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# EDUCATIONAL INEQUALITY IN INSTITUTIONALIZED SOCIAL STRATIFICATION SYSTEMS:

# THE CASE OF CASTE-BASED EDUCATIONAL INEQUALITY IN INDIA

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Data collection was completed in November 2005 and the data are still being validated. These results are based on preliminary data and may change once final data are available.

# EDUCATIONAL INEQUALITY IN INSTITUTIONALIZED SOCIAL STRATIFICATION SYSTEMS: THE CASE OF CASTE-BASED EDUCATIONAL INEQUALITY IN INDIA

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## ABSTRACT

### BRIEF ABSTRACT

Globally, *Education for All* initiatives are designed to decrease social inequality through improved schooling enrollment and educational quality in developing countries like India. However, previous national-level Indian analyses have been limited in assessing learning outcomes. Using the India Human Development Survey 2005 (IHDS) and the 2005-2006 Indian District Information System for Education (DISE), this analysis uniquely assesses student learning outcomes for 8-11 year old primary school-aged children in relation to caste as well as social and economic resources at the individual/household and district/state levels. IHDS reading and mathematics assessment measures serve as outcomes in this sample of 12,302 children. This caste-centered analysis explores educational disadvantage for India's lowest castes—Dalits—relative to caste-Hindus in India; and draws theoretical linkages to the institutionalized educational inequality experienced in other socially stratified contexts, with particular parallels drawn between Dalit schooling in India and African American schooling in the US.

## EXTENDED ABSTRACT

### Introduction

Increased access to schooling is often seen as a panacea to social inequality (EFA 2007). Although, widely considered an equalizing institution in social policy and political realms, academics are less than certain about the effects of educational reforms on sustaining decreased social inequality (Bell 2004, Kumar 2006). Important questions about the role of schooling in reproducing social inequalities need to be further explored. This paper examines the effect of unequal access to economic and social resources on school achievement for marginalized groups, concentrating on India's lowest castes—Dalits. Focusing on caste inequality in India allows for the analysis of institutionalized social stratification, with specific policy interventions underway to improve access to schooling. The theoretical framing of this argument borrows from and speaks back to the broader literature on schooling for marginalized populations, with specific attention paid to racial inequality theories and mechanisms.

To analyze this problem, this paper takes a multilevel approach to (1) explore the relationship between reading and mathematics skill levels for lower caste children and their access to economic and social resources within their household, school/municipality, and state; and, (2) assess the significance of resources in each of these contexts in contributing to the differentials in educational achievement by caste. Data for this analysis are culled from the India Human Development Survey 2005 (IHDS) and the 2005-2006 Indian District Information System for Education (DISE), with individual- and school-level measures coming from the IHDS and DISE providing the district- and state-level measures. Multilevel modeling will be employed to analyze the between and within level variation in student achievement, as well as to assess the significance of various forms of resources in predicting achievement levels and differences between castes in achievement.

### Significance

This research is timely for both the academic literature on the relationship between institutionalized social stratification and educational inequality as well as for educational social policy. In the US, the social reforms of the 1960s brought about significant improvements in racial inequality in schooling. However, research suggests that that improvement has stagnated and even reversed in the last decade (e.g., Ferguson 2005, Kozol 2005, Orfield & Lee 2007). This shift has prompted scholars to reexamine the role of schools, families, institutions, policies, culture, etc. in creating persistent racial inequality in education. Among this research is a call to explore global contexts in which structured inequalities persist and are being resisted in order to begin to formulate a global understanding of the ways in which societies and institutions reproduce, often unintended, social inequalities (Goldberg 2002, Winant 2002). India provides a unique standpoint from which to examine these issues. While the Indian caste system is typically considered one of the most rigid forms of stratification, India also has quite progressive social policy initiatives underway to ameliorate the social inequalities of the caste system, poverty and gender inequality [GOI 2000]. Improved access to schools is central to these policies. However, little is known about the quality of schooling and resources being provided (at the school, district, and state levels), particularly whether these schooling initiatives are in-fact improving student learning for the most disadvantaged groups (Kumar 2006)[1]. We also know that economic and

[1] Standardized tests are administered at the state level typically in grade IV or V, representing the end of primary school; then again at the end of upper primary in grade VII or VIII. These exams have been the primary source for achievement data. However, these data are limited by substantial state variation as well as surveying only children enrolled and present for testing.

social resources matter in educational outcomes, yet the growth in schooling has outpaced our analysis of the effects of differential resources at the household, local and state levels on schooling outcomes in India. With nearly all Indian youth now attending school, there is an urgent need to understand the effect of formal school participation on educational outcomes for Indian youth, particularly in terms of potential variation across caste- and social class-lines, and the relationship to differential access to resources. Thus, the significance of this paper is to speak to the academic study of schooling inequality for marginalized children by examining the case of caste in India as well as to address the emergent policy questions about the effect of Indian educational institutions on caste inequality in schooling.

**Indian Educational Context**

Moving forward without briefly explaining the social context of caste in India may be difficult for some readers. However, speaking definitively or briefly about caste may be more so difficult. In academia and current public, discourse contemporary caste and its meaning is highly debated. The fluidity of social meaning across historical and geographic contexts is central to these debates, thus clearly defining caste in India as a social construct. The caste system emerged from the Hindu beliefs of reincarnation and purity. While thousands of small castes exist (known as jati's), four major groups known as varna are recognized—the brahman, kshatriya, vaishya and shudra. Social position and occupations were aligned with a functionalist system of order based on the beliefs of purity and impurity historically. The current connections between occupation, social mobility, and caste are less clear, and not the focus of this research. The Indian government recognizes scheduled castes (SCs) and scheduled tribes (STs) for affirmative action interventions in the form of quotas for higher education and government employment for SCs and STs.[2] STs or Adivasis are non-caste tribes that typically reside in socially isolated regions of India. SCs or Dalits[3] are castes that were traditionally considered untouchable and were socially ostracized, and whose occupations were those consider impure by Hindus—disposal of waste, leather tanning, etc. OBCs, other backward castes, are castes between the scheduled castes and forward castes in Hindu society. While typically not as socially disadvantaged historically as Dalits, most states have official recognition of OBCs for reservation policies. The (re)defining of caste categories; the social movements for caste rights and reservations; and, the continued reality of caste-based social inequality, discrimination and violence make local and national debates about caste a contentious subject.

In line with global *Education for All* initiatives, the Government of India has made several attempts at reforming schooling, exemplified by the current Constitutional commitment to provide free and compulsory primary education for children between six and fourteen years of age. Initiated in 2001, the goals of the current Universalization of Elementary Education (UEE) initiative are to achieve universal primary education[4] by 2007 and universal elementary[5] by 2010. Indian enrollment has increased dramatically, with figures quoted between 86 and 89 percent enrollment (IHDS 2005, World Bank 2006, Metha 2006, ASER 2006). These figures represent a

[2] These interventions are referred to as 'reservations' in India.

[3] The term Dalit, meaning 'the oppressed', was popularized by B. R. Ambedkar, as a self-identified term to refer to castes formerly known as 'untouchables'. Government documentation refers to these castes as scheduled castes or SCs. Mohandas Gandhi also termed these castes 'Harijan', meaning 'children of God'; but, it met backlash. Thus, Dalit will be used as the most appropriate term when referring to these castes.

[4] The designation for primary education varies by state, but typically reflects grades I-IV or I- V.

[5] Elementary education includes primary and upper-primary education. Upper primary designation, again, varies by state, but typically reflects grades IV-VII or V-VII. Thus, elementary education encompasses grades I-VII or I-VIII, depending on the state. (Metha 2006)

dramatic twenty year increase in enrollment compared to 43% of males and 69% of females never enrolled in rural India in 1986-87, and 17% and 36%, respectively, never enrolled in urban areas in that year. While these figures reflect dramatic overall success in enrolling Indian children in school, they also denote substantial variation by geography and social group.

Educational reform in India is also changing the economic and social resources needed for schools. The 1999 PROBE report highlighted the dilapidated conditions of many Indian schools, and called for greater state support for the schooling infrastructure. However, despite increase in absolute education expenditures as well as their proportion of all state expenditures (7.92 % in 1951-52 and 14.61 % 1999-2000—Kumar 2006), education expenditures continue to fall short of the Constitutional goal of 6 percent of GDP (4.31% in 1999-2000—Kumar 2006). Social resources, female and scheduled caste teachers, are also improving

Despite obvious success in improving access to school, little is known about the quality of primary schools at the national level. Grade IV-V exams are not administered until students have completed primary school. The IHDS 2005 provides a unique opportunity to analyze childhood reading and math skill level of primary school aged children in the context of detailed educational, social and human development measures.

**Theoretical Background and Debates**

Social Exclusion of Marginalized Groups. This paper acknowledges the many differences in the historical meaning and the ideological frameworks underpinning race in the US and caste in India. However, taking an institutional perspective, focuses on the ways in which institutions (particularly that of schooling) have structured the hierarchies inherent in both. It is through these hidden and taken for granted institutional norms that inequalities persist without direct expressions of caste-ism or racism. Colorblind racism stems from this space of benign racism, where racial violence and overt discrimination are replaced with institutionalized and 'everyday difference' forms of social exclusion (Bonilla-Silva 2003, Winant 2004). As untouchability in India moves from overt forms of violence and social exclusion, Indianists are considering how to actively guard against this more dangerous form of caste-ism that has a more elusive enemy. It is also by looking at the similarities and differences in the role of caste and personal and institutional resources (social and economic) in predicting educational achievement in India that I expect to be able to speak back to the significance of institutions in reproducing inequality—above and beyond individual discrimination.

Thus, the scope of this paper is not to examine the myriad of differences between caste and race, rather to highlight similarities in the reproduction of these hierarchies. I contend that the underlying mechanism through which these structured inequalities are sustained is social exclusion. Social exclusion is chosen as the framework for studying inequality to answer the 'inequality of what?' question (Sen 1992). As described in more detail below, social exclusion will be a useful lens through which to conduct this multilevel analysis because it is experienced individually and institutionally. Also, the breadth in meaning for social exclusion (also a fault of this framework) encompasses the social and economic resources considered in this dissertation—thus capturing the extent of the achievement of resources and freedom to achieve those resources (Sen 1992).

Originating in literature on poverty and deprivation, social exclusion is a relatively recent approach to understanding the causes and consequences of social arrangements on other social groups (Sen 2000). Critiqued for espousing too broadly and encompassing too many aspects of inequality (Oyen 1997), social exclusion can also be a useful tool in explaining the relationship

between social norms and institutions for marginalized groups in societies experiencing social inequality and capability deprivation (Jenkins 2006, Sen 2000). This "lack of freedom to do certain valuable things" (Sen 2000:5) reframes inequality from absolute powerless possession of goods to a relative human rights understanding of structured power relationships that inhibit access to necessary things (Jenkins 2006). Thus, the analysis of and policy solutions for issues relating to structured inequality empower the marginalized by emphasizing the universality of their rights, holds the power structures accountable by demanding equal access and benefits rather than inclusion, and allows for the framing of both race and caste inequality under the same lens and approach.

Natural in the human rights discussions of the developing world and the caste debates in India around untouchability, the terminology of social exclusion is significantly more common in terms of caste inequality for Dalits in India then for discussing the persistent inequalities faced by African Americans in the US. The long-accepted form of social exclusion rooted in untouchability for Dalits became acceptable social norms and practices that reinforced their social exclusion in social and institutional relations. While outlawed in the Constitution for over 50 years, social exclusion of lower castes persists in personal and institutional spheres in most of India, particularly rural areas (Shah et al. 2006). This is despite substantial reductions in violent acts and overt discrimination toward lower castes in India (Macwan , Shah et a. 2006). The US also experienced blatant social exclusion in the form of legalized segregation, violence, and exclusion from economic, political and social institutions. Yet, contemporary ideology often marks these as historic events that have been overcome (Steele 2007, Thurnstrom and Thurnstrom 1997, Desouza, McWhorter). Blatantly racist acts (e.g., Michael Richards' tyraid, Don Imus' commentary, Jena Louisiana's arrests) are discounted as incidents, rather then being flare-ups of the undercurrent of racism and social exclusion that persists in the US as well. However, academics exploring colorblind racism and critical race theorists have emphasized the ways in which African Americans and Latinos continue to be socially excluded from institutions and economic, political and educational institutions (e.g. Bonilla-Silva 2003, Brown et al. 2003).

Lastly, a social exclusion framework provides a useful perspective for policy analysis and recommendations because of the explicit role of structure. Holding these structures accountable, social exclusion solutions are typically rooted in equal rights and social benefits agendas that follow an equal rights agenda, rather than the goal of simply seeking social inclusion. Bell (2004) the lack of this approach as being a downfall of the *Brown v. Board of Education* ruling became implemented as a law of inclusion, rather than one of equal benefits under the law. Kabeer (2003) highlights how persistent social exclusion can impede even aggressive welfare-state education policies, particularly relevant for the cases of caste- and racial-based social exclusion, noting:

> *However, the issue of the right to education has to be discerned in the context of the right to livelihood as this has to be distinguished from the rights that are called first-generation rights, traditional liberties and privileges of citizenship: religious toleration, freedom from arbitrary arrest, free speech, the right to vote and so on. Second-generation rights are, according to Waldron (1993: 578), 'socio-economic claims: the right to education, housing, health care, employment and adequate standard of living'…In the context of rights discourse…how is this right in isolation going to make any difference to at least those 300 to 350 million people who live below the official poverty line and thus whose right to life is tampered with?*

Thus, in framing schooling inequality theoretically, this paper explores the role of differential institutional and household resources as a focal approach to differential learning as opposed to a cultural or genetic deficiency approach (Carter 2005, Tyson 2002, Horvat 2006).

Schooling and Social Inequality Reproduction. Schooling represents an exemplar institution through which social reproduction of caste, race, ethnic, gender, social class inequality can occur. Functionalists highlighted the importance of education in creating productive citizens and workforce (Durkheim 1973; Collins 1971; Shultz 1961; Parsons 1959). Under this perspective, the educational system is designed to respond to the needs of our capitalist economy by producing a well-trained, productive workforce. Inequalities, in this approach, are a function of the capitalist system's determination of merit. Despite these various inclusive ideologies about the role of schools in societies, formal education has been a means through which social groups of power have maintained their social position (Bourdieu 1990, 1977; Apple 1982; Bowles & Gintis 1976; Ferguson 2005). Cultural norms and social networks are reinforced through schooling for advantaged groups, while marginalized groups must become bimodal (Carter 2005, Dance 2004, Dubois 1903). For example, Chatterjee (1993), in his theory of post-colonial nations being the product of elite imagined communities, highlights the creation and expansion of schooling opportunities as a mechanism to generalize and normalize elite language and culture. From schools transmitting variant social and cultural capital to stratified tracking and credentialing systems (e.g. Ferguson 1998), schools have been continuously documented as a primary site for social reproduction of inequality for youth.

An Intersectional Approach to the Heterogeneity of Caste and Race. A major fault in both academic research and social policy is the essentialism of social groups. Relevant to this research, caste and race research frequently oversimplifies the lived experiences of students of these social groups. This work incorporates the intersections of gender, socioeconomic status, and geography (region and urban status) in disaggregating these social groups. This approach is particularly necessary in terms of gender in India, where girls and woman have traditionally experienced limited educational opportunities (Chatterjee 1993). Also, while marginalized racial and caste groups often face barriers to economic achievement, social class diversity within each social group highlights the need to analyze this intersectionally. Poor economic resources at the household and structural levels consistently limits educational outcomes (e.g., Duncan et al. 1972, Taylor 2006), thus research must speak to social group differentials found after controlling for these measures.

Multilevel Modeling of Schooling Inequality Mechanisms. Inequality in educational achievement is typically described as either (1) inequality in cognitive skill level or (2) inequality in schooling. Usually framed as a micro versus macro argument, each of these two frames has a multilevel approach. This research addresses both by first exploring the multilevel relationships between reading and mathematics learning outcomes and resources available to the student. Second, I explain the role of family, schools and the institutions that support schooling in predicting differential student learning outcomes in reading and mathematics along caste lines. This multilevel approach to understanding inequality in cognitive skill levels and schooling is an emergent body of research; yet, it is rooted in several, more traditional, lines of inquiry. Genetic inferiority, cultural deficiency, and meritocratic theories are central underpinnings for the inequality in cognitive skill arguments; with John Ogbu's cultural ecological theory incorporating them to theorize minority achievement differentials. In contrast, economic determinism, school-based interactions, and structured inequality theories of resource allocation and policy effects are the focus of the inequality in schooling arguments. Essential for laying the foundation to explore cross-national schooling inequality experiences of marginalized populations are explaining the interconnectedness of multilevel influences as well as the diversity within minority populations.

**Data**

This paper uses a multilevel dataset for analyses, with individual- and household-level data drawn from the India Human Development Report 2005 (IHDS) and the 2005-2006 Indian District Information System for Education (DISE) providing district- and state-level measures.

The IHDS is a nationally-representative sample of over 41,000 households, in which the household head, an ever-married woman aged 15-49, and all children aged 8-11 years old were surveyed. Household schooling and social measures[6] were collected for everyone in the household, with additional questions asked about all currently enrolled students. Additionally, students aged 8-11 years old were administered a reading and mathematics skill-level assessment in one of 13 local languages. A major innovation of the IHDS survey was the administration of short assessments of reading and mathematics skills for children aged 8-11. Uncommon in national data sources in developing countries, conducting educational assessments in India is particularly difficult because: (1) tremendous variation in student skill levels must be accounted for, (2) comparable translations must occur because of tremendous language variation, (3) students lack familiarity with standardized testing and will need to be introduced to this form of testing, and (4) the logistics of assessment administration require extensive training and standardization proceedures. Partnering with Pratham, a voluntary organization that has worked in the field of elementary education for many years, provided access to the simple assessment tools they employ to measure the effectiveness of their training programs. These tools have been pre-tested on more than 250,000 children, and have been proven effective measures. The reading assessment measures whether a child is (1) not able to read at all, or is able to (2) read letters, (3) words, (4) paragraphs or (5) stories. The mathematics assessment similarly measures basic mathematics skills, such as whether a child (1) does not read numbers, or is able to complete (2) subtraction, (3) multiplication, and (4) division problems independently. Interviewers were trained extensively by Pratham volunteers using specially developed films so that they could differentiate between a child's shyness and inability to read. They were also taught how to develop rapport with children. Tests were developed in thirteen Indian languages as well as English and children were asked to take the test in whichever language they felt most comfortable. These two measures serve as the two outcome measures for this analysis.

The DISE surveys of Indian district- and state-level demographics and performance on several education-related measures also makes it an appropriate fit for the proposed multilevel analysis. Publicly available, these data document social and economic resources available within district- and state-level institutions across India.

Other attempts to capture student learning in India have been local surveys, and/or conducted almost exclusively on currently enrolled students. Thus, the IHDS 2005 data provide a unique opportunity to study the skill levels of students nationally controlling for their school enrollment status. Finally, caste measurement is often limited or nonexistent in many Indian surveys. The IHDS uniquely captures the following caste and religious categories—Brahmin, Other Forward Castes, Other Backward Castes, Dalits (officially categorized as Scheduled Castes), Adivasis (officially categorized as Scheduled Tribes), Muslims, and an other category (including Christian, Sikhs and Jains). These data will be the first time that caste-based schooling inequality can be examined across these multiple levels of analysis in India.

[6] These include measures of household resources and economic status, social networks, health, as well as school and community climate and participation.

One obvious limitation is the inability to link children for whom we have educational achievement data with the detailed data on the specific school they attend. Instead, data are reported for schools is reported by the student and his or her family.

**Research Questions and Hypotheses**

This paper explores the relationship between social inequality along caste lines and schooling achievement. As detailed in the previous sections, research supports a variety of hypotheses regarding this general relationship. Thus, to analyze this problem, two broad areas of analysis are proposed to be undertaken: (1) to analyze the relationship between reading and mathematics skill levels for lower caste children and their access to economic and social resources within their household, school/municipality, and state; and, (2) to assess the significance of resources at each of these levels in contributing to the differentials in educational achievement by caste. Within each of these two areas of analysis, this dissertation poses a series of hypotheses. This section details the research question, hypothesized relationships, and the methodology proposed to explore them.

1. Student achievement levels and multilevel resources

Is the level of student achievement, measured by reading and mathematics skill levels, associated with the level of economic and/or social resources available with the student's household, school/municipality, district and/or state?

- *Hypothesis 1.a.* Social resources will matter in predicting student achievement levels at all levels of resource allocation.
- *Hypothesis 1.b*. Variation in student achievement levels will largely be due to across institutional variation rather than within school/municipality, district or state institution.
- *Hypothesis 1.c.* Within institutional variation will largely be explained by caste differences as well as differential access to social and economic resources.
- *Hypothesis 1.d.* Marginalized castes and resource poor populations will be concentrated in districts and states with lower levels of student achievement.
- *Hypothesis 1.e.:* Some municipalities will perform more equitably in educating all students (or not), regardless of caste.

2. Caste differentials in student achievement and multilevel resources

Are caste differentials in student achievement, measured by differences in reading and mathematics skill levels by caste, associated with the level of economic and/or social resources available with the student's school/municipality, district and/or state?

- *Hypothesis 2.a*. Higher caste differentials in student achievement will be associated with districts and states with greater variation in the levels of economic and social resource allocation.
- *Hypothesis 2.b.* Social resources will matter in predicting caste differentials in student achievement at all levels of resource allocation.
- *Hypothesis 2.c.* Variation in caste differentials in student achievement will largely be due to within institutional variation rather than across school/municipality, district or state institution.
- *Hypothesis 2.d.* Districts and states with greater caste differentials in student achievement will have greater access to alternative schooling options.
- *Hypothesis 2.e.:* Dalit rapid incorporation into the educational system, particularly in rural areas may show signs of a dramatically closing achievement gap.

**Research Design/Methods**

This research seeks to better understand the relationship between schooling inequality and multilevel access to resources, with particular emphasis on the role of these institutions in reproducing caste inequalities. Thus, the four final models will incorporate the measures detailed above in a 3-level hierarchical model (Raman and Hedeker 2005)—two with student achievement levels (in reading and mathematics) as the dependent variables, and two with the caste differential measure as the dependent variables (again, in reading and mathematics). The four multilevel models will then be employed to analyze the between and within level variation in student achievement, as well as to assess the significance of various forms of resources in predicting achievement levels and differences between castes in achievement. However, prior to introducing these models several precursory models will be employed in building up to these full models: (1) A full individual level model, (2) a full household level model, (3) a full school/municipality level model, and (4) a full state level model. Each of these will be employed to discern the relationship between each level independently and the respective outcome measure. Below, each model is detailed further.

1. Full individual level model

I will first analyze caste and religious group differences in learning outcomes, and determine if they will persist among those enrolled in school. I will subsequently attempt to explain these persistent differences using measures for the above mechanisms, thus controlling for personal and family background, resources and schooling effort, as well as school and village level characteristics. I expect students learning will be affected by school enrollment, current standard, and school commitment (attendance, time allocations, enjoy school). The gap between caste/religious groups in learning outcomes will decrease with positive relationships between these variables and student learning.

However, while I expect to find caste differences that persist at the individual level and the institutional level, one cannot assume that Dalits are a homogeneous community. Within the Dalit community, social class and gender will affect the learning outcomes of children. Invoking intersectional theory, I expect that caste, class and gender will intersect to show more privilege and higher learning outcomes for higher classes and boys. Thus, interaction terms will often be included in the single-level models described below to capture the relationship between caste, social class and gender.

> *Issue 1.a.: Dalit student enrollment.* Schooling enrollment has been an emphasis of Indian policy. However, while primary school enrollment is nearing universal access to local primary schooling, caste differences persist among Indian Hindus in primary school enrollment. In particular, Dalit children are disproportionately represented among unenrolled students. Contributing to the causes of lower school enrollment are poverty and the need for child labor in the household and outside of it, cost of schooling, and access to schools. Following the literature on cultural deficiency theories, student and parental preferences and valuing of schooling will be reflected in the students school attendance. Thus, if this were the case, caste differences would be most prevalent in student enrollment. However, both Indian policy and the cultural deficiency approach would conclude that schooling opportunities are equal once enrollment is controlled—caste differences in student achievement would not persist.

*Issue 1.b.: Dalit student investment in schooling.* Under meritocratic theories about schooling, students are also blamed for not being invested in their own schooling processes. If schooling commitment, measured by time spent on school work and whether the student enjoys school, is all that is relevant, then caste differences in schooling achievement should decrease after additionally controlling for these measures.

*Issue 1.c.:* Language discrepancy between language spoken at home and the language in which instruction is given (and the language of the IHDS assessment) may negatively affect student's academic achievement level.

2. Full household level model

At the household level, parental educational attainment, household economic status, urban residency, presence of other school age children, and social networks will have anticipated relationships with caste differences in learning outcomes. Again, interaction terms with caste and economic status as well as caste and educational attainment of parents may shed light on variation at the intersection of caste and household social class measurements.

*Issue 2.a.: Dalit children live in households with lower economic statuses.* Economic determinists would assert that household economic status would determine schooling outcomes for the children. Thus, if household income and other controls that will affect economic status (such as family size, number of school age children and property ownership) are considered, then caste differences in schooling achievement should decrease after additionally controlling for these measures.

*Issue 2.b.: Dalit children live with parents with lower educational attainment and poorer social networks.* Parental ability to assist in the schooling process through their own academic skills or through social networks may also determine schooling outcomes. Thus, if parental educational attainment and household social networks with teachers or other schooling professionals are considered, then caste differences in schooling achievement should decrease after additionally controlling for these measures.

3. Full school/municipality level model

At the school and municipality level, access to school and the composition of the school and teaching staff will affect the caste differences in learning outcomes. School quality will also have an impact on caste difference in learning, measured by assessments of teacher treatment and confidence in schools.

*Issue 3.a.: Dalit children experience discrimination at school.* Student and teacher interactions can provide nurturing support for young learners or can hinder the learning process through discrimination and unsupportive relationships. Thus, if student and parental reporting of positive interactions with the school and

teacher are considered, then caste differences in schooling achievement should decrease after additionally controlling for these measures.

*Issue 3.b.: Districts have wide variations in resource levels.* Structural determinists would assert that Dalit children would be disproportionately affected by districts in which educational resources are low.

4. Full state level model

At the district/state level, differences between them in terms of wealth and bureaucratic organization will affect the efficiency of the schools within its boundaries.

*Issue 4.a.: States have wide variations in resource levels.* Structural determinists would assert that Dalit children would be disproportionately affected by states in which educational resources are low.

5. Multilevel models

Clearly, from the model depicted in Diagram 1 and the expansive array of literature on educational inequality, there are numerous ways in which to potentially study the mechanisms at play in the reproduction of inequality in schools. In this research, I extract two consistent themes in this multilevel model—economic and social resources (See Diagram 2). Thus, I focus on three levels of analysis: the household, school/municipality, and state levels. While examining student achievement at the individual level, the emphasis of this analysis is not on analyzing student merit; rather, I am exploring the relationship between differential access to economic and social resources and student achievement. Also, student teacher interactions are not the primary focus of this research either. Thus, the emphasis is on family resources and demographics, rather than individual student effort or intelligence, for example. Also, I have chosen to combine the school and municipality levels for this analysis. Lastly, states, like in the US, have a great deal of autonomy in defining education policy as well as great variation in efficiency and resources. Thus, I expect that variation in economic and social resources (in terms of policy) will be evident at the state level.

**Preliminary Findings**

- Overall student achievement for children 8-11 years old is 2.55 (on a 0-4 scale) in reading, with one-third of children able to read a story but one-quarter unable to read words. In mathematics, students averaged 1.54 (on a 0-3 scale), with 23 percent able to perform division but over half unable to perform mathematical operations.
- Higher castes have a higher proportion performing at high levels in both reading and mathematics (Tables Charts 1 and2). Dalits and Adivasi's, groups that both receive special consideration for affirmative action programs, consistently perform low on both reading and math measures. The category, Christians, Sikhs and Jains, perform quite well on both measures of student skill level, suggesting the need to explore a 'model' minority hypothesis for their schooling experience. Conversely, Muslim children's scores in both reading and math are most similar to those of Dalits and Adivasi's.
- Gender differences were surprisingly minimal. Average reading scores for boys were, 8.8%, 12.8%, 21.4%, 21.9%, 35.1% from cannot read to reading a story Similarly, girls

scores were 12.0%, 14.5%, 20.0%, 21.6%, 31.9%. These descriptives suggest that there may be dramatic change in gender inequality in female learning. Also, they emphasize the need for intersectional analyses of gender, caste and social class.

- Location of residence matters in preliminary analyses as well. State and urban residence have substantial variation. However, the variation is not consistent for math and reading. These preliminary figures suggest the importance of the multilevel modeling being conducted in this paper.

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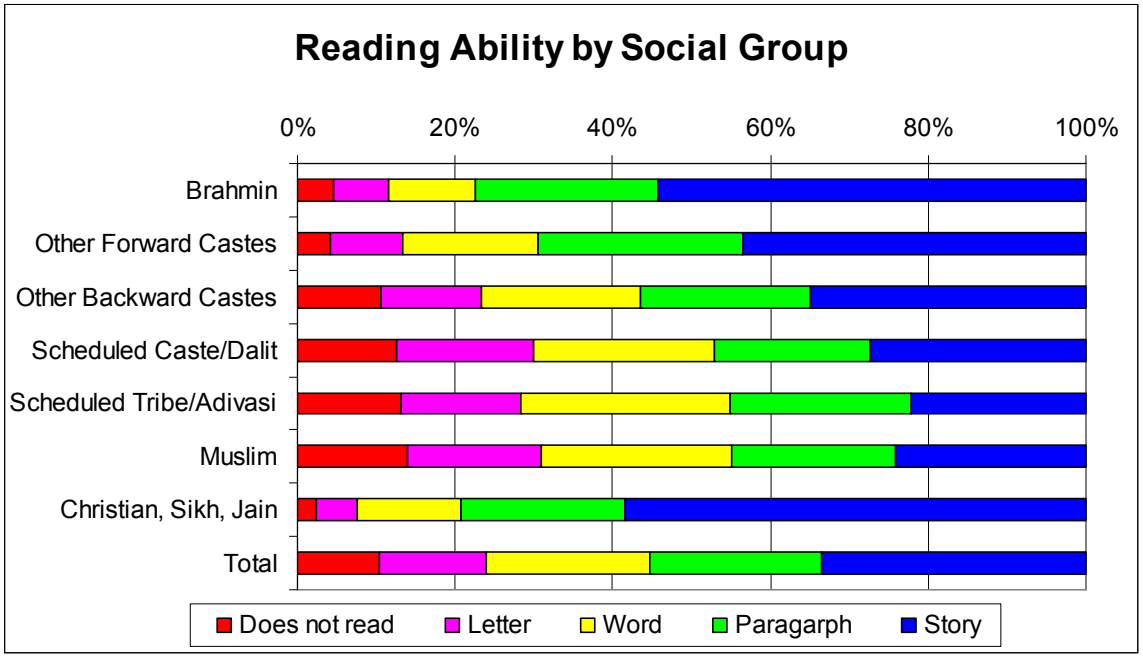
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Other Forward Castes
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Muslim
Christian, Sikh, Jain
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Does not read
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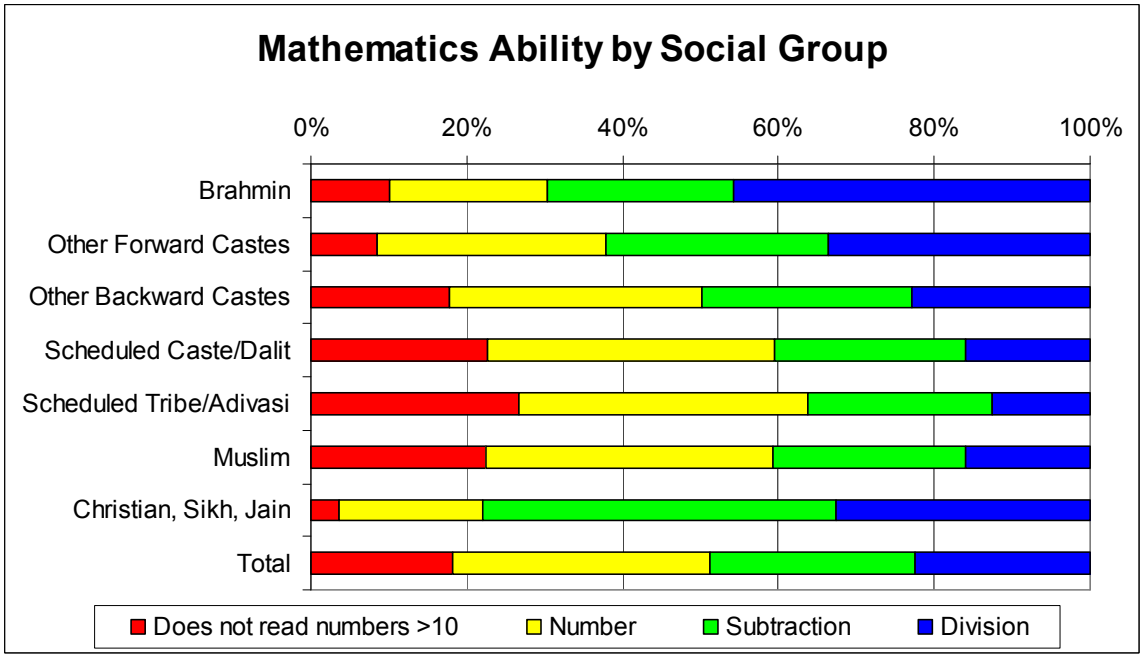
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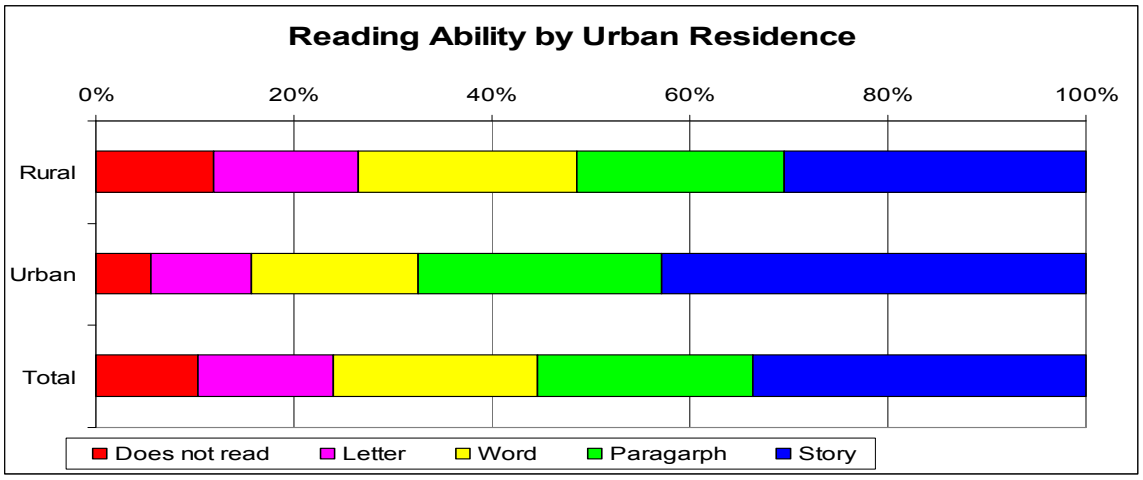
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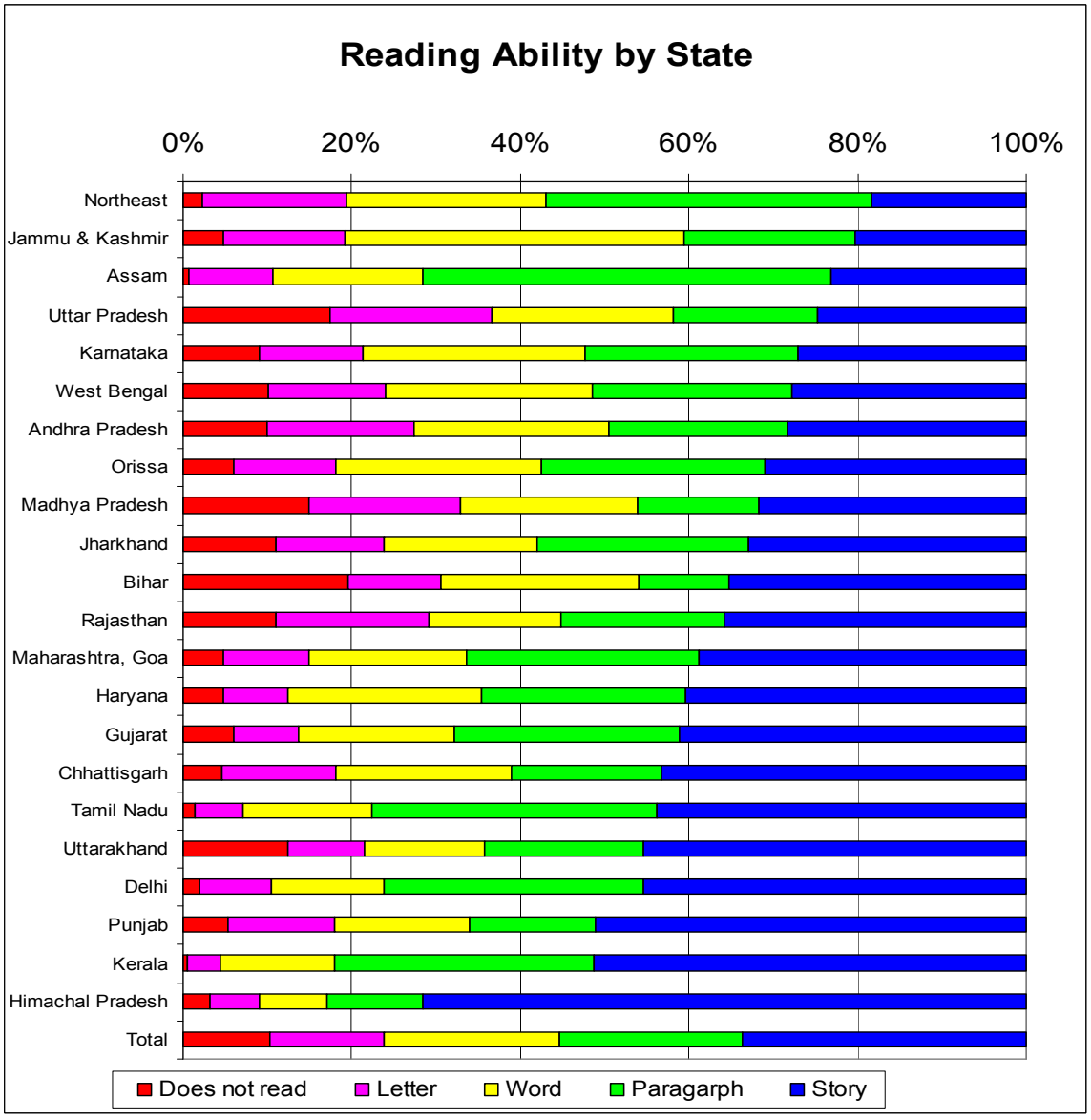
Reading Ability by State
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Northeast
Jammu & Kashmir
Assam
Uttar Pradesh
Karnataka
West Bengal
Andhra Pradesh
Orissa
Madhya Pradesh
Jharkhand
Bihar
Rajasthan
Maharashtra, Goa
Haryana
Gujarat
Chhattisgarh
Tamil Nadu
Uttarakhand
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Kerala
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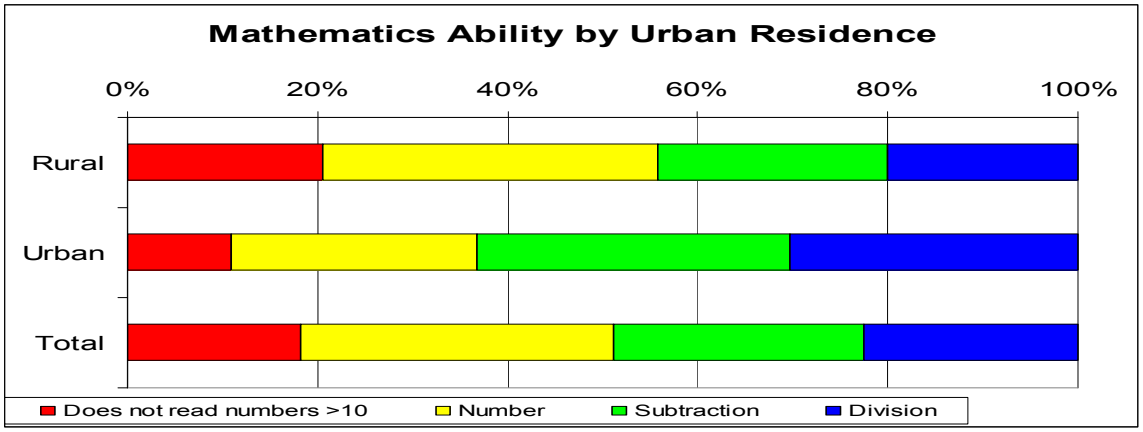
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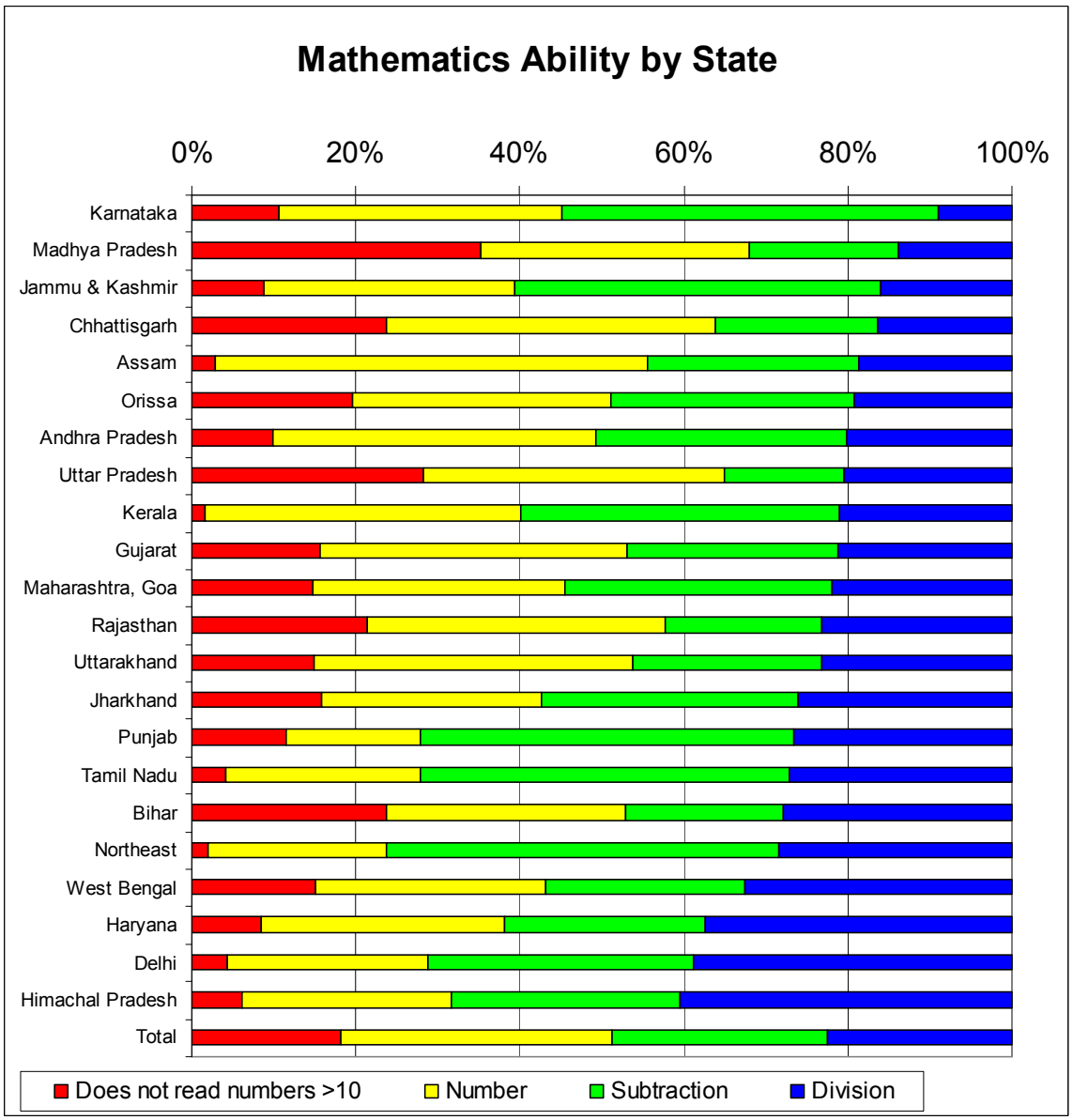
Mathematics Ability by State
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Karnataka
Madhya Pradesh
Jammu & Kashmir
Chhattisgarh
Assam
Orissa
Andhra Pradesh
Uttar Pradesh
Kerala
Gujarat
Maharashtra, Goa
Rajasthan
Uttarakhand
Jharkhand
Punjab
Tamil Nadu
Bihar
Northeast
West Bengal
Haryana
Delhi
Himachal Pradesh
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DIAGRAM 1:

MULTILEVEL RELATIONSHIP BETWEEN DIFFERENCES IN STUDENT EDUCATIONAL ACHIEVEMENT

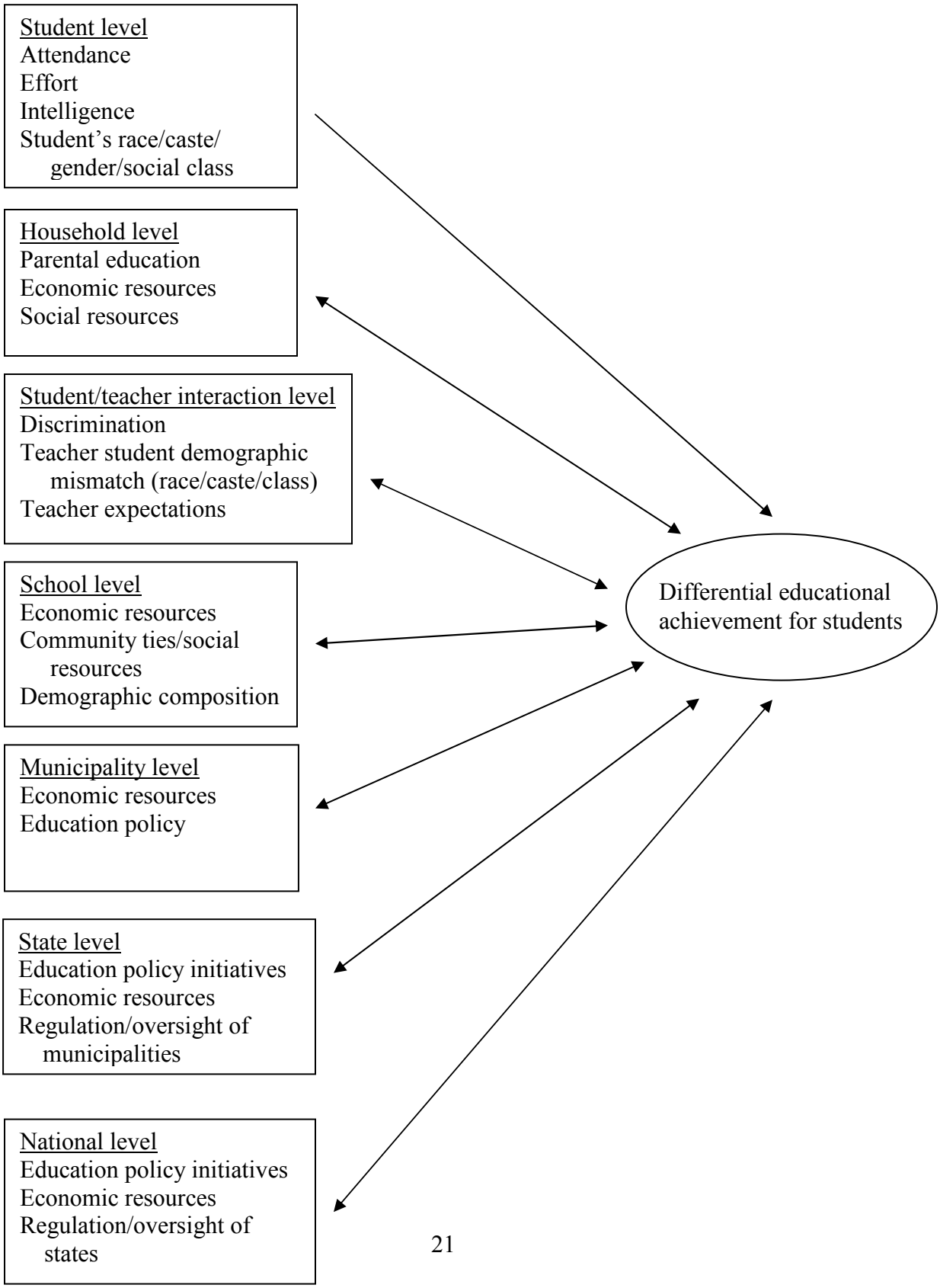

DIAGRAM 2:
MULTILEVEL RELATIONSHIP BETWEEN STUDENT EDUCATIONAL ACHIEVEMENT,
ECONOMIC AND SOCIAL RESOURCES, AND DIFFERENCES IN STUDENT EDUCATIONAL ACHIEVEMENT