

Parental involvement in low-achieving children's learning: the role of household wealth in rural India

Laura Cashman^{a 1}, Ricardo Sabates^a and Benjamin Alcott^b

^a University of Cambridge, Faculty of Education, United Kingdom.

^b University College London Institute of Education, United Kingdom.

Laura Cashman (* Corresponding author)

University of Cambridge, Faculty of Education, 184 Hills Road, Cambridge. lmc85@cam.ac.uk
+44 7 495333612

ORCID: [0000-0001-6412-6022](https://orcid.org/0000-0001-6412-6022)

Ricardo Sabates

University of Cambridge, Faculty of Education, 184 Hills Road, Cambridge.

ORCID: [0000-0002-1433-5667](https://orcid.org/0000-0002-1433-5667)

Twitter: @RSabates72

Benjamin Alcott

University College London Institute of Education, London.

ORCID: [0000-0002-2087-7964](https://orcid.org/0000-0002-2087-7964)

¹ Corresponding author: University of Cambridge, Faculty of Education, 184 Hills Road, Cambridge.
lmc85@cam.ac.uk

Biographical note:

Laura Cashman is a doctoral student at the Research for Equitable Access and Learning (REAL) Centre at the Faculty of Education, University of Cambridge. Her research focuses on addressing inequality in education in the Global South through the engagement of stakeholders, particularly parents.

Ricardo Sabates is a Reader in Education and member of the Research for Equitable Access and Learning (REAL) Centre at the Faculty of Education, University of Cambridge. He achieved his doctoral degree in development studies at the University of Wisconsin-Madison. His research interests include social outcomes of learning, understanding the role of education over the lifecourse for marginalised populations, impact evaluation and cost-effectiveness analyses.

Benjamin Alcott is a Lecturer at the UCL Institute of Education. He received his doctoral degree, in education policy, from the University of Michigan. His research interests include early years education policy in South Asia and sub-Saharan Africa, inequities in learning, and the economics of education.

Declarations of interest

Declarations of interest: none

Abstract

Existing research recognises that while parents often aspire to be involved in their children's education, some face barriers that prevent this. Studies situated in the Global North recognise economic constraints as a barrier, presenting a steep gradient whereby the richer households are, the higher their parental involvement levels. This paper analyses the influence of household wealth on parental involvement in low-achieving children's education in a resource-constrained area in rural Uttar Pradesh, India. Based on regression models from a sample of 13,558 households, we corroborate evidence from wealthier contexts: wealthier parents are consistently more likely to be involved in low-achieving children's learning, suggesting that stakeholders should be aware of the potential influence of household wealth on parental involvement in rural India.

Highlights

- Wealthier parents have higher involvement levels in activities at home and school
- A wealth gradient exists for all five parental involvement activities examined
- Wealth could be used to target support to parents to increase involvement

1. Introduction

Considerable success has been achieved in advancing access to education in the Global South. Since the inception of the Millennium Development Goals in 2000, India has achieved gender parity at primary level, is significantly closer at the secondary and tertiary levels, and has increased net enrolment at primary from around 84% in 2005 to 88% in 2014 (United Nations India, 2014). However, significant challenges have yet to be addressed around *high-quality education provision* with many children who have attended up to 4 years of primary education still unable to perform the most basic literacy or numeracy tasks (Bhattacharjea et al., 2011; Pritchett & Beatty, 2015). Recent analysis, such as the 2018 World Development Report, has dubbed this a ‘learning crisis’ in global education (World Bank, 2018) and has called on education practitioners and policy makers around the world to investigate approaches that will address this issue.

One suggested solution is increased support to parents within the Global South to enable them to contribute to the educational journey of their children (UNICEF Office of Research – Innocenti, 2018). However, while parental involvement in education has been extensively explored in recent decades, the academic narrative surrounding how the concept is defined and its contributing factors has produced unclear and contradictory results. This has led to confusion for policy-makers, practitioners and parents alike. There are several reasons for this, including a lack of consistency within the empirical evidence base (Jeynes, 2018) and a disproportionate focus on contexts within the Global North (Kim, 2018). In response, this study proposes a definition of parental involvement which responds to the specific context of low-achieving children (i.e. children that fall under a set learning threshold) attending government schools in rural India and focuses on one of the potential enablers of parental involvement - household wealth. This empirical work is situated within a population with a generally low overall level of economic resources in rural Uttar Pradesh.

In line with global trends, there has been a shift in the discourse and policy surrounding the role of parents in education in India in recent decades. This is most noticeably demonstrated through the enacting of the current national education act, the *Right to Education Act 2009* which positions “parents alongside the state as responsible for ensuring the child’s right to education” (Maithreyi & Sriprakash, 2018, p. 353). In keeping with this policy, teachers in India often consider parents to be principally responsible for children’s progress, or lack thereof (Bhattacharjea et al., 2011). Yet, since the majority of school children in India are first-generation learners (Wadhwa, 2018), one must question whether parents are equipped to meet these expectations, especially for low-achieving children, and what factors lead to appropriate, effective parental involvement within this context.

In our case, we focus on the role of economic resources as an enabler of parental involvement. Economic resources allow parents to purchase educational materials, such as books and learning aids, which can be utilised for activities aimed to enhance children’s learning. A stable economic position may also allow parents to afford the time to engage with their children’s learning and attend school-related activities. In emerging or high-income country contexts, the empirical literature has found a steep income gradient with respect to parental involvement, whereby richer parents are more likely to be involved in educational activities with their children (Camacho-Thompson et al., 2016; Fan & Chen, 2001; Wang et al., 2016). Less is known, however, as to whether this gradient holds in relatively deprived areas, where the differences in economic resources between the relatively rich and poor are not as marked. This paper aims to fill this gap by investigating whether differences in wealth

predict differentials in parental involvement activities for low-achieving children in rural areas of Uttar Pradesh, India. In doing so, the paper raises the following question: *to what extent does wealth influence parental involvement in activities at school or in the home for rural households of low-achieving children?*

2. Conceptual Framework

Given the associational nature of the research, it is important to have conceptual clarity for the understanding, interpretation and implications of the empirical model. We guide our research by defining the two key concepts of interest, before delving into a conceptual framework which guides our analytical approach.

Firstly, we are interested in *parental involvement* in learning enhancement activities with low-achieving children. This concept has been defined in relation to the underlying activities that parents decide to do with their children, whether it is for building specific skills such as reading to their children, or to support with knowledge formation and transmission (Banerji, Berry, & Shotland, 2015; Fan & Williams, 2010; Reynolds, 1992). Conversely, it has been defined according to the place or setting where these activities take place, whether it is in the home, community or school (Hill & Tyson, 2009; Sui-Chu & Willms, 1996) or through the particular orientations of parents and children in the ways in which they interact (Epstein, 1990; 2010).

We use the definition provided by Carreón, Drake and Barton (2005) who claim that involvement is how we describe the specific things parents do. This definition is situated under the umbrella term of ‘engagement’ which “also includes parents’ orientations to the world and how those orientations frame the things they do” (2005, p. 467). More specifically, we understand involvement as actions that parents’ or caregivers’ take to support children’s learning or schooling whether these are performed in the home or at school and whether these require direct or indirect involvement of the caregivers. This broad understanding of parental involvement is important in the context of rural India where many children receive support for their schoolwork from siblings or other family members. Thus, while we utilise the term *parental* involvement throughout this paper, we understand that this involvement is not necessarily limited to parents but can include other relatives or non-relatives as the primary caregiver.

Secondly, we focus on the role of *wealth* as an enabler of parental involvement in children’s learning. Various studies have been undertaken in recent decades outlining possible enablers of parental involvement. These include studies that stress the role of single characteristics, be they parent or child, in leading to greater involvement. For instance, the child’s age and grade (Green et al., 2007; Grolnick & Slowiaczek, 1994), the child’s gender (Kim, 2018), the parent’s education level (Chaudhuri & Roy, 2009) or employment status (Kumar et al., 2011) have all been linked to higher involvement levels amongst certain groups of parents. Several teacher or school level characteristics have also been empirically associated with parental involvement, especially school-based involvement. These include parent’s perceptions of teachers (Crozier, 1999), how their perceptions of teachers interact with their own education level (Kohl, 2000), as well as the teacher’s years of experience and gender (Castro et al., 2004).

More broadly, there are also parental involvement scholars who stress specific framings for the study of this phenomenon. For example, sociologist Annette Lareau’s seminal research,

based on Bourdieu's work on cultural capital, suggests that schools often emphasise the social and cultural experiences of intellectual and economic elites. She posits that this makes schools less accessible for those who cannot relate to these experiences, primarily those from lower socioeconomic backgrounds (Lareau, 2000). While framings such as this are valuable, we have adopted an economic approach to address this literature gap within a resource-constrained population in the Global South.

Deprivation, or family financial strain, has been extensively empirically linked to disrupted parenting in existing literature. While this research base recognises that income or wealth is just one of many factors (Emmen et al., 2013), it has been claimed to be among the most influential mediator of parenting (Newland et al., 2013). In a 2016 study, Camacho-Thompson and her colleagues demonstrated how familial financial pressures compromised parental involvement levels within Mexican-origin communities in the US. The guiding framework for this study, the Family Stress model (FSM) (Conger et al., 1994) links economic hardship with increased psychological strain, which in turn disrupts parenting. Camacho-Thompson et al. then link this to lower levels of parental involvement within these communities. Beyond this study, the FSM has been empirically proven to play a role in a number of contexts and settings within the Global North (Benner & Kim, 2010; Conger et al., 2010; Masarik & Conger, 2017) and is supported by studies that demonstrate the relationship between family economic difficulties, mental anguish, and parenting (Belsky et al., 2012; Parke et al., 2004; White et al., 2009). However, the model solely focuses on income and does not consider the potential mediating role of other socioeconomic factors.

In response, the Investment Model (IM) expands on the FSM by including factors that contribute to human capital, such as parental education. The IM proposes that parents with higher levels of both economic and human capital will make larger investments, be they interpersonal or material-based, in children's development compared to those with lower levels of capital who may have to prioritise more immediate needs (Conger & Donnellan, 2007). These investments have been claimed to range from the fulfilment of basic needs, such as housing, clothing, food and medical care, to having access to more economically advantaged communities. Through the latter, for example, parents can access better schools or educational provision for children. Gershoff et al., demonstrate an association between the latter, investments relating to learning, and family income, such as the purchase of cognitively stimulating materials (Gershoff et al., 2007). These investments are then, in turn, associated with the child's development of cognitive skills. This is also supported, in the context of the US, in a study that demonstrates that cognitively stimulating materials, which money can buy, are associated with a higher level of parental activities with children (Yeung et al., 2002).

This idea, that certain materials and processes that can only be accessed through financial means increase parental involvement, is also supported by Bronfenbrenner's Ecological Model (1986). Within this model, immediate and direct relations between the developing child and their environment are considered *proximal* whereas *distal* factors contribute to the child's development in indirect ways. Our conceptual framework, in line with the IM, recognises the importance of the economic situation of the household and, in line with Bronfenbrenner, considers this as a distal factor that influences parental involvement levels. The influence of the household's economic situation is then channelled through other intermediary processes, such as the purchase of learning materials, to ultimately influence children's learning. In other words, whether households are wealthy does not influence learning unless these resources are invested in materials and activities which enhance

children's education. This responds to Seginer's recognition in her 2006 article that Bronfenbrenner's work is highly relevant to the study of parental involvement, despite being under researched (Seginer, 2006). In addition, in line with Seginer's guidance on the Bronfenbrenner model, we recognise the importance of diverse and interacting contexts for enhancing children's learning.

For instance, we include school, household and village level characteristics as potential mediators recognising that parents can participate in initiatives to promote children's schooling within the school, home or community. We also include child-, parent- and teacher-level characteristics as mediators based on relevant literature demonstrating the importance of children's age, class (Green et al., 2007), gender (Kim, 2018) and current attainment (Alexander et al., 1994), the parent's perceptions and educational experiences (Chaudhuri & Roy, 2009), employment status (Kumar et al. 2011; Froerer, 2011) and relation to the child (Banerji et al., 2015), as well as the teacher's years of experience and gender (Castro et al., 2004) and perceptions about the school. Figure 1 summarises the key influencing factors to be utilised in the empirical model.

== Figure 1 about here ==

3. Methodology

This study aims to quantitatively assess the role of wealth on parents' involvement in activities that support low-achieving children's learning and schooling. As part of this, we address two shortcomings in the empirical literature. First, we assess whether an income gradient on parental involvement exists for rural populations, where differentials in economic conditions are less marked. Second, we assess whether such a gradient depends on whether activities take place in home or school contexts.

Sampling: This study analyses cross-sectional data from the *Accountability from the Grassroots* project. This project is led by Pratham, a non-governmental organisation based in India, ASER, the assessment, survey, evaluation and research unit within the Pratham network, and the Research for Equitable Access and Learning (REAL) Centre at the University of Cambridge. The project aims to evaluate whether schools' accountability for learning can be strengthened from the grassroots ("Accountability: Faculty of Education," 2018).

Sampling for the project took place in the summer of 2018. Villages were randomly sampled from a sampling frame that included any village, as recognised by the Indian education monitoring system 'District Information System for Education' (DISE), with 2 or more government schools across the district of Sitapur, in Uttar Pradesh (UP). The school sample included all government schools in the 432 sampled DISE villages, which amounted to 853 schools. As the vast majority of children attending government schools in India are from lower socioeconomic backgrounds (Alcott & Rose, 2015), this emphasis ensured that marginalised children and families in these villages would be accounted for. Following the selection of two government schools in these villages, children in grades 3, 4 and 5 were randomly selected and tested until 20 children were found to be under a 'learning threshold' forming a final sample of low-achieving children.

If there were 20 children or less enrolled in the sampled class, all children on the were selected. If there were 21 children or more, field staff selected a random number between one

and the total number of children enrolled in the class and this was the first sample child in the list. After that, every fifth child was selected until the sample composed of 20 children. Field staff then, in order of this list, tested each of these children (either at school, if they were present, or at home, if they were absent that day) using the ASER literacy learning assessment tool and then the ASER numeracy learning assessment tool. The reliability and validity of both of these tools have been independently assessed (Banu Vagh, 2012). The literacy tool has four levels: letters; words; Standard I text (paragraph) and Standard II text (story). Children begin with paragraph. Depending on their success at this level, they either move on to story or to words.

The ‘learning threshold’ for the *AftG* sampling process was ‘words’. If children were found to be under this ‘threshold’ they were considered ‘low-achieving’ and, therefore, included in the final sample. It is important to note that almost all children tested were found to be low-achieving at baseline. Therefore, while the aim was to target low-achieving children, this sample is close to a government school sample. The final sample was of 24,060 children. This study ran regressions on samples between 13,558 and 14,306 parents depending on the information available in each observation.

Survey Instruments and Measures: Tools used to collect this data included a children’s learning assessment and a caregiver’s questionnaire. The learning assessment was the same for all children, regardless of school grade. The caregiver’s questionnaire was then administered to one respondent in the sample child’s household. The final sample comprised 47% boys and 53% girls, split into second (28%), third (27%) and fourth (45%) grade. 53% of caregiver respondents were the sampled child’s mother, 37% were the sampled child’s father. Table 1 presents this information as well as other, relevant demographic information.

The caregiver’s questionnaire consists of six main sections: general information; family engagement with sample child’s school; perceptions, attitudes and actions related to sample child’s learning and education; general perceptions and attitudes on learning and education; a household roster and, lastly, a section on household indicators. These questionnaires were administered in person in sampled villages by ASER Centre field staff.

== Table 1 about here ==

Parental Involvement: Parental involvement in their children’s education was measured in the caregiver’s survey through 11 individual binary variables. Five of these variables were selected for this study based on existing literature, variable attrition, variability and whether they express direct action on the parents’ part (thus excluding more indirect actions such as paying for private tuition). Of the five chosen, two are school-based activities:

- *household member visited the school this session and*
- *respondent knows the name of at least one of the sample child’s teachers.*

Three are home-based activities:

- *sample child has someone at home to help them with their studies,*
- *respondent looks at the sample child’s textbooks or notebooks, and*
- *a member of the household reads or tells stories to the sample child.*

Table 1 presents the proportion of parents who are involved in each of these five activities.

Wealth. Wealth was measured in this study through an asset ownership index which assigned a Principal Component Analysis (PCA) score to each household (Filmer & Pritchett, 2001;

Vyas & Kumaranayake, 2006). We also ran an OLS regression with an asset index built from an Exploratory Factor Analysis. The significance and direction of the coefficients for this regression was the same as the PCA analysis. In line with Filmer and Pritchett (2001) guidance, we chose to report the findings of the PCA analysis.

While income is one of the most commonly employed indicators of the household economic situation in this literature, family income has been shown to be ineffective in providing an accurate indication of disparity (Wolff, 2000). Income can also misrepresent the true economic status of those who may receive or use income-in-kind, such as crops which can be traded, and households who experience large fluctuations in income for their work, which tends to be irregular or seasonal. This is particularly pertinent to rural India, where a large proportion of the population is employed in agriculture or agriculture-allied activities (Lastrapes & Rajaram, 2016). Lastly, collecting income data is time-consuming and requires resources usually available only for studies at the national or subnational level. As our study is located in a district of Uttar Pradesh and uses secondary data already collected, we have decided to use an alternative to income to characterise wealth in this paper.

The type of house that the family resides in is often used as a measure of wealth for studies situated in India, usually in combination with other assets (Lastrapes & Rajaram, 2016; Singh, 2014; Tripathy & Mishra, 2017). We decided not to use this measure within our asset index as it is difficult to turn a house in to liquidity, relative to the other assets we used, such as vehicles and household goods, which is important when we consider wealth as a *distal* factor that has to be channelled through other intermediary processes to influence learning. We have, however, included household characteristics, such as ‘has an electricity connection’ or ‘has a toilet’, as these characteristics have been demonstrated to differentiate between different wealth groups in India (Filmer & Pritchett, 1999). We also ran these analyses with housing type and the significance and direction of the coefficients do not change.

Filmer and Pritchett (2001) demonstrate the internal reliability as well as the consistency both within and between countries of an asset index in their paper. Since we are interested in measuring the economic status of households without having to rely on social, demographic or health indicators, we also operationalise wealth using an asset index for the empirical models in our paper. The index was based on the following household variables: an electricity connection in the household, a toilet facility available for use inside the house, a bicycle, a motorbike, a car/tractor, a mobile phone, a T.V., a clock/watch, a radio, an electric fan, a table, a chair, a pressure cooker and a sewing machine. Cronbach’s coefficient α for the 14-item scale was 0.74 and the loadings for each of these assets are presented in Table 2. In order to capture the wealth gradient, the index was divided into quintiles, from the ultra-poor to the relatively better off, and used in the subsequent modelling.

== Table 2 about here ==

Control Variables: Following the conceptual framework, Table 1 provides descriptive statistics on 18 other variables which serve as controls in this analysis. Parental perceptions of children’s learning were measured by the binary question in the Caregiver’s questionnaire: ‘Sampled Child can count till 100’. If parents answered yes, they were considered to have a ‘high’ perception of their child’s mathematics ability, if they answered no they were considered to have a ‘low’ perception. 7% of parents were unable to indicate their perception, these parents were grouped into a third group, uncertain. Parental education level was measured using a categorical variable that measures years of education attended. The three

groups were: basic formal education (up to 5 years), beyond basic (5 or more years) and no basic education (no years of formal education). The respondent's relationship to the sampled child was measured as mother (37%), father (53%) and other (10%). Parental employment status was measured in this study using the formal employment groupings: unwaged, waged and other/doesn't apply/don't know.

Children's mathematics learning was measured using the results of the ASER arithmetic testing tool. There are five levels in this tool: beginner, number recognition (1-9), number recognition (11-99), two-digit subtraction and division. Given the small proportion of children who were able to perform a division, we combined the final two levels for estimation purposes. Child age was measured as a continuous variable while child class was measured as a categorical variable including the three classes covered by the intervention: Standard 2, 3 and 4. Child gender was also included as a control variable as was the respondent's relationship with the sampled child. The latter included three groups; mother, father and other. Household religion and caste were used as control variables with religion including Hindu and Non-Hindu (including Muslims). Caste, on the other hand, included a group that encompassed Scheduled Tribes and Scheduled Castes, those in Other Backwards Castes and General Castes.

A village fixed effect was used in each of the five models. To account for intra-village differences across schools, we also controlled for school and teacher characteristics. We controlled for whether the school had a road leading to it and whether it made storybooks available for the children to take home. Teacher level controls comprised the teacher's gender, the number of years they had taught at the school; whether they had grown up in the locality; whether they lived in the school's village, whether this school was their preferred posting, and the teacher's daily commuting time.

Analytical Approach: This study uses Ordinary Least Squares (OLS) regression to assess the wealth gradient, measured through an asset index, on parental involvement in different activities linked to the child's schooling and home learning. These analyses were conditional on a set of control factors. Although parental involvement in activities is measured as a binary variable, methodological focused literature in the social sciences has demonstrated that OLS is comparable to logistic regressions in terms of accuracy of predictions and more intuitive for the researcher to interpret the model estimated coefficients (Angrist & Pischke, 2008; Hellevik, 2009). To ascertain this finding for our research, we estimated the equivalent logistic regression for each OLS model and found the estimates to be indistinguishable. Therefore, we present findings from the OLS analysis.

Following our conceptual framework, and due to the probabilistic nature of our research, we assume that the probability that parents are involved in learning activities with their children is a function of parent, child, household, school, teacher and village level factors. Among the parent level factors, we include economic resources, as well as educational and demographic characteristics which, as shown above, are likely to influence the likelihood that parents are involved with their children's learning. The following linear equation outlines the model to be estimated:

$$Pr(PI_j | X) = \beta_0 + \beta_{n1}Parent_j + \beta_{n2}Child_i + \beta_{n3}Household_j + \beta_4Wealth_j + \beta_{n5}School_s + \beta_{n6}Teacher_s + \beta_{n7}Village_v + \varepsilon_j \quad (1)$$

where j denotes *parents*, i denotes *child*, s *school* and v *village*. PI represents each of the five parental involvement activities (checks books, helps with studies, reads or tells stories to child, visits school and knows teachers name) and $Wealth_j$ represents the household j asset ownership in quintiles. Other explanatory variables in terms of the characteristics of the parent, child, household, school, teacher and village are captured in the equation. The error term ε_j is assumed to be random, normally distributed, and uncorrelated with the regressors.

4. Findings

Figure 2 (panels 2a to 2e) presents the results of our preliminary analyses on the relationship between wealth and engagement levels across five parental involvement activities for low-achieving children, without accounting for the potential influence of mediating factors. This figure demonstrates that involvement is unequally distributed across the five activities when we consider the influence of wealth. However, this is apparent in some activities more than others. For instance, a parent in a household in the richest wealth quintile is 1.2 times more likely than a parent in the poorest quintile to indicate that they check the child's notebook or textbook while a parent in a household in the top quintile is 1.4 times more likely than a parent in the bottom quintile to read or tell the child stories or know their child's teacher's name.

This figure presents a clear gradient between wealth and parental involvement levels, however, this is acutely pronounced at the top wealth strata of this population. The reads or tells stories to the child activity is a particularly good example of this; while there is less than a two percentage point difference between any of the first four wealth quintiles in the probability of parents engaging in this activity, there is a six percentage point difference between the fourth and the fifth quintile.

= **Figure 2 about here** =

Building on these results, Table 3 demonstrates the findings of our main analyses – the results of five OLS regression models which explore the influence of wealth on five parental involvement activities while also accounting for controlling variables. Results show that while the gradient demonstrated in the preliminary analysis continues to be apparent throughout the models, it is, once again, most pronounced for the richest 20% of the population. More specifically, Table 3 shows that the difference between those in the poorest and poor quintiles is neither significant in magnitude nor statistically across any activity. However, the differences between the poorest quintile and the middle, rich or richest quintiles are statistically significant across all cases.

That said, the percentage point differences between the poorest and middle or rich quintiles are relatively small – between two and nine percentage points - when compared with the difference between the poorest and the richest – between seven and sixteen percentage points. This shows that, in line with the preliminary findings, while wealth influences parental involvement at all levels, this role is particularly pronounced in the richest sections of the population, widening the gap between them and the poor, even when appropriate parental, household and child level controls are accounted for.

When we breakdown this analysis by home- and school-based activities, Figure 2 also shows us that the probability of parents engaging in the first two home-based activities, checks books and helps with studies, is higher than the two school-based activities, visits school and

knows teacher's name, no matter what wealth quintile they are part of. However, the reads or tells stories activity, the third and final home-based activity, has the lowest overall proportion of parents' involvement. This indicates that although the overall probability of parents' involvement in different activities may be influenced by the type or aim of the activity itself, the decision to participate in home- or school- based activities is not dependent on wealth. Our models with controls in Table 3 also demonstrates the same finding – wealth does not appear to influence the choice to engage in home- versus school-based activities. More specifically, parental involvement levels in both home- and school-based activities are negatively influenced by a lack of assets, particularly at the lowest quintiles.

= Table 3 about here =

Table 4 presents the unconditional effect sizes for between each of these activities and wealth, which were found by employing *Cohen's d*. These results support the findings outlined by demonstrating that this gradient also exists when considering unconditional effect sizes. More specifically, each of these activities demonstrate a trivial effect size between the poorest and the poor, which increases to a small difference for the middle and the rich and a small to moderate difference for the richest 20% of the population.

= Table 4 about here =

When considering findings on an activity-by-activity basis, Table 3 shows us that the asset 'wealthier' a household is, the more likely the parent is to check a child's notebook/textbook in the home. While this is not significant at the lower quintiles, this difference is statistically significant at the middle, rich and richest quintiles. Those in the middle and rich quintiles are three and six percentage points, respectively, more likely than those in the poorest quintile to check a child's notebook or textbook. More strikingly, however, is that those in the top 20% of the population are 12 percentage points more likely to check their child's textbook or notebook. As outlined in Table 4, the effect size for this analysis also supports this finding. While the effect for poor, middle or rich parents (the middle 60%), when compared to the poorest, was either trivial or small ($d = -0.04, -0.11, -0.20$, respectively), there is a moderate effect for the richest parents (-0.40) according to Cohen's (1988) conventions.

Similarly, Table 3 shows us that the 'wealthier' a household is, the more likely they are to confirm that a household member helps the child with their studies. Once again, the difference between the poorest and poor quintiles is not statistically significant. However, there is a statistically significant five percentage point difference between the poorest and middle quintiles and those in the rich quintile are nine percentage points more likely than the poorest 20% in this population to claim that there is someone at home to help the child with their studies. Those in the richest quintile are 16 percentage points more likely to indicate this than those in the poorest quintile. This is the largest difference in involvement levels between the poorest and richest in this study. Table 4 demonstrates that the effects size pattern is repeated for all of the other four activities. However, it is particularly pronounced for this activity where those in the top 20% just pass the threshold for a large difference effect ($d = -0.50$).

Finally, in terms of home-based activities, Table 3 shows us that the asset 'wealthier' households are more likely in both models to have parents that tell or read stories to their children. However, this activity does not follow the pattern of the other four activities. While the difference between the poorest and poor quintiles is not significant, it is the only activity

where the direction of this relationship is negative, both in models with and without controls. Like all the other activities, the difference in involvement levels between the poorest and richest in this sample is statistically significant with a relatively large coefficient. While the effect size is not as pronounced for this activity, as seen in Table 4, the same gradient exists. Parents in the 'poor', 'middle' or 'rich' quintiles are demonstrating trivial effects when compared to the poorest 20% in the sample. However, there is a small to moderate effect ($d = -0.27$) for the richest in the population.

Once again, this study demonstrates that wealth influences levels of parents visiting the school at the highest level of wealth in this sample. For instance, those in the middle and rich quintiles are three and four percentage points, respectively, more likely than those in the poorest quintile to visit the school. Those in the richest quintile are six percentage points more likely. As demonstrated in Table 4, this also holds for the visits school activity where there is a trivial effect for the middle 60% of the population, but this increases to a small effect for the richest ($d = -0.25$).

Lastly, as shown in Table 3, whether the parent knows teacher's name also shows us that the asset 'wealthier' a household is, the more likely it is that parents can name at least one of their child's teachers. Once again those in the middle and rich quintile are more likely than those in the poorest quintile to have familiarity with the child's teacher, however, those in the top quintile are particularly so (at ten percentage points). As expected for effect sizes, the gradient holds for the knows teacher activity where, once again, the effect for the poor is trivial, small for the middle and rich, and moderate for the richest, when compared to the reference group, the poorest.

5. Discussion

These findings demonstrate that wealth is associated with five parental involvement activities – checking the child's notebook/textbook; helping the child with their studies; telling/reading the child stories; visiting the school; and knowing the teacher's name – within this rural population of parents of low-achieving children in Sitapur district, Uttar Pradesh, India. This finding corroborates academic literature from other country contexts which also find that parents from lower economic status backgrounds are less likely to engage in their children's education than those in less volatile economic situations (Crozier & Davies, 2007; Fan & Chen, 2001; Wang et al., 2016).

More specifically, the exponential growth within the top strata of this population indicates that there exists an economic threshold for parents of low-achieving children attending government schools in rural India, below which wealth does not have a significant influence on parental involvement. As outlined above, many existing parental involvement studies are situated within the Global North, are non-empirical in nature, or employ economic status as a control variable rather than the main variable of interest (Wang et al., 2016). Therefore, while these findings take important initial steps towards filling these literature gaps within the context of rural India, it also adds to the limited literature around the influence of economic thresholds on parental involvement from any context.

This study also aimed to address the claim that parents from differing backgrounds often choose to engage in parental involvement activities based on whether they are home- or school-based activities (Green, Walker, Hoover-Dempsey, & Sandler, 2007). This proposition stems from studies based in the Global North, such as Hill et al. (2004), that

claim that 'poorer' families may have employment, transportation, or language constraints that limit their ability to engage in school-based activities and others that posit that home-based activities may require specific skills, such as deep academic understanding, that these families may not possess which limit their involvement (Benner et al., 2016).

As such, this study also set out to see if wealth impacted involvement levels in three home-based activities and two school-based activities within a context in the Global South. In summary, we found that parents' decisions to participate in home- or school- based activities is not dependent on wealth within this sample, even when accounting for other relevant factors. In fact, involvement is negatively influenced by a lack of assets in both home- and school-based activities, especially within the lowest quintiles. While future research needs to explore this finding further, these results could indicate that the effect of household wealth should be accounted for in parental involvement research, regardless of the context within which the activity is being explored.

Existing research suggests that when examining the influencing factors of parental involvement, it may be more impactful to consider parental involvement activities individually rather than as a combination or group of activities. While the overall narrative is the same for each of the activities for this sample – that wealth is exponentially associated with involvement – we believe there are some notable discussion points around these findings. For instance, literature from the field shows that the number of completed years of formal education is highly associated with a parent's sense of efficacy (Deslandes & Bertrand, 2005; Hoover-Dempsey et al., 2001; Hoover-Dempsey & Sandler, 1997) and self-efficacy has been associated with parental involvement in homework and home studying (Hoover-Dempsey et al., 1992; O'Sullivan & Chen, 2014). Therefore, considering the existing literature and in the context of controlling for parental education, the finding around parents helping children with their studies being associated with household wealth is particularly notable.

Secondly, it is worth considering that the read/tell stories activity does not follow the pattern of the other four activities. While the difference between the poorest and poor quintiles is not significant, it is the only activity where the direction of this relationship is negative, both in models with and without controls. However, this could be explained by the phrasing of the question in the survey which combines both reading to a child and telling a story to a child. Therefore, future research may benefit from separating these activities and isolating the influence of wealth on each.

Parents visiting schools has been the subject of interest for many parental involvement researchers as of late (Crozier & Davies, 2007; Green et al., 2007; Shajith & Erchul, 2014). This study demonstrates that wealth influences levels of parents of low-achieving children visiting the school at the highest level of wealth in this sample. As outlined above, Lareau's research could apply here. She suggests that schools emphasise the experiences of elites which makes schools less accessible for those from lower socioeconomic backgrounds (Lareau, 2000).

We allow for this by controlling for parental characteristics that have been empirically linked to social capital in India, such as employment status (Froerer, 2011; Kumar et al., 2011), level of education (Chaudhuri & Roy, 2009; Chudgar, 2009), whether the parent of interest is the mother or father (Chaudhuri & Roy, 2009), caste and religion (Borooah & Iyer, 2005; Gupta, 2015; Shazli & Asma, 2015). We also control for school-level characteristics, such as road

access, which could influence parent's access to the school. Therefore, the finding that there is an association between wealth and school visiting habits for this sample, outside of the effect of social capital or school characteristics, is particularly noteworthy.

Lastly, in terms of knowing the teachers name, in the context of India, country-specific literature from the health and nutrition sector demonstrates that greater social capital amplifies the linking ties to medical and educational institutions (Story & Carpiano, 2017). Like parental visiting schools, this model controlled for parental characteristics linked to social capital and teacher level characteristics. As such, this study supports the hypothesis that wealth is linked to familiarity with the child's teacher outside of the influence of social capital. The PCA asset loadings, as presented in Table 2, also demonstrate that the motorised transportation assets, more specifically the motorbike and car, have a high asset loading. This could point to the potential importance of having access to a motorised vehicle, which asset 'wealthier' households are more likely to have, on participation in school-based activities.

6. Conclusion

This study demonstrates that wealth, as expressed through household asset ownership, is associated with parental involvement in low-achieving children's education across two school-based and three home-based activities within a resource-constrained area in rural India. We demonstrate that beyond the overall positive relationship between wealth and parental involvement, this increase is exponential in nature, suggesting that the influence of asset ownership on parental involvement disproportionately benefits the relatively better-off 20% of this rural population in the district of Sitapur, Uttar Pradesh, India.

As outlined above, this result supports the broad consensus in existing parental involvement research that indicates that richer households are more likely to be involved in learning activities with children. However, our study is unique in that it was obtained for a rural, low-achieving population in Uttar Pradesh, India. Although these rural households are relatively deprived and homogenous in terms of economic resources, we found that relatively better off households, as measured through asset ownership, are more likely to be involved in learning activities with children. It appears that the wealthiest 20% in this population have disproportionately higher levels of involvement across all five activities. However, this study shows that an economic threshold appears to exist in the poorer sections of this population, under which increased levels of wealth does not influence parental involvement levels. This study also demonstrates that, contrary to the accepted narrative in parental involvement literature, there is a negligible difference in whether parents of varying household wealth statuses engage in home- or school-based activities. Lower levels of wealth negatively influence all activities no matter what the context.

Considering the potential impact of these findings, there could be important considerations for future parental involvement policy, practice, and research in India and the wider Global South. In terms of policy and practice, this study suggests that policy-makers and practitioners should be aware of the potential influence of economic constraints on the involvement levels of parents who want to be involved in their struggling children's education in rural India. However, considering the potential economic threshold that this study implies, this is not to say that it is as simple as targeting families in accordance with their economic status but that it may be more appropriate to undertake a whole village approach to incentivise school-community relations in resource-constrained communities.

In terms of research, as the existing literature base that our study supplements is heavily weighted to contexts within the Global North, this finding not only contributes to a region-specific literature gap but could also provide a foundation for exploration of this intersection in other contexts within the Global South. It is also hoped, in response to Jeynes' (2018) critique of the field, that the empirical nature of this study will stimulate further experimental research on parental involvement across all contexts. Lastly, based on Wang, Yeng and Deng's (2016) argument that economic status is most often used as a control variable rather than a main variable of interest, we hope that this study demonstrates the benefit to isolating economic and social factors when exploring parental involvement and related learning for their children.

However, there are also significant limitations of this study that need to be acknowledged. Firstly, the data analysed here were cross-sectional and thus our results may be only associational in nature. The fact that a wealth gradient exists with respect to parental involvement conditional on other control factors does not mean that the wealth causally impacts on parental involvement. Additionally, our conceptual framework could potentially be explored with a structural model in order to determine the pathways which are associated with parental involvement, particularly the pathways for the link to economic resources. We opted not to take this approach as we were mostly interested in the existence of the wealth gradient for this economically deprived population. Further analyses could focus on the structural ways in which the diverse set of covariates are associated with parental involvement and ultimately with learning outcomes.

Thirdly, education, occupation and economic status interact in important to ultimately predict parental involvement. In this study, the associations of these factors to parental involvement are considered separately from each other. Therefore, the structural model can help to predict the bidirectional nature of these factors and their relation to parental involvement. Interaction models could be utilised to determine which are the most important interrelations of these factors in predicting parental involvement. Lastly, this sample focused on parents of low-achieving children attending government schools in one district in rural India. Therefore, these findings need to be interpreted for this specific population. However, considering the literature gaps that have been outlined throughout this paper, this is a significant first step to promote further parental involvement research in the context of rural India, and the wider Global South.

Acknowledgements

Funding for this project comes from the UK Economic and Social Research Council (ES/P005349/1) and from Mars Wrigley Company Foundation. Research partners include Pratham Education Foundation, the ASER Centre and the REAL Centre at the Faculty of Education, University of Cambridge. We would like to thank Dr. Suman Bhattacharjea for her insightful comments on an earlier version of this paper. We would also like to thank seminar participants from ASER, Cambridge, and Pratham for their input into our analysis. Laura Cashman would like to thank the National University of Ireland for their continued support of her work.

References

- Accountability: Faculty of Education.* (2018).
<http://www.educ.cam.ac.uk/centres/real/researchthemes/teachingandlearning/accountability/>
- Alcott, B., & Rose, P. (2017). Learning in India's primary schools: How do disparities widen across the grades? *International Journal of Educational Development, 56*, 42–51.
<https://doi.org/10.1016/j.ijedudev.2017.05.002>
- Alexander, K. L., Entwisle, D. R., & Bedinger, S. D. (1994). When Expectations Work: Race and Socioeconomic Differences in School Performance. *Social Psychology Quarterly, 57*(4), 283. <https://doi.org/10.2307/2787156>
- Angrist, J. D., & Pischke, J.-S. (2008). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press.
- Banerji, R., Berry, J., & Shotland, M. (2015). *The impact of mother literacy and participation programs on child learning: Evidence from a randomized evaluation in India*. International Initiative for Impact Evaluation. <https://doi.org/10.23846/ow2153>
- Belsky, J., Schlomer, G. L., & Ellis, B. J. (2012). Beyond cumulative risk: Distinguishing harshness and unpredictability as determinants of parenting and early life history strategy. *Developmental Psychology, 48*(3), 662–673. <https://doi.org/10.1037/a0024454>
- Benner, A. D., Boyle, A. E., & Sadler, S. (2016). Parental Involvement and Adolescents' Educational Success: The Roles of Prior Achievement and Socioeconomic Status. *Journal of Youth and Adolescence, 45*(6), 1053–1064. <https://doi.org/10.1007/s10964-016-0431-4>
- Benner, A. D., & Kim, S. Y. (2010). Understanding Chinese American Adolescents' Developmental Outcomes: Insights From the Family Stress Model. *Journal of Research on Adolescence, 20*(1), 1–12. <https://doi.org/10.1111/j.1532-7795.2009.00629.x>
- Bhattacharjea, S., Wadhwa, W., & Banerji, R. (2011). *A study of teaching and learning in rural India*. 108.
- Borooah, V. K., & Iyer, S. (2005). *Vidya , Veda , and Varna: The influence of religion and caste on education in rural India*. *Journal of Development Studies, 41*(8), 1369–1404.
<https://doi.org/10.1080/00220380500186960>
- Bronfenbrenner, U. (1986). *Ecology of the Family as a Context for Human Development: Research Perspectives*. 20.
- Camacho-Thompson, D. E., Gillen-O'Neel, C., Gonzales, N. A., & Fuligni, A. J. (2016). Financial Strain, Major Family Life Events, and Parental Academic Involvement During Adolescence. *Journal of Youth and Adolescence, 45*(6), 1065–1074.
<https://doi.org/10.1007/s10964-016-0443-0>

- Carreón, G. P., Drake, C., & Barton, A. C. (2005). The Importance of Presence: Immigrant Parents' School Engagement Experiences. *American Educational Research Journal, 42*(3), 465–498. <https://doi.org/10.3102/00028312042003465>
- Castro, D. C., Bryant, D. M., Peisner-Feinberg, E. S., & Skinner, M. L. (2004). Parent involvement in Head Start programs: The role of parent, teacher and classroom characteristics. *Early Childhood Research Quarterly, 19*(3), 413–430. <https://doi.org/10.1016/j.ecresq.2004.07.005>
- Chaudhuri, K., & Roy, S. (2009). Gender gap in educational attainment: Evidence from rural India. *Education Economics, 17*(2), 215–238. <https://doi.org/10.1080/09645290802472380>
- Chudgar, A. (2009). The Challenge of Universal Elementary Education in Rural India: Can Adult Literacy Play a Role? *Comparative Education Review, 53*(3), 403–433. <https://doi.org/10.1086/599572>
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic Status, Family Processes, and Individual Development. *Journal of Marriage and Family, 72*(3), 685–704. <https://doi.org/10.1111/j.1741-3737.2010.00725.x>
- Conger, R. D., & Donnellan, M. B. (2007). An Interactionist Perspective on the Socioeconomic Context of Human Development. *Annual Review of Psychology, 58*(1), 175–199. <https://doi.org/10.1146/annurev.psych.58.110405.085551>
- Conger, R. D., Ge, X., Elder, G. H., Lorenz, F. O., & Simons, R. L. (1994). Economic Stress, Coercive Family Process, and Developmental Problems of Adolescents. *Child Development, 65*(2), 541–561. JSTOR. <https://doi.org/10.2307/1131401>
- Crozier, G., & Davies, J. (2007). Hard to reach parents or hard to reach schools? A discussion of home–school relations, with particular reference to Bangladeshi and Pakistani parents. *British Educational Research Journal, 33*(3), 295–313. <https://doi.org/10.1080/01411920701243578>
- Deslandes, R., & Bertrand, R. (2005). Motivation of Parent Involvement in Secondary-Level Schooling. *The Journal of Educational Research, 98*(3), 164–175. JSTOR.
- Emmen, R. A. G., Malda, M., Mesman, J., van IJzendoorn, M. H., Prevoo, M. J. L., & Yeniad, N. (2013). Socioeconomic status and parenting in ethnic minority families: Testing a minority family stress model. *Journal of Family Psychology, 27*(6), 896–904. <https://doi.org/10.1037/a0034693>
- Epstein, J. L. (1990). School and Family Connections: Theory, Research, and Implications for Integrating Sociologies of Education and Family. *Marriage & Family Review, 15*(1–2), 99–126. https://doi.org/10.1300/J002v15n01_06
- Epstein, J. L. (2010). School/Family/Community Partnerships: Caring for the Children We Share. *Phi Delta Kappan, 92*(3), 81–96. <https://doi.org/10.1177/003172171009200326>

Fan, & Chen. (2001). Parental Involvement and Students' Academic Achievement: A Meta-Analysis. *Educational Psychology Review*, 22.

Fan, W., & Williams, C. M. (2010). The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation. *Educational Psychology*, 30(1), 53–74. <https://doi.org/10.1080/01443410903353302>

Filmer, D., & Pritchett, L. (1999). The Effect of Household Wealth on Educational Attainment: Evidence from 35 Countries. *Population and Development Review*, 25(1), 85–120. <https://doi.org/10.1111/j.1728-4457.1999.00085.x>

Filmer, D., & Pritchett, L. H. (2001). Estimating Wealth Effects without Expenditure Data-or Tears: An Application to Educational Enrollments in States of India. *Demography*, 38(1), 115–132. JSTOR. <https://doi.org/10.2307/3088292>

Froerer, P. (2011). Education, Inequality and Social Mobility in Central India. *The European Journal of Development Research*, 23(5), 695–711. <https://doi.org/10.1057/ejdr.2011.43>

Gershoff, E. T., Aber, J. L., Raver, C. C., & Lennon, M. C. (2007). Income Is Not Enough: Incorporating Material Hardship Into Models of Income Associations With Parenting and Child Development. *Child Development*, 78(1), 70–95. <https://doi.org/10.1111/j.1467-8624.2007.00986.x>

Green, C. L., Walker, J. M. T., Hoover-Dempsey, K. V., & Sandler, H. M. (2007). Parents' motivations for involvement in children's education: An empirical test of a theoretical model of parental involvement. *Journal of Educational Psychology*, 99(3), 532–544. <https://doi.org/10.1037/0022-0663.99.3.532>

Gupta, L. (2015). *Education, Poverty and Gender: Schooling Muslim Girls in India*. Routledge.

Hellevik, O. (2009). Linear versus logistic regression when the dependent variable is a dichotomy. *Quality & Quantity*, 43(1), 59–74. <https://doi.org/10.1007/s11135-007-9077-3>

Hill, N. E., Castellino, D. R., Lansford, J. E., Nowlin, P., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2004). Parent Academic Involvement as Related to School Behavior, Achievement, and Aspirations: Demographic Variations Across Adolescence. *Child Development*, 75(5), 1491–1509. <https://doi.org/10.1111/j.1467-8624.2004.00753.x>

Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: A meta-analytic assessment of the strategies that promote achievement. *Developmental Psychology*, 45(3), 740–763. <https://doi.org/10.1037/a0015362>

Hoover-Dempsey, K. V., Bassler, O. C., & Brissie, J. S. (1992). Explorations in Parent-School Relations. *The Journal of Educational Research*, 85(5), 287–294. JSTOR.

Hoover-Dempsey, K. V., Battiato, A. C., Walker, J. M. T., Reed, R. P., DeJong, J. M., & Jones, K. P. (2001). Parental Involvement in Homework. *Educational Psychologist, 36*(3), 195–209. https://doi.org/10.1207/S15326985EP3603_5

Hoover-Dempsey, K. V., & Sandler, H. M. (1997). Why Do Parents Become Involved in Their Children's Education? *Review of Educational Research, 67*(1), 3–42. <https://doi.org/10.3102/00346543067001003>

Jeynes, W. H. (2018). A practical model for school leaders to encourage parental involvement and parental engagement. *School Leadership & Management, 38*(2), 147–163. <https://doi.org/10.1080/13632434.2018.1434767>

Kim, S. won. (2018). Parental involvement in developing countries: A meta-synthesis of qualitative research. *International Journal of Educational Development, 60*, 149–156. <https://doi.org/10.1016/j.ijedudev.2017.07.006>

Kumar, S., Vellymalay, N., & Malaysia, P. (2011). *Parental Involvement at Home: Analyzing the Influence of Parents' Socioeconomic Status*.

Lareau, A. (2000). *Home Advantage: Social Class and Parental Intervention in Elementary Education*. Rowman & Littlefield Publishers.

Lastrapes, W. D., & Rajaram, R. (2016). Gender, caste and poverty in India: Evidence from the National Family Health Survey. *Eurasian Economic Review, 6*(2), 153–171. <https://doi.org/10.1007/s40822-015-0043-4>

Maithreyi, R., & Sriprakash, A. (2018). The governance of families in India: Education, rights and responsibility. *Comparative Education, 54*(3), 352–369. <https://doi.org/10.1080/03050068.2018.1430299>

Masarik, A. S., & Conger, R. D. (2017). *Stress and child development: A review of the Family Stress Model | Elsevier Enhanced Reader*. <https://doi.org/10.1016/j.copsyc.2016.05.008>

Newland, R. P., Crnic, K. A., Cox, M. J., Mills-Koonce, W. R., & Family Life Project Key Investigators. (2013). The family model stress and maternal psychological symptoms: Mediated pathways from economic hardship to parenting. *Journal of Family Psychology, 27*(1), 96–105. <https://doi.org/10.1037/a0031112>

O'Sullivan, R. H., & Chen, Y.-C. (2014). *Parental Mathematics Homework Involvement of Low-Income Families with Middle School Students*. 24.

Parke, R. D., Coltrane, S., Duffy, S., Buriel, R., Dennis, J., Powers, J., French, S., & Widaman, K. F. (2004). Economic Stress, Parenting, and Child Adjustment in Mexican American and European American Families. *Child Development, 75*(6), 1632–1656. <https://doi.org/10.1111/j.1467-8624.2004.00807.x>

- Pritchett, L., & Beatty, A. (2015). Slow down, you're going too fast: Matching curricula to student skill levels. *International Journal of Educational Development*, *40*, 276–288. <https://doi.org/10.1016/j.ijedudev.2014.11.013>
- Reynolds, A. J. (1992). Comparing measures of parental involvement and their effects on academic achievement. *Early Childhood Research Quarterly*, *7*(3), 441–462. [https://doi.org/10.1016/0885-2006\(92\)90031-S](https://doi.org/10.1016/0885-2006(92)90031-S)
- Seginer, R. (2006). Parents' Educational Involvement: A Developmental Ecology Perspective. *Parenting*, *6*(1), 1–48. https://doi.org/10.1207/s15327922par0601_1
- Shajith, B. I., & Erchul, W. P. (2014). Bringing Parents to School: The Effect of Invitations from School, Teacher, and Child on Parental Involvement in Middle Schools. *International Journal of School & Educational Psychology*, *2*(1), 11–23. <https://doi.org/10.1080/21683603.2013.854186>
- Shazli, T., & Asma, S. (2015). *Educational Vision of Muslims in India: Problems and Concerns*. 7.
- Singh, H. (2014). *A Study on Socio-Economic Status of Scheduled Caste People of Kangra*. 16.
- Story, W. T., & Carpiano, R. M. (2017). Household social capital and socioeconomic inequalities in child undernutrition in rural India. *Social Science & Medicine*, *181*, 112–121. <https://doi.org/10.1016/j.socscimed.2017.03.043>
- Sui-Chu, E. H., & Willms, J. D. (1996). Effects of Parental Involvement on Eighth-Grade Achievement. *Sociology of Education*, *69*(2), 126. <https://doi.org/10.2307/2112802>
- Tripathy, J. P., & Mishra, S. (2017). Causes and Predictors of Neonatal, Post-neonatal and Maternal Deaths in India: Analysis of a Nationwide District-Level Household Survey-4 (DLHS-4), 2012–13. *Journal of Tropical Pediatrics*, *63*(6), 431–439. <https://doi.org/10.1093/tropej/fmx009>
- United Nations India. (2014). *Education for All: Towards quality with equity*. 152.
- Vyas, S., & Kumaranayake, L. (2006). Constructing socio-economic status indices: How to use principal components analysis. *Health Policy and Planning*, *21*(6), 459–468. <https://doi.org/10.1093/heapol/czl029>
- Wadhwa, R. (2018). Unequal origin, unequal treatment, and unequal educational attainment: Does being first generation still a disadvantage in India? *Higher Education*, *76*(2), 279–300. <https://doi.org/10.1007/s10734-017-0208-z>
- Wang, Y., Deng, C., & Yang, X. (2016). Family economic status and parental involvement: Influences of parental expectation and perceived barriers. *School Psychology International*, *37*(5), 536–553. <https://doi.org/10.1177/0143034316667646>

White, R. M. B., Roosa, M. W., Weaver, S. R., & Nair, R. L. (2009). Cultural and Contextual Influences on Parenting in Mexican American Families. *Journal of Marriage and Family*, 71(1), 61–79. <https://doi.org/10.1111/j.1741-3737.2008.00580.x>

Wolff, E. N. (2000). Recent Trends in Wealth Ownership, 1983-1998. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.235472>

Yeung, W. J., Linver, M. R., & Brooks–Gunn, J. (2002). How Money Matters for Young Children’s Development: Parental Investment and Family Processes. *Child Development*, 73(6), 1861–1879. <https://doi.org/10.1111/1467-8624.t01-1-00511>

Tables

Table 1: Variable description and descriptive statistics

Variable	Description (Round/Unit)	Mean / Proportion
<i>Outcome (Parental Involvement Activities)</i>		
Checks books	Respondent looks at the sample child's textbooks or notebooks (No=0, Yes=1)	0.67
Helps with studies	Sample child has someone at home to help them with their studies (No=0, Yes=1)	0.56
Reads or tells stories to child	A member of the household reads or tells stories to the sample child (No=0, Yes=1)	0.18
Visits school	Household member visited the school this session (No=0, Yes=1)	0.34
Knows teacher's name	Respondent knows the name of at least one of the sample child's teachers (Doesn't know 1=0, Knows at least 1=1)	0.26
<i>Variable of Interest (Wealth)</i>		
	Proportion of parents in each wealth quintile as measured through an asset ownership scale	
- Poorest		0.34
- Poor		0.10
- Middle		0.17
- Rich		0.19
- Richest		0.20
<i>Controls</i>		
Perception Group	Proportion of parents with high, low or uncertain perceptions of their child's mathematics attainment	
- High Perception		0.64
- Low Perception		0.32
- Uncertain		0.04
Level of Parental Education	Proportion of highest education qualification achieved by respondent	
- Up to 5 years of education		0.17
- Beyond 5 years of education		0.24
- No education		0.38
- No answer		0.21
Resp. Relation to Child	Respondent's relation to the sampled child	
- Mother		0.37
- Father		0.53
- Other		0.10
Parent's employment status	Proportion of parents in formal employment groupings	
- Waged		0.40
- Unwaged		0.35
- Other/doesn't apply/don't know		0.26
Children's mathematics attainment	Proportion of highest mathematics attainment achieved by sampled child	
- Beginner		0.12
- Number recognition (1-9)		0.67
- Number recognition (11-99)		0.17
- Two-digit subtraction (or further)		0.03
Child Age	Age of child at the time of the survey (min 4 and max 14)	0.08
Child Class	Class of child at the time of the survey	
- Standard 2		0.28
- Standard 3		0.27
- Standard 4		0.45
Child Gender	Gender of sampled child	
- Male		0.47
- Female		0.53
Household's religion	Household's religion as reported by the respondent	
- Hindu		0.87
- Non-Hindu		0.13

Household's caste	Household's caste as reported by the respondent	
- SC/ST		0.36
- OBC		0.33
- General		0.07
- Decline to answer		0.24
School has road access	Road leading to school	0.89
Storybooks available	School has storybooks available to take home	0.54
Teacher gender	Gender of sampled child's teacher	
- Male		0.55
- Female		0.45
Teacher's number of years in school	Number of years teacher has been at school	6.72
Teacher's childhood location	The location of the teacher's childhood	
- Mostly in this village		0.18
- Mostly in another village		0.40
- Mostly in a city		0.42
Teacher's present location	The teacher's current address	
- Same village as school		0.12
- Other village		0.32
- City		0.56
Teacher's school posting preference	Was the sampled school the teacher's preference?	
- No		0.27
- Yes		0.68
- No preference		0.05
Teacher's time to travel to school	The number of minutes that it takes for the teacher to travel to school	
- Less than 20 mins		0.33
- Between 21 and 45 mins		0.35
- Between 46 and 90 mins		0.22
- Between 91 and 179 mins		0.07
- More than 180 mins		0.04

Table 2. PCA Component Loadings

	PCA component loading
Has electricity connection	.2549
Has toilet	.1355
Bicycle	.1088
Motorbike	.2794
Car/tractor	.2622
Mobile phone	.1888
T.V	.3186
Clock/watch	.2834
Radio	.2164
Electric fan	.3377
Table	.3538
Chair	.3276
Pressure cooker	.2839
Sewing machine	.2580

Table 3: Regression Model (with controls)

	Checks Books	Helps with Studies	Tells Story	Visits School	Knows Teacher
<i>Parent level characteristics: Wealth (ref. poorest)</i>					
Poor	0.00730 (0.0143)	0.00230 (0.0146)	-0.00419 (0.0105)	-0.00241 (0.0134)	0.0119 (0.0121)
Middle	0.0308*** (0.0117)	0.0508*** (0.0121)	0.0180* (0.00917)	0.0246** (0.0115)	0.0231** (0.0106)
Rich	0.0593*** (0.0114)	0.0932*** (0.0118)	0.0156* (0.00921)	0.0441*** (0.0113)	0.0512*** (0.0104)
Richest	0.116*** (0.0113)	0.161*** (0.0119)	0.0761*** (0.0101)	0.0648*** (0.0120)	0.101*** (0.0113)
<i>Perceptions Group (ref. low perception)</i>					
High perception	0.0838*** (0.00918)	0.0895*** (0.00947)	0.0625*** (0.00707)	0.0315*** (0.00895)	0.0526*** (0.00802)
Uncertain	-0.129*** (0.0210)	-0.0686*** (0.0206)	-0.00817 (0.0143)	-0.0197 (0.0191)	-0.00236 (0.0168)
<i>Level of parental education (ref. no education)</i>					
Up to 5 years of education	0.0771*** (0.0103)	0.0867*** (0.0107)	0.0330*** (0.00831)	0.0398*** (0.0102)	0.0254*** (0.00940)
Beyond 5 years of education	0.157*** (0.00978)	0.173*** (0.0103)	0.0721*** (0.00829)	0.0837*** (0.0100)	0.0660*** (0.00949)
<i>Parental employment status/profession (ref. unwaged)</i>					
Waged	-0.0426** (0.0209)	-0.0295 (0.0211)	-0.0209 (0.0169)	0.00117 (0.0207)	-0.0297 (0.0200)
Other/doesn't apply/don't know	-0.0387* (0.0208)	-0.0309 (0.0212)	-0.00430 (0.0175)	-0.00202 (0.0211)	0.001000 (0.0209)
<i>Respondent's relation to the sampled child (ref. father)</i>					
Mother	-0.0584*** (0.0217)	-0.0875*** (0.0218)	-0.0330* (0.0178)	-0.126*** (0.0217)	-0.0768*** (0.0209)
Other	-0.00593 (0.0151)	-0.0115 (0.0158)	-0.0335** (0.0139)	-0.123*** (0.0162)	-0.0214 (0.0160)
<i>Child level characteristics: Child's mathematics attainment (ref. beginner)</i>					
Number recognition (1-9)	0.0353*** (0.0127)	0.0385*** (0.0132)	0.00690 (0.00979)	-0.00595 (0.0122)	0.00361 (0.0111)
Number recognition (11-99)	0.0481*** (0.0158)	0.0760*** (0.0165)	0.00736 (0.0128)	0.0137 (0.0157)	0.0219 (0.0146)
Two digit subtraction	0.0689*** (0.0234)	0.122*** (0.0249)	0.0770*** (0.0228)	0.0542** (0.0258)	0.0810*** (0.0251)
Child Age	-0.0204*** (0.00461)	-0.0177*** (0.00471)	-0.0157*** (0.00368)	-0.0168*** (0.00457)	-0.0176*** (0.00409)
<i>Child's Class (ref. std 2)</i>					
Std 3	-0.0117 (0.0120)	-0.0163 (0.0124)	0.0135 (0.00980)	0.0296** (0.0121)	0.0452*** (0.0112)
Std 4	0.00445 (0.0138)	0.000321 (0.0143)	0.0220** (0.0111)	0.0372*** (0.0139)	0.0580*** (0.0125)
Child's gender: female	-0.0161** (0.00771)	0.0111 (0.00798)	0.00109 (0.00637)	-0.00485 (0.00777)	0.000743 (0.00723)
<i>Household level characteristics: Household's religion (ref. Hindu)</i>					
Non-Hindu (incl. Muslim)	-0.0259* (0.0138)	-0.0466*** (0.0142)	-0.0179 (0.0111)	-0.0220 (0.0135)	-0.0469*** (0.0127)
<i>Household's caste (ref. ST/SC)</i>					
OBC	-0.0148 (0.00941)	-0.0192** (0.00968)	-0.0166** (0.00766)	0.00221 (0.00928)	0.0263*** (0.00871)
General	0.0937*** (0.0142)	0.0745*** (0.0157)	0.0557*** (0.0142)	0.0621*** (0.0162)	0.0935*** (0.0159)
Decline	0.0983*** (0.0271)	0.119*** (0.0297)	-0.00442 (0.0229)	0.0536* (0.0293)	0.0462* (0.0266)

<i>School level characteristics: Road access</i>	-0.00262 (0.0184)	-0.0406** (0.0192)	0.0288* (0.0153)	-0.00532 (0.0184)	0.0268 (0.0177)
<i>Books available to take home</i>	-0.0289** (0.0118)	-0.0105 (0.0123)	0.00147 (0.00958)	0.0287** (0.0120)	-0.0101 (0.0108)
<i>Teacher level characteristics: Teacher gender</i>	-0.00340 (0.0107)	0.00446 (0.0112)	0.00274 (0.00893)	-0.0172 (0.0109)	-0.00930 (0.0102)
<i>First teacher appointment year at this school</i>	0.000345 (0.000918)	0.000125 (0.000966)	7.73e-06 (0.000769)	-0.000534 (0.000948)	0.00379*** (0.000907)
<i>Location of childhood (ref: mostly in this village)</i>					
Mostly in another village	0.0321** (0.0136)	-0.0262* (0.0142)	-0.00158 (0.0113)	0.00337 (0.0138)	0.00585 (0.0127)
Mostly in a city	0.0380*** (0.0145)	-0.0114 (0.0150)	-0.00582 (0.0118)	0.000469 (0.0144)	0.0169 (0.0135)
<i>Current location (ref: this village)</i>					
Other village	-0.0429** (0.0171)	0.00665 (0.0180)	0.0340** (0.0141)	-0.00231 (0.0176)	-0.0149 (0.0161)
City	-0.0414** (0.0181)	0.00452 (0.0192)	0.0428*** (0.0148)	-0.00434 (0.0186)	-0.0119 (0.0169)
<i>Preference for school posting (ref: this school)</i>					
No	0.0175 (0.0118)	-0.000842 (0.0123)	-0.00108 (0.00969)	-0.000740 (0.0116)	-0.0182* (0.0110)
No preference	-0.0442** (0.0225)	-0.0407* (0.0227)	-0.0139 (0.0190)	-0.0824*** (0.0215)	-0.0652*** (0.0196)
<i>Time to travel to school (ref: under 20 mins)</i>					
Between 21 and 45 mins	-0.0115 (0.0121)	-0.00509 (0.0127)	-0.0251** (0.0101)	-0.0104 (0.0123)	-0.00106 (0.0113)
Between 46 and 90 mins	-0.0263* (0.0137)	-0.0308** (0.0143)	-0.0162 (0.0112)	-0.0477*** (0.0137)	-0.000984 (0.0127)
Between 91 and 179 mins	0.0100 (0.0194)	0.0202 (0.0199)	0.00427 (0.0163)	0.0438** (0.0196)	0.0170 (0.0182)
More than 180 mins	-0.0122 (0.0246)	-0.0297 (0.0256)	-0.0267 (0.0199)	0.0145 (0.0239)	-0.0594*** (0.0212)
Village fixed effects: Yes (432 villages)					
Constant	0.625*** (0.0892)	0.640*** (0.0904)	0.151** (0.0732)	0.371*** (0.0928)	0.0225 (0.0597)
Observations	14,271	14,322	14,315	14,151	13,573
R-squared	0.142	0.167	0.128	0.146	0.184

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Effects sizes (as reported using *Cohen's d*)

Quintile (ref: poorest)	Checks book			Helps with studies			Tells story			Visits school			Knows teacher		
	Estimate	<i>[95% Conf.</i>	<i>Interval]</i>	Estimate	<i>[95% Conf.</i>	<i>Interval]</i>	Estimate	<i>[95% Conf.</i>	<i>Interval]</i>	Estimate	<i>[95% Conf.</i>	<i>Interval]</i>	Estimate	<i>[95% Conf.</i>	<i>Interval]</i>
Poor	-0.04146	<i>-0.1004</i>	<i>0.01745</i>	-0.02923	<i>-0.0881</i>	<i>0.02963</i>	0.00703	<i>-0.0518</i>	<i>0.0659</i>	0.028	<i>-0.031</i>	<i>0.08703</i>	-0.03813	<i>-0.0986</i>	<i>0.0223</i>
Middle	-0.11265	<i>-0.1614</i>	<i>-0.0639</i>	-0.14811	<i>-0.1968</i>	<i>-0.0995</i>	-0.07351	<i>-0.1222</i>	<i>-0.0249</i>	-0.06204	<i>-0.1109</i>	<i>-0.0132</i>	-0.10312	<i>-0.153</i>	<i>-0.0532</i>
Rich	-0.19715	<i>-0.244</i>	<i>-0.1503</i>	-0.26557	<i>-0.3124</i>	<i>-0.2187</i>	-0.0848	<i>-0.1315</i>	<i>-0.0381</i>	-0.15029	<i>-0.1974</i>	<i>-0.1032</i>	-0.16353	<i>-0.2116</i>	<i>-0.1154</i>
Richest	-0.40552	<i>-0.4522</i>	<i>-0.3588</i>	-0.49752	<i>-0.5443</i>	<i>-0.4507</i>	-0.27387	<i>-0.3202</i>	<i>-0.2275</i>	-0.24803	<i>-0.2946</i>	<i>-0.2015</i>	-0.30932	<i>-0.3569</i>	<i>-0.2617</i>

Figures

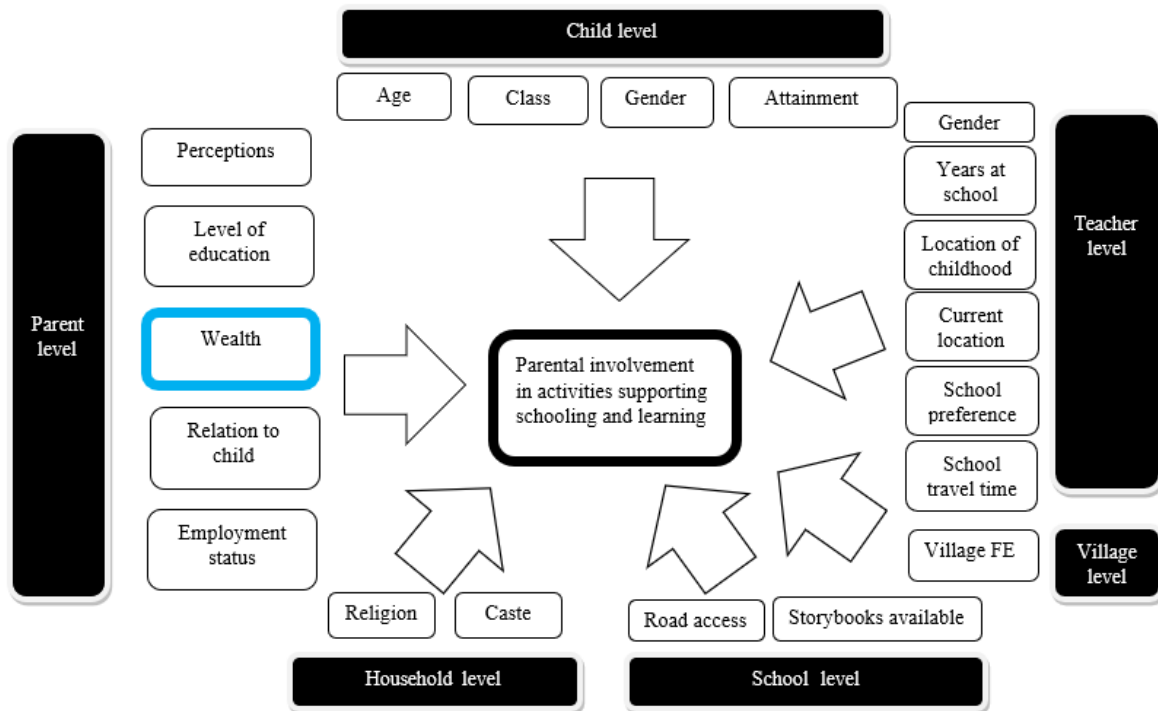
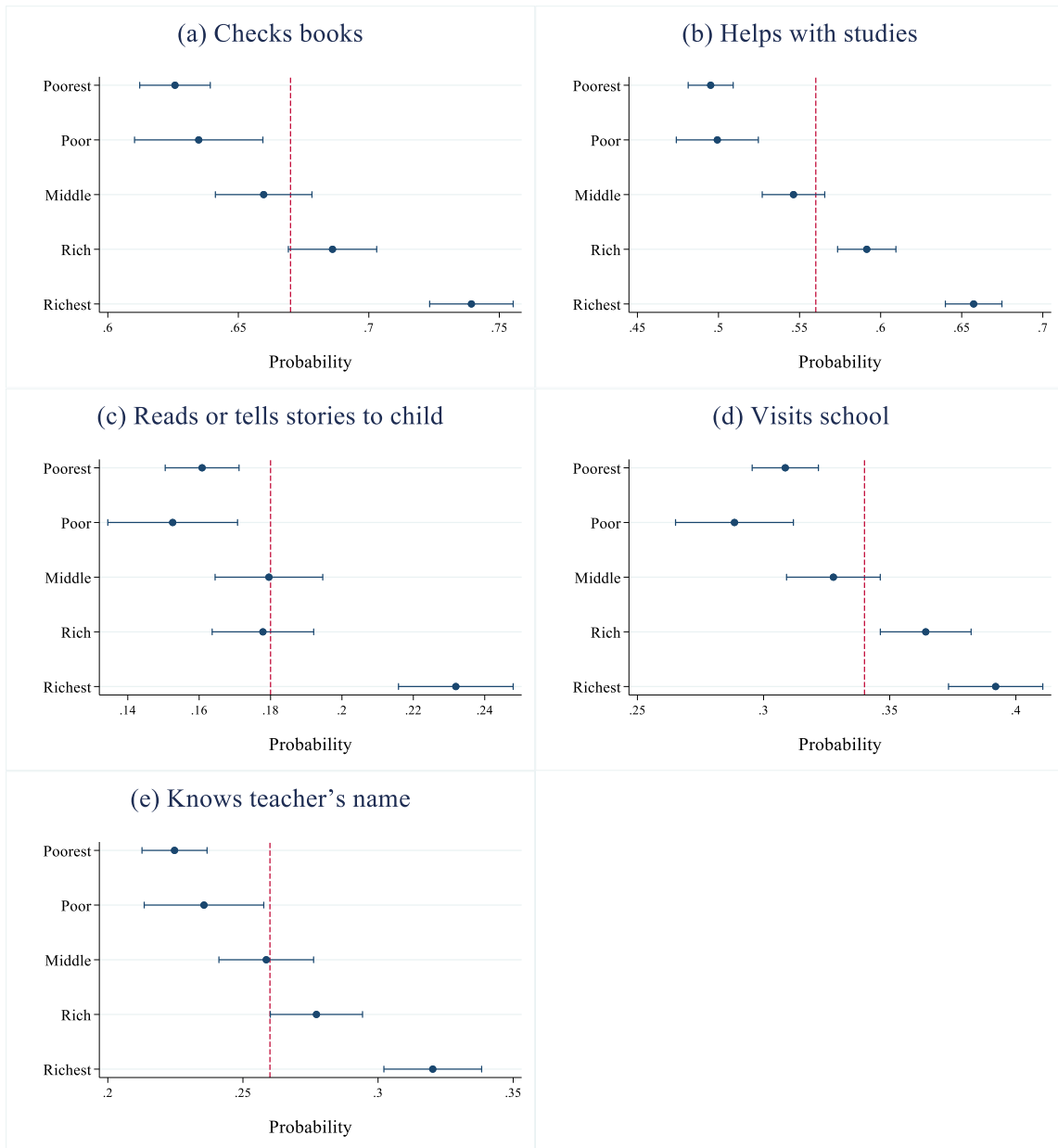


Figure 1. Factors that Influence Parental Involvement Model



Note. Bars indicate confidence intervals. Perforated line represents the overall mean of the activity.

Figure 2. Probability that Parents Undertake Each Activity by Wealth Quintile (without controls)

Figure Captions

Figure 2. *Factors that Influence Parental Involvement*

Figure 2. *Probability that Parents Undertake Each Activity by Wealth Quintile (without controls)*