated seriously. The Janpadh officials mentioned that parent

groups need constant support as they will not be able to improve the conditions at the school

alone. They need support from the Panchayat members and the Janpadhs.

> Respondent 1: The sarpanch *(head of the panchayat)*, sachiv *(panchayat secretary)*, janpadh and the PTA
> should work together. They can help with the distribution of money also based on the number of schools
> and the children. Or send the check directly to the people from whom they got the material.
> Respondent 1: Earlier the sarpanch was the incharge. If the teacher wasn't coming then the sarpanch would
> not give him the salary. Their salary would get cut, if the sarpanch writes that the teacher was absent. The
> sarpanch had all the power.
> Respondent 2: Education was good because the masters were also scared and there was more order in the
> whole process.
> Respondent 1: If the teacher didn't teach, then the panchayat and the janpadh had the power to transfer him.
> Now we cant transfer the teachers and we don't have powers. Earlier if the sarpanch complains about the
> teacher that he doesn't teach or drinks or goes to the market. This complaint was given to the janpadh so
> then we used to make the transfer papers of the master. Then we would also see who is a weak teacher and
> we would make transfer papers.

I was present in one of the Janpadh meetings at the Ranapur Block Office. The officials

regularly meet at the Block office which is meant exclusively for the Janpadh members. The

Block also has public grievance meetings called the *Jan Sunvaai* where anyone can put forward

their petitions and complaints to the Block officials. Janpadhs also have the power to call

government officials from various Departments in their meetings. For example, if there is a

complaint regarding mid-day meals, the education department officials can be called to address

the grievance. Janpadhs are the key to reach out to the villagers. They are an important means of

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[36] For every village there is a Gram Sabha. It consists of all the people who are registered in the list of voters of a
village (Paul, 2006).

information communication that goes both ways between the block officials and the villagers.

The Janpadh meetings are convened by the CEO Janpadh (previously called the Block

Development Officer). One of the members put forward a written application regarding mid-day

meals in a group of villages in Ranapur. The Janpadh member explained that there was no mid-

day meal program in his village because there were no utensils to cook the meal. The CEO

checked his records and confirmed that the funds were dispatched to the area. The Janpadh

member insisted that there were no utensils and other members also supported this claim. The

CEO then announced that education officials will have to present their case on a mutually

convenient date. He also stated that the PTA Presidents will have to report how the funds were

utilized. He also added that if any education officer visited the village, they will have to sign the

log book kept at the local Panchayat office. This will help keep record of their observations in

the village school. This example indicates the bureaucratic delays that accompany parallel

administrative structures.

Role of informal networks and primary education

The first research question addressed the role of informal networks in primary education.

With the exception of Dev Jhiri and Salunyia Bada, informal networks did not seem to promote

primary education. Although informal networks existed between families within and between

phalias by being present at the same social gathering like festivals, panchayat meetings, sharing

the same infrastructure like hospitals, buses etc. Women interacted while working in their fields

or while they fetch water from the handpumps. These interactions did not result in actions that

would promote primary education. Interactions did not lead to more complaints about problems at school. The questionnaire asked if neighbors would donate time and/or money to build a classroom in the school if need be. Most respondent's replies were negative. Although most respondents said they routinely borrowed and lent money from their neighbors. This may be related to low expectations and the absence of the school from their social consciousness.

Role of social groups or organizations in primary education

The interview data and field notes indicate that local organizations like the panchayats, janpadhs and PTAs have an important role to play in promoting quality education. Official janpadh and panchayat meetings offer a platform to address complaints related to the school, education and other government programs like mid-day meals. At the same time, the interview data also indicated that if the panchayat has not been effective in addressing the problem, the respondents have taken up the complaint following the set hierarchical structures. Participation in voluntary groups like the microcredit groups by the government, a self-help group that prepares the midday meals helps the members to be vocal about their needs. Membership and participation with local NGOs have helped to build bridges with the local government. The NGOs are able to provide the information needed which helps parents to gain access to government officials.

Discussion

Grootaert and Van Bastelaer's (2002) framework (Figure 2) highlighted the following aspects in relation to Jhabua. Quadrant I-Institutions of the state, rule of law is dominated by the panchayat being the central institution with hierarchical and vertical linkages. No particular institution takes the responsibility or has the power in the field of education. The predominant empirical theme for the social and civic norms construct is gender discrimination. Social and civic norms have a negative interpretation which restricts women's participation in community development work or village policy related discussions. Quadrant II includes the constructs cognitive aspects, coordination and cooperation (economic development, information dissemination, political efficacy etc), social control and routine activities. The data indicates that education promotes political and social engagement. The interviews suggested that migrating to towns meant improvement in their economic status to most individuals. Information dissemination took both formal (through panchayats) and informal (through local markets (haats) and ration shops) means in relation to government policies and development work in the village, whereas for education neither formal nor informal means were active. At the same time, the *panchayats* (mainly the head-*Sarpanch*) exercised social control over the village which has the potential of having a negative impact of socio-economic development.

Quadrant III includes the civic engagement (memberships and networks in structural groups), neighborhood-ecological effects (informal horizontal relations, social ties within community and family). Membership and participation in societies like credit groups,

agricultural societies, and participation in NGO groups is transient. The respondents did not find their participation and activities linked to their livelihoods and therefore could be dispensed easily. Participation in groups like the PTA's and the mid-day meal self-help group was not seen as a potential step to improve school education. Other neighborhood ecological effects were in the form of celebrating the festivals together, praying together and a sense of group identity in the form of belonging to the same tribe.

Quadrant IV includes psychological sense of community (interpersonal and institutional trust), norms and values. Institutional trust had both positive and negative components with the positive part leading with a slight margin (39 percent respondent reported positive trust, with 37 percent reporting negative trust). This was mainly due to the efficacy of resolving community related problems and the presence (or absence) of resources in the village (like infrastructure, employment opportunities etc). There was a high sense of interpersonal trust which also had elements of tribe dependent trust.

The Jhabua case study shows that all forms of social capital may not be a positive attribute. For instance, some social and civic norms that restricted the interaction of women with others in the community or restricted their participation in the village panchayat meetings, may not be beneficial for them or the society in the long run. Literature also points out that all forms of social capital that otherwise play a critical role in facilitating certain actions or resources may become useless or even harmful (Coleman, 1988, 1990; Harriss & De Renzio, 1997 in Patonja, 2000). For example, there is a case of social control of the community by the Sarpanch who may turn out to be corrupt and not work for the larger benefit of the society.

Jhabua data reiterates that social capital is dependent on the individual's location and the constraints of various factors like level of geographical, cultural, and social isolation; lack of financial resources; and the specific institutional arrangements that form a part of everyday life (Edwards & Foley, 1997 in Patonja, 2002). Institutional trust was dependent on infrastructural resources at the village, employment and other development indicators.

The strength of social capital depends on structural group memberships in formal institutional membership and participation. The institution with multiple vertical and horizontal linkages has higher efficacy. For instance, participating in a PTA is not as effective as participation in the village panchayat as the panchayat has stronger linkages. Patonja's (2002) case study on similar lines indicates that civic society and its social capital matter for community development, but only in the context of government institutions and the general institutional framework of society at large. Therefore social capital simply acts as a catalyst to promote development and improve efficiency, when other institutional resources are in place (Serageldin, 1996 in Patonja 2002). As also shown in the conceptual framework, social capital variables are mediators between the context and input variables and the outcomes. Demanding more teachers in a school (as a result of social capital) would require an efficient government structure in place to pay attention to the community's needs. Informal horizontal relationships and social ties improve social cohesion, but do not translate into development, political efficacy or school improvement.

Validity and reliability of the case study

Yin (1984) defines reliability as the operations of the study like the data collection procedures which can be repeated producing the same results. To test for the coding reliability

the following check was used. Three months after the coding was completed, I used a sample of one village and recoded it again. If consistent coding procedures were used, the new coding patterns would have a high correlation with the initial round of coding for the same sample. The two coding patterns at different points in time are presented in Appendix Table J. The coding yielded a correlation of .84 which is a reasonably high correlation. Thus consistent coding procedures were used indicating a good degree of reliability.

Other validity concerns are regarding construct validity (Yin, 1984). Yin (1984) defines construct validity as establishing correct operational measures for the concepts being studied. This study explores how the dimensions of social capital are played out in the rural tribal Indian context. For this purpose previously developed interview protocols were adapted to the Indian setting. The group interviews and the semi-structured interviews also had open ended questions to tap into dimensions of social capital contextualized to the setting.

CHAPTER V

CONCLUSION AND DISCUSSIONS

Chapter V attempts to bring all the three methods together, in terms of the synergies between the design of the methods and the results. The next section discusses the limitations of the methods used. This is followed by policy implications of the study. The chapter concludes by suggesting directions for future research.

Synergies between the Three Methods

The three methods used in this paper have a lot of synergies between them both in terms of the design as well the outcomes. Although the analysis was not planned sequentially, some of the design elements in each study informed each other. For instance, social capital index construction was common for the econometric and the HLM exercises. Secondly, the treatment of the hierarchical nature of the dataset, individuals nested within households and households nested within villages, was acknowledged in both studies. In the econometric exercise this hierarchical structure was integrated into the analysis using the SVYSET STATA module. Whereas, the HLM software itself treated the data in three different levels. Thirdly, the results from the HLM and the econometric exercise were very similar. Both the section reveals that social capital has a marginal but significant association with school participation. Social capital is explained by adult literacy measures, socio-economic status of the household and caste and religious affiliations.

The case study analyzed the association between social capital and school participation by highlighting the processes between the two. However, by doing so, social capital index in the quantitative section informed the data collection process in the qualitative study. Literature review on social capital index construction emphasized the fact that the components of social capital should be treated separately rather than combining them into one composite social capital index, Similarly, the case study was able to breakdown the social capital into various components. These components were then synthesized using the Grootaert and Bastelaer's (2002) framework. Also the contextualized components used in the social capital index were the basis for the questions asked in the qualitative study. There are a lot of synergies between the results of the quantitative sections and the case study. The quantitative sections highlight that participation in women's self-help group has a positive and significant association with school participation. The case study was able to shed some light on why this must be the case. A women's self-help group with the Forrest Department showed the extent of empowerment it entails to join the group like this. Similarly, the econometric exercise showed that caste and religious factors were one of the factors that explained the variation in social capital. This was evident in the case study as well. The case study was able to show that the mutual trust component of social capital is a function of the caste affiliation of the household. For instance, in general the interview data suggested that individuals had more trust in people belonging to their own caste than the rest.

There were some differences among the methods used as well. Firstly the econometric exercise included additional analysis to control for the potential endogeneity between the social capital variable and school participation. Whereas, this was not needed in HLM section because

HLM studies attempt to address the association between the variable of interest (social capital) and the dependent variable (school participation indicators). The econometric exercise attempts to address the issue causality between the dependent variable and the variable of interest, therefore using the instrumental variable method was important. Secondly, the research questions for each method were slightly different. For instance, for the HLM part the research questions were based on levels, whereas for the econometric part, no such distinction was emphasized. For the qualitative section the research question were mostly addressing the "how" questions, attempting to get at the mechanics behind the relation between social capital and school participation.

One of the main differences between the qualitative study and the quantitative sections was that the qualitative study was useful to tap into some of the difficult to measure components of social capital. For instance, the role of informal networks in the villages and its influence on school participation could not be captured in the quantitative section because informal networks are difficult to quantitatively measure. The social capital index is limited as discussed earlier. The case study was able to highlight both positive and negative aspects of social capital. It was able to show that social capital is not always positive and needs to be contextualized to understand its full meaning. Therefore the different methods used in this paper show complementary approaches to address the two main objectives of the paper, first what constitutes social capital in the Indian setting and second, how can we characterize the relationship between social capital and school participation. Each method has its own set of weaknesses and advantages. All the three methods together provide a more holistic treatment to social capital and also its association with school participation.

Limitations of the Study

For the quantitative sections, as mentioned earlier, the paper's main limitation comes from operationalizing social capital. Since the data used in the study is from an existing national survey, the measures used for social capital were somewhat restricted. The social capital itself is a noisy measure and may have contributed to measurement issues in the analysis. Secondly, omitted variable bias could be another potential weakness of the study since school quality measures are excluded from the analysis. Ideally school quality data should be collected from all schools in the village and then matched to children of the same village going to the specific surveyed school. However, this becomes very tedious and expensive to collect. Dreze and Kingdon (1999) solved this problem by aggregating the quality measures across two or more schools if the village had more than one school. They interpret these school quality variables as the "expected" access to school quality for children in the same village. Since theirs was a four state study, the aggregation bias was minimized. However, in a nationally representative sample, the range of villages and the number of schools vary drastically, and thus this aggregation was not viable. Additionally, school quality if included could bring in a lot of noise in the data as it is likely to contain missing values.

Thirdly, a cross-sectional data set has its own limitations. This paper uses a cross-sectional survey data with no experimental manipulation of the variable of interest. Therefore, the usual survey data biases are potential limitations of the study. For example, since the household survey is based on self reported data, it may contain some error. A longitudinal dataset would be helpful to tease out the social capital influence on education.

Fourth, since it's a survey data-based study, it might have a selection bias problem. Individuals can be non-randomly selected from households. The sampling strategy used in the survey is stratified random sampling, which may control for self selection of households. Fifth, the study also attempts to control for heterogeneity issues in the data. This is important because there is a concern that in the Indian context, perception of social capital could be totally different for a particular caste or religion as compared to the other. To control for similar biases, the paper is limited to rural households in our analysis since the urban household will have a very different perception of social capital. The data also limits the sample of individuals between the ages of 6 to 18 from only rural households. Also as described in the earlier section, a propensity score matching technique was used to check for heterogeneity among individuals based on all the covariates. This strategy would help to check if individuals look very different from each other.

The main limitation for the econometric analysis comes from the assumptions of the instrumental variable method. One of the strong assumptions is that the model assumes the ignorability of the instrument, stating that it is randomized or conditionally randomized. Three instruments used in the analysis are number of hamlets in a village, area of the village in hectare units and the distance to the nearest town. These instruments may not be strictly random and may rely on other factors that influence them. This would contaminate the treatment effect which would make the distinction between the always compliers and the never takers very difficult. In other words, since the instrument may not be completely random, it will be difficult to say that the outcome observed is only due to the treatment assignment. There might be groups of population who would send their children to school irrespective of the fact that they have social capital or not. Also it is difficult to believe that all the effect of the area of the village, number of

hamlets and distance to town on school participation is only through the social capital variable. Therefore, ignorability is a strong assumption to make in this case.

The case study analysis has its own set of limitations. First, presence of the researcher itself creates a bias in the data that is collected. Since the qualitative data is self-reported data, it might get influenced by the researcher presence creating an attenuation bias. This bias may have increased in magnitude more so as the researcher was external to their community and was someone whom the subjects were meeting for the first time. Second, it was difficult to get responses from the women in particular because they have been accustomed to follow what their husbands would approve of. For instance, when the women were being interviewed, they would wait for their husbands to give their consent and then respond. Husbands would reply for their wives, even though the question was put to the woman. Thus the responses may potentially incorporate some form of gender bias. Third, other limitations like the usual member-check procedures for qualitative data to verify the interview data from their sources was not possible since a majority of the individuals were illiterate or were unable to understand English.

It is important to note that the components of the social capital as treated in the study are not generalizable to all rural Indian population, therefore external validity is limited. Since this is an exploratory study, the results should not be interpreted causally and do not in any way try to prove any causal relationship between social capital and education.

Implications for Policy

The world average of years of schooling is 10.3 – 9.2 years of primary plus secondary and 1.1 of postsecondary education (UNESCO, 2005). The main reasons for non-enrollment or

late entry into schools are socio-economic status of the families, rural urban divide, gender disadvantages for girls and language disadvantages (UNESCO, 2005). Once in school, the survival rate is below 75% in thirty countries and below 66% in half of the sub-Saharan African countries for which data is available (UNESCO, 2005). To improve school participation rates, many policies have been instituted. Such as, financial incentives given to girls, eliminating school fees, providing water and sanitation in schools (including separate latrines for boys and girls), recruiting female teachers and providing incentives for their deployment to rural areas, and giving teachers gender sensitization training (UNESCO, 003-04). In the last five years, these measures have resulted in an explosive growth in enrollment rate, however school continuation still remains a big problem.

Traditionally the school participation literature focused on the demand side factors and the supply side factors to improve participation rates. The demand side factors mainly household characteristics like socio-economic status and education level of the parents. The supply side factors consist of school quality parameters such as teacher training, classroom instruction, curriculum etc. While both the demand supply side factors are important for policy making, it is also important to consider social capital and its association with school participation. This study suggested that the household's participation in groups, particularly, women's self-help groups, households' social networks and trust in the services provided by the schools improve school participation. The qualitative section was able to highlight collective action by groups such as PTAs that had the potential to improve the functioning of a village school. Other groups such as the panchayats had both positive and negatives aspects of social capital. They also rarely

discussed education issues in their meetings. Harnessing the social capital of such community based groups could lead to building bridges between the community and the school.

The Panchayats and Education

The 73rd Constitutional Amendment (1993) (also called the PR Act) established the three-tier *panchayati raj* system in the country, with elected bodies at the village (gram), block(taluk) and the district (zilla) levels "to enable people to think, decide and act for their collective interest, to provide for greater participation of the people in development, to ensure more effective implementation of rural development programs in the state, and to plan and implement programs for economic development and social justice" (NCF, 2005, p. 105). The same constitutional amendment identified 29 subjects for transfer to the panchayats including primary and secondary education, adult and non-formal education, libraries, technical training and vocational education. It was mandatory for all the state governments to enact this order under the *Panchayati Raj*. But the implementation of this order has varied from state to state. Some states have identified functions and activities which will be performed by different tiers of the three-tier system, but in the vast majority of the states a vast array of functions are assigned to PRI's *(Panchayati Raj Institutions)* at every level (NCF, 2005).

Following the Panchayati Raj, Madhya Pradesh became the first state to pass a new mandate called the *Madhya Pradesh Raj Adhiniyam* 1993, passed by the State Legislature on 30 December 1993 (Paul, 2006). An Amendment in 2001 changed the name of the Act to the *Madhya Pradesh Panchayati Raj awam Gram Swaraj Adhiniyam* 1993 (Paul, 2006). According to this act "The Village Panchayat should be made the implementation unit for all programmes of the District Panchayat which can be implemented at the village level. The institutions which

can be managed at the local level should be under the Village Panchayats management"
(Jansahala, 2009). At the same time, it was made clear that "There should be clear distribution of
work between the State Government and Panchayat (District Government). Duplication should
be avoided to the extent possible" (Jansahala, 2009). Therefore ideally, all programs for socio-
economic development and its implementation are the responsibility of the Panchayats. At the
Gram Panchayat level, the PR Act 1993 imposes a wide range of proactive disclosure obligations
(Paul, 2006). The Gram Sabha members need to proactively be informed about the various
development activities taking place in the panchayat as well as the funds and program plans
available to benefit the villagers. This information helps them to participate in all the planning
and implementation of government programs in the village through the gram sabha. The PR Act
1993 provides for the setting of two Standing Committees of the Gram Sabha –*Gram Nirmaan*
and the *Gram Vikaas Samiti* for the purpose of providing opportunities to the villagers to
participate in the developmental activities of their village (Paul, 2006). The head of the
panchayat-Sarpanch maintains records and registers which maintain the numbers of preschools,
hospitals, schools, adult literacy classes, registered voluntary institutions and other welfare
programs (Paul, 2006). This information is complied from every quarter in the Janpadh meeting
at the Block level. The Block (Janpadh) and the District (Zilla) report also include detailed
accounts of the funds received and disbursed for all development work at the village level.

Under the heading of "Community Participation In Education", the Madhya Pradesh
PRI's are mandated by the 73rd of Amendment Act to have all schools from pre-primary to
higher education under their jurisdiction (Madhya Pradesh Report, Planning Commission of
India). The main functions of the panchayats are-management of schools, operation of schools,

construction and extension of school buildings, teaching aids in schools, operation of the non-formal education system, appointment of para-teachers and promotion of any other government programs and policies (Madhya Pradesh Report, Planning Commission). The Village Education Committee (VEC) is also an important community link of the school, and every village must have a VEC (Madhya Pradesh Report, Planning Commission). The VEC's oversee the teacher attendance, and ensures the enrollment of school going children, among other things.

Therefore while the government would provide all the material, funds, and other inputs, and the community shared the task of universalizing primary education by its contribution to creating the demand, identifying a teacher and providing the learning space. In practice, the Jhabua case study indicated that the three-tier system had little or no responsibility towards education. All school related matters rest with the Department of Education under the District Education Officer. The Janpadh meetings at the Block level indicated that the Janpadhs can only inquire about school inefficiencies from the Education Officer, but do not have the power to intervene directly. In the case of Saluniya bada, when the school needed more teachers, the panchayats and the janpadhs could only place a request with the Department of Education at the district level. Thus in reality the powers of the panchayats are diminished. The state department officials at the district manage the planning and the implementation of the education system.

Right to Education Bill-2009: Duties of the local government versus duties of the School Management Committees

The recently enacted Right to Education (RTE) Bill 2009 outlines the main responsibility of the state and the central government to disburse funds to guarantee free and compulsory

education for children between the ages of 6 to 14 (Gazette of India, 2009). The central government also has additional responsibilities to develop a curriculum framework, develop and enforce standards of teacher training, provide technical support to the state government for promoting innovations, research, planning and capacity building. The state government, among other things, ensures the implementation of the Act by providing compulsory admission, attendance, and completion of elementary education by every child of the age of 6 to 14; ensure social inclusion of the marginalized and the disabled; provide school infrastructure; provide training facility for teachers, ensure quality education and ensure timely prescription of curriculum and courses. The local authorities such as the panchayats ensures the availability of a neighborhood school; ensures social inclusion; maintains records of children up to the age of 14; ensures and monitors admission and, attendance; provides infrastructure including school building, teaching staff and learning material; provides special training facility; ensures quality education; ensures timely prescribing of curriculum and courses; provides training facility to the teachers, ensures admission to migrant families; and monitors functioning of schools and decides academic calendar.

At the school level, the RTE 2009 mandates each school to have a School Management Committee (SMC) consisting of elected representatives of the local authority, a three-fourth majority of parent members are mostly from the marginalized population, and fifty percent women members. The SMC's are obligated to monitor the working of the school and prepare a recommended School Development Plan which is the basis for acquiring grants and monitoring the utilization of grants received by the government.

The Jhabua data presents a case where parent groups like the SMCs are not an effective mechanism to improve school functioning and quality. They lack the vertical and horizontal linkages that are vital effective functioning. Capacity building of the SMCs could be a potential solution, but no action plan either by the state or the central government has been put it place so far. Merging the roles of the SMCs with that of the local government will improve accountability of policy planning and implementation at the local level. In a similar vein, Panday, Goyal and Sundararaman (2008) mention that one reason for low teacher effort in MP may be low accountability of teachers in these states. Teachers may not be accountable and motivated, in part, because the communities do not have the capacity to hold them accountable. A large proportion of committee members had not received any training regarding their roles and responsibilities. Parent members of VEC and PTA are not actively participating in their oversight capacity and have very low levels of awareness regarding their roles and responsibilities. The authors note that the headmasters seem to be executing most of the functions of VECs and PTAs.

Lessons Learnt and Directions for Future Research

This study is able to show some of the gaps in the school participation literature which are relevant for India as well as the developing world. As mentioned before social capital measures are often neglected in the school participation literature. This study has some useful lessons to improve school participation rates in India. The results of which could be applicable for other developing countries. The strength of collectives needs to be realized and linked to schools. The case study showed the disconnectedness between social capital and school

participation. This disconnect is also present in the school participation literature. It was also able to highlight the lack of social consciousness towards schools in general. The traditional supply and demand factors that have the potential to improve schools are important. This study shows some of the community driven aspects that need to be incorporated in policy as well as research.

In particular, this study showed that social capital has a marginal but significant association with school participation. The active components of social capital -participation in women's groups and social networks have a positive and significant association with school participation. Among the latent component of social capital-confidence in schools and hospitals also influence school participation. Social capital itself is explained by the household's adult literacy measures, socio-economic status and caste and religious affiliation. The case study was particularly useful to show the different positive and negative aspects of social capital. It was able to highlight the processes of social capital that what aspects of the social capital could improve school participation rates. It was also able to explain that mutual trust, a component of social capital, is explained by the caste affiliation of the household. The case study also indicates that social capital could act as a catalyst to promote school participation, but only when other institutional resources are in place (similar to Serageldin 1996). In a similar vein, Patonja (2002) also suggests that civic society and its social capital matters for community development, but in the context of government institutions and the general institutional framework of society at large. Since social capital is a "soft" construct-the literature provided multiple methods to measure it and its association with school participation. Therefore mixed methods would probably be better to understand the different interpretation of social capital.

Future research in this direction could be using the above mentioned components of social capital and dig deeper into the processes using a case study. This study shows that the community based components of social capital are significant but weak in explaining school participation. Therefore more work is needed in the measurement aspect of social capital in the Indian setting. The study also showed that social capital is associated with caste, household's socio-economic measures and adult literacy measures. It may be useful to break down the data set into quantiles of these measures and observe the effect of social capital by quantile. This technique may help to shed light on what characteristics of the household are able to harness social capital better. Another possible area of study could be to construct measures of social capital that are school related, unlike the community measures used in this study. Examples of these measures may include PTA member profiles, member participation levels, type of parental service contribution to the schools and attitudinal constructs of parents regarding the school. To overcome the limitations of a quantitative study, school based qualitative study will be able to draw inferences from observing classroom interactions and parental interactions with the school.

TABLES

Table 1. Total Number of Literates Classified by their Educational Level

Categories	Number	Percentage
Literate without educational level	20,022,966	3.57
Below Primary (below grade 5)	144,831,273	25.83
Primary (grade 5)	146,740,047	26.17
Middle (grades 6-8)	90,226,846	16.09
Metric/Secondary (grade 10)	79,229,721	14.13
Higher secondary/Intermediate Pre-University/Senior secondary (grades 11 and 12)	37,816,215	6.74
Non-technical diploma or certificate not equal to degree	386,146	0.07
Technical diploma or certificate not equal to degree	3,666,680	0.65
Graduate & above	37,670,147	6.72
Unclassified	97,756	0.02
Total	560,687,797	100

Note: The Census of India definition of literacy is 'both ability to read and write in any language'.
Source: Census of India 2001

Table 2. Drop Out Rates by School Grades

Grades	1981-82			1992-93			1998-99		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
1 to 5	51.10	57.30	53.50	43.83	46.67	45.01	38.23	41.34	39.58
1 to 8	68.50	77.70	72.10	58.23	65.21	61.10	54.40	60.09	56.82
1 to 10	79.44	86.81	82.33	70.00	77.32	72.93	65.44	70.22	67.44

Sources. India National Human Development Report 2001. Tables 4.21 to 4.23
Note: All figures are in percentages

Table 3. Annual Status of Education Report (ASER) 2009- Rural India

Age group	Percentage of children in different types of schools 2009			Percentage Out of school	Total
	Government	Private	Other	Not in school	
6-14 all	73.0	21.8	1.2	4.0	100.0
7-16 all	70.4	22.2	1.1	6.3	100.0
7-10 all	75.6	20.5	1.3	2.6	100.0
7-10 boys	74.3	22.1	1.2	2.4	100.0
7-10 girls	77.2	16.5	1.4	2.9	100.0
11-14 all	70.0	23.0	1.0	6.0	100.0
11-14 boys	69.4	24.4	0.9	5.3	100.0
11-14 girls	70.9	21.2	1.1	6.8	100.0
15-16 all	56.9	24.9	0.8	17.4	100.0
15-16 boys	57.1	25.3	0.8	16.8	100.0
15-16 girls	57.0	24.4	0.8	17.8	100.0

Note: "Other" includes children going to madarssa and EGS; "Not in School" =Dropped out +never enrolled

Source: Annual Status of Education Report (ASER) -2009

Table 4. Constructs and domains with their respective references in the literature

Construct	Sub -Construct	Domain	# references	% references
Civic engagement			10	1.40
	Structural group memberships and networks		47	6.58
		Density of membership	9	1.26
		Horizontal and vertical organizations	19	2.66
		Inclusiveness and diversity	22	3.08
		Intensity and nature of activities	26	3.64
Cognitive abilities			11	1.54
cooperation and coordination			28	3.92
	Diffusion of innovation		2	0.28
	Economic development		23	3.22
	Efficacy of collective interest		15	2.10
	Information		17	2.38

	Political efficacy	24	3.36
	Problem solving	7	0.98
Neighborhood-ecological effects		42	5.88
	Informal horizontal relationships	32	4.48
	Level or density of social ties	11	1.54
	Within family	28	3.92
psychological sense of community		10	1.40
	Attitudes	10	1.40
	Behavior	10	1.40
	Expectation of reciprocity	27	3.78
	Group identification	10	1.40
	Interpersonal trust	56	7.84
	Predispositions	2	0.28
	Shared values and beliefs	27	3.78
	Social cohesion	20	2.80
	Social relationships	7	0.98
Routine activities		2	0.28
Civic norms		51	7.14
Social control		49	6.86
Structural institutional mechanisms		17	2.38
	Diversity of institutions	1	0.14
	Efficacy	8	1.12
	Institutional resources	16	2.24
	vertical hierarchical organization	18	2.52

Total references 714; Source: 64 articles

Table 5. Frequency distribution on the standard years the individual has completed.

	Age									
	6	7	8	9	10	11	12	13	14	Total
standard years of education										
0	2,171	988	459	233	341	192	361	288	358	5,391
1	1,150	1,318	729	279	281	90	102	35	27	4,011
2	237	868	837	584	527	148	218	103	52	3,574
3	0	182	559	721	879	311	321	154	118	3,245
4	0	0	173	453	937	557	560	227	190	3,097
5	0	0	0	96	634	634	919	416	304	3,003
6	0	0	0	0	162	318	872	641	357	2,350
7	0	0	0	0	0	98	508	680	661	1,947
8	0	0	0	0	0	0	134	434	675	1,243
9	0	0	0	0	0	0	0	116	441	557
10	0	0	0	0	0	0	0	0	47	47
Total	3,558	3,356	2,757	2,366	3,761	2,348	3,995	3,094	3,230	28,465

Table 6. Descriptive Statistics of the Sample (n= 12,667 children nested in 9377 households and

1373 villages)

Variable	Mean	Minimum	Maximum
Years of schooling- outcome variable	5.06	0	10
INDIVIDUAL VARIABLES			
% Females[3]	0.48	0	1
%Married[3]	0.00	0	1
%Single[3]	0.99	0	1
%Divorced/ seperated[3]	0.00	0	1
Interaction of age and female	1.23	0	3.99
%Age 11 years	0.19	0	1
%Age 12 years	0.32	0	1
%Age 13 years	0.24	0	1
%Age 14 years	0.25	0	1
HOUSEHOLD VARIABLES			
Social networks[1]	0.02	-0.87	1.78
Women's self-help groups[1]	0.04	-0.41	4.54
Religious Groups[1]	-0.01	-0.47	2.9
Confidence in local governance[1]	0.02	-1.8	2.19

Confidence in schools, hospitals[1]	0.01	-2.9	0.75
%Brahmin[4]	0.04	0	1
%Hindu High Caste[4]	0.14	0	1
%Other Backward Caste (OBC)[4]	0.36	0	1
%Dalit[4]	0.24	0	1
%Tribal[4]	0.09	0	1
%Muslim[4]	0.11	0	1
%Sikh and Christians[4]	0.03	0	1
Household Assets	9.68	0	29
Log of consumption per capita[5]	6.28	1.39	9.09
# of educated adult males	5.35	0.00	15.00
# of educated adult females	2.78	0.00	15.00
# of children in the hh	2.78	1.00	17.00
Age of the head of the hh	46.59	20.00	100.00
# Married females in the hh	1.31	0.00	8.00
VILLAGE VARIABLES			
Number of households	7.27	0.04	90.35
Total population	38.17	0.23	523.99
Hours of electricity per day	12.20	0	24
Distance to the nearest town	14.19	0	80
Total area of the village	8.78	0	85
Presence of police station, market, bank branch	0.05	-0.062	2.8
PDS fair shop, general market shop, post office	0.05	-1.74	1.09
Agricultural cooperative, local government hall	0.02	-1.57	0.72
Trade unions, self-help groups, credit savings	0.03	-1.74	1.24
Government preschool programs	0.04	-2.95	0.59
Safe water and sanitation facilities	0.04	-1.36	1.5
Women's welfare, skill development	0.07	-1.07	2.03
Agri based credit programs	0.02	-1.17	1.78
National old age, widow, disability pensions	0.03	-0.25	6.97
Private hospitals	0.06	-0.3	6.48
Health subcenters, private clinic-untrained personnel	0.01	-1.36	2.05
Telecommunications and transport	0.07	-2.73	1.44
% States with Low HDI	0.70	0	1
% States with High HDI	0.44	0	1

Notes[1]Measure is standardized (z-scores; M=0, SD=1)

[2] Dummy coded, reference group is female

[3] Dummy coded, reference group is single

[4] Dummy coded with reference group as Brahmins

[5] Consumption expenditure is a proxy for income and is log transformed

Table 7. Individual, Household and Village Characteristics by Initial Enrollment (6 to 14 years)

Ever enrolled in school?	No	Yes
Unweighted sample size	3,155	25,308
INDIVIDUAL VARIABLES		
% Females[3]	55.97	46.89
%Married[3]	0.44***	0.043
%Single[3]	98.73	99.71***
%Divorced/ seperated[3]	0.82***	0.24
Centered age[6]	-0.89	0.11***
Square of Centered age	9.54***	6.64
Interaction between age and female	-0.38	0.055***
HOUSEHOLD VARIABLES		
Social networks[1]	-0.321	0.040***
Women's self-help groups[1]	-0.208	0.026***
Religious Groups[1]	-0.009	0.001
Confidence in local governance[1]	-0.104	0.013***
Confidence in schools, hospitals[1]	-0.186	.023***
%Brahmin[4]	0.91	4.35***
%Hindu High Caste[4]	5.55	14.25***
%Other Backward Caste (OBC)[4]	31.18	35.48***
%Dalit[4]	25.77**	23.04
%Tribal[4]	16.03***	8.49
%Muslim[4]	20.03***	11.77
%Sikh and Christians[4]	0.51	2.60***
Household Assets	6.54	9.85***
Log of consumption per capita[5]	5.93	6.25***
# of educated adult males	2.68	5.75***
# of educated adult females	0.766	3.12***
# of children in the hh	3.84***	3.26
Age of the head of the hh	44.53	46.01***
# Married females in the hh	1.36	1.42***

VILLAGE VARIABLES

Number of households	5.39	6.41***
Total population	32.23	34.99**
Hours of electricity per day	9.03	11.49***
Distance to the nearest town	15.09***	13.57
# of hamlets per village	3.39***	3.13
Total area of the village	8.71**	8.17
Presence of police station, market, bank branch	0.008	-0.001
PDS fair shop, general market shop, post office	-0.131	.016***
Agricultural cooperative, local government hall	-0.099	.0122***
Trade unions, self-help groups, credit savings	-0.091	0.011***
Government preschool programs	-0.221	.027***
Safe water and sanitation facilities	-0.251	.031***
Women's welfare, skill development	-0.111	.014***
Agri based credit programs	-0.13	.0161***
National old age, widow, disability pensions	-0.056	0.007**
Private hospitals	-0.084	.010***
Health subcenters, private clinic-untrained personnel	-0.047	0.006**
Telecommunications and transport	-0.255	.032***
% States with Low HDI	86.21***	71.59

Notes: *p<.05, **p<.01, ***p<.001

Significance levels are indicated on the larger of the two numbers.

Individuals N=28,463, Households N =14,252 and Villages N =1389

[1] Measure is standardized (z-scores; M=0, SD=1)

[2] Dummy coded, reference group is female

[3] Dummy coded, reference group is single

[4] Dummy coded with reference group as Brahmins

[5] Consumption expenditure is a proxy for income and is log transformed

[6] Centered age is age variable minus the mean age

Table 8. Individual, Household and Village Characteristics by Current Enrollment (6 to 14 years)

Currently enrolled in school	No	Yes
Unweighted sample size	1,692	26,773
INDIVIDUAL VARIABLES		
% Females[3]	54.31***	47.59
%Married[3]	0.007***	0.004
%Single[3]	97.69	99.72***
%Divorced/ seperated[3]	0.013***	0.002
Interaction of age and female	1.24***	-0.071
%Age 6 years	4.19	13.02***
%Age 7 years	2.83	12.35***
%Age 8 years	1.71	10.18***
%Age 9 years	2.71	8.66***
%Age 10 years	5.55	13.69***
%Age 11 years	4.9	8.46***
%Age 12 years	20.39***	13.63
%Age 13 years	21.80***	10.17
%Age 14 years	35.87***	9.79
HOUSEHOLD VARIABLES		
Social networks[1]	-0.25	.016***
Women's self-help groups[1]	-0.11	0.007**
Religious Groups[1]	0.075	-0.004**
Confidence in local governance[1]	0.001	-0.001
Confidence in schools, hospitals[1]	-0.05	0.003
%Brahmin[4]	0.94	4.29***
%Hindu High Caste[4]	7.15	13.67***
%Other Backward Caste (OBC)[4]	30.31	35.30***
%Dalit[4]	26.47**	23.15
%Tribal[4]	11.97***	8.28
%Muslim[4]	21.69***	12.12
%Sikh and Christians[4]	0.53	2.48***
Household Assets	7.1	9.63***
Log of consumption per capita[5]	6.02	6.23***
# of educated adult males	3.3	5.54***
# of educated adult females	1.09	2.96***
# of children in the hh	3.36	3.32
Age of the head of the hh	45.81	45.84
# Married females in the hh	1.28	1.42
VILLAGE VARIABLES		

Number of households	5.14	6.49***
Total population	28.99	35.34***
Hours of electricity per day	10.55	11.26***
Distance to the nearest town	13.68	13.56
# of hamlets per village	3.1	3.14
Total area of the village	7.7	8.2
Presence of police station, market, bank branch	-0.017	0.001
PDS fair shop, general market shop, post office	-0.16	.010***
Agricultural cooperative, local government hall	-0.109	.006***
Trade unions, self-help groups, credit savings	0.019	.014*
Government preschool programs	-0.04	0.002
Safe water and sanitation facilities	-0.004	0.0002
Women's welfare, skill development	-0.16	.010***
Agri based credit programs	-0.156	0.009***
National old age, widow, disability pensions	-0.058	0.003
Private hospitals	-0.109	0.006
Health subcenters, private clinic-untrained personnel	-0.023	0.001
Telecommunications and transport	-0.203	.012***
% States with Low HDI	84.51***	72.49

Note: *p<.05, **p<.01, ***p<.001

Significance levels are indicated on the larger of the two numbers.

Individuals $_N$=28,465 Households $_N$ =14,252 and Villages $_N$ =1389

[1]Measure is standardized (z-scores; M=0, SD=1)

[2] Dummy coded, reference group is female

[3] Dummy coded, reference group is single

[4] Dummy coded with reference group as Brahmins

[5] Consumption expenditure is a proxy for income and is log transformed

Table 9. Promax Rotated Principal Axis Pattern Showing Pattern Coefficients for Active Social

Capital

Variable	Social Network	groups (women's group, self-help, credit saving)	groups (religious or social group or festival society and caste association)	groups (youth clubs, sports groups or reading room, trade unions, business or professional groups)	groups (development group of NGO, agricultural, milk, or other co-operative)	groups (attended a public meeting, govt official)
Networks						
Acquaintances and relatives-doctors, nurses, hospital workers	0.67*	-0.03	0.00	0.00	0.01	-0.02
Acquaintances and relatives-school officials, teachers	0.68*	-0.01	0.01	0.02	-0.02	0.01
Acquaintances and relatives-school officials, teachers	0.54*	0.05	0.00	-0.02	0.00	0.01
Group membership						
Women's group *(Mahila Mandals)*	0.00	0.49*	-0.01	0.05	-0.01	0.02
Youth clubs, sports groups	0.00	0.08	-0.02	0.30*	0.12	0.04
Trade unions, business or professional group	0.02	0.04	0.05	0.30*	-0.03	-0.05
Self-help group	-0.02	0.56*	-0.03	0.02	-0.03	-0.01
Credit or saving group	0.01	0.45*	0.04	-0.07	0.10	-0.03
Religious or social group or festival society	0.01	-0.07	0.59*	0.01	0.05	0.03
Caste association	0.00	0.06	0.61*	0.00	-0.04	-0.02
Development group or NGO	0.00	0.04	0.05	0.04	0.23*	-0.01
Agricultural, milk, or other cooperative	-0.02	0.01	0.01	0.05	0.28*	0.04
Participation						
Voted in the last national election	-0.01	0.08	0.03	-0.02	-0.12	0.12
Attended a public meeting	-0.02	0.00	0.06	0.00	0.00	0.41*
Official of the village panchayat	0.05	-0.01	-0.04	0.01	0.03	0.40*

Note: *Denotes factor loading of more than .30.
 Items loading on multiple factors are italicized

Table 10. Promax Rotated Principal Axis Pattern Showing Pattern Coefficients for Latent Social Capital

Variable	Confidence in politicians, police, state government, village panchayat	Confidence in schools, hospitals	Confidence in military, courts, banks	Local crime	Mutual trust	Participation in public programs
Confidence						
Politicians-to fulfill promises	0.54*	-0.05	-0.07	-0.03	-0.03	-0.01
Military-to defend the country	0.04	-0.06	0.37*	0.00	0.03	-0.01
Police-to enforce the law	0.58*	0.02	-0.04	0.02	0.04	0.00
State government-to look after the people	0.59*	0.01	0.00	0.01	-0.02	0.00
Newspapers-to print the truth	0.23	0.04	0.11	0.00	0.03	0.01
Village panchayats-to implement public projects	0.32*	0.15	0.01	0.01	-0.01	0.00
Schools-to provide education	0.01	0.63*	-0.02	-0.03	-0.01	0.02
Hospitals and doctors-to provide good treatment	0.00	0.63*	0.03	-0.01	-0.01	-0.01
Courts-to meet our justice	0.16	0.14	0.21	0.00	0.02	0.00
Banks-to keep money safe	-0.07	0.09	0.46*	0.02	-0.02	0.01
Recipients of public provisions						
Do you have a ration card	-0.06	-0.03	-0.05	-0.03	0.01	0.00
Do you have health insurance	0.00	0.03	-0.03	0.03	0.00	0.39*
Do you have LIC/Life insurance	-0.01	-0.01	0.03	-0.01	0.01	0.40*
Do you have a agriculturalist (KISAN) credit card	0.02	-0.03	0.00	-0.02	-0.01	0.19
Local trust and Conflict						
Do people generally get along with each other	-0.01	-0.04	0.00	-0.06	0.46*	0.05
When there is a water supply problem, people bond together to solve the problem. In other communities, people take care of their own families individually. What is your community like?	0.05	-0.01	0.05	-0.04	-0.01	0.00
How much conflict would you say there is, among the castes that live here?	0.01	0.00	0.02	-0.01	0.48*	-0.02
Local crime						
Was there anything stolen?	-0.04	-0.01	-0.03	0.51*	-0.01	0.01
Did anyone break into your home?	0.02	-0.06	0.05	0.57*	-0.05	0.01
Did anyone attack or threaten you?	0.04	0.09	-0.02	0.34*	0.11	0.00

| How often are unmarried girls harassed in your village? | -0.03 | 0.04 | -0.05 | 0.11 | 0.27 | -0.05 |

Note: *denotes factor loading of more than .30. Items loading on multiple factors are italicized

Table 11. Descriptive Statistics of the Social Capital Variables

Variable	Mean	Std. Dev.	Min	Max	Alpha reliability	Number of item
ACTIVE SOCIAL CAPITAL						
Composite Active SCI[1]	0	1.00	-1.0054	6.44		
Social networks[2]	0	1.00	-0.68	1.38	0.71	3
Women's self-help groups[3]	0	1.00	-0.26	2.87	0.57	3
Religious Groups[4]	0	1.00	-0.30	1.86	0.64	2
Business groups[5]	0	1.00	-0.08	2.57	0.31	2
NGOs and cooperatives[6]	0	1.00	-0.06	2.44	0.19	2
Government agencies[7]	0	1.00	-0.31	1.62	0.40	2
LATENT SOCIAL CAPITAL	0					
Latent SCI[8]	0	1.00	-6.39	3.39		
Confidence in local governance[9]	0	1.00	-1.80	2.19	0.64	4
Confidence in schools, hospitals[10]	0	1.00	-2.90	0.75	0.67	2
Confidence in military, courts, banks[11]	0	1.00	-5.96	0.65	0.38	3
Less local crime[12]	0	1.00	-9.35	0.23	0.46	3
Mutual Trust[13]	0	1.00	-2.98	0.95	0.41	2
Government programs[14]	0	1.00	-0.37	6.01	0.27	2

Notes:
[1]Composite Social Capital index of index_fact1 to 6.
[2]factor analytic index of social networks
[3]factor analytic index of membership in groups (women's group, self-help, credit saving)
[4]factor analytic index of membership in groups (religious or social group or festival society and caste association)
[5]factor analytic index of membership in groups (youth clubs, sports groups or reading room, trade unions, business or professional groups)
[6]factor analytic index of membership in groups (development group of NGO, agricultural, milk, or other co-operative)
[7]factor analytic index of membership in groups (attended a public meeting, govt official)
[8]Composite index of all latent social capital index (SC_latent)
[9]factor analytic index of confidence in politicians, police, state government, village panchayat
[10]factor analytic index of confidence in schools, hospitals
[11]factor analytic index of confidence in military, courts, banks
[12]factor analytic index of no local crime incidences
[13]factor analytic index of having mutual trust in the community
[14]factor analytic index of participation in government programs -rations etc

Table 12. Probit regression model with the dichotomous dependent variable-ever enrolled in school (6 to 14 years).

	All		females		males	
	b/t	Marginal effects	b/t	Marginal effects	b/t	Marginal effects
Social networks[1]	0.02	0.002	0.006	0.001	0.037	0.003
Women's self-help groups[1]	0.070**	0.008	0.071*	0.010	0.065*	0.007
Religious Groups[1]	0.01	0.001	0.024	0.003	-0.007	-0.001
Confidence in local governance[1]	-0.01	-0.001	-0.011	-0.002	-0.011	-0.001
Confidence in schools, hospitals[1]	0.065**	0.008	0.058*	0.008	0.074**	0.007
Females[2]	-0.287***	-0.036				
Married[3]	-0.599	-0.112	-0.615	-0.132	-0.536	-0.084
Single[3]	0.484*	0.084	0.460*	0.090	0.52	0.081
Age 6 years[6]	-0.698***	-0.126	-0.639***	-0.128	-0.742***	-0.120
Age 8 years	0.234***	0.025	0.231**	0.030	0.209*	0.019
Age 9 years	0.415***	0.039	0.367***	0.043	0.430***	0.034
Age 10 years	0.447***	0.043	0.410***	0.048	0.417***	0.034
Age 11 years	0.343***	0.034	0.280***	0.034	0.323**	0.027
Age 12 years	0.335***	0.034	0.295***	0.037	0.237**	0.021
Age 13 years	0.249***	0.026	0.054	0.008	0.313***	0.027
Age 14 years	0.107	0.012			0.033	0.003
Interaction between age and female	-0.030**	-0.003	-0.006	0.000		
Hindu High Caste[4]	-0.288*	-0.042	-0.19	-0.030	-0.439*	-0.060
OBC(Other backward classes)	-0.422***	-0.057	-0.351*	-0.055	-0.552**	-0.066
Dalit	-0.469***	-0.070	-0.266	-0.042	-0.754***	-0.108
Tribals	-0.515***	-0.087	-0.417*	-0.076	-0.680***	-0.109
Muslim	-0.643***	-0.112	-0.446**	-0.081	-0.897***	-0.155
Christ_Sikh_Jain	-0.275	-0.041	0.121	0.016	-0.647*	-0.108
Age of the head of the hh	-0.002	0.000	-0.001	0.000	-0.003	0.000
# of children in the hh	-0.044***	-0.005	-0.038*	-0.005	-0.050*	-0.005
# of educated adult females	0.052***	0.006	0.066***	0.009	0.038***	0.003
# of educated adult males	0.057***	0.007	0.063***	0.009	0.051***	0.005
# Married females in the hh	-0.056	-0.006	-0.077	-0.011	-0.028	-0.003
Household Assets	0.039***	0.004	0.044***	0.006	0.033**	0.003
Log of consumption per capita[5]	0.152***	0.019	0.124*	0.018	0.196***	0.021
Number of households	0	0.000	0	0.000	0	0.000
Total population	-0.000*	0.000	-0.000*	0.000	0	0.000
Hours of electricity per day	0.013***	0.001	0.016***	0.002	0.010*	0.001
Government preschool programs	0.077**	0.010	0.077*	0.011	0.083*	0.008

	b/t	Marginal effects	b/t	Marginal effects	b/t	Marginal effects
Safe water and sanitation facilities	0.103**	0.012	0.153***	0.022	0.05	0.005
Women's welfare, skill development	-0.066*	-0.008	-0.069*	-0.010	-0.063	-0.006
National old age, widow, disability pensions	0.022	0.002	0.012	0.001	0.03	0.003
Health subcenters, private clinic-untrained personnel	0.002	0.000	0.019	0.003	-0.013	-0.001
Presence of police station, market, bank branch	-0.090**	-0.011	-0.110**	-0.016	-0.063*	-0.006
PDS fair shop, general market shop, post office	0.037	0.005	0.071	0.010	-0.009	0.000
Agricultural cooperative, local government hall	-0.014	-0.002	-0.044	-0.006	0.017	0.002
Trade unions, self-help groups, credit savings	0.110***	0.013	0.090**	0.013	0.136***	0.014
Agri based credit programs	-0.043	-0.005	-0.052	-0.007	-0.036	-0.003
Private hospitals	0.042	0.005	0.052	0.008	0.036	0.003
Telecommunications and transport	0	0.000	-0.015	-0.002	0.014	0.001
States with Low HDI[7]	-0.083	-0.009	-0.108	-0.015	-0.051	-0.005
Intercept	0.006		-0.284		0.034	
N	28463		13633		14830	

Notes: *p<.05, **p<.01, ***p<.001
[1] Measure is standardized (z-scores; M=0, SD=1)
[2] Dummy coded, reference group is female
[3] Dummy coded, reference group is single
[4] Dummy coded with reference group as Brahmins
[5] Consumption expenditure is a proxy for income and is log transformed
[6] Omitted age category is 7
[7] Dummy coded, reference group is states with High HDI

Table 13. Probit model results with currently enrolled as the dependent variable (6 to14 years).

	All		females		males	
	b/t	Marginal effects	b/t	Marginal effects	b/t	Marginal effects
Social networks[1]	0.012	0.001	-0.017	-0.001	0.049	0.003
Women's self-help groups[1]	0.046*	0.003	0.073*	0.005	0.021	0.001
Religious Groups[1]	-0.068**	-0.004	-0.068*	-0.004	-0.068*	-0.004
Confidence in local governance[1]	-0.039	-0.002	-0.043	-0.003	-0.03	-0.001
Confidence in schools, hospitals[1]	-0.001	0.000	0.01	0.001	-0.012	0.000
Females[2]	-0.077	-0.005				
Married[3]	0.042	0.002	-0.042	-0.003	0.339	0.015

Single[3]	0.784***	0.108	0.761**	0.106	0.720**	0.087
Age 6 years[7]	0.025	0.001	-0.321*	-0.029	0.18	0.010
Age 8 years	-0.047	-0.003	0.229	0.014	-0.104	-0.007
Age 9 years	-0.042	-0.003	0.266*	0.015	-0.002	0.000
Age 10 years	-0.125	-0.009	0.406***	0.022	-0.109	-0.007
Age 11 years	-0.321**	-0.028	0.354***	0.019	-0.262	-0.020
Age 12 years	-0.742***	-0.085	0.144*	0.010	-0.711***	-0.073
Age 13 years	-0.944***	-0.127	0.082	0.005	-0.861***	-0.102
Age 14 years	-1.272***	-0.208			-1.264***	-0.193
Interaction of age and female	-0.032*	-0.002	-0.218***	-0.015		
Hindu High Caste[4]	-0.395*	-0.036	-0.574*	-0.062	-0.23	-0.017
OBC(Other backward classes)	-0.341*	-0.026	-0.496*	-0.041	-0.216	-0.014
Dalit	-0.407*	-0.034	-0.537*	-0.051	-0.313	-0.023
Tribals	-0.381*	-0.035	-0.520*	-0.055	-0.279	-0.021
Muslim	-0.695***	-0.077	-0.790***	-0.097	-0.622**	-0.060
Christ_Sikh_Jain	-0.057	-0.004	-0.128	-0.010	-0.031	-0.002
Age of the head of the hh	-0.001	0.000	-0.003	0.000	0	0.000
# of children in the hh	-0.014	0.000	-0.03	-0.002	0.007	0.000
# of educated adult females	0.020*	0.001	0.039***	0.003	0.003	0.000
# of educated adult males	0.028***	0.002	0.022**	0.002	0.035***	0.002
# of married females	-0.018	-0.001	-0.034	-0.002	-0.01	-0.001
Household Assets	0.038***	0.002	0.041***	0.003	0.034***	0.002
Log of consumption per capita[5]	0.173***	0.012	0.088	0.006	0.270***	0.017
Number of households	-0.001	0.000	0	0.000	0	0.000
Total population	-0.001	0.000	0	0.000	0	0.000
Hours of electricity per day	-0.002	0.000	-0.004	0.000	0.001	0.000
Government preschool programs	-0.059*	-0.004	-0.084**	-0.006	-0.028	-0.002
Safe water and sanitation facilities[1]	0.091***	0.006	0.125***	0.009	0.06	0.004
Women's welfare, skill development[1]	-0.004	0.000	-0.014	-0.001	0.013	0.001
National old age, widow, disability pensions[1]	-0.01	-0.001	-0.019	-0.001	-0.003	0.000
Health subcenters, private clinic-untrained personnel[1]	-0.042	-0.002	-0.058	-0.004	-0.031	-0.001
Police station, market, bank branch[1]	-0.092***	-0.006	-0.096***	-0.007	-0.089**	-0.006
PDS fair shop, general market shop, post office[1]	0.061*	0.004	0.047	0.003	0.078*	0.005
Agricultural cooperative, local government hall[1]	0.019	0.001	0.017	0.001	0.02	0.001
Trade unions, self-help groups, credit savings[1]	0.058*	0.004	0.038	0.003	0.071	0.004
Agri based credit programs[1]	-0.054	-0.003	-0.054	-0.003	-0.058	-0.003
Private hospitals[1]	0.013	0.000	0.067*	0.005	-0.035	-0.002
Telecommunications and	0.043	0.003	0.055	0.004	0.027	0.002

transport[1]

	All			Females		Males	
States with Low Human Development Index[6]	-0.113	-0.007		-0.054	-0.004	-0.187*	-0.010
Intercept	0.521			0.687		-0.212	
N	28465			13,635		14,830	

Note: * p<.05 ** p<.01 ***p<.001
[1]Measure is standardized (z-scores; M=0, SD=1)
[2]Dummy coded, reference group is female
[3]Dummy coded, reference group is single
[4]Dummy coded with reference group as Brahmins
[5]Consumption expenditure is a proxy for income and is log transformed
[6]Dummy coded, reference groups States with high HDI
[7]Omitted category is age 7

Table 14. Ordered Probit Model for Years of Schooling (11 to 14 year olds)

(No schooling=0; 1-4 years of schooling=1; >=5 Years of schooling =2)

	All coefficients	Females coefficients	Males Coefficients
Social networks[1]	0.005	-0.02	0.028
Women's self-help groups[1]	0.039*	0.043	0.038
Religious Groups[1]	-0.004	-0.014	0.001
Confidence in local governance[1]	0.005	-0.024	0.032
Confidence in schools, hospitals[1]	0.049**	0.057*	0.041
Females[2]	0.053	_	_
Married[3]	-0.975**	-0.992**	-1.111
Single[3]	0.328	0.247	0.26
Age12[6]	0.396***	0.099*	0.412***
Age13	0.716***	0.127*	0.744***
Age14	0.823***	_	0.814***
Interaction of age and female	-0.088**	0.191***	_
Highcaste_Hindu[4]	0.028	0.079	-0.011
OBC(Other backward classes)	-0.009	0.077	-0.085
Dalit	-0.1	0.024	-0.224
Tribals	-0.1	-0.023	-0.174
Muslim	-0.409***	-0.232	-0.582***
Christ_Sikh_Jain	0.089	0.237	-0.015
Age of the head of the hh	-0.003*	-0.005	-0.002
# of children in the hh	-0.060***	-0.073***	-0.050**
# of educated adult females	0.034***	0.061***	0.008
# of educated adult males	0.049***	0.051***	0.048***
# of married females	-0.033	-0.06	-0.016

Household Assets	0.044***	0.049***	0.042***
Log of consumption per capita[5]	0.123**	0.113*	0.131**
Number of households	0.018*	0.021*	0.015
Total population	-0.004*	-0.005*	-0.003
Hours of electricity per day	0.011***	0.013**	0.008*
Government preschool programs[1]	0.057**	0.059*	0.062*
Safe water and sanitation facilities	0.078**	0.106**	0.051
Women's welfare, skill development	0.049	0.04	0.067*
National old age, widow, disability pensions	0.070***	0.044	0.093**
Health sub centers, private clinic-untrained personnel	-0.091***	-0.087**	-0.096**
Police station, market, bank branch	-0.013	-0.038	0.014
PDS fair shop, general market shop, post office	0.027	0.071	-0.016
Agricultural cooperative, local government hall	-0.007	-0.002	-0.007
Trade unions, self-help groups, credit savings	0.04	-0.005	0.079*
Agricultural cooperative, local government hall	-0.008	-0.019	-0.001
Private hospitals	-0.014	0.024	-0.049*
Telecommunications and transport	-0.005	-0.024	0.008
States with Low Human Development Index[7]	-0.311***	-0.345***	-0.294***
_cons	0.08	0.271	-0.101
_cons	1.282***	1.385**	1.218**
N	12667	6105	6562

*p<.05 ** p<.01 ***p<.001
[1]Measure is standardized (z-scores; M=0, SD=1)
[2]Dummy coded, reference group is female
[3]Dummy coded, reference group is single
[4]Dummy coded with reference group as Brahmins
[5]Consumption expenditure is a proxy for income and is log transformed
[6]Dummy coded, reference group is Age 11
[7]Dummy coded, reference groups States with high HDI

Table 15. Marginal Effect for Full Sample

All	Years of schooling =0 years		Years of schooling < 5 years		Years of schooling >= 5 years	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Social networks	-0.0008	0.0033	-0.0012	0.0048	0.0020	0.0081
Women's self-help groups	-0.0062	0.0031	-0.0091	0.0046	0.0153	0.0078
Religious Groups	0.0007	0.0027	0.0010	0.0040	-0.0017	0.0067
Confidence in local governance	-0.0008	0.0032	-0.0012	0.0047	0.0019	0.0079
Confidence in schools, hospitals	-0.0079	0.0029	-0.0116	0.0043	0.0194	0.0072

Table 16. Marginal Effects for Females

Social Capital Variables	Years of schooling =0 years		Years of schooling < 5 years		Years of schooling >= 5 years	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Social networks	0.005	0.008	0.002	0.004	-0.008	0.012
Women's self-help groups	-0.012	0.008	-0.005	0.004	0.017	0.012
Religious Groups	0.004	0.007	0.002	0.003	-0.006	0.010
Confidence in local governance	0.007	0.007	0.003	0.003	-0.009	0.011
Confidence in schools, hospitals	-0.015	0.007	-0.007	0.004	0.022	0.010

Table 17. Marginal Effects for Males

Social Capital Variables	Years of schooling =0 years		Years of schooling < 5 years		Years of schooling >= 5 years	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Social networks	-0.004	0.004	-0.007	0.006	0.011	0.010
Women's self-help groups	-0.006	0.004	-0.009	0.006	0.015	0.009
Religious Groups	0.000	0.003	0.000	0.006	0.000	0.009
Confidence in local governance	-0.005	0.004	-0.008	0.006	0.013	0.009
Confidence in schools, hospitals	-0.006	0.004	-0.010	0.006	0.016	0.009

Table 18. Probit Analysis with Instrumental Variables.

	Non-IV		with IV
	b/t	Marginal effects	b/z
Social networks[1]	0.012	0.001	
Women's self-help groups[1]	0.046*	0.003	3.984
Religious Groups[1]	-0.068**	-0.004	
Confidence in local governance[1]	-0.039	-0.002	
Confidence in schools, hospitals[1]	-0.001	0.000	4.4
Females[2]	-0.077	-0.005	0.002
Married[3]	0.042	0.002	0.012
Single[3]	0.784***	0.108	0.84
Age 6 years[7]	0.025	0.001	-0.158
Age 8 years	-0.047	-0.003	-0.134
Age 9 years	-0.042	-0.003	-0.219
Age 10 years	-0.125	-0.009	-0.416*
Age 11 years	-0.321**	-0.028	-0.451**
Age 12 years	-0.742***	-0.085	-0.798***
Age 13 years	-0.944***	-0.127	-0.934***
Age 14 years	-1.272***	-0.208	-1.490***
Interaction of age and female	-0.032*	-0.002	-0.04
Hindu High Caste[4]	-0.395*	-0.036	0.295
OBC(Other backward classes)	-0.341*	-0.026	0.399
Dalit	-0.407*	-0.034	0.529
Tribals	-0.381*	-0.035	0.944
Muslim	-0.695***	-0.077	-0.116
Christ_Sikh_Jain	-0.057	-0.004	0.169
Age of the head of the hh	-0.001	0.000	-0.011
# of children in the hh	-0.014	0.000	-0.082
# of educated adult females	0.020*	0.001	0.081
# of educated adult males	0.028***	0.002	0.025***
# of married females	-0.018	-0.001	-0.106
Household Assets	0.038***	0.002	0.062**
Log of consumption per capita[5]	0.173***	0.012	0.21
Number of households	-0.001	0.000	0.075
Total population	-0.001	0.000	-0.017
Hours of electricity per day	-0.002	0.000	0.031
Government preschool programs	-0.059*	-0.004	0.265
Safe water and sanitation facilities[1]	0.091***	0.006	0.357
Women's welfare, skill development[1]	-0.004	0.000	0.28

National old age, widow, disability pensions[1]	-0.01	-0.001	0.028
Health subcenters, private clinic-untrained personnel[1]	-0.042	-0.002	-0.298
Police station, market, bank branch[1]	-0.092***	-0.006	0.061
PDS fair shop, general market shop, post office[1]	0.061*	0.004	-0.114
Agricultural cooperative, local government hall[1]	0.019	0.001	-0.099
Trade unions, self-help groups, credit savings[1]	0.058*	0.004	0.304
Agri based credit programs[1]	-0.054	-0.003	0.007
Private hospitals[1]	0.013	0.000	0.08
Telecommunications and transport[1]	0.043	0.003	0.017
States with Low Human Development Index[6]	-0.113	-0.007	-0.847
Intercept	0.521		0.297
N	*28465*		*28465*

Note: * p<.05 ** p<.01 ***p<.001
[1]Measure is standardized (z-scores; M=0, SD=1)
[2]Dummy coded, reference group is female
[3]Dummy coded, reference group is single
[4]Dummy coded with reference group as Brahmins
[5]Consumption expenditure is a proxy for income and is log transformed
[6]Dummy coded, reference groups States with high HDI
[7]Omitted category is age 7

First Stage results.

Women's self-help groups[1] (Instrumented)	Coef.
Distance Nearest Town	0.001***
Number of hamlets in a village	0.005***
Area of the village	0.003***
Females[2]	0.018*
Married[3]	-0.084
Single[3]	0.025
Age 6 years[7]	0.003
Age 8 years	-0.013
Age 9 years	-0.002
Age 10 years	-0.007
Age 11 years	0.005
Age 12 years	0.001
Age 13 years	0.017

Age 14 years	-0.001
Interaction of age and female	-0.001
Hindu High Caste[4]	0.101***
OBC(Other backward classes)	0.127***
Dalit	0.176***
Tribals	0.186***
Muslim	0.043*
Christ_Sikh_Jain	0.078*
Age of the head of the hh	-0.002***
# of children in the hh	-0.017***
# of educated adult females	0.009***
# of educated adult males	-0.001
# of married females	0.0232***
Household Assets	0.000
Log of consumption per capita[5]	0.051***
Number of households	0.015***
Total population	-.003***
Hours of electricity per day	0.001***
Government preschool programs[1]	0.0179***
Safe water and sanitation facilities[1]	0.042***
Women's welfare, skill development[1]	0.033***
National old age, widow, disability pensions[1]	0.016***
Health subcenters, private clinic-untrained personnel[1]	-0.034***
Police station, market, bank branch[1]	0.014**
PDS fair shop, general market shop, post office[1]	-0.037***
Agricultural cooperative, local government hall[1]	-0.031***
Trade unions, self-help groups, credit savings[1]	0.087***
Agri based credit programs[1]	-0.026***
Private hospitals[1]	0.019*
Telecommunications and transport[1]	0.006
States with Low Human Development Index[6]	-0.008
Intercept	-0.549***

Note: * p<.05 ** p<.01 ***p<.001
[1] Measure is standardized (z-scores; M=0, SD=1)
[2] Dummy coded, reference group is female
[3] Dummy coded, reference group is single
[4] Dummy coded with reference group as Brahmins
[5] Consumption expenditure is a proxy for income and is log transformed
[6] Dummy coded, reference groups States with high HDI
[7] Omitted category is age 7

Index of confidence in schools, hospitals[1] (Instrumented)	Coef.
Distance Nearest Town	-0.001***
Number of hamlets in a village	-0.006***
Area of the village	-0.002***
Females[2]	0.006
Married[3]	0.133
Single[3]	-0.011
Age 6 years[7]	-0.002
Age 8 years	-0.040**
Age 9 years	-0.018
Age 10 years	-0.041**
Age 11 years	-0.015
Age 12 years	-0.005
Age 13 years	0.005
Age 14 years	-0.025
Interaction of age and female	0.000
Hindu High Caste[4]	0.058**
OBC(Other backward classes)	0.068***
Dalit	0.076***
Tribals	0.150***
Muslim	0.102***
Christ_Sikh_Jain	0.037
Age of the head of the hh	-0.001
# of children in the hh	0.004
# of educated adult females	0.004**
# of educated adult males	0.001
# of married females	-0.040***
Household Assets	0.006***
Log of consumption per capita[5]	-0.018*
Number of households	0.002
Total population	-0.001***
Hours of electricity per day	-0.001*
Government preschool programs[1]	0.051***
Safe water and sanitation facilities[1]	0.0314***
Women's welfare, skill development[1]	0.032***
National old age, widow, disability pensions[1]	-0.001
Health subcenters, private clinic-untrained personnel[1]	-0.028***
Police station, market, bank branch[1]	0.0145**
PDS fair shop, general market shop, post office[1]	-0.009*
Agricultural cooperative, local government hall[1]	0.000
Trade unions, self-help groups, credit savings[1]	-0.019***

Agri based credit programs[1]	0.029***
Private hospitals[1]	0.013**
Telecommunications and transport[1]	-0.008
States with Low Human Development Index[6]	-0.160***
Intercept	0.281

Note: * p<.05 ** p<.01 ***p<.001
[1] Measure is standardized (z-scores; M=0, SD=1)
[2] Dummy coded, reference group is female
[3] Dummy coded, reference group is single
[4] Dummy coded with reference group as Brahmins
[5] Consumption expenditure is a proxy for income and is log transformed
[6] Dummy coded, reference groups States with high HDI
[7] Omitted category is age 7

Table 19. Odd-Ratios for Initial Enrollment

Variable[a]	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	9.58***	38.142***	12.621***	26.377***	30.739***	34.452***
Social networks[1]	1.500***	1.392***	1.107***	1.103**	1.104**	1.086*
Women's self-help groups[1]	1.172***	1.180***	1.122***	1.111***	1.111**	1.069
Religious Groups[1]	1.023	1.033	0.999	1.012	1.036	1.062
Confidence in local governance[1]	0.997	1.017	1.022	1.035	1.022	1.016
Confidence in schools, hospitals[1]	1.172***	1.167***	1.117***	1.117***	1.118***	1.109**
Individual-level equation: within-household effects[b]						
Females[2]					0.564***	0.555***
Married[3]					0.258	0.238
Single[3]					1.527	1.533
Centered age[6]					1.14***	1.144***
Square of Centered age					0.924***	0.922***
Interaction between age and female					0.911***	0.910***
Household-level equation: effects on initial school enrollment between households						
Hindu High Caste[4]		0.413***		0.535***	0.575***	0.560***
OBC(Other backward classes)		0.297***		0.565***	0.57***	0.556***
Dalit		0.200***		0.46***	0.481***	0.475***
Tribals		0.148***		0.385***	0.402***	0.401***
Muslim		0.169***		0.339***	0.358***	0.359***
Christ_Sikh_Jain		0.92		0.824	0.776	0.797
Age of the head of the hh				1.003	0.997	0.997
# of children in the hh				0.918***	0.933	0.942**

# of educated adult females	1.060***	1.054***	1.068***	1.063***
# of educated adult males	1.066***	1.072***	1.086***	1.091***
# Married females in the hh		0.834***	0.88**	0.90*
Household Assets	1.075***	1.084***	1.078***	1.074***
Log of consumption per capita[5]	1.458***	1.255***	1.223***	1.284***

Village-level equation: effects on current school enrollment between villages

Number of households	1.028**
Total population	0.994**
Hours of electricity per day	1.028***
Government preschool programs1	1.089**
Safe water and sanitation facilities	1.138**
Women's welfare, skill development	0.919**
National old age, widow, disability pensions	1.047
Health subcenters, private clinic-untrained personnel	1.040
Presence of police station, market, bank branch	0.921*
PDS fair shop, general market shop, post office	1.026
Agricultural cooperative, local government hall	0.937
Trade unions, self-help groups, credit savings	1.206***
Agri based credit programs	0.896**
Private hospitals	1.049
Telecommunications and transport	0.987
States with Low HDI[7]	0.934

* p<.05 ** p<.01 ***p<.001

Source: India Human Development Survey 2005 (IHDS)

[a] Individuals $_N$ = 28,463; Households $_N$ = 14,252; Villages $_N$ =1389. All measures are grand mean centered at the individual level.

[1.] Active and latent components of social capital are composite factor and are z scored. Village level variables are composite factors and Z scored

[2] Dummy coded, reference group is male.

[3] Dummy coded, comparison group is Divorced or separated.

[6] Age is centered around the mean (age-cen). The centered age is squared

[4] Dummy coded with reference group as Brahmins

[5] Consumption expenditure is a proxy for income and is log transformed

[7] Comparison group is States with High Human Development Index.

Table 20. Odd-Ratios for Current Enrollment

Variable[a]	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	15.57***	44.83***	18.59***	34.376***	70.657***	90.514***
Social networks[1]	1.360***	1.295***	1.12**	1.095**	1.11**	1.089**
Women's self-help groups[1]	1.129***	1.126***	1.096**	1.084**	1.106**	1.096**
Religious Groups[1]	0.93***	0.95***	0.904**	0.92**	0.884**	0.905**
Confidence in local governance[1]	0.945	0.953	0.951	0.957	0.936	0.934
Confidence in schools, hospitals[1]	1.054	1.054	1.019	1.015	1.014	1.014
Individual-level equation: within-household effects[b]						
Females[2]					0.765***	0.76***
Married[3]					0.656	0.663
Divorced/separated[3]					0.236**	0.23**
Age 6 years[7]					0.877	0.865
Age 8 years					1.025	0.971
Age 9 years					0.871	0.855
Age 10 years					0.695**	0.691**
Age 11 years					0.493***	0.481***
Age 12 years					0.193***	0.189***
Age 13 years					0.135***	0.131***
Age 14 years					0.071***	0.068***
Interaction of age and female					0.935**	0.934**
Household-level equation: effects on current school enrollment between households						
Hindu High Caste[4]		0.458***		0.548***	0.413***	0.413***
OBC(Other backward classes)		0.393***		0.607**	0.481***	0.482***
Dalit		0.313***		0.548***	0.422***	0.416***
Tribals		0.25***		0.505***	0.378***	0.405***
Muslim		0.229***		0.356***	0.251***	0.265***
Christ_Sikh_Jain		1.361		1.14	0.842	0.754
Age of the head of the hh				0.985***	0.997	0.997
# of children in the hh				1.051**	0.969	0.966
# of educated adult females			1.065***	1.065***	1.035**	1.032**
# of educated adult males			1.039***	1.039***	1.045***	1.047***
# of married females				1.015	0.923	0.935
Household Assets			1.057***	1.057***	1.077***	1.073***
Log of consumption per capita[5]			1.178**	1.235**	1.377***	1.361***

Village-level equation: effects on current school enrollment between villages

Number of households	1.005
Total population	1.00
Hours of electricity per day	1.01
Government preschool programs	0.882**
Safe water and sanitation facilities[1]	1.137**
Women's welfare, skill development[1]	1.01
National old age, widow, disability pensions[1]	0.963
Health subcenters, private clinic-untrained personnel[1]	0.94
Police station, market, bank branch[1]	0.86***
PDS fair shop, general market shop, post office[1]	1.14**
Agricultural cooperative, local government hall[1]	1.096**
Trade unions, self-help groups, credit savings[1]	1.093*
Agri based credit programs[1]	0.904**
Private hospitals[1]	1.002
Telecommunications and transport[1]	1.019
States with Low Human Development Index[6]	0.761**

Source: India Human Development Survey 2005 (IHDS)
*p<0.05, **p<0.01, ***p<0.001
[a] Individuals $_N$ = 28,465; Households $_N$ = 14,252; Villages $_N$ =1389. All measures are grand mean centered at the individual level.
[1]Measure is standardized (z-scores; M=0, SD=1)
[2]Dummy coded, reference group is male
[3]Dummy coded, reference group is single
[4]Dummy coded with reference group as Brahmins
[5]Consumption expenditure is a proxy for income and is log transformed
[6]Dummy coded, reference groups States with high HDI
[7]Omitted category is age 7. Dummies for each age to control for the age confounding factor

Table 21. Coefficients from HLM Analysis of Years of Schooling

Variable[a]	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	5.07***	5.816***	5.061***	5.247***	5.207***	5.189***
Social networks[1]	0.454***	0.379***	0.087**	0.089**	0.093**	0.094**
Women's self-help groups[1]	0.123***	0.132***	0.110***	0.096***	0.099***	0.055*
Religious Groups[1]	0.009	0.022	-0.033	-0.016	-0.015	0.003
Confidence in local governance[1]	-0.006	0.008	0.017	0.023	0.014	-0.006
Confidence in schools, hospitals[1]	0.08*	0.086*	0.06*	0.061*	0.072*	0.054
Individual-level equation: within-household effects[b]						
Females[2]					0.100	0.087
Married[3]					-2.206***	-2.19***
Divorsed_seperated[3]					-1.075***	-1.02***
Age12[6]					0.736***	0.745***
Age13					1.575***	1.582***
Age14					2.256***	2.262***
Interaction of age and female					-0.147***	-0.146***
Household-level equation: effects on initial school enrollment between households						
Highcaste_Hindu[4]		-0.195		0.017	0.086	0.005
OBC(Other backward classes)		-0.589*		-0.022	0.006	-0.052
Dalit		-1.044***		-0.274	-0.21	-0.267
Tribals		-1.25***		-0.305	-0.278	-0.311
Muslim		-1.44***		-0.788***	-0.778***	-0.778***
Christ_Sikh_Jain		0.227		0.109	0.27	0.124
Age of the head of the hh				0.001	-0.001	-0.001
# of children in the hh				-0.165***	-0.117***	-0.099***
# of educated adult females			0.027**	0.026**	0.036***	0.030***
# of educated adult males			0.078***	0.08***	0.081***	0.086***
# of married females				-0.055	-0.057	-0.038
Household Assets			0.065***	0.075***	0.069***	0.056***
Log of consumption per capita[5]			0.430***	0.212***	0.195***	0.242***
Village-level equation: effects on current school enrollment between villages						
Total number of households (per 100) in the village (tothh)						0.029*

Total population (per 100) of the village (pop)	-0.004
Hours of electricity per day (vi4c)	0.02***
# of hamlets in the village	-0.001
Area of the village	-0.005
Government preschool programs[1]	0.11***
Safe water and sanitation facilities	0.10**
Women's welfare, skill development	0.10**
National old age, widow, disability pensions	0.09***
Health sub-centers, private clinic-untrained personnel	-0.17***
Police station, market, bank branch	0.007
PDS fair shop, general market shop, post office	0.020
Agricultural cooperative, local government hall	-0.003
Trade unions, self-help groups, credit savings	0.033
Agricultural cooperative, local government hall	-0.041
Private hospitals	-0.030
Telecommunications and transport	0.043
States with Low Human Development Index[7]	0.395***

Source: India Human Development Survey 2005 (IHDS)
*p<0.05, **p<0.01, ***p<0.001
[a] Individuals $_N$ = 12,667 (11 to14 year olds); Households $_N$ = 9377; Villages $_N$ =1373. All measures are grand mean centered at the individual level.
[1]Measure is standardized (z-scores; M=0, SD=1)
[2]Dummy coded, reference group is male
[3]Dummy coded, reference group is single
[4]Dummy coded with reference group as Brahmins
[5]Consumption expenditure is a proxy for income and is log transformed
[6]Dummy coded, reference group is Age 11
[7]Dummy coded, reference groups States with high HDI

Table 22. Components of Social Capital- Quadrant I

Construct	Sub -Construct	Domain	Coding instances	Percentage
Structural institutional mechanisms				
	Diversity of institutions		0	0
	Efficacy		0	0
		Negative	19	3.82
		Positive	19	3.82
	Institutional resources		20	4.02
	Lack of institutional resources		21	4.23
	vertical hierarchical organization		0	0
Civic norms			9	1.81

Table 23. Components of Social Capital Quadrant II

Construct	Sub -Construct	Domain	Coding instances	Percentage
Cognitive abilities Cooperation and coordination			0	0
	Diffusion of innovation		0	0
	Economic development		15	3.02
	Lack of economic development		11	2.21
	Efficacy of collective interest		0	0
		Negative action	4	0.8
		No action	18	3.62
		Positive	20	4.02
	Information		24	4.83
	Lack of information		26	5.23

	Low crime rate		14	2.82
	Some crime incidents		4	0.8
	Political efficacy		19	3.82
	Lack of political efficacy		4	0.8
	Problem solving		0	0
		Community dependent	23	4.63
		Self dependent	17	3.42
Routine activities			0	0
Social control			2	0.4

Table 24. Components of Social Capital Quadrant III.

Construct	Sub -Construct	Domain	Coding instances	Percentage
Civic engagement			16	3.22
Neighborhood-ecological effects				
	Informal horizontal relationships		9	1.81
	Lack of informal horizontal relationships		11	2.21
	Level or density of social ties		1	0.2
	Within family		0	0

Table 25. Components of Social Capital Quadrant IV

Construct	Sub -Construct	Domain	Coding instances	Percentage
Psychological sense of community				
	Attitudes		0	0
	Behavior		0	0
	Expectation of reciprocity		0	0
	Group identification		14	2.82
	Institutional trust		0	0
		Inconclusive	2	0.4
		Negative	19	3.82
		Positive	20	4.02
		Somewhat positive	10	2.01
	Interpersonal trust		0	0
		Negative	6	1.21
		Positive	28	5.63
	Predispositions		0	0
	Shared values and beliefs		0	0
	Social cohesion		16	3.22
	Negative social cohesion		2	0.4
	Social relationships		0	0

FIGURES

Figure 1. Primary School Participation Rates in India
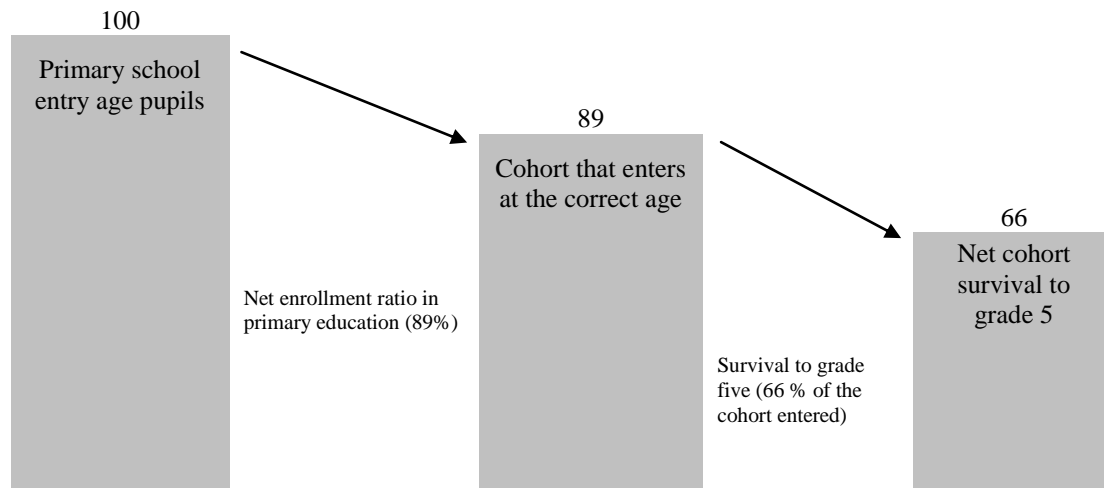
Note: For the net intake rate school year ending in 2007 is used. The survival to grade five uses 2006 because of non-availability of the 2007 figure.
Source: Annex Statistical tables 5 and 7. UNESCO (2010).
      Regional Overview South Asia. Table 2. UNESCO (2010).
      Table 2. UNESCO (2009).

Figure 2. Measuring Education Poverty across South and West Asia
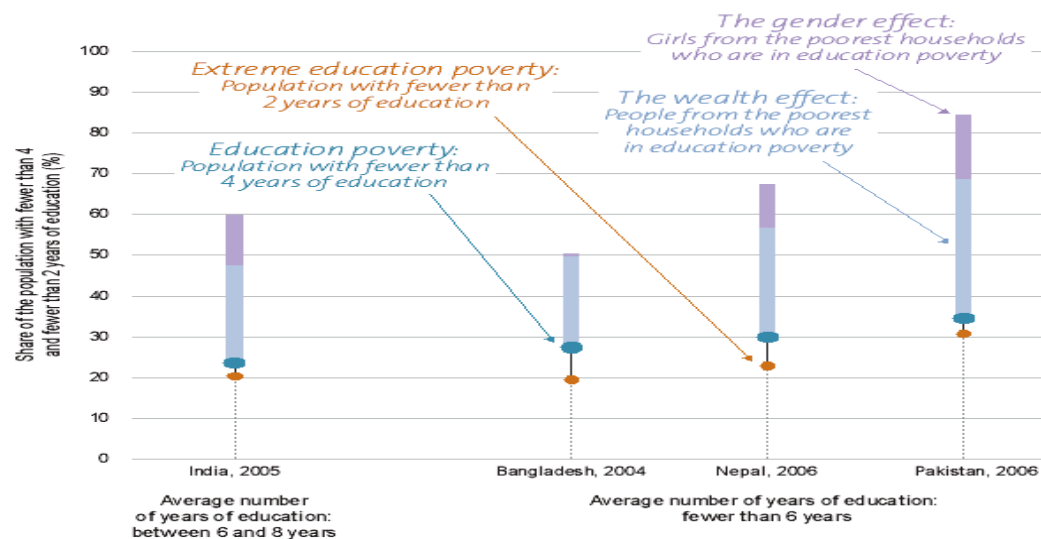
Source: UNESCO. 2010. "Regional overview: South and West Asia. On the road to education for all: Progress and challenges "
In Reaching the marginalized. EFA global monitoring report UNESCO.

Figure 3. Articles with "Neighborhood" and "Social Capital" in the title
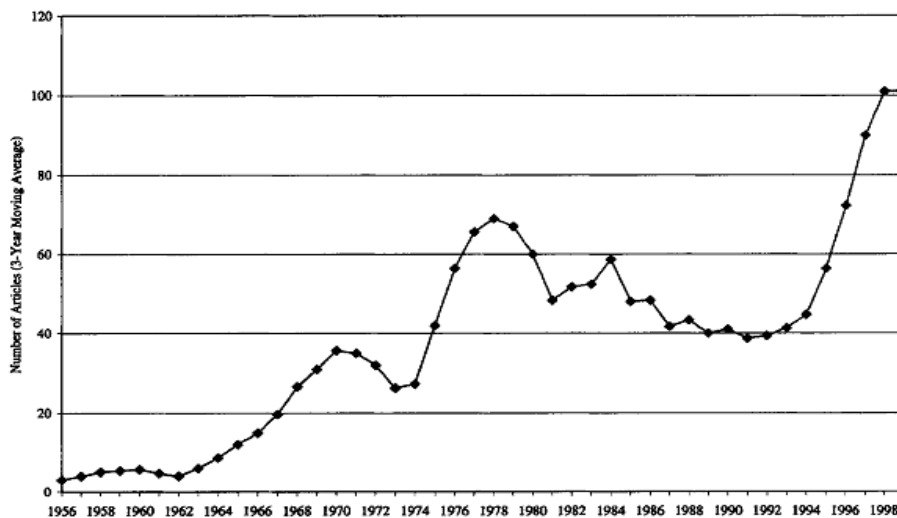
Figure 1   Articles with "Neighborhood" and "Social Capital" in title: Social Citation Index.

Source. Sampson, Morenoff and Gannon-Rowley (2002)

Figure 4. Forms and Scope of Social Capital

Macro

I	II
Institutions of the state, rule of law	Governance

Structural   Meso   *Cognitive*

Non-Cognitive

III	IV
Local Institutions	Trust, local norms, values

Micro
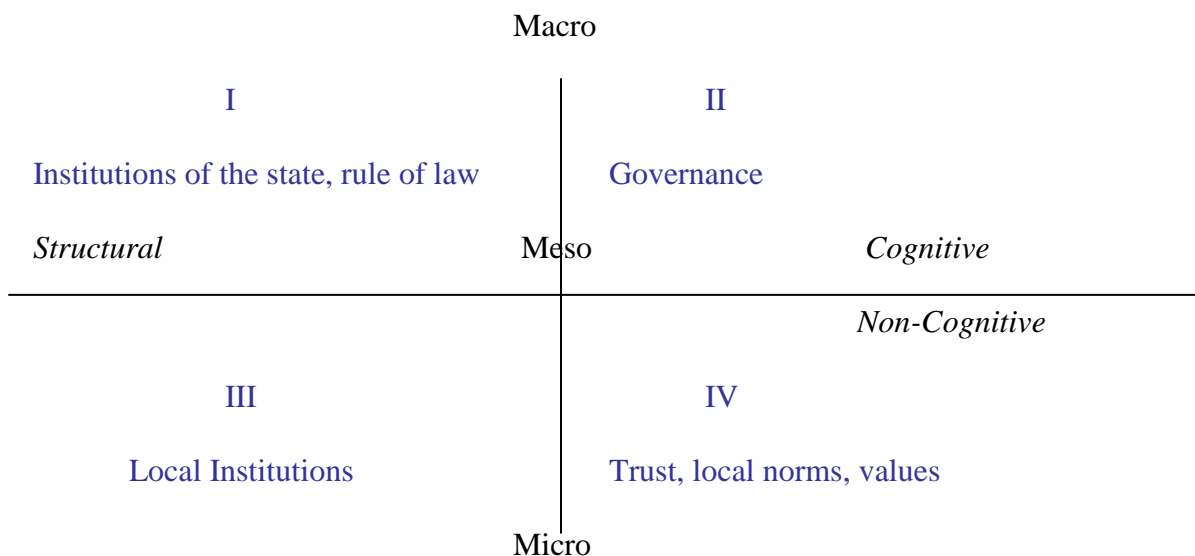
Source: Grootaert and Bastelaer (2002)

Figure 5. References for the Construct of Structural and Institutional Mechanism

Number of References Per Domian
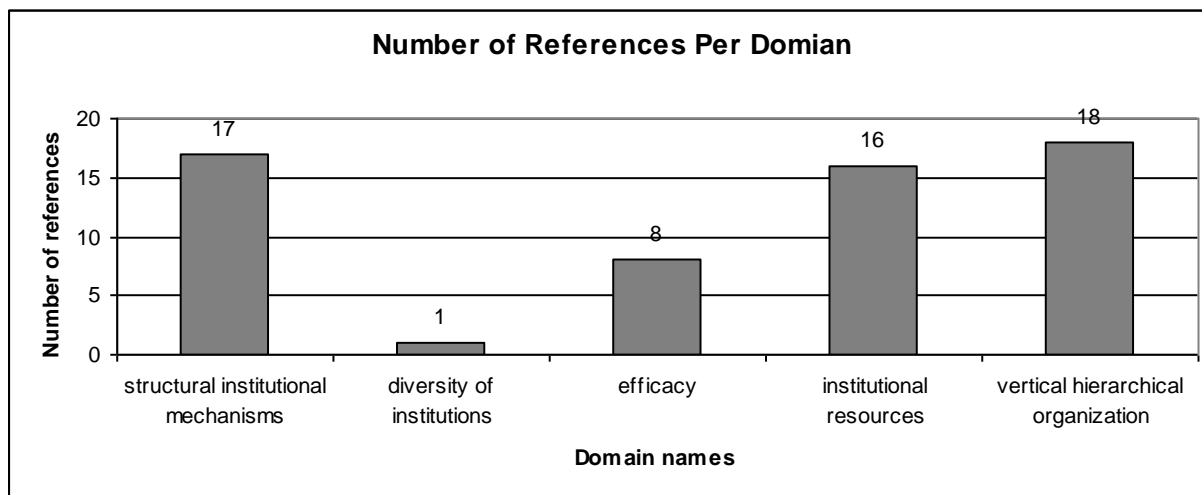
Figure 6. References for the Construct of Co-operation and Co-ordination

Number of References Per Domian
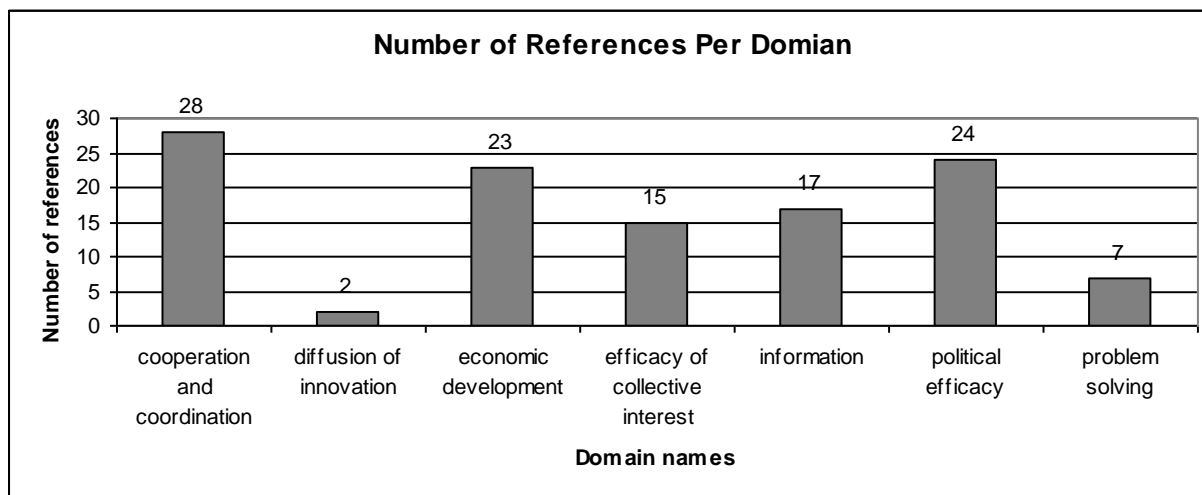
Figure 7. References for the Construct Structural Group Membership
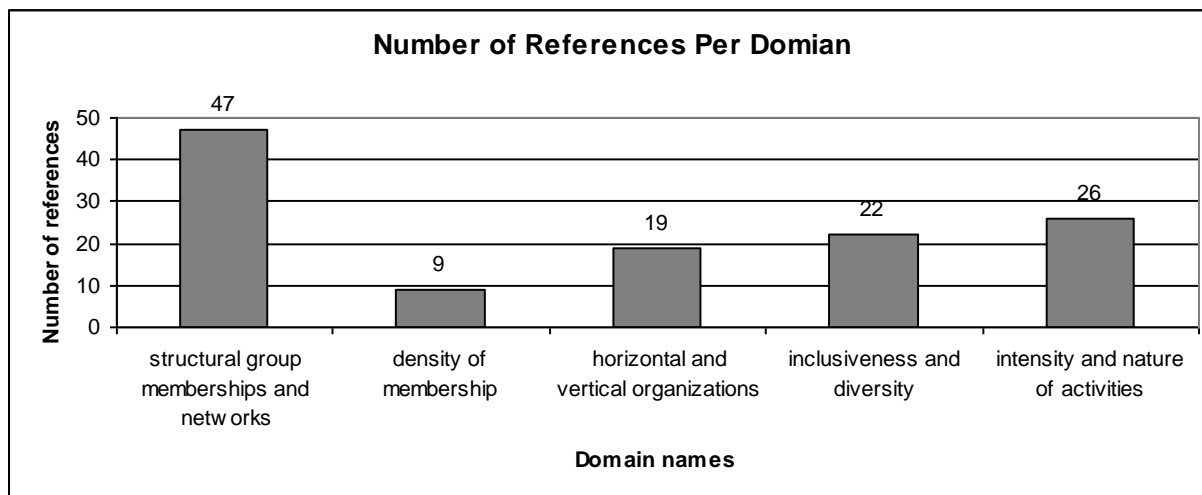
Figure 8. References for the Construct of Neighborhood and Ecological Effect
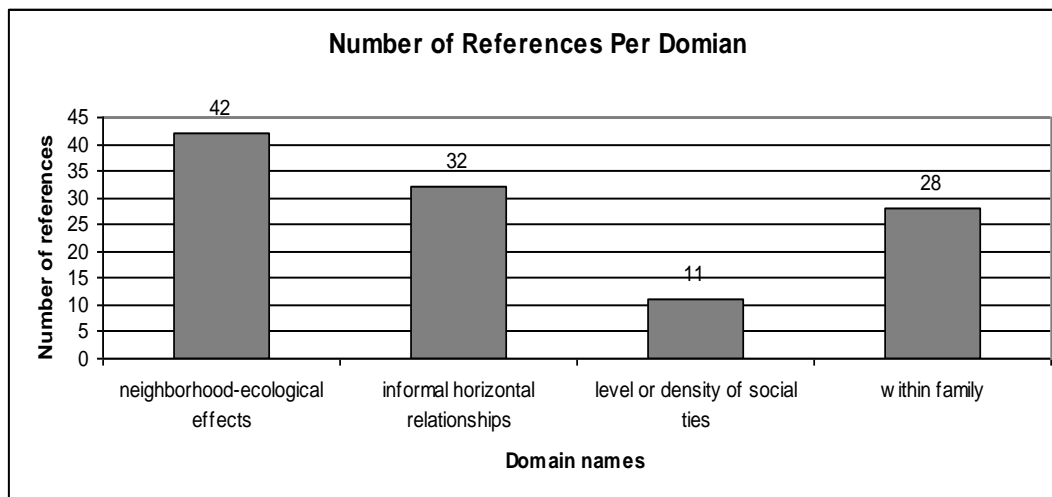
Figure 9. References for the Construct Psychological Sense of Community
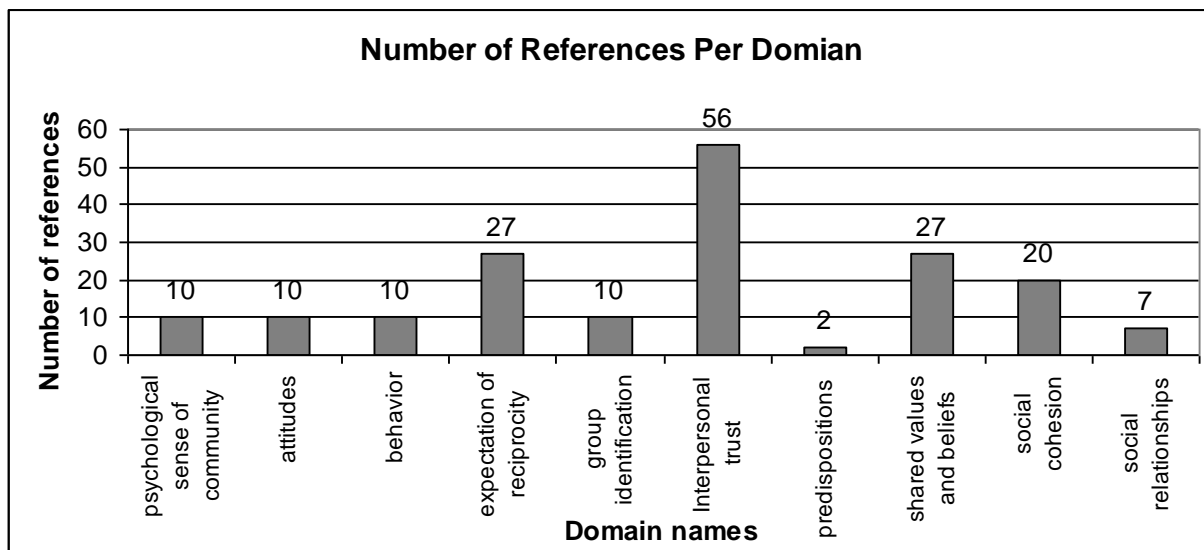
Figure 10. Propensity Score Matching Graph Showing the Overlap between the Treatment and the Control Groups
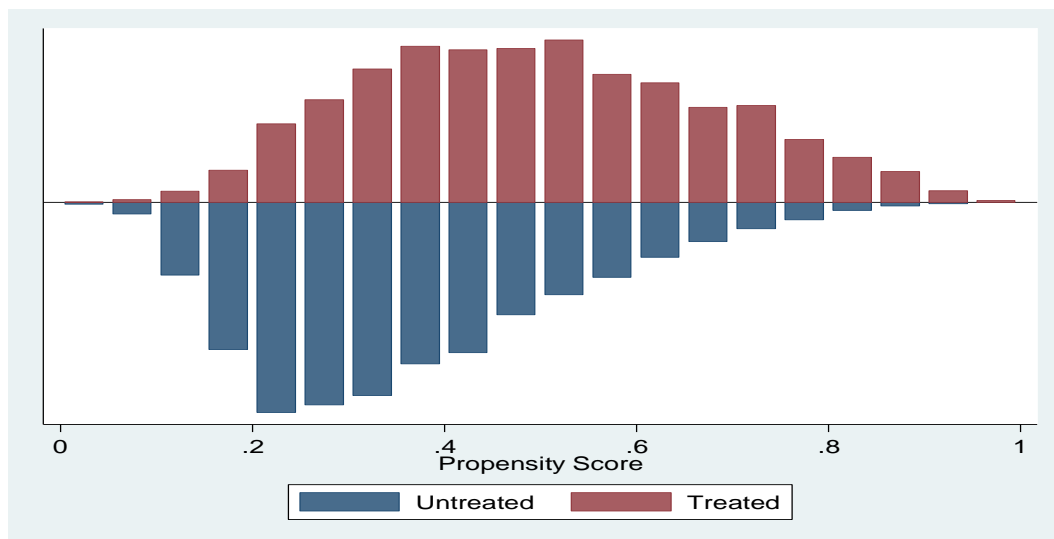
Note: Treated group has SCI greater than the mean of the social capital variable.
　　　Untreated group has SCI less than the mean of the social capital variable.

Figure 11. Histogram Showing the Overlap between the Treatment and the Control Groups.

Note: The treatment group has SCI greater than the mean of the social capital
The control group has SCI less than the mean of the social capital

Figure 12. Conceptual Framework-Logic Model for Social Capital

Context Variables   **Input Variables**   **Process / Service Variables**   **Outcome Variables**

Family characteristics

- Interest in the child's education.
- Motivation to send the children to school
- Socio-economic status
- Caste/ Religion
- Age of parents
- Family size

Village Characteristics

- % Poverty/SES
- Migration
- % caste and religious distributions
- Total number of households
- Total area of the village
- Distance to town
- Total population
- Gender distribution

School Resources

- School infrastructure
- Proximity to school
- Presence of support bodies

Community Resources
- Presence of primary, middle, high school.
- Presence of college.
- Adult education centers
- Medical facilities
- Community hall
- Community groups-*panchayats,* credit groups, agricultural societies etc
- Water facility
- Communication facilities
- Transportation facilities
- Electricity
- Post office
- Banks

Latent Social Capital
- Being informed
- Informal horizontal relationships
- Level or density of social ties within family
- Attitudes
- Group identification
- Interpersonal trust
- Shared values and beliefs
- Social cohesion
- Social relationships
- Civic norms
- Social control
- Diversity of institutions
- Institutional resources

Active Social Capital
- Structural group memberships and networks
- Diffusion of innovation
- Economic development
- Political efficacy
- Efficacy of collective interest
- Behavior
- Expectation of reciprocity
- Cooperation and Coordination
- Trust and solidarity
- Collective action and cooperation
- Information and communication
- Social cohesion and inclusion
- Empowerment and political action.
- Efficacy of structural institutions

Proximal Outcomes

Parents' participation in school
- Parents interest in the school improves.
- Participation in school activities

Community's participation in school
- Community becomes more in the school and develops a sense of ownership towards the school.
- Discussions around education issues in community meetings.

Distal Outcomes

Child's participation in school
- Years of schooling improves
- School Enrollment increases
- Attendance improves
- Motivation to go to school
- Interest in school improves

REFERENCES

Acemoglu, D., & Angrist, J. (2000). How large are human-capital externalities? Evidence from compulsory schooling laws. *NBER Macroeconomics Annual, 15*, 9-59.

Acock, A. (2005). Working with missing values *Journal of Marriage and Family, 67*, 1012-1028.

Adak, K., D., Bhattacharya, B, N., Ghosh, R., Pal, M., Bharti, P & Vasulu, T, S. (2000). The tribes of Madhya Pradesh: A brief ethnographic note. In K. Adak, D., Bhattacharya, B., Ghosh, R., Pal, M., Bharti, P., &Vasulu, T, S (Ed.), *Demography and health profile of the tribals*. New Delhi.

Adams, J., H. (2006). Community matters in China. In E. Hannum, &., Fuller, B (Ed.), *Children's lives and schooling across societies* (Vol. 15). Amsterdam: Elsevier.

Adkins, C., L. (2008). *An instrumental variables probit estimator using gretl*. Stillwater, OK: Oklahoma State University.

Adler, P., S., & Kwon, S. (2002). Social capital: Prospects for a new concept. *Academy of Management Review, 27*(1), 17-40.

Ainsworth, J., W (2002). Why does it take a village? The mediation of neighboring effects on educational achievement *Social Forces, 81*(1), 117-152.

Aizer, A., Currie, J. (2002). *Networks or neighborhoods? Correlations in the use of publically-funded maternity care in California* (Working paper). Cambridge: NBER.

Amanullah, M., Sharma, S, C. (1987). *Indebtedness among tribals of Jhabua district. A case study*. Bhopal Tribal Research Institute, Madhya Pradesh.

Andrist, L. (2008). *Social capital's dark side and patriarchy in India*. Paper presented at the the Annual Meetings of the Population Association of America.

ASER. (2008). All India ASER 2008 (Publication. Retrieved 17th July 2009, from ASER Centre: http://asercentre.org/asersurvey/aser08/data/in/in-enr-08.php

Astone, N., M., Nathanson, C, A., Schoen, R., & Kim, Y, J. (1999). Family demography, social theory, and investment in social capital *Population and Development Review, 25*(1), 1-31.

Bajaj, J., K (Ed.). (2008). *Resource Atlas of Jhabua. A celebration of the land and people of Jhabua* New Delhi Madhya Pradesh Council of Science and technology Centre for Policy Studies.

Banerjee, A., V. (1992). A simple model of herd behavior. *The Quarterly Journal of Economics, 107*(3), 797-817.

Banerji, R. (1997). Why don't children complete primary school? A case study of low income neighborhood in Delhi. *Economic and Political Weekly*.

Berry, A., T. *The role of social capital in human capital investment: A social network approach to college success in the first year* University of Wisconsin-Madison.

Bhatty, K. (1998). Educational Deprivation in India: A Survey of Field Investigations. *Economic and Political Weekly, 33*(27), 1731-1740.

Block, J., h., Hoogerheide, L., Thurik, R. (2009). *Education and entrepreneurial choice: An instrumental variable analysis* Rotterdam, Netherlands: Tinbergen Institute.

Boissiere, M. (2004). *Determinants of primary education: Outcomes in developing countries* Washington Dc: The World Bank Operations Evaluations Department.

Bourdieu. (1970). Cultural Reproduction and Social Reproduction. In B. Richards (Ed.), *Knowledge, Education and Cultural Change* (pp. 56-69).

Brehm, J., & Rahn, W (1997). Individual-level evidence for the causes and consequences of social capital *American Journal of Political Science, 41*(3), 999-1023.

Brooks-Gunn, J. (2003). Do you believe in magic?: What we can expect from early childhood intervention programs. . *Social Policy Report, 17*(1), 3-14.

Burt, S., R. (2000). The network structure of social capital In R. Sutton, Greenwich, B, S (Ed.), *Research in Organizational Behavior* CT: JAI.

Campos, N., F., & Giovannoni, Francesco. (2006). *Lobbying, corruption and political influence*. Bonn, Germany Institute for the Study of Labor (IZA).

Carpenter, J., P., Daniere, A, G., Takahashi, L, M (2003). Comparing measures of social capital using data from southeast Asian slums.

Carroll, T., F (2001). *Social capital, local capacity building and poverty reduction* Manila: Office of environment and social development , Asian Development Bank.

Cattell, V. (2001). Poor people poor places, and poor health: the mediating role of social networks ad social capital. *Social science & Medicine, 52*, 1501-1516.

Chatterjee, A. (1992). *India: The forgotten children of the cities* Italy United Nations Children's Fund.

Chatterjee, B. (1975). *School dropout among Harijan children: Causes and cure*. New Delhi Central Institute of Research and Training in Public Cooperation.

Chattopadhay, T. (2007). *Conceptualizing social capital in education: An exploratory study in Brazil* Teachers College, Columbia University New York.

Chen, H. T. (1990). *Theory-driven Evaluations*. Newbury Park, CA: Sage.

Chudgar, A. (2006). *Factors associated with decisions to educate sons and daughters in India.* Stanford University.

Chudgar, A. (2009). The Challenge of Universal Elementary Education in Rural India: Can Adult Literacy Play a Role? (Vol. 53): U. Chicago Press.

Chugh, S. (2004). *Why children drop out?: Case study of a metropolitan slum*. New Delhi: Bookwell.

Clarke, P. (2003). Culture and Classroom Reform: The Case of the District Primary Education Project, India. *Comparative Education, 39*(1), 27-44.

Coffe, H., & Geys, B (2006). Community heterogeneity: A burden for the Creation of social capital? *Social Science Quarterly 87*(5).

Coleman, J. (1990). *Foundations of social theory* Boston The Belknap Press of Harvard University Press.

Coleman, J., S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 95-120.

Crane, J. (1991). The epidemic theory of ghettos and neighborhood effect on dropping out and teenage childbearing. *The American Journal Of Sociology, 96*(5), 1226-1259.

Creswell, J., W. (1998). *Qualitative inquiry and research design: Choosing among five traditions* New Delh, London: SAGE publications.

Creswell, J., W., & Clark, P, V. (2007). *Designing and conducting mixed methods research*. New Delhi, London: SAGE Publication.

Desai, S., Cecily Adams, and Amaresh Dubey. (2007). *Segmented Schooling: Inequalities in Primary Education*. Paper presented at the Social Exclusion and Inclusive Policy Workshop.

Dika, S., L., & Singh, K (2002). Application of social capital in educational literature: A critical synthesis *American Educational Research Association 72*(1), 31-60.

Dreze, J., & Kingdon, G, G. (2001). School participation in rural India. *Review of Developmental Economics, 5*(1), 1-24.

Dreze, J., & Goyal, A.(2003). Future of mid-day meals. Economic and Political Weekly, November 1st 2003.

Dudwick, N., Kuehnast, K., Jones, V, N., & Woolcock, M (2006). *Analyzing social capital in context: A guide to using qualitative methods and data* Washington DC The World Bank

Durlauf, S., N. (2002). Symposium on social capital: Introduction *The Economic Journal, 112*(483), F417-F418.

Durlauf, S., N (2002). On the Empirics of Social Capital. *The Economic Journal, 112*(483), F459-F479.

Durlauf, S., N., & Fafchamps, M. (2004). Social Capital. University of Wisconsin.

Durlauf, S., N., & Young, P. H (Ed.). (2001). *Social Dynamics*. Washington DC: Brookings Institution.

Edwards, R., Franklin, J., Holland, J (2003). *Families and social capital: Exploring the issues* London Families and Social capital ESRC research group. South Bank University.

Ensminger, M., E., Lamkin, R, P., Jacobson, N (1996). School leaving: A longitudinal perspective including neighborhood effects *Child Development 67*(5), 2400-2416.

Ezzy, D. (2002). *Qualitative analysis. Practice and innovation* London: Routledge. Taylor & Francis Group

Feinberg, W., & Soltis, J.F. (1998). *School and society*. New York and London Teachers College Press.

Ferguson, K., M. (2004). Measuring and indigenizing social capital in relation to children's street work in Mexico: The role of culture in shaping social capital indicators *Journal of Sociology and Social Welfare XXXI*(4).

Ferguson, K., M. (2006). Social capital and children's wellbeing: a critical synthesis of international social capital literature. *International Journal of Social Welfare, 15*, 2-18.

Forrest, R., & Kearns, A. (2001). Social cohesion, social capital and neighborhood. *Urban Studies, 38*(12), 2125-2143.

Franke, S. (2005). *Measurement of social capital: Reference document for public policy research, development, and evaluation*. Canada: PRI.

Fukuyama, F. (2002). Social capital and development: The coming agenda. *SAIS Review XXII*(1).

Fuller, B., & Hannum, E (2002). *Schooling and social capital in diverse cultures*: JAI.

Fuller, B., &., Hannum, E. (2002). Introduction: Scaffolds for achievement? Institutional foundations of social capital In B. Fuller, &., Hannum, E (Ed.), *Schooling and social capital in diverse cultures* (Vol. 13). Oxford: Elsevier.

Geroge, L., A., & Bennett, A. (2005). *Case studies and theory development in the social sciences*. Cambridge: MIT Press.

Gibbs, G., R (2002). *Qualitative data analysis: Explorations with NVIVO*. Buckingham, Philadelphia: Open University Press.

Glaeser, E., L. (1999). Learning in Cities. *Journal of Urban Economics, 46*, 254-277.

Glaeser, E., L., & Scheinkman, J, A. (2001). Measuring social interactions. In S. Durlauf, N., & Young, H, P (Ed.), *Social Dynamics* (pp. 83-133). Washington, CD: Brookings Institutions Press, The MIT Press.

Glaeser, E., L., Liabson, D., & Sacerdote, B (2002). An economic approach to social capital *The Economic Journal, 112*(483), F437-F458.

Glaeser, E., L., Mare, D, C. (1994). *Cities and skills*. Cambridge: NBER.

Government of India. Jhabua Statistical Profile. Retrieved 08/25/08, from http://www.jhabua.nic.in/factfile.htm

Government of India. (2001a). Census of India 2001. Retrieved 06/23/2008, from http://www.censusindia.net/.

Government of India. (2001b). *National Human Development Report 2001*. New Delhi Government of India.

Government of India. (2009a). *All India survey of out-of-school children for age 5 and in 6-13 years age group*. New Delhi: Social and Rural Research Institute and Educational Consultants India Ltd.

Government of India. (2009b). *The right of children to free and compulsory education act 2009*. New Delhi Gazette of India. Government of India.

Grootaert, C. (1999). *Social capital, household welfare and poverty in Indonesia*. Washington DC: The World Bank.

Grootaert, C., & Bastelar, Van Thierry. (2003). *The role of social capital in development: An empirical assessment*. Cambridge: Cambridge University Press.

Grootaert, C., Oh G-T., & Swamy, A. (2002). Social capital, education and credit markers: Empirical evidence from Burkina Faso In J. Isham, Kelly, T., Ramaswamy, S (Ed.), *Social capital and economic development* Northampton, MA, USA: Edward Elgar.

Grootaert, C. N., Deepa; Jones Nyhan Veronica., & Woolcock, Michael (2004). *Measuring Social Capital: An integrated Questionnaire*. Washington D C: The World Bank.

Grootaert, G., & Bastelaer, Van Thierry (Ed.). *Understanding and Measuring Social Capital: A multidisciplinary tool for practitioners*. Washington DC: The World Bank.

Gugerty, M., K., & Kremer, M. (2002). The impact of development assistance on social capital: Evidence from Kenya In C. B. Grootaert, T (Ed.), *The role of social capital in development* Cambridge: UK: Cambridge University Press.

Guo, G., & Zhao, H. (2000). Multilevel modeling for binary data. *Annual Review of Sociology, 26*, 441-462.

Halpern, D. (2005). *Social capital* Cambridge: Polity Press.

Helliwell, J., F & Putnam, R, D. (1999). *Education and social capital*. Washington DC: National Bureau of Economic Research.

Henderson, V. (1997). Externalities and industrial development *Journal of Urban Economics, 42*, 449-470.

Herreros, F. (2004). *The problem of forming social capital: Why trust?* : Palgrave Macmillan.

Heyneman, S. (2002). Defining the influence of education on social cohesion *International Journal of Educational Policy, Research and Practice, 3&4*(Winter), 73-97.

Holian, M., L (2003). Questioning Social Capital: How large are the Early Education Returns on Investments? University of Virginia.

Hovrat, M., E., Weininger, E, B., & Lareau, A. (2003). From social ties to social capital: Class differences in the relations between schools and parent networks. *American Educational Research Journal 40*(2), 319-351.

Jensen, R., T. (2010). *Economic opportunities and gender differences in Human Capital: Experimental Evidence from India*. NBER Working paper no. 16021.

Kamath, K. (1993). *How far are we from helping them*. Mumbai Department of Education, Municipal corporation of Greater Mumbai.

Kaul, R. (2001). Accessing Primary Education: Going beyond the Classroom. *Economic and Political Weekly, 36*(2), 155-162.

Kingdon, G., Gandhi. (2007). The progress of school education in India *Oxford review of Economic Policy 23*(2), 168-195.

Knack, S. (2002). Social capital and the quality of government: Evidence from the states *American Journal of Political Science, 46*(4), 772-785.

Knaul, F. (1999). *The importance of family and community social capital in the creation of human capital in urban Colombia*. Mexico: CIDE.

Krishna, A. (2002). *Active Social Capital: Tracing the roots of development and democracy*. New York: Columbia University Press.

Krishna, A., & Shrader, S. (1999, June 22-24). *Assessment of social capital* Paper presented at the Conference on Social Capital and Poverty Reduction Washington DC.

Krishna, A., Shrader, S. (2002). The social capital assessment tool: Design and Implementation. In C. Grootaert, & Bastelar, Van Thierry (Ed.), *Understanding and Measuring Social Capital*. Washington DC: The World Bank.

Lalive, R. (2006). *Social interactions and schooling decisions* (Working paper). Zurich: Institute for Empirical Research, University of Zurich.

Lee, V. (2000). Using hierarchical linear modeling to study social contexts: The case of school effects *Educational Psychologist, 32*(2), 125-141.

Lieten, G., K. (2002). Child labor and poverty: The poverty of analysis. *The Indian Journal of Labor Economics, 45*(3), 451-464.

Lin, N. (1999). Building a network theory of social capital. *Connections, 22*(1), 28-51.

Lochner, K., Kawachi, I., & Kennedy, B, P. (1999). Social capital: a guide to its measurement. *Health and Place, 5*, 259-270.

Madan, D., & Tyagi, R, P. (1991). Tribal demography and development in Madhya Pradesh. In R. Pati, N., Jagatdeb, L (Ed.), *Tribal demography in India* APH Publishing.

Mahapatra, B., C. (2000). Present and future prospects of tribal development of M.P. and Orissa with special reference to Bhil and Santhal tribes. In B. Mahapatra, C (Ed.), *Dalits in Third Millennium* New Delhi: Sarup & Sons.

Maluccio, J., Haddad, L., May, J (1999). *Social capital and income generation in South Africa, 1993-98*. Washington DC: International Food Policy Research Institute.

Manski, C., F. (2000). Economic analysis of social interactions. *Journal of Economic Perspectives 14*(3), 115-136.

Mcquilling, C. (2009). Migration ratio in Jhabua and Alirajpur district. Retrieved 08/25/08, from http://malnourishedmillions.blogspot.com/2010/03/jhabua-malnutrition-in-news-again.html

Miles, B., M., & Huberman, A,M. (1994). *An expanded source book: Qualitative data analysis* (2 ed.). New Delhi, London: SAGE Publications.

Moretti, E. (2003). *Capital Externalities in Cities* (Working Paper). Cambridge, Massachusetts: National Bureau of Economic Research.

Mukhopadhyaya, S., & Suri, I, S. (1998). *Efforts of the government for primary education of the poor in the mega city of Delhi* Paper presented at the Seminar on Indian Mega Cities and Primary Education of the Poor.

Nahar, M., K. (1981). *A study of the economic conditions of the tribals of Jhabua (tile translated from Hindi to English).* Vikram University, Ujjain, Madhya Pradesh.

Nambissan, G. B. (1994). Language and schooling of tribal children: Issues related to medium of instruction. *Economic and Political Weekly, 29*(42), 2747-2754.

Nambissan, G. B. (1996a). Equity in Education? Schooling of Dalit Children in India. *Economic and Political Weekly, 31*(16/17), 1011-1024.

Nambissan, G. B. (1996b). Equity in education? Schooling of Dalit children in India *Economic and Political Weekly, April 20-27*.

Narayan, D. (1999). *Bonds and Bridges: Social capital and poverty* Washington DC World Bank.

Narayan, D., Pritchett, L (1999). Cents and Sociability: Household income and social capital in rural Tanzania *Economic Development and Cultural Change, 47*(4), 871-897.

Nayar, U. (1997a). *Factors for the continuance and discontinuance of girls in elementary education* New Delhi NCERT.

Nayar, U. (1997b). *Situation of girls and women in Delhi* New Delhi: TINNARI.

NCERT. (2005). *National Curriculum Framework 2005*. New Delhi: National Council of Educational Research and Training.

Nyangena, W., & Sterner, T. (2008). *Social capital and institutions in rural Kenya* Environment for Development.

Onyx, J., & Bullen, P. (2000). Measuring social capital in five communities. *The journal of applied behavioral science, 36*(1), 23-42.

Page, E. (2006). Unsettling caste-bound gender orders: the convergence of teacher commitment and pupil aspiration in two schools in Madhya Pradesh, India (Vol. 3, pp. 35).

Panday, P., Goyal, S., Sundararaman, V. (2008). *Community participation in public schools: The impact of information campaigns in three Indian States*. Washington DC: The World Bank.

Pantoja, E. (2002). Qualitative analysis of social capital: The case of community development in coal mining areas in Orissa, India In C. a. B. Grootaert, V T (Ed.), *Understanding and measuring social capital: A multidisciplinary tool for practioners* (Vol. Directions in Development). Washington, DC: The World Bank.

Parcel, T., L., & Durfur, M, J (2001). Capital at home and at school: Effects on student achievement *Social Forces, 79*(3), 881-911.

Paul, S. (2006). *The right to information and Panchayati Raj institutions" Madhya Pradesh as a Case Study* New Delhi Commonwealth Human Rights Initiative.

Perna, L., W., & Titus, M, A. (2004). Understanding differences in the choice of college attended: The role of state public policies *The Review of Higher Education, 27*(4), 501-525.

Piazza-Georgi, B. (2001). *Forms of social capital in present-day Soweto: A factor analysis of household survey data*. Wits, South Africa: Econometric Research Southern Africa(ERSA), University of Witwaterstand.

Planning Commission (2008). *Chapter II. Madhya Pradesh : Background of Elementary Education.* New Delhi. The Planning Commission, Government of India.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology *Annual Reviews, 24*, 1-24.

Portes, A. (2000). The two meanings of social capital. *Sociological Forum, 15*(1), 1-12.

Pretty, J. (2003). *Social capital and connectedness: Issues and implications for agriculture, rural development and natural resource management in ACP countries* CTA.

Primo, D., Jacobsmeier, M., & Milyo, J. (2007). Estimating the Impact of State Policies and Institutions with Mixed-Level Data. *State Politics & Policy Quarterly, 7*(4), 446-460.

Putnam, R. D. (1993). *Making democracy work*. Princeton, New Jersey.

Putnam, R. D. (1995). Turning in, turning out: The strange disappearance of social capital in America. *Political Science and Politics, 28*(4), 664-683.

Rao, N., Cheng, Kai-Ming., Narain, Kirti (2003). Primary schooling in China and India: Understanding how socio-contextual factors moderate the role of the state. *International Review of Education, 1*(2), 153-176.

Rao, V., S. (2009). Lack of community participation in the Sarva Shiksha Abhiyan: A case study. *Economic and Political Weekly, XLIV*(8), 61-64.

Raudenbush, S., W, & Bryk, A, S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2 ed.). London: Sage Publications.

Richard, L., & Morse, J, M (2007). *Readme first for a user's guide to qualitative methods* (2 ed.). London, New Delhi SAGE Publications.

Richards, L., & Morse, M, J. (2007). *Readme first for a user's guide to qualitative methods* (2 ed.). New Delhi, London: SAGE Publication.

Rietbergen-McCracken, J., Narayan, D. (1998). *Participation and social assessment. Tools and techniques* Washington DC: World Bank.

Royston, P. (2005). Multiple imputation of missing values: update. *The Stata Journal 5*(2), 1-14.

Saegert, S., Thompson, J, P., Warren, M, R (Ed.). (2001). *Social capital and poor communities*. New York Russell Sage Foundation.

Saegert, S., Thompson, J, P; &., Warren, M, R. (2001). The role of social capital in combating poverty. In S. Saegert, Thompson, J, P; &., Warren, M, R (Ed.), *Social capital and poor communities*. New York Russell Sage Foundation.

Sampson, R., J., Morenoff, J, D., Earls, F. (1999). Beyond social capital: Spatial dynamics of collective efficacy for children *American Sociological Review, 64*(October), 633-660.

Sampson, R., J., Morenoff, J, D., Gannon-Rowley, T. (2002). Assessing "Neighborhood Effects": Social Processes and New Directions in Research *Annual Review of Sociology 28*, 443-478.

Sandefur, R., L., & Laumann, E, O (1998). A paradigm for social capital *Rationality and Society 10*(4), 481-501.

Scheneider, M. (1946). *Choosing schools: consumer choice and the quality fo American schools*. Princeton: Princeton, NJ.

Scheneider, M., Teske, P., & Marschall, M. (2000). *Choosing schools: consumer choice and the quality fo American schools*. Princeton: Princeton, NJ.

Sedwal, M., & Kamat, S. (2008). *Education and social equity with a special focus on scheduled castes and schedule tribes in elementary education*. New Delhi: Consortium for Research Educational Access Transitions and Equity.

Serageldin, I., & Grootaert, C (1997). *Defining social capital: an integrating view*. Washington DC: The World Bank.

Shrivastava, V., R. (2006). *A description of the social aspects of the Damor tribal group residing in Jhabua district (translated title from Hindi to English)*. Bhopal Tribal Research Institute, Madhya Pradesh.

Singal, N. (2008). Working towards inclusion: Reflections from the classroom (Vol. 24, pp. 1516-1529): Elsevier.

Smrekar, C. (1996). *The impact of school choice and community in the interest of families and schools* State University of New York Press.

Stanton-Salazar, R., D., & Dornbusch, S, M (1995). Social capital and the reproduction of inequality: Information networks among Mexican- origin high school students *Sociology of education, 68*(2), 116-135.

STATA. Introduction to Survey Data Analysis.   Retrieved 5th Feb, 2010, from http://www.ats.ucla.edu/stat/Stata/Library/cpsu.htm

STATA. Survey Data Analysis with Stata.   Retrieved 5th Feb 2010, from http://www.ats.ucla.edu/stat/Stata/Library/cpsu.htm

Sujatha, K. (2000). *Education among scheduled tribes*. New Delhi CED.

Teachman, J., D., Paasch, K., Carver, K. (1996). Social capital and dropping out of school early. *Journal of Marriage and Family 58*(3), 773-783.

Teachman, J., D., Paasch, K., Carver, K. (1997). Social capital and the generation of human capital. *Social Forces, 75*(4).

Team, T. P. (1991). *Public Report on Basic Education in India* (1 ed.). New Delhi.

Tiwari, M. (2004). *The impact of socio-economic factors on the writing skills of tribal children (translated title from Hindi to English)* Bhopal: Tribal Research Institute, Madhya Pradesh.

UNESCO. (2008). EFA global monitoring report -Mid term review (Publication. Retrieved 17th July 2009, from UNESCO: http://www.unesco.org/en/efareport/reports/2008-mid-term-review/

UNESCO. (2010). *Regional overview: South and West Asia. On the road to education for all: Progress and challenges* UNESCO.

UNESCO (2003-04). *Gender and Education for All: The leap to quality* EFA Global Monitoring Report UNESCO**:** 1-372.

UNESCO (2005). *Education for All: The quality imperative.* EFA Global Monitoring Report, UNESCO**:** 1-428.

Vanneman, R., James Noon, and Sonalde Desai. (2006). *Social capital in India: networks, organizations, and confidence*. Paper presented at the Annual Meetings of the American Sociological Association.

Vanneman, R., James Noon, Mitali Sen, Sonalde Desai, and Abusaleh Shariff. (2006). *Social networks in India: Caste, tribe, and religious variations*. Paper presented at the Annual Meetings of the Population Association of America. from http://www.ihds.umd.edu/papers.html.

Wankhede, G., G., & Sengupta, A. (2005). Village education committees in West Bengal, India: Planned vision and beyond. *International Journal of Educational Development, 25*, 569-579.

Weiss, C. H. (1997). How can theory-based evaluation make a greater headway? *Evaluation Review, 21*, 501-524.

Woolcock, M. (2001). The place of social capital in understanding social and economic outcomes *Printemps Spring*.

Woolcock, M., &Narayan, D (2000). Social capital: Implications for development theory, research and policy *The World Bank Research Observer 15*(2), 225-249.

Yin, R. (1989). *Case Study Research, Design and Methods* (Vol. 5): Sage Publications.

Appendix

Table A. Constructs and domains with their respective excerpts

Construct	Sub -Construct	Domain	Excerpts and sources
Civic engagement			"Varshney uses the term civic engagement to refer to voluntary associational networks which include both Hindus and Muslims, such as those formed for specific professional or issue purposes, communal and political interest groups, and supported by everyday social interaction". (Narayan, Deepa, 1999).
	structural group memberships and networks		"...group membership and interaction influence the development of social capital for individuals" (M, N, Nathanson, C, A, Schoen, R., Kim, Y, J, p. 15)
		Density of membership	Indeed, Jacobs' (1961) reference to the conditions which contribute to 'civilised self-government' was precisely in relation to the dense social networks and living conditions of poorer, urban neighbourhoods"(Forrest, R., Kearns, A, 2001).
		horizontal and vertical organizations	"Putnam's (1993) seminal analysis of civic traditions in Italy focuses primarily on "horizontal" associations in which members relate to each other on an equal basis...Coleman (1988, 1990) has argued that social capital can include "vertical" associations as well, characterized by hierarchical relationships and unequal power distribution among members. p. 5. "(Grootaert, C., 1999).
		inclusiveness and diversity	"Different network structures dense and weak, homogeneous and heterogeneous- were involved in the creation of social capital and had implications for well being-social networks differentiated by structural and cultural characteristics…(Cattell, V(2001))"
		intensity and nature of activities	"dense interlocking networks of relationships between individuals and groups' (Onyx &Bullen, 2000, p. 2) It depends on a proclivity for sociability, but a spontaneous sociability, a capacity to form new associations and to cooperate within the terms of reference they establish" (Fukuyama, 1995 in Onyx &Bullen, 2000, p. 2)
cognitive abilities			social capital evolves into the shared knowledge, understandings, and patterns of interactions that a group of individuals adopts in dealing with each other (Woolcock (2001)).
cooperation and coordination			"those features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions' (Putnam, 1993 in Onyx &Bullen (2000), p. 2)."
		diffusion of innovation	"diffusion of innovations might be facilitated by greater linkages among individuals" (Narayan & Pritchett(1999)

	economic development	". Economists tend to approach the concept of social capital through the analysis of contracts and transactions. This analysis links institutionalized trust to the efficiency of markets. (Woolcock, 2001)"
	efficacy of collective interest	"institutional dimension of transactions, markets and contracts. It determines the ways in which reliable, stable relationships and shared information among actors can enhance the effectiveness and efficiency of both collective and individual interests" Woolcock(2001).
	information	"greater associational activity may lead to less "imperfect information"" (Narayan & Pritchett(1999))
	political efficacy	"To analyze the nature of state-society interactions, Peter Evans (1996), drawing upon the work of several others, introduces the idea of synergy between government and citizen action" Narayan, Deepa (1999).
neighborhood-ecological effects	problem solving	"...the role of group or community cooperative action in solving problems with local "common property" elements is potentially important" (Narayan & Pritchett(1999)).
		"The neighborhood has always been an important unit of spatial aggregation for studying social interactions and the etiology of social problems" (Smith 1980, in Garner, C, L., Raudenbusch, S, W (1991)).
	informal horizontal relationships	""social capital", as measured by household membership in formal and informal groups. The hypothesised mechanisms by which group membership affects household welfare " (Maluccio, J., Hadded, L., May, J (1999))
	level or density of social ties	"...the influence of community heterogeneity has been repeatedly discussed, based on the idea that different societal environments imply varying limitations or possibilities with respect to the development of associations, bonds of solidarity, and generalized trust" (Hartand Dekker, 2003, in Coffe, H., Geys, B (2006)).
psychological sense of community	within family	"Within-family social capital is measured a number of proxy variables including (1) presence of father in home, (2) frequency of activities involving child and parents, (3) parents' expectations of school performance. (4) mother's encouragement of child, (5) mother's attendance at school meetings (6) number of child's friends a mother knows" Durlauf(2002).
		"citizen's psychological involvement with their communities aggregate concept that has its basis in individual behavior, attitudes, interpersonal trust and predispositions "Bhrehm, J., Rahn, W(1996) .
	attitudes	"Economists have problems incorporating into their theories motivations such as friendship, loyalty, and empathy" (Uphoff 1992, in Woolcock (2002)).
	behavior	"Unless the behavior becomes institutionalized (i.e. becomes part of behavioral norms), it cannot be properly designated as "capital"" (Woolcock, 2001).
	expectation of reciprocity	"Material or symbolic exchanges within these relationships produce obligations and mutual recognition…" (Edwards, R., Franklin, J., Holland, J(2003))

group identification	"social capital is generally recognized as necessary to a functioning social order, along with a certain degree of common cultural identifications, a sense of "belonging", shared behavioral norms" (Serageldin I, & Grootaert, C, (1997)).
interpersonal trust	"social capital is generally recognized as necessary to a functioning social order, along with a certain degree of common cultural identifications, a sense of "belonging", shared behavioral norms" (Serageldin I, & Grootaert, C, (1997)).
predispositions	"citizen's psychological involvement with their communities aggregate concept that has its basis in individual behavior, attitudes, interpersonal trust and predispositions"(Bhrehm, J., Rahn, W(1996)).
shared values and beliefs	"Fukuyama (1997) argues that only certain shared norms and values should be regarded as social capital. : Social capital can be defined simply as the existence of a certain set of informal rules or norms shared among members of a group that permits cooperation among them. The sharing of values and norms does not in itself produce social capital, because the values may be the wrong ones...The norms that produce social capital... must substantively include virtues like truth-telling, the meeting of obligations, and reciprocity" Durlauf , S, N., Fafchamps, M (2004); (p. 378-379).
social cohesion	"In this model of society, social cohesion is viewed as a bottom-up process founded upon local social capital, rather than as a top-down process" (Forrest, R., Kearns, A, 2001).
social relationships	"Much of the literature and the empirical evidence on social capital focuses on the community or "grassroots" level, where the social relationships among people with common neighborhood, ethnic, religious, or family ties can constitute important sources of security, mutual help, and conviviality" Woolcock(2001).
routine activities	"Routine Activities: A concern for institutions suggests a fourth, often overlooked factor in discussions of neighborhood effects-how land use patterns and the ecological distributions of daily routine activities bear on children's well-being. The location of schools, the mix of residentia with commercial land use (e.g., strip malls, bars), public transportation" (Sampson, R., Morenoff, D, F and Gannon-Rowley, T (2002), p. 145)
civic norms	"Social \capital can be simply defined as an instantiated set of informal values or norms shared members that permit them to cooperate with one another" Durlauf(2002).
social control	"A second component of ecological differentiation stems from socioeconomic disadvantage and racial and ethnic segregation. Economic stratification by race and residence thus fuels the neighborhood concentration of cumulative forms of disadvantage, intensifying the social isolation of low income, minority and single-parent residents from resources that could support collective social control" (Sampson, R, J., Morenoff, J, D., Earls, F (1999)).
structural institutional mechanisms	"Structural social capital includes the composition and practices of local level institutions, both formal and informal, that serve as instruments of community development. Structural social capital is built through horizontal organizations and networks that have collective and transparent decision making processes, accountable leaders, and practices of collective action and mutual responsibility" ((Bain and Hicks 1998 in Krishna, A., Shrader, E (1999)).

diversity of institutions	"Institutional Resources, at least in theory, refer to the quality, quantity, and **diversity of institutions** in the community that address the needs of youth, such as libraries, schools and other learning centers, child care, organized social and recreational activities, medical facilities, family support centers, and employment opportunities" (Sampson, R., Morenoff, D, F and Gannon-Rowley, T (2002)).
efficacy	"mutual learning about how to work better together" (Woolcock, 2001).
institutional resources	"Institutional Resources, at least in theory, refer to the quality, quantity, and diversity of institutions in the community that address the needs of youth, such as libraries, schools and other learning centers, child care, organized social and recreational activities, medical facilities, family support centers, and employment opportunities"Sampson, R., Morenoff, D, F and Gannon-Rowley, T (2002).
vertical hierarchical organization	"...vertical hierarchical organizations of the second, this view encompasses **formalized institutional relationships and structures,** such as governments, political regimes, the rule of law, court systems, and civil and political liberties' (Serageldin I, & Grootaert, C, 1997, p. 46). Serageldin I, & Grootaert, C, (1997)"

ECONOMETRICS

Table B. Descriptive Statistics of the Variables

Variable	Mean	Std. Dev.	Min	Max
DEPENDENT VARIABLE				
Years of Schooling	3.21	2.56	0	10
Ever enrolled	0.89	0.31	0	1
Currently enrolled	0.94	0.23	0	1
INDIVIDUAL VARIABLES				
Female	0.47	0.5	0	1
Married	0.001	0.030	0	1
Single	0.996	0.063	0	1
Divorced/ separated	0.003	0.055		
Age	10.06	2.72	5	14
Centered age	0.04	2.72	-4.01	3.99
Square of centered age	7.4	5.91	0	16.09
female and age interaction	0.01	1.86	-4.01	3.99
HOUSEHOLD VARIABLES				
Brahmin	0.04	0.20	0	1
High Caste	0.13	0.34	0	1
Other Backward Caste (OBC)	0.35	0.48	0	1
Dalit	0.23	0.42	0	1
Tribal	0.09	0.29	0	1
Muslim	0.13	0.33	0	1
Sikh and Christians	0.02	0.15		
Household Assets	9.57	5.12	0	29
Log of consumption per capita	6.27	0.63	1.39	9.48
# of educated adult males	5.51	4.73	0	15

# of educated adult females	3.04	4.11	0	15
# of children in the hh	2.73	1.5	1	17
Age of the head of the hh	45.85	12.62	20	100
VILLAGE VARIABLES				
Total households	668.93	1016.01	4	9035
Total population	3612.07	5175.22	23	52399
Hours of electricity per day	11.6	7.21	0	24
Presence of police station, market, bank branch[1]	0	1	-0.62	2.80
PDS fair shop, general market shop, post office[2]	0	1	-1.74	1.09
Agricultural cooperative, local government hall[3]	0	1	-1.57	0.72
Trade unions, self-help groups, credit savings[4]	0	1	-1.74	1.24
Government preschool programs[5]	0	1	-2.95	0.59
Safe water and sanitation facilities[6]	0	1	-1.36	1.50
Women's welfare, skill development[7]	0	1	-1.07	2.03
Agri based credit programs[8]	0	1	-1.17	1.78
National old age, widow, disability pensions[9]	0	1	-0.25	6.97
Private hospitals[10]	0	1	-0.30	6.48
Health subcenters, private clinic-untrained personnel[11]	0	1	-1.36	2.05
Telecommunications and transport[12]	0	1	-2.73	1.44
States with High HDI[13]	0.25	0.43	0	1
States with Low HDI[13]	0.72	0.45	0	1

Total N= 28465

Notes: Village facility indices were created using factor analysis technique

[1]Presence of police station, market, bank branch

[2]Presence of PDS fair shop, general market shop, post office

[3]Are there any of the following, agricultural cooperative, local government hall, local govt. dealing with water issues

[4]Presence of trade union, self-help groups, credit savings
[5]Presence of government preschool programs (for immunization, health checkups, food meals, growth monitoring, early childhood)

[6]Presence of safe water, sanitations, improved stoves, forestry
[7]Presence of other govt. employment programs, women's welfare, non-formal education program (adult education), skill development

[8]Presence of agricultural extensions, forestry, small loans-credit, revolving credit etc

[9]Presence of national old age, widow, disability pensions, maternity schemes

[10]Presence of private hospitals, private maternity center, other govt. medical facility

[11]Presence of health sub-center, private clinic-untrained doc, private pharmacy, private untrained nurse
[12]Are there any of the following in your village, electricity, landline phone, mobile phone, long distance phone booth, frequency of busses, closest railway station

[13]States with High and Low Human Development Index(HDI). HDIs are taken from the India Human Development Report

Table C. Pairwise correlations between Social Capital Indices and Years of Education

Indices of Social Capital	Years of education
Composite Active SCI[1]	0.1064*
Social networks[2]	0.1037*
Women's self-help groups[3]	0.0963*
Religious Groups[4]	Ns
Business groups[5]	0.0482*
NGOs and cooperatives[6]	0.0423*
Government agencies[7]	0.0333*
Latent SCI[8]	0.0879*
Confidence in local governance[9]	0.0464*
Confidence in schools, hospitals[10]	0.0587*
Confidence in military, courts, banks[11]	Ns
Less local crime[12]	0.0341*
Mutual Trust[13]	0.0425*
Government programs[14]	0.0924*

Note: * indicates 5% significance level.

ns-not significant values are not reported.

[1]Composite index of index_fact1 to 6.

[2]factor analytic index of social networks

[3]factor analytic index of membership in groups (women's group, self-help, credit saving)

[4]factor analytic index of membership in groups (religious or social group or festival society and caste association)

[5]factor analytic index of membership in groups (youth clubs, sports groups or reading room, trade unions, business or professional groups)

[6]factor analytic index of membership in groups (development group of NGO, agricultural, milk, or other co-operative)

[7]factor analytic index of membership in groups (attended a public meeting, govt official)

[8]Composite index of all latent social capital index (SC_latent)

[9]factor analytic index of confidence in politicians, police, state government, village panchayat

[10]factor analytic index of confidence in schools, hospitals

[11]factor analytic index of confidence in military, courts, banks

[12]factor analytic index of no local crime incidences

[13]factor analytic index of having mutual trust in the community

[14]factor analytic index of participation in government programs -rations etc

Table D. Means of measures by quantile of social capital index

	Quantile 1	Quantile 2	Quantile 3	Quantile 4	Quantile 5
	Mean	Mean	Mean	Mean	Mean
Number of standard years of education	2.71	2.90	3.21	3.31	3.42
SC_Index	-1.68	-1.03	-0.29	0.64	2.60
SC_latent	-0.21	-0.22	-0.12	0.19	0.14

Note: The total observations per quantile are: Quantile 1 =5,689; Quantile 2=5,730; Quantile 3=5,720 ; Quantile 4=5,682; Quantile 5=5,644

Table E. OLS regression results with Social Capital Index as the dependent variable

Variables	Coef.
Individual Characteristics	
Females[2]	0.041
Centered age[6]	-0.001
Square of Centered age	-0.001
Interaction between age and female	-0.002
Household Characteristics	
Hindu High Caste[4]	0.005
OBC(Other backward classes)	0.091
Dalit	0.028
Tribals	0.084
Muslim	-0.112
Christ_Sikh_Jain	-0.502**
Age of the head of the hh	-0.004**
# of children in the hh	0.023
# of educated adult females	0.039***
# of educated adult males	0.023***
# Married females in the hh	0.073*
Household Assets	0.027***
Log of consumption per capita[5]	0.473***
Village Characteristics	
Number of households	0.021
Total population	-0.003
Hours of electricity per day	-0.008
Government preschool programs	-0.057
Safe water and sanitation facilities	-0.03
Women's welfare, skill development	0.287***
National old age, widow, disability pensions	-0.056
Health subcenters, private clinic-untrained personnel	-0.015
Presence of police station, market, bank branch	-0.02
PDS fair shop, general market shop, post office	0.055
Agricultural cooperative, local government hall	-0.149***
Trade unions, self-help groups, credit savings	0.155***
Agri based credit programs	-0.08
Private hospitals	0.073
Telecommunications and transport	0.025
States with Low HDI[7]	-0.18
Constant	-3.180***
N	28465

Notes: *p<.05, **p<.01, ***p<.001
[1] Measure is standardized (z-scores; M=0, SD=1)
[2] Dummy coded, reference group is female
[3] Dummy coded, reference group is single
[4] Dummy coded with reference group as Brahmins
[5] Consumption expenditure is a proxy for income and is log transformed
[6] Centered age is age variable minus the mean age. [7] Dummy coded, reference group is states with High HDI

Table F. Probit Model Regression results with the dependent variable as Current school enrollment

Probit Model	Variables	Coefficients	Marginal effects
1	Social Capital Index	0.081***	0.0095
2	Social Capital Index	0.016	0.001
	Household Assets	0.0531***	0.005
	Log of consumption per capita	0.097***	0.01
3	Social Capital Index	0.0233	0.002
	# of educated adult females	0.043***	0.004
	# of educated adult males	0.030***	0.003
4	Social Capital Index	0.065**	0.0073
	Highcaste_Hindu[1]	-0.425**	-0.061
	OBC	-0.541***	-0.068
	Dalit	-0.633***	-0.092
	Tribal	-0.804***	-0.147
	Muslim	-0.871***	-0.158
	Christ_Sikh_Jain	0.182	0.017

*$p<.05$ ** $p<.01$ ***$p<.001$

[1]Omitted variable for caste is Brahmins

HLM

Variance Partitioning and Reliabilities Calculated for the Years of Schooling as Outcome[37].

For the FUM Model:

Three components will help to explain the total variability in the outcome. They are given as under:

σ^2 is the variability measure at level 1, i.e. among individuals with households.

τ_π is the variability measure at level 2, which is among households within villages.

τ_β is the variability measure at level 3, among households within villages.

The proportion of variance within households = $\sigma^2 /(\sigma^2 + \tau_\pi + \tau_\beta)$

$$= 3.23222 /(3.23222+ 1.26435+ 1.53366)$$

$$= 0.5360$$

Therefore, 53.6% of the variability in years of schooling exists within households.

The proportion of variance among households within villages = $\tau_\pi /(\sigma^2 + \tau_\pi + \tau_\beta)$

$$= 1.26435/(3.23222+ 1.26435+ 1.53366)$$

$$= 0.2096$$

Therefore, 20.96% of the variability in years of schooling exists among households.

The proportion of variance among villages = $\tau_\beta /(\sigma^2 + \tau_\pi + \tau_\beta)$

$$= 1.53366/(3.23222+ 1.26435+ 1.53366)$$

---

[37] ICC is not usually calculated for Logistic HLM models Raudenbush and Bryk (2002)

$$= 0.2434$$

Therefore, 24.34% of the variability in years of schooling exists among villages.

Reliabilities

The reliability of a household sample mean with the same village is given by:

$$\text{Reliability } (\hat{\pi}_{0jk}) = \tau_\pi / [\tau_\pi + \sigma^2 / n_{jk}]$$
$$= 0.334$$

The model shows low reliability on the lower side. Indicating that the sample mean may not be close approximation to the true household mean.

The reliability of the village's mean as an estimate of its true mean is given by:

$$\text{Reliability}(\hat{\beta}_{00k}) = \tau_\beta / [\tau_\beta + \{\Sigma[\tau_\beta + \sigma^2 / n_{jk}]^{-1}\}^{-1}]$$
$$= 0.625$$

The model moderate reliability. Indicating that the sample mean is a close approximation to the true village mean.

P value in the estimation of variance components: 0.000

The significant p value indicates that years of schooling does vary significantly across households and villages.

For the Final Model

The proportion of variance within households= .5708

The proportion of variance among households within villages=.2684

The proportion of variance among villages= .1608

The reliability of a household sample mean with the same village is ($\hat{\pi}_{0jk}$) = 0.375

The reliability of the village's mean as an estimate of its true mean is ($\hat{\beta}_{00k}$)=0.523

CASE STUDY
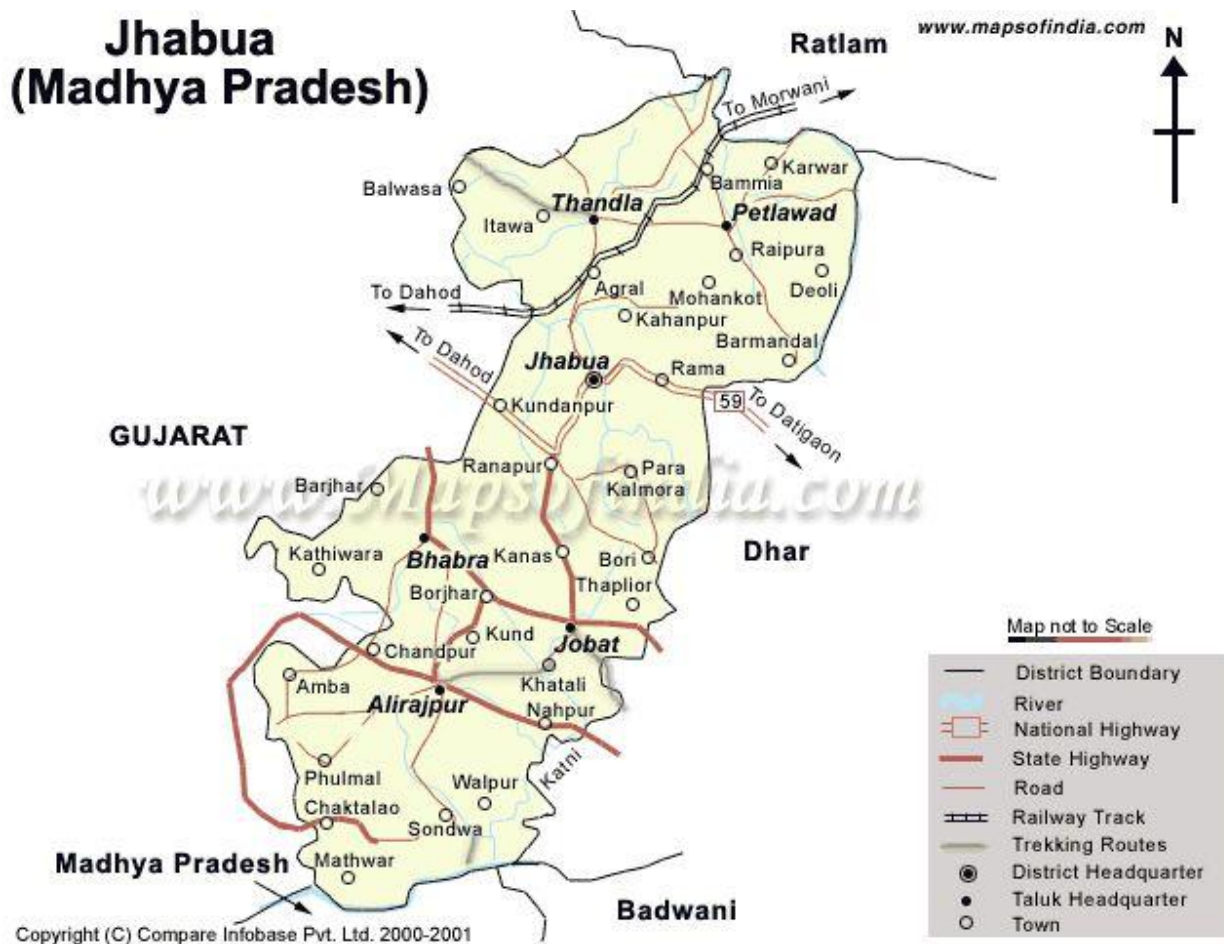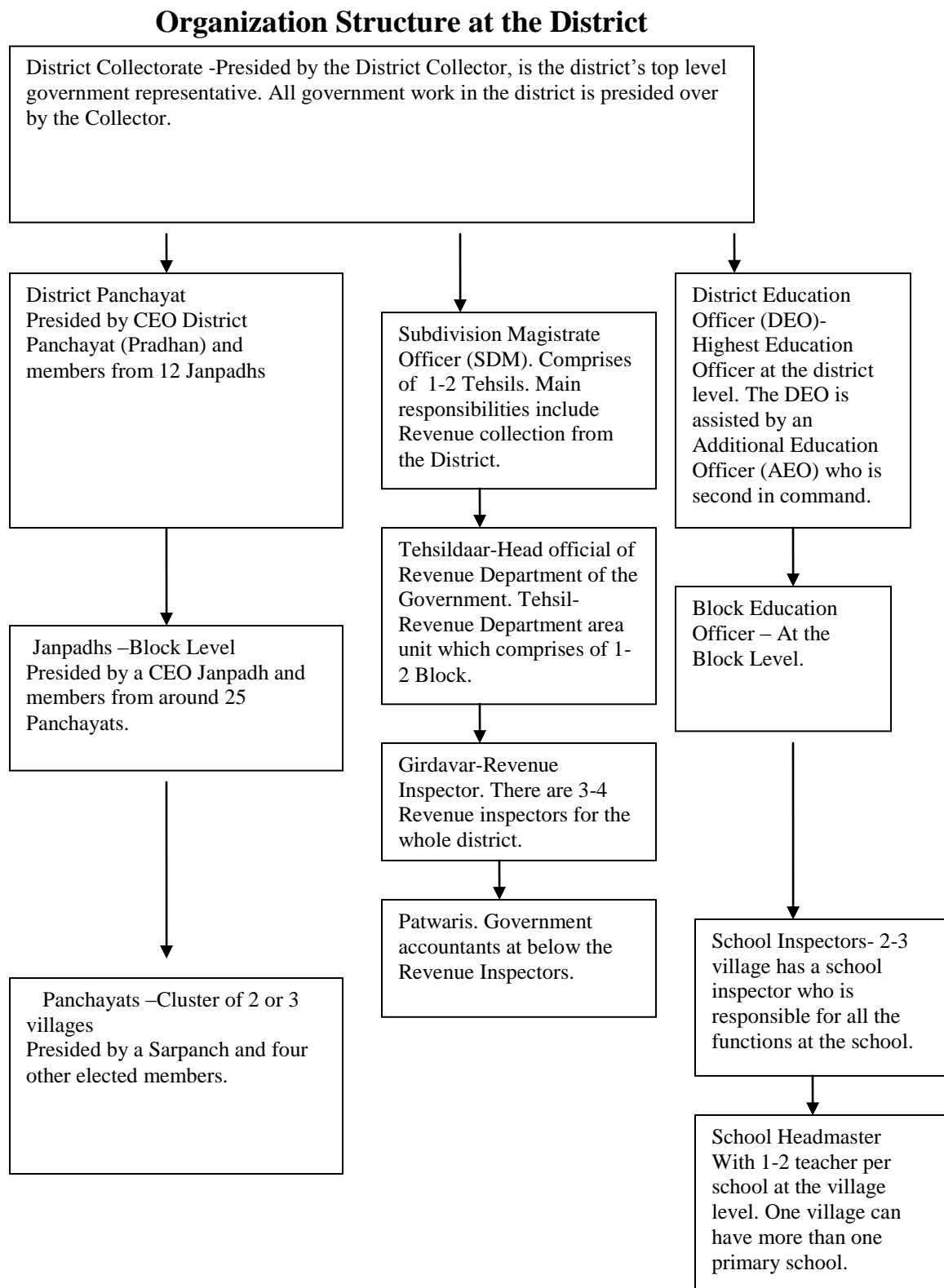Figure 1.

Jhabua (Madhya Pradesh)

Figure 2. A chronological historical account of the Jhabua region.

- The region has a long historical legacy including references in the Hindu epics such as Mahabharata and Ramayana.
- Avanti, as referred to in the 11th century, was also one of the mahajanapadas at the time of Gautam Buddha. The literal meaning of Mahajanapadas is "Great realms". Ancient Buddhist texts make frequent reference to sixteen great kingdoms and republics.
- The legendary Praramara King, Raja Bhoj, a great patron of art and architecture, made Dhar (which included the present Jhabua region) as his capital and ruled over the entire region from 1010 to 1060 AD.
- In 1305, Malwa was conquered by the Delhi Sultan Allauddin Khalji, defeating Raja Mahalak Deo in Mandu. This started the era of the Mughal empire with Timur taking over the reigns in 1398, Hoshang Shah in 1406.
- Later, Akbar, a secular Mughal ruler, granted 52 districts of Malwa to Bir Singh, fifth son of Jodh Singh, founder of the Rathod state of Jodhpur . It is believed that throughout this time, the predominant tribe of the region, the Bhils, remained independent and managed their own affairs and never accepted the authority of the Islamic rulers.
- The history of Jhabua as distinct from Malwa started to emerge in the sixteenth century when Kesho Das, a descendent of Bir Singh, and a lieutenant of Emperor Jehangir, who started a mission to bring the Bhils under the emperor
- At that time the Bhil region had its own leaders like Jhabbu Naik of Jhabua, Thana Naik of Thandla and others. Jhabbu Naik is said to have vigorously fought against the Islamic empire, built a fort in Jhabua and also lent his name to the Jhabua district. Kesho Das is considered to have founded the Jhabua state in 1587. He was successful in subduing the Bhils for a while and began to rule over Jhabua, Thandla, Bhagor and Ramgarh, untill he was poisoned by his son and successor Karan Singh.
- With his death, the Bhils began to assert their independence again untill Malhar Rao Holker from the Maratha empire defeated the Mugals in the 1730s. The Holkers ruled Malwa untill the British domination in the Third Maratha War of 1817-18.
- The Bhils of Jhabua, known for their poisonous bows and skillful warfare have a glorious history of resisting the efforts of the East India Company to take over Malwa. The first Bhil revolt was immediately after Maratha War in 1817-18, in which the records of East India Company show that the insurgents numbered more than 8,000, but several British convoys were brutally murdered.
- Bhil uprisings continued until the First Indian war of Independence (1857) where Bhil leaders sided with Tantya Tope, Rana Pratap of Mewar and Chandra Shekhar Azad, great Indian freedom fighters. However the rulers of Jhabua took the side of the British. The known history of Bhils is thus of vigorous struggles against any external influence or domination.

Source: Bajaj (2008)

Figure 3.

Organization Structure at the District

District Collectorate -Presided by the District Collector, is the district's top level government representative. All government work in the district is presided over by the Collector.

District Panchayat
Presided by CEO District Panchayat (Pradhan) and members from 12 Janpadhs

Subdivision Magistrate Officer (SDM). Comprises of 1-2 Tehsils. Main responsibilities include Revenue collection from the District.

District Education Officer (DEO)- Highest Education Officer at the district level. The DEO is assisted by an Additional Education Officer (AEO) who is second in command.

Janpadhs –Block Level Presided by a CEO Janpadh and members from around 25 Panchayats.

Tehsildaar-Head official of Revenue Department of the Government. Tehsil- Revenue Department area unit which comprises of 1-2 Block.

Block Education Officer – At the Block Level.

Girdavar-Revenue Inspector. There are 3-4 Revenue inspectors for the whole district.

Panchayats –Cluster of 2 or 3 villages
Presided by a Sarpanch and four other elected members.

Patwaris. Government accountants at below the Revenue Inspectors.

School Inspectors- 2-3 village has a school inspector who is responsible for all the functions at the school.

School Headmaster With 1-2 teacher per school at the village level. One village can have more than one primary school.

(Source: Interview Data)

Table G. Number of Cases per Block

Block Name	Cases
Jhabua	10
Meghnagar	6
Petlavad	3
Rama	6
Ranapur	6
Thandla	4
Total	35

Table H. Village names corresponding to the Block

Block Name	Village Name
Jhabua	Dev Jhiri
Jhabua	Parwat
Jhabua	Pipaliya
Meghnagar	Agral
Meghnagar	Bedawali
Petlavad	Saluniya Bada
Petlavad	Kotda
Rama	Bhanvar Pipliya
Rama	Rotla
Ranapur	Padlawa
Ranapur	Tikadi Jogi
Thandla	Dhamni Badi
Thandla	Dhamni Chhoti
Thandla	Rupapada

Table I. Jhabua District Profile

Area of the District	6793 Sq.Km.
Forest Area	645 Sq.Km.
Tehsil (Government Administration unit)	8
Development Blocks	6
Gram Panchayats (local Government body at the village cluster level)	665
Revenue Villages	1360
Inhabited Villages	1326
Cluster	200
Village Education Committees (VEC)	1394
Primary Schools	1595
Jr. Primary schools	454
Ashram Shala(schools with hostels)	80
Government Preschools	1959
Govt Preschools -Sub Centres	1044
Male Population	702053
Female Population	692508
Total Population	1394561
Rural	91%
Tribal	85.60%
Schedule castes (Lowest caste)	3%

Table J. Reliability of Coding at Instance 1 and Instance 2

Construct	Construct/Sub –Construct	Domain	Instance 1		Instance 2	
			Coding instances	Percentage	Coding instances	Percentage
	Civic engagement					
	Structural group memberships and networks		1	3.45	1	4.17
		Density of membership horizontal and vertical organizations				
		Inclusiveness and diversity				
		Intensity and nature of activities				
		No participation structural groups				
		Participation in structural groups	1	3.45	2	8.33
	Cognitive abilities					
	Cooperation and coordination					
	Diffusion of innovation					
	Economic development		1	3.45	2	8.33
	Lack of economic development		1	3.45	1	4.17
	Efficacy of collective interest					
		Negative action				
		No action				
		Positive			1	4.17
	Information		1	3.45	2	8.33
	Lack of information					
	Low crime rate					
	Some crime incidents					
	Political efficacy		1	3.45	1	4.17

Lack of political efficacy					
Problem solving					
	Community dependent	2	6.90	1	4.17
	Self dependent	1	3.45	1	4.17
Neighborhood-ecological effects					
Informal horizontal relationships		2	6.90		
Lack of informal horizontal relationships					
Level or density of social ties					
Within family psychological sense of community					
Attitudes					
Behavior					
Expectation of reciprocity					
Group identification					
Institutional trust					
	Inconclusive	1	3.45	1	4.17
	Negative				
	Positive	2	6.90	2	8.33
	Somewhat positive				
Interpersonal trust					
	Negative				
	Positive			1	4.17
Predispositions					
Shared values and beliefs					
Social cohesion					
Negative social cohesion					
Social relationships					
Routine activities					
civic norms					
social control					

structural institutional mechanisms Diversity of institutions Efficacy					
	Negative	2	6.90		
	Positive	1	3.45	1	25.00
Institutional resources		6	20.69	4	16.67
Lack of institutional resources vertical hierarchical organization		6	20.69	3	12.50
Total		**29**	**100**	**24**	**100.00**

Source: Sample Badi Damini