THE EFFECT OF VILLAGE EDUCATION COMMITTEES ON SCHOOL INPUTS IN RURAL INDIA

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ABSTRACT

Using Ordinary Least Squares (OLS) regression, it was found that the presence of a village education committee (VEC) in a village was highly statistically significantly associated with an increase of five percent of teachers in primary schools in rural areas in West Bengal, a district in North East India, as a proportion of household size. However, the other variables for village education committees, including the number of their responsibilities, number of years of existence and frequency of meetings, were not statistically significant. This suggests that, while the primary finding represents an affirmation of the Indian Government’s focus on capacity building of VECs, at least in terms of promoting supply of teachers, further empirical and detailed case study evidence is needed to identify the contribution of village education committees on schools more fully.
The author would like to thank all of the staff, faculty, and fellow students at Georgetown University’s Public Policy Institute for providing an enriching learning environment. Thank you to Emmett Griffin, Kerry Pace, Professor Harry Holzer, Dean Judy Feder, the Office of International Programs, PA Consulting Group and my family for helping me to come to Georgetown. Thanks also need to be extended to professors for guiding me through statistics and economics and those who helped to shape my ideas for this thesis, notably Professors Barbara Schone, Jens Ludwig, Vijaya Ramachandran, Steven Machlin, Jack Buckley, James Habyarimana and, notably, Robert Bednarzik as well as to Eric Gardner for his advice on statistical programming. For the excellent non-quantitative classes at Georgetown, many thanks to Professors Kent Weaver, Susan Martin, Andrew Tucker, Mike Dziedzic, E.J. Dionne and to my language teachers, Madame Lawrence and Pani Iwona Sadowska. Finally, heartfelt thanks to Kent, Leslie Evertz, Melanie Buser and, above all, to Kerry, for enabling me to take up an opportunity to study jointly for the MPP and the IOMBA in Geneva and for supporting me through the challenges along the way.

This thesis is dedicated to the inspirational friends made at Georgetown University and to Adam Jaroszynski.
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CHAPTER 1. INTRODUCTION

Education is an enshrined human right in international law and a fundamental component underpinning social and economic development. International normative values and states’ commitments under international law reinforce this right. First, the right to education is enshrined as a *universal human right*. Article 26 of the 1948 *Universal Declaration of Human Rights* states that “Everyone has the right to education.” All states are expected to provide at least universal elementary education. (United Nations (U.N.), 1948). One hundred and ninety one states signed the *Convention on the Rights of the Child*, which confirmed the obligation of states to provide primary education to all children under Article 28 (U.N., 1989).¹ The second pillar of international commitment to education consists of international educational targets which focus on specific goals and delivery mechanisms. At the World Education Forum in Dakar in 2000, 164 countries collectively committed to the goal of *Education For All* (EFA) (UNESCO, 2000). The EFA goals include ensuring access to compulsory and quality primary education and combating gender and ethnic discrimination. The U.N. General Assembly incorporated the EFA aims of universal primary education and gender parity into two of the eight *Millennium Development Goals* (MDGs) for 2015 (U.N., 2000). For more explanation of the targets, see the Appendices.²

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² Both of these goals have promoted increased donor support, from bilateral donors, international finance institutions, other international organizations, foundations and non-governmental organizations (NGOs) to support states and communities to deliver these education goals. The World Bank, UNESCO and others monitor progress against the MDG and the EFA education targets.
However, the reality in many countries falls far short of the aspirations for education. In part, this reflects both the inadequate investment that parents make in the education of their children and the insufficient scale and quality of education supply to meet and to drive further demand. This paper focuses on one factor believed to promote stronger education investment – making schooling more relevant to and supported by the local community. This typically involves decentralization of schools (at least partially) and creation of local education committees to promote teacher and pupil attendance and adequate school infrastructure. Without local provision for education, accompanied by peer pressure and commitment, it is difficult for children (and adults) to access education.

Why is education important? Education is a fundamental component of individual emancipation and achievement. It enables individuals to earn decent wages, to live without fear of destitution, and to build healthy and fulfilling lives. In his work, *Development as Freedom*, Amartya Sen (1999) places education as a core part of ‘social opportunity’ alongside health facilities at a societal level. Yet, education also underpins political freedom and economic growth and may support transparency and security. Moreover, education supports delivery of other development targets, including the MDGs; if universal primary education is not achieved, delivery of the other goals will also be in jeopardy (McGinnis, 2006). The effect of education’s critical role in both individual and societal growth is magnified because of the inter-linkages between education, health and economic growth. Consequently, the sizeable gap that exists between the aspirations for education and the reality in many (predominantly developing) countries represents a personal and collective tragedy.
This can be more readily understood with an example. Forty percent of children across the entire African continent in 2005 did not complete even basic primary education (Dakar+5, 2005). Girls, disabled children, people from marginalized ethnicities or castes are especially unlikely to access schooling, or to progress throughout different years and levels. Low school enrollment is particularly problematic in rural areas. Parents in rural areas are more likely to be illiterate themselves, and struggle to choose between schooling their child and use of the child’s labor on the farm or in the household (Pritchett, 2004). Rural areas tend to be poorly supplied by schools and the quality of education provided typically low – both could further raise the costs and diminish the perceived return from schooling. Additionally, as rural areas have larger populations of children, they account for 82 percent of children not in school in developing countries (United Nations, 2006.) Incentives to schooling may be lacking. For example, marginalized individuals are more likely to find it challenging to find a job requiring an education, although the availability of job opportunities is a critical determinant of household decisions about investment in schooling (Clemens, 2004).

Policymakers, governments and donors have been increasingly making efforts to narrow the gap between the goals and the reality. Promoted policies aim to target a range of issues, including improvement in inputs such as teachers and their attendance, more robust school buildings and adequate equipment; advancements in outputs such as the number of people completing and progressing between school years and the three stages of education (primary, secondary and tertiary) and gender parity between boys’ and girls’ completion of years; and efforts to improve outcomes such as test scores and literacy.
rates. Particular recent emphases have been on improving the demand for education, including development of incentive schemes, reduction or elimination of school fees, and promoting the benefits of education.

In reviewing education policy, India is a country which befits further study. With over 1.1 billion inhabitants, it is the world’s second largest country by population, and its biggest democracy (World Bank, 2006). It was one of the fastest growing economies in the world in the 1990’s, with a Gross National Income (GNI) per capita of 820 U.S. dollars (World Bank, 2006). Yet higher growth rates have been hampered by overly-bureaucratic procedures at the national level and in the provinces (Clark & Wolcott, 2001). Even with a rapidly growing service economy, agriculture continues to represent 18.3 percent of Gross Domestic Product (GDP) (World Bank, 2007). The country struggles with marked inequality, and wide variations in education and health provision and outcomes. The literacy rate for India in terms of the percentage of the population over the age of 15 who can read and write is only 61 percent (World Bank, 2005).

The Government of India has recognized that education is a ‘critical input’ for the development of human capital, jobs and economic growth. It has launched a flagship elementary education program named *Sarva Shiksha Abhiyan* (SSA) or Education for All, which aims to enroll all 6-14 year olds in school, and for these children to complete eight years of schooling by 2010. Costing $3.5 billion, it is one of the largest programs of its

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3 The service economy grew by 14.5 percentage points between 1985 and 2005. (World Bank, 2007)
4 This is one percentage point higher than the South Asia average, but one percentage point lower than the low-income country average. (World Bank, 2005)
kind in the world.\textsuperscript{5} It includes a drive to improve access, to monitor the quality of education and to build capacity of village education committees (VECs) (World Bank, n.d.).\textsuperscript{6} According to the Indian Government’s plan for SSA, three of the central strategies are institutional reforms, sustainable financing and community ownership. For community ownership, the program aims for ‘school-based interventions through effective decentralization’, augmented by involvement of many groups, including women and VEC members (Indian Ministry of Human Resource Development, n.d.). Results from this program highlight both the success to date and the remaining challenges. School enrollment at a primary level has risen to 85 percent; yet, although the number of out-of-school children in India has been dramatically reduced from 25 million in 2003, there were still 9.6 million children out of school in 2005-6, primarily from marginalized social groups (World Bank, n.d.). One state particularly affected is West Bengal, where an estimated one million children do not attend school (UNICEF, 2005). VECs have responsibilities to promote enrollment and attendance as well as to focus on supply issues. This paper uses data from West Bengal to examine whether village education committees, a core platform of community ownership, are positively associated with increased numbers of teachers in primary schools. It is intended to provide empirical evidence to encourage India, a significant contributor to the collective MDGs and EFA targets, to focus efforts where there are likely to be tangible and positive results.

\textsuperscript{5} The program is supported by the World Bank, the European Commission and the United Kingdom’s Department for International Development (DfID).
\textsuperscript{6} The information from the World Bank about the SSA program does not indicate whether its education specialists believe that VECs are important—it is possible to interpret that VECs are promoted by the Indian Government rather than the World Bank. The Bank’s focus is on incentives, governance, school outcomes, and teacher time.
CHAPTER 2: LITERATURE REVIEW

The literature available on education policy and practice is extensive in both developed and developing countries. That said, regarding developing countries, the literature primarily focuses on five areas: macro-structural forces nationally and globally, family factors in relation to demand for education, school factors affecting supply of education, educational outcomes, and economic outcomes (Buchmann & Hannum, 2001). Data on a sixth area, the role of community factors in promoting education supply in developing countries – which would include the structures, responsibilities and resources of village education committees (VECs) – is limited. There is very little empirical evidence about the role of VECs, and the data that are available, both quantitative and qualitative, present contradictory evidence about their effectiveness in improving education inputs and outcomes. This study contributes to our knowledge in this neglected area of education scholarship, specifically by examining the relationship between VECs and schools.

Exhibit 1 is a diagram which summarizes the conclusion reached by the authors of a study of the existing literature of education and social stratification in developing countries (Buchmann & Hannum, 2001). It is useful for several reasons. First of all, it indicates the areas of study and associated policy-making in a diagram that is readily understood. Secondly, in spite of the clear graphics, it shows the complex interdependencies of the macro and micro-environments for education – including policy making and economic conditions at a state and international level – to the structure and resources in individual families. The dotted lines indicate the neglect of community
factors in education research, and the linkage between community factors primarily to supply, but also including a linkage to demand for education. The focus in this paper is on the relationship between community and school factors.

**Exhibit 1: Overview of research on education and stratification in developing countries**

![Diagram](source: Buchmann & Hannum (2001).

**Supply Factors in Primary Schools**

The availability and quality of education, including teachers, textbooks, curricula and other school-related factors are all elements of the supply of education (King & Hill, 1993). There are different findings about the relative importance of school factors compared with, for instance, family characteristics on education outcomes. For example,
Simmons and Alexander (1978) in King and Hill (1993) suggested that school-related factors have only a small affect on achievement. Conversely, Heyneman and Loxley, (1983) and Fuller (1987) in King and Hill (1993) concluded that the school as an institution accounts for a significant part of the variance in what students learned and that schools in developing countries exert a greater influence on achievement compared with developed countries, even after accounting for the effect of pupil background. In terms of school inputs, although U.S.-based research tends to suggest that per-pupil expenditure and quality of school facilities have minimal impact on student achievement, studies in developing countries have found that basic material inputs (including textbooks, libraries and teacher training) strongly determine achievement (Heyneman & Loxley, 1983; Behrman & Birdsall, 1983 in Buchmann & Hannum, 2001).

Community Involvement

It is important to distinguish between privatization of education delivery and community participation. Although they share some similarities, they are not the same. Privatization is much more related to the restructuring of decision-making for the purpose of efficiency and effectiveness, whereas community participation is supposed to promote the ability of groups in society, especially the disadvantaged, to influence decisions affecting their lives (Akukwe, 2004). Both privatization and community participation include the development of raising the ‘voice’ of parents and students to policymakers, who in turn have a ‘contract’ with and ‘manage’ schools. Parents, for example, should also have ‘client power’ directly to schools and teachers (Andrews & Shah, 2000; Alatas & Filmer, 2004). In West Bengal, the policies to promote rural access to schools include
the Shishu Siksha Karmashuchi (SSK) program. Over 16,000 SSK centers have been built in West Bengal since 1998 as alternatives to primary schools. They are different from traditional primary schools as they involve the community much more fully, including community management and employing teachers who belong to the same community as the children, and arranging school timings to meet the needs of the local population. As well as access, gender equality and quality teaching are promoted in these centers (UNICEF, 2005 and 2006).

Several studies contend that ‘voice’ in the form of community involvement matters (Lewis, 2006; Bray, 2000). Lewis (2006) argues that community input is important in raising and allocating resources, through local autonomy in taxation and spending, and in ensuring accountability through local oversight of schools and their operations. Comparing the successful, largely decentralized education models established in North America, Northern Europe and Korea with the top-down systems in developing countries, she found that the former model has been much more effective. She detailed some well-designed successful experiments that devolve accountability and fiduciary responsibilities to parents and communities. For example, oversight and authority by PTAs bolstered student test scores in Argentina, Brazil, Chile, Nicaragua, Honduras, India and Indonesia (Atlas & Filmer, 2004 in Lewis, 2006 and PROBE, 1999). The EDUCO program in El Salvador, where parents select, hire, supervise and dismiss teachers and have control over budget management, led to lower rates of teacher absenteeism, higher quality equipment inputs, and lower teacher-student ratios (Lewis,

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7 This SSK program has been supported by UNICEF and Manchester United football club.
Bray (2000) discussed the role of ‘some successful forms of [community] partnerships’, including clustering of schools – grouping of villages, where strong schools were partnered with weaker ones to support the development of the latter. They were supposed to promote strong local participation and innovation, and were particularly used in Cambodia in the 1990s.

Other studies have more negative analysis about the impact of community involvement. For example, test score differences across different types of schools in EDUCO were negligible (Swawada & Jimenez, 1998 and Sawada, 1999 in Lewis, 2006). Akukwe’s (2004) qualitative analysis of Ghana’s attempt to engage parents and schools directly through the Community School Alliance project found mixed results. Where there was dynamic leadership backed by robust planning processes and effective communication, there were improvements in school. Yet, in both well and under-performing communities, there was underachievement of transparency and accountability objectives. This was compounded by passive parental involvement which was typical of Parent Teacher Associations (PTA) meetings, and the lack of capacity – many parents felt unable to understand the expected decision-making and implementation strategies, in spite of the training that was received by some community leaders. Bray’s analysis (2000) addresses the abandonment of cluster schemes over time, as in Sri Lanka in the late 1980s, which suggests that their function was limited and weakens his claim about their success. Additionally, there does not appear to be any empirical study analyzing the results of the SSK program, which undermines the robustness of any assertion that they are highly successful.
**Education committees**

Local education committees are one way of promoting community involvement. In Somalia, a community education committee consisting of five men and two women supported the establishment of schools and ensured that parents each donated a goat in order to fund a teacher (UNICEF, 2003). In Gujurat, a western state in India, enrollment drives (particularly to promote girls’ enrollment) are supported by oath-taking ceremonies where local village education members and Parent Teacher Associations pledge to support enrollment and the regular attendance of children in schools (UNICEF, 2004). More broadly, the District Primary Education Project (DPEP) in India, spent 1.62 billion U.S. dollars since 1994 to expand schooling and to develop educational quality throughout 242 districts. Particularly relevant to this study was that the project included funding the formation of village committees.

Multiple studies examined aspects of the value of education committees (Bray, 2000; Akukwe, 2004; PROBE, 1999; Lewis, 2006). Bray discussed the role of VECs which were given prominence in India in 1992 when the national constitution was amended to strengthen local government. He described how an education committee consisted on average of between five and 12 individuals, including teachers and parents; and had responsibility for liaison with the higher level DPEP as well as local school committees. VECs tend to have roles monitoring attendance of children and teachers, maintaining infrastructure, promoting enrollment, budgeting and other management functions. Yet, he does not provide empirical evidence or detailed comment on the effectiveness of VECs (Bray, 2000).
Indeed, the empirical evidence of the effectiveness of VECs on the education product is very insubstantial. Pandey (2000) contended, in his review of DPEP, that decentralization and local empowerment were drivers of the program’s success. He argued that, as education planning became the district rather than state responsibility, it allowed a sharper focus on the differing needs, characteristics and resources of each community, and allowed leadership to develop. However, Pritchett (2004) discussed an evaluation of Jalan and Glinskaya (2003) and found that while enrollments in the DPEP districts improved, the result was limited. Another empirical review of the role of local committees in the context of teacher absence found ineffectiveness, as 25 percent of teachers in the study in India were absent from school and, of the teachers present, only about half were actually teaching (Chaudhury, Kremer et al, 2004). Although they found that teacher attendance was correlated with daily incentives to attend work, including better school infrastructure and schools closer to a paved road, they did not find evidence that local community ties reduced absence. The role of VECs is explored in the analysis of five states in India, Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Himachal Pradesh. In the first four states, the effectiveness of both PTAs and the village education committees were minimal (PROBE, 1999). Even though the VECs were found to be marginally more effective than PTAs, their impact was uneven and they were only able to make small contributions. Yet, in the fifth state of Himachal Pradesh, informal parental and community involvement as well as PTAs and VECs were more successful. Community members raised issues effectively, actively carried out their oversight duties, and creatively sought ways to improve education for their children. Himachal Pradesh is
rural, with predominantly small villages over a large area, with reasonably high levels of central government funding and mainly Government-run schools. But those factors did not entirely differentiate it from the other states as it was not unique in having those attributes. Instead, the PROBE team (1999) argued that it differed by having higher levels of homogeneity, with fewer divisions on gender, caste and class grounds. Other components contributing to the markedly better community involvement in this state were the sense of village community, and consensual social norms with a ‘widely shared’ ‘passion for education’ for all children, not merely parents’ own children or for boys. For example, school infrastructure and textbooks were looked after significantly better than in other states, teachers were respected and paid on time, and, of note for this study, each primary school had an average of three teachers rather than one.

Part of the ambiguity around the effectiveness of village education committees is that they rarely function well. Leclerq (2003), in his field study of primary schools in Madhya Pradesh, India, found that although VECs and school management committees were supposed to meet monthly to check education inputs, set rules and monitor the school; in practice they rarely met. Moreover, they were ‘dysfunctional’ when the meetings did occur. Another review of Indian elementary education concluded that VECs ‘rarely met, and if they do meet, they do not perform their functions’ (Mehrotra, Panchamukhi, Srivastava & Srivastava, 2005). A survey of Indian headteachers found that while 72 percent of villages had VECs, only 51 percent thought that the VEC was functional, and only 38 percent considered the VEC ‘helpful’ (PROBE, 1999). In summary, the role and impact of VECS on education is unclear.
CHAPTER 3: HYPOTHESES

This analysis evaluates the effect of village education committees on the number of school teachers in rural villages in West Bengal, India. The main hypothesis is that for villages with education committees, there would be associated signs of increased commitment to education, represented by greater numbers of teachers in primary schools than those villages without an education committee. Empirically, the analysis will test the presence of village education committee in a regression against percentage of teachers as a proportion of households. Because the data set does not include the number of children in the primary schools, the size of households is used as a proxy to represent the size. By using a proportion of teacher numbers divided by households, the difference in the number of households per village is controlled for.

A second hypothesis is that VECs that have higher levels of experience, more responsibilities and meet regularly are also positively related to the number of primary school teachers. Findings from this second hypothesis are intended to reinforce any findings from the first hypothesis to promote more tailored policy recommendations.

Other factors that will be controlled for relate to potential political influences and other community voices. These include the sway of the district-level Panchayat, whether or not the village is where the district chief (Pradhan) comes from and whether the local town hall meeting, or Gram Samsad, was regularly held.
CHAPTER 4: DATA AND PRELIMINARY ANALYSIS

Interestingly, the data used in this paper was initially collected and analyzed by Chattopadhyay and Duflo (2001), in an empirical study of women as policy makers, after a policy decision was taken in 1998 to reserve one third of the chief positions (Pradhan) in a set of randomly-selected West Bengal Gram Panchayat (GP), or district councils, for women. They showed that women leaders were more responsive to the issues brought to their attention by villagers, whereas male leaders invested more in education even though the issue may not be raised (Chattopadhyay & Duflo, 2001). Chattopadhyay and Duflo’s research project was produced through the Massachusetts Institute for Technology (MIT), and funded by the National Institute of Health and the John D. and Catherine MacArthur Foundation. The data were made available for further research on the Jameel Poverty Action Lab Dataverse website.

Data were collected in 2000 in West Bengal and Rajasthan, both districts in India. Collecting cross-sectional data, the sample frame were all the GPs (districts) in Birbhum, West Bengal. There were 166 GPs, of which five were reserved for pre-testing, leaving 161 GPs in the study. The data sets produced were based upon information provided by Pradhans (chiefs), local villagers, and the 1991 Indian Census. First, a data collector conducted an interview with the 166 Pradhans. Then the survey team selected three villages in each GP (498 villages in total), one of which was the Pradhan’s home village. For each of these 498 villages, the data collectors conducted a survey of public education and public health facilities with villagers. Thirdly, those villagers who had provided the

8 Available: [http://dvn.iq.harvard.edu/dvn/dv/jpal/faces/study/StudyPage.jsp?studyId=33&tab=files](http://dvn.iq.harvard.edu/dvn/dv/jpal/faces/study/StudyPage.jsp?studyId=33&tab=files)
most valuable input to the village survey were asked to contribute to a more-in depth analysis of the public goods and political groupings in the village, including reporting on the problems in the primary school, for example. The minutes of the village meetings were also collected to provide another data source to confirm the accuracy of the findings. Where possible, the same type of information was collected at the village and Pradhan level by the surveys.\(^9\) These survey data were checked for consistency, including consistency among respondents, within and among questionnaires.

It is worth noting that each GP encompasses 10-12 villages and a population of about 10,000 people; agriculture is the main economic activity; and the male and female literacy rates of villagers were low, at 50 percent and 37 percent respectively.

The key variables of interest in this thesis relate to village education committees. Given the level of the Indian Government's commitment to village education committees (in DPEP and the SSA strategy, as detailed earlier) it is not surprising to find that 88 percent of the villages surveyed had a VEC (Figure 1).

\(^9\) Methodology cited: [http://dvn.iq.harvard.edu/dvn/dv/mra/faces/study/StudyPage.jsp?studyId=33](http://dvn.iq.harvard.edu/dvn/dv/mra/faces/study/StudyPage.jsp?studyId=33)
Figure 1: Percentage of Villages with a Village Education Committee, 2000

<table>
<thead>
<tr>
<th>Percentage of Villages with a Village Education Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Committee</td>
</tr>
<tr>
<td>No Committee</td>
</tr>
</tbody>
</table>

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.

The data also included how long VECs had been existence. Given the 1998 local government reforms focused attention on the formation of local committees, over three quarters of the VECs had been in existence only since that time. There was a relatively clear differential in the data between committees two years or under, and those over three years old (Figure 2). This could be important as a variable for considering whether the experience level of the VEC matters; arguably, newer committees might have more energy to make changes at a local level, but older committees might be more effective in understanding how the village operates and thus better able to influence the school.
Given some of the evidence in the literature that VECs tend to exist because they are mandated or encouraged by central and district governments, but rarely meet in practice, it was important to analyze the data to see the frequency levels of meeting for the VECs in the sample. The data were collected for how often VECs met in the last six months. For ease of analysis, if the committees had met over six times, they were categorized as meeting at least monthly; if the committees met fewer than six times, they met less than monthly. Less than half the VECs met monthly – 46 percent (Figure 3).
Fourthly, the data included the responsibilities of VECs in relation to primary schools. Six potential responsibilities were listed. These included four supply-related factors: ensuring regular classes, ensuring quality of teaching, taking care of infrastructure and taking care of books. The two demand factors were ensuring universal enrollment and ensuring minimization of student drop-out. For the purposes of this study, it was interesting to note the aggregate level of responsibilities; therefore an Index of Responsibilities was created. Over half the villages – 230, or 54.6 percent – reported that the VECs had all six responsibilities. Yet 39 villages – or 9.3 percent – reported that the VEC had none of the responsibilities listed. It is possible that those committees had other responsibilities, but it is more likely that they were created because of Government policy but that there was little demand for these committees locally.

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.
Table 1: Index of Number of Responsibilities of Village Education Committee, 2000

<table>
<thead>
<tr>
<th>Village Education Responsibilities, by Committee at Village Level</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>39</td>
<td>9.3</td>
<td>9.3</td>
</tr>
<tr>
<td>One Responsibility</td>
<td>11</td>
<td>2.6</td>
<td>11.9</td>
</tr>
<tr>
<td>Two Responsibilities</td>
<td>11</td>
<td>2.6</td>
<td>14.5</td>
</tr>
<tr>
<td>Three Responsibilities</td>
<td>24</td>
<td>5.7</td>
<td>20.2</td>
</tr>
<tr>
<td>Four Responsibilities</td>
<td>42</td>
<td>10.0</td>
<td>30.2</td>
</tr>
<tr>
<td>Five Responsibilities</td>
<td>64</td>
<td>15.2</td>
<td>45.4</td>
</tr>
<tr>
<td>Six Responsibilities</td>
<td>230</td>
<td>54.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total Sample</td>
<td>421</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.

The final VEC data of interest is the assessment of the Pradhan (chief) about the VECs in his or her district. Although the final model included only village-level observations, 86 percent of the Pradhans believed the VECs were effective (Figure 4).

Figure 4: Pradhan (Chief) Assessment of Effectiveness of Village Education Committees within their Gram Panchayat (District), 2000

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.
Several different factors could influence the village schools. The Pradhan could provide more support to his or her own village than other villages in the district; the Panchayat, or district-level elected organizational structures could have influence as well as the VEC. Figure 5 shows that a third of the villages surveyed were the Pradhan’s own village. Additionally, in the survey of the villagers who had been most participative in the first exercise, in 59 percent of the villages it was believed that the Panchayat ‘had a say’ in the running of the primary school. The majority of villages have a VEC. Although the data reflect the predominance in numerical terms of the VEC compared with the other two factors, it is nevertheless possible that the strength of the influence of the Pradhan and/or the Panchayat could outweigh that of the VEC.

Figure 5: Potential Factors of Influence on the Primary School – the Pradhan, Panchayat and Village Education Committee, 2000

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.
Another supply-side factor is the quality of the school building. The data refers to three types of school building: the highest quality, a Pucca building, has walls made of bricks, cement, timber or equivalent and its roof made of tiles, metal sheets, concrete, bricks, stone or timber plywood. A second building type is Kutcha buildings; they have a roof made of bamboos, grass or thatch but similar walls to a Pucca building. Thirdly, schools might not have a building at all and would meet, for example, on a designated patch of land. Overall, the majority of schools have Pucca buildings. Only 17 villages (3.4 percent) reported having no actual school building (Figure 6).

Figure 6: Differing Qualities of Building for Primary School, by Village, 2000

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.

Description of different types of building obtained from National Council of Educational Research and Training (2002). 7th All India School Education Survey. Retrieved November 2007 from: http://7thsurvey.ncert.nic.in/glossary.htm#typesch
Additionally, villagers were asked about problems with their primary school. Three of these are particularly relevant for this study: problems with low enrollment of students, low teacher turnout and low teacher quality. Of these, the highest reported problems were with low teacher turnout, with 34 percent of villagers reporting that this was an issue, followed by 26 percent reporting low enrollment and just under one-fifth, 19 percent, reporting low teacher quality (Figure 7).

**Figure 7: Reported Problems with Primary School, by Village, 2000**

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.

Figure 8 shows a depiction of villages divided into three groups depending on their size (small, medium and large, with a third of the villages grouped into each category) and the presence of VECs. There does appear to be an association between village size and VEC. It is somewhat important that there are differences across the sizes of villages. Larger villages are more likely to have a VEC whereas the highest number of
villages without VECs – 34 – is for the small category. This is not surprising as in smaller villages it would be easier for the local community to interact with the school directly.

**Figure 8: Depiction of Villages by Size and Presence of VEC, 2000**

![Depiction of Villages by Size and Presence of VEC](image.png)

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.

Finally, the average (mean) number of teachers in primary schools was reviewed in the same groupings of village by size, using comparisons of villages with a VEC and villages without a VEC. Whether the villages have a VEC or not made very little difference between the mean numbers of teachers in the small and medium categories. However, there is a substantial increase in the mean for the large villages with VECs, with an average of 6.6 teachers rather than 3.0 teachers in villages with no VEC (Figure 9). This fits into the hypothesis that supply of teachers is driven in part by the existence of village education committees. The following chapter describes how the data will be
submitted to a more rigorous analysis to observe whether this finding is supported after controlling for other factors.

Figure 9: Depiction of Villages by Size and Presence of VEC, 2000

![Depiction of Mean Number of Teachers by Size of Household and VEC presence](image)

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.
CHAPTER 5: METHODOLOGY

The model is rooted in supply theory which states that quantity supplied is related to its price, technology, number of producers and the availability and price of substitutes. The supply factors are, of course, also linked to the quantity demanded. The supply in this case is the number of teachers in primary schools at village level. The number of children per village is not known; therefore demand will be measured by the number of households in a village. Another demand-related factor included in the model was the reported village problems of pupil enrollment (low enrollment) which was included as a dummy variable coded ‘1’ if a problem were reported and ‘0’ otherwise. This variable is also of potential interest to analyze in relation to the dependent variable as it is likely that if there is a problem with pupil enrollment, fewer teachers would be required as a percentage of households. Resources are important and can be measured by the quality of school buildings available, as well as the presence of a VEC, because these committees can be viewed as gatekeepers for resources.

Resources (including VECs)

The overall dependent variable, percentageteachers, is a reflection of supply of education. It was created by dividing the number of teachers for primary schools over the number of households, to control for size of households in the analysis. This proportion was then multiplied by 100 to create a percentage, as a percentage is easier to interpret.\(^\text{11}\)

There was no information in the data set about supply variables such as the price or cost

\(^{11}\) One outlying observation was removed from the sample, because it referred to 137 teachers in a village which was substantially higher than the second highest number, 30 teachers, and was likely to be a data error.
of schooling (or for potential proxies such as whether school uniforms were worn) nor about the overall levels of funding for schools.

The role of community factors, including village education committees, represents a form of resources. Four VEC variables were added – three of these were dummy variables for whether a committee was in existence (VEC\text{presence}), whether it was in existence for three years or more (VEC\text{3yearsplus}), and whether it met at least monthly (VEC\text{meetmonthly}). The dummy variables were coded ‘1’ if there was a committee, if it were older than three years and met at least monthly, and coded ‘0’ otherwise. The fourth variable was an Index of Responsibilities (VEC\text{responsibility}) from 0 to 6 depending on the number of responsibilities for a VEC. The data set did not include specifics about the composition of the VEC nor its funding levels, so it was not possible to add these into the model.

To control for other potential factors influencing resources, the following variables were included in the model. Firstly, a dummy variable for whether the village was also the Pradhan’s village (pradhan\text{village}), coded ‘1’ in for the Pradhan’s village and ‘0’ otherwise. This is an important variable for the model because the Pradhan might be able to and inclined to divert more funding or influence for his or her own village primary school. Secondly, a dummy variable was added for whether the Panchayat district committee was reported by villagers to ‘have a say’ in the running of the primary school/s (panchayat\text{say}), coded ‘1’ if they reported it had a say and ‘0’ if it was not reported to have a say. This might act as a more powerful intervention into primary schools in villages than the VEC. Thirdly, a variable for the number of village ‘town hall’
or Gram Samsad meetings was included (gramsamsadmeetings), as it represents direct local influence on what were the village issues and priorities for resource allocation.\textsuperscript{12}

The availability of substitutes will be measured by whether the village has other types of schools other than the standard Government-run private school. This includes for-profit and NGO-run schools as well as the SSK centers. A dummy variable was also added for whether the primary school was Government-run (govtprimaryschool), coded ‘1’ if it was and ‘0’ otherwise. A dummy variable was also created to represent the presence of a SSK center (SSKpresence), an alternative to a standard primary school, coded ‘1’ if there was a SSK in the village and ‘0’ otherwise. Libraries represent a partial substitute but also reflect community commitment to education. This was included as a dummy variable for the presence of a library (library), coded ‘1’ if there were a library in the village and ‘0’ if not.\textsuperscript{13}

Quality

Quality of the school resource or input could affect the number of teachers – in this case, a dummy variable was added to capture whether the school was constructed of higher quality materials (highqualitybuilding), or a Pucca building, coded ‘1’ if it was and ‘0’ otherwise. Two further dummy variables related to quality factors were included: if problems were reported by the villagers about low teacher turnout (lowteacherturnout) and low teacher quality (lowteacherquality) in their primary schools. These were both

\textsuperscript{12} A fourth variable, a dummy variable for the presence of a Panchayat education committee other than the local VEC was tried, but it was not significant, did not add further understanding of the political and funding influences, and was dropped from the model.

\textsuperscript{13} A third control variable of this type, for the presence of a secondary school, was initially considered but it was not statistically significant and was dropped from the model.
dummy variables, coded ‘1’ if a problem were reported and alternatively coded ‘0’ if not. These are also likely to be particularly significant in relation to the dependent variable of percentage of teachers.

Finally, one variable, percentcaste, was added to represent the income and social standing of households. The number of households in the village that are classified as ‘special caste’ was divided by number of total households and multiplied by 100 to make a percentage. This variable fits into the demand of schooling, which would affect the number of teachers required, because the literature suggests that in India there is an issue of low enrollment and attendance by children of minority or lower castes, given India’s socially stratified society. Yet, it could also relate to supply of teachers because the Government, district Panchayat, district chief (Pradhan) and/or the VEC could either deliberately encourage or discourage supply of schooling to minority caste households, depending on policy priorities and social prejudice.

An Ordinary Least Squares (OLS) regression will be used as the most appropriate regression to run for the dependent variable of percentteachers. The reported coefficients capture the marginal effect of the 15 independent variables on the percentage of teachers in a primary school. Exhibit 2 provides the predicted relationships between each of the variables and percentageteachers, which are based upon existing theory, literature, and analysis of the summary statistics. Chapter 6 includes the regression results and their analysis.
\[ \text{percentteachers} = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15} + \epsilon \]

**Where:**

- \( X_1 = \text{VECpresence} \): Dummy variable for presence of a village education committee (VEC)
- \( X_2 = \text{VECyearsplus} \): Dummy variable for whether VEC in existence for three years or more
- \( X_3 = \text{VECmeetmonthly} \): Dummy variable for whether VEC met at least monthly over the last 6 months
- \( X_4 = \text{VECresponsibility} \): Index of VEC responsibilities
- \( X_5 = \text{percentcaste} \): Proportion of households in the village that are classified as ‘special caste’ divided by number of total households and multiplied by 100 to make a percentage
- \( X_6 = \text{govtprimaryschool} \): Dummy variable for whether the primary school was a Government-run school
- \( X_7 = \text{SSKpresence} \): Dummy variable for whether there was a SSK center as an alternative to the primary school in the village
- \( X_8 = \text{library} \): Dummy variable for whether there was a library in the village
- \( X_9 = \text{highqualitybuilding} \): Dummy variable for whether the village had a Pucca, or highest quality, building for its primary school/s
- \( X_{10} = \text{panchayatsay} \): Dummy variable for whether the Panchayat district committee had a say in the running of the primary school/s
- \( X_{11} = \text{gramsamsadmeetings} \): Number of town hall meetings held since 1998
- \( X_{12} = \text{pradhanvillage} \): Dummy variable for whether the village was where the Pradhan lived
- \( X_{13} = \text{lowenrollment} \): Dummy variable for reported problems with low pupil turnout
- \( X_{14} = \text{lowteacherturnout} \): Dummy variable for reported problems with low teacher turnout
- \( X_{15} = \text{lowteacherquality} \): Dummy variable for reported problems with low teacher quality

- \( \beta_0 \) = Y-intercept
- \( \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{14}, \beta_{15} \) = Coefficients of respective independent variables

- \( \epsilon \) = Unexplained variance, error term

**Source of variables:** All variables from Women as Policy Makers: Evidence from a Randomized Policy Experiment in India, 1998-2002. [http://dvn.iq.harvard.edu/dvn/dv/jpal/faces/study/StudyPage.jsp?studyId=33&tab=files](http://dvn.iq.harvard.edu/dvn/dv/jpal/faces/study/StudyPage.jsp?studyId=33&tab=files)
### Exhibit 2: Variable Definitions, Predicted Relationships, and Sources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Predicted Relationship</th>
<th>Previous Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPENDENT VARIABLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>percentteachers</td>
<td>Number of teachers divided by number of households. Multiplied by 100</td>
<td>+</td>
<td>Leclerq (2003)</td>
</tr>
<tr>
<td><strong>INDEPENDENT VARIABLES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VECpresence</td>
<td>Presence of village education committee (VEC)</td>
<td>+</td>
<td>Chattopadhyay &amp; Duflo, (2001)</td>
</tr>
<tr>
<td>VEC3yearsplus</td>
<td>Years village education committee in existence – greater than 3 years. Yes, No</td>
<td>+/-</td>
<td>Lewis (2006)</td>
</tr>
<tr>
<td>VECmeetmonthly</td>
<td>Village education committee met at least monthly</td>
<td>+</td>
<td>PROBE, (1999)</td>
</tr>
<tr>
<td>VECresponsibility</td>
<td>Index of village education committee responsibilities</td>
<td>+/-</td>
<td>Bray (2000); Pandey (2000)</td>
</tr>
<tr>
<td>Percentcaste</td>
<td>Proportion of households that are special castes</td>
<td>-</td>
<td>Leclerq (2003)</td>
</tr>
<tr>
<td>highqualitybuilding</td>
<td>Primary schools with a higher quality building. Pucca building coded as 1</td>
<td>+</td>
<td>Leclerq (2003; Chattopadhyay &amp; Duflo, (2001)</td>
</tr>
<tr>
<td>panchayatsay</td>
<td>Panchayat say in running of primary school.</td>
<td>+</td>
<td>Chattopadhyay &amp; Duflo, (2001)</td>
</tr>
<tr>
<td>gramsamsadmeetings</td>
<td>No of Gram Samsad meetings since 1998</td>
<td>+</td>
<td>Chattopadhyay &amp; Duflo, (2001)</td>
</tr>
<tr>
<td>pradhanvillage</td>
<td>Whether Pradhan’s village</td>
<td>+/-</td>
<td>Chattopadhyay &amp; Duflo, (2001)</td>
</tr>
<tr>
<td>lowteacherquality</td>
<td>Village reporting problems with low quality of teachers in primary school. Problem coded 1</td>
<td>-</td>
<td>PROBE, (1999)</td>
</tr>
</tbody>
</table>
CHAPTER 6: REGRESSION RESULTS

The table below shows the results of the OLS regression of the independent variables against the dependent variable, percentteachers, using robust standard errors.

Table 2: Regression Results. Dependent Variable: Percentage of School Teachers

<table>
<thead>
<tr>
<th>Variable (Robust SE)</th>
<th>Coefficient and T-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>VECpresence</td>
<td>4.978**</td>
</tr>
<tr>
<td></td>
<td>(3.11)</td>
</tr>
<tr>
<td>VEC3yearsplus</td>
<td>0.410</td>
</tr>
<tr>
<td></td>
<td>(0.23)</td>
</tr>
<tr>
<td>VECmeetmonthly</td>
<td>-0.145</td>
</tr>
<tr>
<td></td>
<td>(-0.91)</td>
</tr>
<tr>
<td>VECresponsibility</td>
<td>-0.054</td>
</tr>
<tr>
<td></td>
<td>(-1.30)</td>
</tr>
<tr>
<td>percentcaste</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(1.21)</td>
</tr>
<tr>
<td>govtprimaryschool</td>
<td>-2.563***</td>
</tr>
<tr>
<td></td>
<td>(-7.14)</td>
</tr>
<tr>
<td>SSKpresence</td>
<td>-0.527*</td>
</tr>
<tr>
<td></td>
<td>(-2.07)</td>
</tr>
<tr>
<td>library</td>
<td>-0.303</td>
</tr>
<tr>
<td></td>
<td>(-1.26)</td>
</tr>
<tr>
<td>highqualitybuilding</td>
<td>0.172</td>
</tr>
<tr>
<td></td>
<td>(0.81)</td>
</tr>
<tr>
<td>panchayatsay</td>
<td>0.279*</td>
</tr>
<tr>
<td></td>
<td>(1.69)</td>
</tr>
<tr>
<td>gramsamsadmeetings</td>
<td>-0.039**</td>
</tr>
<tr>
<td></td>
<td>(-2.87)</td>
</tr>
<tr>
<td>pradhanvillage</td>
<td>-0.312*</td>
</tr>
<tr>
<td></td>
<td>(-1.86)</td>
</tr>
<tr>
<td>lowenrollment</td>
<td>-0.142</td>
</tr>
<tr>
<td></td>
<td>(-0.79)</td>
</tr>
<tr>
<td>lowteacherturnout</td>
<td>-0.316*</td>
</tr>
<tr>
<td></td>
<td>(-1.85)</td>
</tr>
<tr>
<td>lowteacherquality</td>
<td>0.205</td>
</tr>
<tr>
<td></td>
<td>(-0.15)</td>
</tr>
</tbody>
</table>

| Observations         | 412                          |
| R-squared            | 0.22                         |
| F-value              | 7.44                         |

Notes: Number in parenthesis is the robust t-statistic. * Significant at the 10% level, ** Significant at the 5% level, *** Significant at the 1% level. Post-estimation test results available in Appendices.
About 22 percent of the variation in the percent teachers in primary schools in the sample is explained by the model, a reasonable proportion for an education-related regression.

**Village Education Committee Variables**

Controlling for other variables in the model, the presence of a VEC in a village is associated with a five percent increase in the percent of teachers. It is highly statistically significant, with a t-value of 3.11 (p=0.002). This provides evidence in support of the first hypothesis, that for villages with education committees, there would be associated signs of increased commitment to education, represented by greater numbers of teachers in primary schools than those villages without an education committee. It is assumed that the VEC can make a tangible difference to resource inputs to the school – including teacher numbers, textbooks and so on. VECs could also help to drive an increase in teacher numbers in other ways, for example in supporting recruitment, and/or creating a supportive environment so that teachers are not only recruited by also remain with a school over the medium-long term.

However, none of the other three VEC variables – *VEC3yearsplus, VECmeetmonthly, VECresponsibility* – are statistically significant. Therefore, the regression does not provide statistical evidence to confirm the second hypothesis. That is, VECs that have higher levels of experience, more responsibilities and meet regularly are not related to the number of primary school teachers. The findings from the first hypothesis are not promoted by the other VEC variables. This suggests that, as in the literature surveyed, too many VECs are not functioning as well as they could. For
example, perhaps the members of a VEC are not fully aware of their roles and responsibilities, or have not been trained to fulfill those roles to best effect. Likewise, perhaps they have too many responsibilities to focus on, and risk spreading their efforts too thinly, with some responsibilities not having enough attention. Given the finding of the first hypothesis, there is potential for VECs to make a positive difference to primary schools: the lack of evidence around the secondary hypothesis could be seen as an issue, but could also be viewed as an opportunity for further action. This will be explored in the next section.

Other ‘Voice’ and Influence Variables

The three independent variables related to alternatives forms of community voice and influence on the primary school – *panchayatsay*, *gramsamsadmeetings* and *pradhanvillage* – were all statistically significant. If a district-level Panchayat had a say in the primary school, it was associated with a very small increase in the percent of teachers. Surprisingly, the two other ‘voice’ variables were found to have a negative effect on the percentage of teachers. *Gramsamsadmeeting* was associated with just a tiny decrease in the overall percent of teachers. However, it is consistent with the observations of Chattopadhyay and Duflo (2001) that education issues were rarely raised as an issue at the local meetings. One can envision the possibility that if an education discussion went beyond the VEC, it would not result in more education resources, but rather represented a lack of overall community commitment to education, compared with other public goods. The third influence, *pradhanvillage*, can be interpreted as being associated with a small

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14 Interpretation of the statistically significant variables assumes that each other variable in the model is held constant.
decrease in the percent of teachers. This finding is particularly unexpected, although only marginally significant, as Chattopadhyay and Duflo (2001) found that the Pradhan’s village normally received twice as much public investment overall as other villages, even accounting for size.

**Other Findings of Interest**

Three other variables related to the availability of alternatives and perhaps the quality of teachers are statistically significant: `govtprimaryschool`, `SSKpresence` and `lowteacherturnout`. `Govtprimaryschool` is associated with a decrease of about three percent of relative teacher supply, and is highly statistically significant. The theory was mixed on the potential effect of the Government on primary school inputs, but this finding indicates that the presence of a Government-run school is deleterious to the supply of teachers in this district of West Bengal. This might be because of under-funding of primary school inputs by the Government, perhaps because teachers would rather work in private or NGO-run schools, perhaps because Government-run schools are located in less desirable locations than the alternatives, or perhaps because teachers chose not to work rather than work if the only option were to teach in a Government-run school. `SSKpresence` is also associated with a statistically significant but relatively small decrease in the relative number of teachers by 0.5 percent. This is not unexpected, as SSK centers are in part an alternative to primary schools, and therefore could be expected to draw teacher supply away from primary schools. Whether this effect has been considered in policy terms by the West Bengal state authorities is unknown but since it affects the quality and resource levels at primary schools, the presence of Government-run schools
should be considered in ongoing policy creation and evaluation. *Low teacher turnout* is marginally associated with a small decrease in the relative supply of teachers. This finding is aligned with the theory and intuition, as problems of teacher turnout are also likely to be associated with fewer numbers of teachers. That is, there is an unknown problem or cause interlinking the issues.

It is somewhat surprising that *low enrollment* and *low teacher quality* are not statistically significant as one would expect that both of these would lower the number of teachers supplied. It is possible to conjecture that the finding for low teacher quality reflects the much broader problem with quality in India’s primary schools (and noted by the World Bank, the Indian Government, and several studies, e.g. PROBE, 1999 and World Bank, n.d.) where teachers are employed but have high absentee rates and are of low quality, yet do not face real sanctions for their behavior, including the risk of losing their job.

It is also important to highlight that, in spite of concerns about the demand and supply in relation to minority castes, this variable (*percent caste*) was not statistically significant and therefore does not indicate an issue in relation to discrimination for specific castes in this sample for the model. The final chapter, Chapter 7, will bring together these findings and detail their policy implications.
CHAPTER 7: POLICY IMPLICATIONS AND CONCLUSION

The positive contribution of VECs on one important aspect of supply – teacher numbers – represents a partial affirmation of the Indian Government’s commitment to VECs as a core component of improving school inputs (as well as outputs and outcomes) through community participation. Yet, it is only a partial affirmation because the other aspects of village education committees, including the extent of their responsibilities, number of years of existence, and frequency of meetings, are not statistically significant. There are several policy implications which may be drawn from this analysis, which are detailed below. Both short to medium-term and longer-term timescales for policy will be addressed. The policy recommendations will also cover the roles that different actors – the Indian Government, donors, NGOs, other delivery agents, and VEC members – could play to effect the maximum amount of positive change in Indian’s education system and beyond.

First of all, it is clear that further empirical and detailed case study evidence is required to identify the exact nature of the contribution of village education committees on Indian primary schools and in other contexts more fully. It would be useful if randomized controlled experiments could be created specifically around the contribution of VECs in influencing change in different aspects of their responsibilities. This could include measuring the effect of their duties to maintain high quality infrastructure in school buildings, promoting teacher numbers, attendance and quality teaching on the supply side, as well as their role in promoting enrollment and attendance of pupils on the demand side. Such programs would be expensive to conduct and would require technical
advice. Yet, arguably, the cost-benefit analysis of conducting such research would be worth it to support more effective targeting of the Indian Government’s (and donors’) very substantial investment in the SSA program, including community development. Moreover, issues around selection bias and ethics could be managed if multiple areas were randomly chosen to be part of an overall comparative experiment – for example, with one area having its VECs focus on teacher supply, one on pupil enrollment and so on. This could be somewhat similar to a survey conducted by a team of experts on differing school inputs in Kenya; they tested the cost-effectiveness of six primary school interventions – including programs for merit scholarships, teacher incentives, textbook provision, flip-chart, de-worming and child sponsorship – on test scores and attendance (Kremer, Miguel & Thornton, 2005). Therefore, the first policy suggestion is for the World Bank and other organizations to invest in research, both quantitative and in-depth qualitative, to produce a collection of much more insightful data on VECs.

**Short-medium term**

One way of interpreting the results is that, in line with the literature, while education committees located in village communities can play an important part in affecting school inputs (including increased teacher numbers), they are a long way from delivering their full potential. They do not meet often enough and/or are not effective enough when they meet; and their longevity and formal responsibilities seem to make only a limited contribution to their effect on schools and other aspects of the local community. Yet the potential is there, both empirically in terms of the results shown in this study, and intuitively. The question in policy terms is therefore how can this potential
be released? The legal basis for VECs is already established and they have had nearly a decade to work out what their roles are in local communities. It is likely that the issues relate less to the formal structures, then, but to the capacity of the VEC members to manage committee activities, to raise and solve problems in their communities. Therefore this study concurs that the focus by the Indian Government in the SSA program to build capacity of village education committees is an appropriate policy. Such a policy also meets the current trend of promoting beneficiary ownership of projects. In the absence of information about what ‘building capacity’ in the SSA program entails, it is strongly suggested that training programs are run for VEC members on a systematic, village-by-village basis. To embed this further, it is recommended that the chairs of the VEC committees are brought together with their peers in cluster groupings, probably at a district level, depending on the distance between villages and other factors such as whether they share a common language. These clusters could meet on a quarterly basis, and be supported by the federal and state governments in conjunction with trained facilitators (provided by NGOs, International Organizations or corporations as appropriate) to support more effective leadership of the VECs. To ensure that these committees do not merely form another level of bureaucracy, they should focus on practical activities and useful advice as well as providing support to enable these chairs to develop much more effective leadership styles. Mentoring should also be encouraged within and across VECs.

Incentives to promote more effective demand from families for education, and incentives for teachers have been developed, but there does not seem to have been any
corresponding development of incentives for VECs and their individual members. However, to promote stronger commitment by VECs, **VEC incentives** should be developed and implemented. These could range from the inexpensive and simple to much more structured, ambitious activities. There should be an aim to provide more prestige around the position of VEC member, and to recognize and reward positive contributions that they make. For example, as well as undergoing training they should receive recognition of that training with a certificate confirming their attendance and contribution; this certificate would be even more useful if it could be tied into a professional development course which recipients could use to leverage an improved job or salary. The Pradhan (chief) could also be provided with the resources and stronger encouragement to support VEC members in the 10-12 villages in his or her district. The status of VECs might be increased by publicity about their work and achievements on local radio and TV channels, as well as through the State and/or Federal website and other means. There should also be **negative incentives** – for example. Pradhans and/or Gram Samsad town hall meetings should assess the contribution of the VEC on at least an annual basis and, if the committee is deemed to be ineffective, it should be asked to stand down and a new one elected. Both types of incentives ought to be combined, although the primary focus should be on positive incentives.

**Increasing the resources and authority** for VECs to use might also be a mechanism of building their credibility and providing them with more direct means to make changes. This could include recommending teachers be dismissed, making decisions about the priorities for school spending, overseeing investment projects such as
new infrastructure development and so on. This would need to be accompanied by support for the VECs to manage such processes, including the implementation of measures to limit corruption.

The impact of SSKs in West Bengal ought to be considered in relation to VECs. They effectively engage the community much more actively than a VEC would be involved in a primary school. The evidence of this study suggests that they may be pulling resources – in this case, teachers – away from the standard primary schools. That noted, lessons learned from successful community involvement in SSKs should be regularly disseminated to support VECs in their learning, including through Pradhans, Panchayat or DPEP-level committee communications, or by NGOs and other donors working in the field.

Given the finding that Panchayats ‘having a say’ in villages marginally contributes to increase the supply of teachers, it is recommended that the district-level committees are provided with resources to improve their contribution to supporting education. This could include the State and Federal Governments, as well as NGOs and International Organizations, providing them with accessible information about the benefits of education for local distribution. Specifically, the Government and any other organization gathering education data would be advised to provide the Panchayats with more targeted information about which villages in their district are showing progress and which are falling behind in terms of education inputs (as well as outputs and outcomes). The Panchayats should therefore be empowered to act as advocates, supporting the VECs in their work with schools, enabling cross-sharing of education practices across the
villages in their district, and targeting particular efforts on schools and villages which are under-resourced.

That the data indicates that the Pradhan’s home village was negatively affected in terms of supply of teachers indicates that efforts need to be made by Pradhans themselves to ensure that their home village receives a fair number of teachers compared with other villages. There may be different policy responses required determined by the gender of the Pradhan. Female Pradhans ought to be lobbied by the State and Federal Governments, by the overall Panchayat committee at a district level, and by VECs at a local level, to understand better the importance of education in emancipation and development (particularly for girls), and to provide more active support to increase the resources allocated to schools. Male Pradhans should be encouraged to continue to press for increased education commitment, but also to promote an equitable distribution of resources across the district.

As the Gram Samsad meetings, or ‘town hall meetings’ represent a negative influence on the supply of teachers, this reinforces the need for a continued and concerted drive to promote the benefits of education at a very localized level. It is difficult to prioritize between public goods such as water, irrigation, and health and education provision. Yet, if the VECs are to be supported in their villages – or at least not undermined by the Gram Samsad meetings – the advocacy efforts suggested above by the Pradhan, Panchayat, Government and other actors – are critical. Information that is

15 Chattopadhyay and Duflo (2001) found that male Pradhans tend to invest more in education regardless of whether it was brought up as an issue at the ‘town hall meetings’ and also invested more substantially in the provision of public goods in their own villages. Yet, they also found that female Pradhans tend to invest less in education and less in their own villages.
readily understood by villagers needs to be created and disseminated. This might include simple visual information or radio programs targeting the high number of illiterate villagers and providing versions in multiple languages to account for the different languages spoken in India. NGOs in particular may be well-placed to fund and distribute such material. Likewise, perhaps the capacity building of VECs could include supporting them to present information at Gram Samsad meetings about the benefits of education in general, and specifically about the positive and negative aspects of the village provision for education. This might include the attendance of the Pradhan or an alternate representative at the meeting, to support the VECs’ presentations.

**Long-term**

The investment in community development to deliver lasting educational reform cannot be a short-term whim of the Indian Government or of donors if significant and lasting results are sought. Designing programs which talk up ‘community involvement’ and ‘emancipation’ might tick all the right boxes to generate international and NGO donor support by proving, at least superficially, that a program is owned by the people most affected by the results, and therefore more sustainable than other projects. Two aspects are important to consider in an Indian (and broader context), however. Firstly, community participation in local education in India, as envisaged with VECs, Parent-Teacher Associations (PTAs) and SSKs, fundamentally involves a seismic shift in societal norms. Developing and maintaining high levels of grass-roots community involvement, which genuinely embraces representatives of different gender, caste, ethnicity and class is not an achievable feat within a few years. In India, many of the
teachers are still of higher castes and therefore social status than many of their pupils, which can negatively affect both the attention they pay to pupils and to their parents on committees (Bray, 2000).

This assertion is supported both by the results of the model and by the PROBE study (1999). For example, one interpretation of the success of VECs in promoting greater numbers of teachers in the villages in the sample is because, concurrently, it was found that caste did not matter. The VECs in the sample do not seem to have been hampered by engrained prejudice on the grounds of caste, unlike many areas. This is corroborated by the PROBE study (1999) which confirmed that the community in Himachal Pradesh state positively contributed to their schools and overall learning environment because of its social cohesion. It was in its social cohesion that it differed from the other four states in the survey. More broadly, social cohesion meant not only relative homogeneity of caste and ethnicity but also a common cultural mindset which ‘passionately’ supported education for all, regardless of gender, income, caste and so on. To engender this state of mind requires long-term reduction in societal divisions as well as a consistent and proactive engagement of communities to support education. This is a role that NGOs, donors, the media can affect as well as State and Federal Government. The more collaborative this could be, ensuring comprehensive coverage of the message and active reinforcement by different actors, the better.

The second aspect is the scale of the difficulties in India. The sheer size of India – a huge country, of over 1.1 billion inhabitants, with varying terrain, and a mixture of rural and urban poverty alongside immense wealth, presents enormous challenges. Because of
this environment, as no state or central government is likely to address all of the education issues in India, local participation and decentralization is one logical approach. But a number of questions are posed, to which there are no easy answers. For example, how best to ensure a similar level of quality among these schools? What is the right balance between standardization of a curriculum across districts, states and the country and total local ownership? How far should resources be devolved? What regulatory role should the state and central government play? How could corruption be managed? These are all factors which education specialists in NGOs, the Government, and donors, are addressing, or ought to be.

**Unanswered Questions**

This study has addressed the role of education committees in villages. What is less clear is what mechanisms are in place to promote community involvement in urban areas. Urban areas affected by some of the same issues as villages – e.g. societal divides, quality and cost of schooling. They are also affected by differing ones, with less of an issue of physical distance from schools, but with potentially greater issues around lack of community spirit and the social problems connected with urban slum dwelling, including health and behavioral problems. The Government of India, and local State Governments, supported by donors and delivery agents, would be advised to focus some attention on building community involvement in such environments.

VECs are used in other developing countries (e.g. Kenya) but are primarily an Indian phenomenon. When donors and educational policy-makers in NGOs and international organizations make recommendations on village education committees
outside India, although many of the recommendations are likely to hold – e.g. raising the prestige of the committees, promoting incentives – not all of them may be applicable. The differing cultural contexts need to be factored into the policy formulations. That noted, this study finds that VECs can make a positive contribution to school inputs – in this case, teacher supply – and are therefore worthy of investment.
APPENDICES

Appendix 1: Education For All Goals, 2000

1. Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children.

2. Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality.

3. Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programs.

4. Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

5. Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls’ full and equal access to and achievement in basic education of good quality.

6. Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Source: UNESCO, 2000
Appendix 2: Millennium Development Goals, 2000

1. Eradicate extreme poverty and hunger. Targets: Eradicate extreme poverty and hunger; halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day; and halve, between 1990 and 2015, the proportion of people who suffer from hunger.

2. Achieve universal primary education. Target: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.


4. Reduce child mortality. Target: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate.

5. Improve maternal health. Target: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio.

6. Combat HIV/AIDS, malaria and other diseases. Targets: Halt by 2015 and reverse the spread of HIV/AIDS; and halt by 2015 and reverse the incidence of malaria and other major diseases.

7. Ensure environmental sustainability. Target: Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources; halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation; and by 2020, to have achieved a significant improvement in the lives of at least 100 million slum-dwellers.

8. Develop a global partnership for development. Targets: Address the special needs of the least developed countries, landlocked countries and small island developing States; deal comprehensively with developing countries’ debt; develop further an open, rule-based, predictable, non-discriminatory trading and financial system; in cooperation with developing countries, develop and implement strategies for
decent and productive work for youth; and in cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries; In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

Appendix 3: Post-Estimation Tests

A number of tests were run to analyze if there were problems with model specification, heteroskedasticity and multi-collinearity. In terms of model specification, a Ramsey RESET test was deployed to test the powers of the fitted values of \textit{percentteachers}. The null hypothesis using this test is that the model as specified has no omitted variables. As the F-test was 13.46, with a p-value of 0.0000, it is possible to accept the null that the model does not have omitted variable bias.

**Ramsey RESET Test for Model Specification**

Ramsey RESET test using powers of the fitted values of \textit{percentteachers}

\begin{align*}
    \text{Ho: model has no omitted variables} \\
    F(3, 393) &= 13.46 \\
    \text{Prob } F &= 0.0000
\end{align*}

Secondly, a Breusch-Pagan/Cook-Weisberg test was used to test for heteroskedasticity. The null hypothesis is that there is constant variance or that the error term does not vary with the independent variables. With a chi-squared of 573.32 and a p-value of 0.0000, the null hypothesis is rejected, and there does appear to be some correlation of the error terms. As a result, the model was regressed using robust standard errors to correct for this issue. The regression results tabulated use the robust standard errors.

**Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity**

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

\begin{align*}
    \text{Ho: Constant variance} \\
    \text{Variables: fitted values of percentteachers} \\
    \chi^2(1) &= 573.32 \\
    \text{Prob } \chi^2 &= 0.0000
\end{align*}

Multi-collinearity Tests
Finally, tests were run to examine whether the independent variables were correlated with each other. There was no apparent problem regarding correlation levels – the highest score was the positive correlation of 0.47 between \textit{highqualitybuildings} and \textit{govtprimaryschool}, followed by -0.35 for \textit{govtprimaryschool} and \textit{percentteachers}.

\textbf{Correlation Matrix}

\begin{center}
\begin{tabular}{c|cccccccccccccccc}
\hline
 & percentteachers & VECpresence & VEC3yearsplus & VECmeetmonthly & VECresponsibility & percentcaste & govtprimaryschool & SSKpresence & library & highqualitybuilding & panchayatsay & gramsansadmeetings & pradhanvillage & lowenrolment & lowteacherturnout & lowteacherquality \\
\hline
percentteachers & 1.00 & 0.044 & 0.041 & 0.230 & -0.086 & 0.121 & -0.351 & -0.099 & -0.101 & -0.169 & 0.005 & -0.231 & -0.144 & -0.062 & -0.099 & -0.098 \\
VECpresence & 0.044 & 1.000 & 0.028 & 0.053 & 0.018 & 0.019 & 0.183 & 0.017 & 0.019 & 0.059 & 0.069 & 0.033 & 0.038 & 0.030 & 0.036 & 0.051 \\
VEC3yearsplus & 0.041 & 0.028 & 1.000 & 0.045 & 0.094 & 0.023 & 0.116 & 0.038 & 0.045 & 0.055 & 0.057 & 0.031 & 0.055 & 0.019 & 0.012 & 0.053 \\
VECmeetmonthly & 0.230 & 0.053 & 0.045 & 1.000 & 0.024 & 0.024 & 0.074 & 0.013 & 0.094 & 0.060 & 0.085 & 0.017 & 0.059 & 0.028 & 0.058 & 0.051 \\
VECresponsibility & -0.086 & 0.018 & 0.094 & 0.024 & 1.000 & 0.203 & -0.027 & 0.038 & 0.023 & 0.066 & 0.034 & 0.017 & 0.019 & 0.096 & 0.012 & 0.053 \\
percentcaste & 0.121 & -0.086 & 0.024 & 0.024 & 1.000 & 0.019 & 0.055 & 0.013 & 0.023 & 0.060 & 0.049 & 0.031 & 0.055 & 0.028 & 0.012 & 0.053 \\
govtprimaryschool & -0.351 & 0.183 & 0.116 & 0.074 & 0.203 & 1.000 & 0.074 & 0.038 & 0.074 & 0.116 & 0.049 & 0.034 & 0.017 & 0.065 & 0.053 & 0.051 \\
SSKpresence & -0.099 & 0.017 & 0.038 & 0.013 & 0.086 & 0.034 & 1.000 & 0.045 & 0.023 & 0.060 & 0.057 & 0.049 & 0.031 & 0.058 & 0.012 & 0.051 \\
library & -0.101 & 0.019 & 0.094 & 0.024 & -0.122 & 0.057 & 0.074 & 1.000 & 0.024 & 0.024 & 0.116 & 0.054 & 0.017 & 0.028 & 0.012 & 0.053 \\
highqualitybuilding & -0.169 & -0.026 & -0.019 & 0.055 & 0.017 & 0.057 & 0.027 & 0.116 & 1.000 & 0.055 & 0.049 & 0.054 & 0.055 & 0.017 & 0.059 & 0.053 \\
panchayatsay & 0.005 & -0.058 & 0.069 & 0.057 & 0.127 & 0.034 & 0.085 & 0.054 & 0.057 & 1.000 & 0.068 & -0.008 & 0.054 & 0.058 & 0.054 & 0.051 \\
gramsansadmeetings & -0.231 & 0.033 & 0.031 & 0.055 & 0.114 & 0.111 & 0.195 & 0.243 & 0.243 & 0.158 & 1.000 & 0.144 & 0.089 & 0.038 & 0.151 & 0.147 \\
pradhanvillage & -0.144 & 0.038 & 0.019 & 0.081 & 0.099 & 0.065 & 0.121 & 0.127 & 0.127 & 0.020 & 0.158 & -0.062 & -0.030 & -0.031 & -0.124 & -0.099 \\
lowenrolment & -0.062 & 0.030 & 0.031 & 0.124 & -0.051 & -0.152 & -0.029 & 0.124 & 0.034 & 0.050 & 0.038 & 0.054 & 0.054 & 0.131 & 0.100 & 0.035 & 0.198 & 0.264 & 1.000 \\
lowteacherturnout & -0.099 & 0.036 & 0.074 & 0.058 & -0.100 & -0.106 & 0.012 & 0.043 & 0.024 & 0.006 & 0.081 & 0.132 & -0.007 & 0.118 & 1.000 & 0.035 & 0.198 & 0.264 & 1.000 \\
lowteacherquality & -0.099 & -0.097 & -0.051 & -0.053 & -0.147 & -0.006 & 0.019 & 0.014 & 0.027 & -0.009 & 0.016 & 0.079 & 0.035 & 0.198 & 0.264 & 1.000 & 0.035 & 0.198 & 0.264 & 1.000 \\
\hline
\end{tabular}
\end{center}

Source: Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.

A further test was run to explore whether there was multi-collinearity, using a variable inflation factor or VIF. The correlation matrix shows the correlation levels between each individual variable with each other variable; the VIF test shows whether each of the variables has high correlation with all of the other variables taken collectively. Reported individual scores of over 10 are considered to be an issue but the variable with the highest recorded collinearity, \textit{govtprimaryschool}, was only 1.42. The
mean for the model was 1.15. Consequently, there does not appear to be a problem with collinearity in the model.

**VIF Test for Multi-collinearity**

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>govtprimar~l</td>
<td>1.42</td>
<td>0.701827</td>
</tr>
<tr>
<td>highqualit~g</td>
<td>1.32</td>
<td>0.754891</td>
</tr>
<tr>
<td>gramsamsad~s</td>
<td>1.17</td>
<td>0.855089</td>
</tr>
<tr>
<td>panchayatsay</td>
<td>1.16</td>
<td>0.865437</td>
</tr>
<tr>
<td>lowteacher~y</td>
<td>1.15</td>
<td>0.868013</td>
</tr>
<tr>
<td>lowteacher~t</td>
<td>1.15</td>
<td>0.872757</td>
</tr>
<tr>
<td>pradhanvil~e</td>
<td>1.14</td>
<td>0.877636</td>
</tr>
<tr>
<td>VECrespons~y</td>
<td>1.13</td>
<td>0.882266</td>
</tr>
<tr>
<td>lowenrollm~t</td>
<td>1.13</td>
<td>0.884304</td>
</tr>
<tr>
<td>SSKpresence</td>
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</tr>
<tr>
<td>VECmeetmon~y</td>
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<td>0.907990</td>
</tr>
<tr>
<td>library</td>
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<td>0.916444</td>
</tr>
<tr>
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<td>0.923231</td>
</tr>
<tr>
<td>percentcaste</td>
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<td>0.934262</td>
</tr>
<tr>
<td>VEC3yearsp~s</td>
<td>1.02</td>
<td>0.976264</td>
</tr>
</tbody>
</table>

Mean VIF | 1.15
REFERENCES


