The Urban (Dis)Advantage: Slums, School and Children's Work

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Urban children have long been advantaged in terms of educational and health outcomes. However, the recent trend of rapid urbanization and concentration of poverty may be changing that pattern. I examine how children living in slums fare in terms of educational attendance and work for pay compared to other urban and rural children. This paper uses data from the National Family Health Survey of India conducted from 2005-2006, making use of new urban oversamples providing extensive data on slum residents. Several important findings emerge. First, India has overall made remarkable progress toward universal primary education, reaching nearly 90% attendance. In secondary education, however, slum children are disadvantaged compared to both other urban and rural children; slums also experience faster declines in attendance, even when taking into account family and background characteristics. Both deficit and opportunity cost models are considered as explanations. Finally, contrary to much popular belief, once family and background characteristics are taken into account, rural children are actually more likely to be attending primary and secondary school. This research implies further work should be done elucidating the different predictors of primary versus secondary school attendance as well as reasons that slum children are less likely to be attending secondary school.

Urban children have long been more likely to have higher educational and health outcomes than their rural counterparts (Montgomery, Stren, and Cohen 2003). Since 1980, however, the urban advantage has come into question. In some cases, the trends have seemed to be reversing—rural means actually climbing *higher* than urban means (Montgomery et al. 2003). This is often surmised as being the result of an increase in the poor segments of the urban population, most often slum residents.

The United Nations projects that the world population will grow by 2 billion by 2030 and an additional 2 billion by 2050, and 70-90% of this growth will take place in cities of the developing world (Brockerhoff and Brennan 1998; Montgomery et al. 2003; United Nations Centre for Human Settlements 1996). Slums are a large concern related to urbanization, and the UN estimates that one third of urban residents around the world live in slums. As cities of the developing world are currently growing larger and poorer, estimates also show that newcomers to cities disproportionately end up in slums and fertility remains higher in poorer urban segments such as slums, meaning the proportion of developing world residents in slums will only increase with time. For example, Mumbai is projected to grow to a population of 33 million by 2025. Currently, the Indian government estimates that over half the population of Mumbai lives in slums (Bhatt 2000). In addition to some changing patterns of advantage, the norm of merely comparing urban and rural mean outcomes obscures inequality within each of these settings (van Poppel and van der Heijden 1997).

Cities have long been places of social mobility: poor rural residents migrating to cities find more educational and economic opportunities than in their former rural residents. This study looks at children's school attendance and work status to determine to what extent slum children are advantaged or disadvantaged compared to both rural children and non-slum urban children.

By examining children's schooling, I am able to address questions of whether slums are facilitators of mobility or are mobility traps. I focus my study on the country of India, one of the world's population and poverty juggernauts that has made several national efforts at improving access to education.

EDUCATION IN THE DEVELOPING WORLD

Education is a fundamental component of human capital, and a population's education level is a fundamental component of development. Education has long been seen as an effective and powerful means for achieving economic growth, reducing poverty, improving individuals' earning potential and empowerment, promoting healthy populations, and building competitive economies (Hanushek and Wossman 2007; UNESCO 2007; World Bank 2006). Universal children's schooling is considered so important that World Bank included it as one of the Millennium Development Goals. School enrollment of developing world children has been studied by both academics and policy practitioners interested in increasing enrollment as both a means and an end of development.

A wide body of literature has shown that a variety of family background characteristics impact a child's chances of being enrolled in school, including economic, parents' education and occupation, birth order and number of siblings, and whether or not a child is a biological child. Additionally, various contextual characteristics have been shown to be important factors predicting a child's chances of attending school, including rural versus urban residence (Huisman and Smits 2009); distance to the nearest school; quantity and quality of the local schools (Buchmann and Hannum 2001; Colclough et al. 2000; Ersado 2005; Handa 2002; Michaelowa 2001; Vasconcellos 1997); the makeup of the local labor market and the associated

expectations of the returns to schooling (Buchmann and Brakewood 2000; Colclough et al. 2000; Smits and Hosgör 2006); modernization; and percent of female teachers, which is particularly important for girls' school attendance (Thomas S. Dee 2006; Leach 2006; Michaelowa 2001; Colclough et al. 2000). Most recently, Huisman and Smits (2009) showed that in 30 developing countries, household effects varied widely by the local context.

Of those children not enrolled in school, many are engaged in work for pay outside their homes. Despite various public outcries against it, child labor remains widespread throughout the developing world (Bacolod and Ranjan 2008). The proportion of children engaged in child labor is declining, but the United Nations International Labor Office estimates that still one in six children in the world are engaged in economic activities, and this proportion is higher in the poorer parts of Africa and Asia, including India (International Labour Office 2006). There are many negative outcomes associated with child labor. Research has shown that working as a child laborer has a negative effect on both education achievement and adult wages (Emerson and Souza 2003, 2007a, 2007b), as children who are working are less likely to be enrolled in school, and with less education these children end up as poor adults (Basu 1999). This creates an intergenerational cycle of child labor or an intergenerational poverty trap: poor parents often are forced to send their children to work, the children get less education, they grow up to be poor as an adult, necessitating that they send their children to work instead of to school. There are other negative effects, as well. Child labor also often has physical dangers associated with it (Edmonds and Pavcnik 2005), and the child labor market often involves coercion and psychological pressures (Silvers 1996).

A growing body of literature, particularly in economics, has looked at the causes of child labor (Starting with Basu and Van 1998 and Grootaert and Kanbur 1995; For overviews of the

literature see Basu and Tzannatos 2003; Basu 1999; Brown, Deardorff, and Stern 2003). Many contemporary economists argue that child labor is not simply child abuse resulting from parental selfishness, but instead is a reflection of stark poverty that compels parents to send children to work for household survival.

Most research on children's labor implicitly assumes that the only alternative to child labor is schooling. In fact, a substantial proportion of children throughout the developing world are neither enrolled in school nor engaged in economic activities. These children are typically called "idle" children, referring to their idleness with relation to educational and economic activity. The extent of idleness varies considerably across countries, ranging from as low as 2% to as high as 35%. Many countries have over 20% of school age children idle, often outnumbering children engaged in economic work (Biggeri et al. 2003). The level of idleness also differs noticeably within countries, typically with rural children, girls, and young children experiencing more idleness than urban children, boys, and older children.

It may seem logical that many children not in school or working are needed for domestic work, such as caring for younger siblings, getting water from public water supplies, and cooking. However, the best cross-national study by Biggeri et al. (2003) indicates that less than half, and often as low as one fifth, of idle children are engaged in significant domestic work. On average no more than half of idle children are engaged in any significant domestic work, job searching, or are chronically ill. A research team in India found that children not attending school were mostly playing hopscotch, not working (De and Dreze 1999). Idleness is generally considered to have negative impacts on children, as current absence from schooling predicts future absence from schooling and lower lifetime educational attainment, resulting in lower earnings later in life.

No literature on children's school attendance, work, and idleness has covered the context of slums explicitly. The heavy bias in the literature on schooling is a focus on context in explaining disparities in rural and urban school enrollment, thus ignoring questions of how varying urban contexts may affect school enrollment. The only study to date that explicitly examines slum residence and child activities was a study of Kenya, finding that slum children[1] are less likely to attend school than their urban counterparts (Mugisha 2006). The literature on child labor and idleness almost completely ignore the urban or rural context. While the academic literature on American poverty has experienced a surge in the study of neighborhood effects (Wilson 1987; Sampson, Morenoff, and Gannon-Rowley 2002), the literature on the developing world has yet to focus on any local contextual factors such as neighborhoods in studies of poverty (Montgomery et al. 2003). Scores of academic and policy studies have shown that children are less likely to attend school in rural areas than in cities (Montgomery et al. 2003), and this is often considered the result of poor quality schools or long distances to the nearest school in rural areas (Huisman and Smits 2009). These explanations implicitly assume that urban children automatically are advantaged because they have better access to schools. This is a shaky assumption in the cities of the contemporary developing world. Additionally, urban contexts may have impacts beyond school facilities. Urban economies and in particular informal economies may provide more economic opportunities for children, encouraging labor force participation at the same time the existence of school facilities may encourage school attendance.

[1] Mugisha (2006) used a version of the United Nation's definition of slums drawn from the Millennium Development Goals. That is, to be considered a slum an urban resident must meet at least one of the following five criteria: lack of access to improved water, lack of access to improved sanitation, nondurable building materials, overcrowding of a residence, and insecurity of tenure.

POSSIBLE SLUM EFFECTS

While much literature has at least tangentially examined urban versus rural residence on children's school attendance, there are several potential effects the *kind* of urban residence (slums versus non-slum residence, in particular) may have on the activities of children.

Cultural deficits

In much middle- and upper-class popular dialogue in the developing world, slums are often considered to be refuges of poverty and "backward" conservative attitudes characteristic of rural areas. If this is true, it is possible that social norms develop in slums that do not promote schooling among children, but promote more traditional ideas about education and work, such as ideas that girls do not need or should not be highly educated, and that boys should be working to contribute to family income rather than wasting time in school. No research has rigorously examined whether or not those in rural areas actually hold more such conservative attitudes than those in cities. Economists would argue that attitudes toward children's schooling and work are directly affected by the local labor markets, and such attitudes would not become sui generis, taking on a life of their own divorced from economic conditions. These factors make this a tenuous argument, though publicly popular. While this study does not tackle questions of these attitudes directly, it does examine the outcome of schooling.

Related but distinctly different from the previous hypothesis, it is possible that slums function as many researchers argue neighborhoods of concentrated poverty function in the United States. Though there are heated debates on the proximate causes and mechanisms creating high poverty neighborhoods, starting with Wilson (1987) a body of literature has argued that the residential concentration of poverty isolates the poor from the non-poor and the corresponding resources, networks, and role models, leading to the development of a different set

of norms and beliefs in poor neighborhoods which ultimately cause negative outcomes. Various other researchers argue that high poverty neighborhoods have negative effects due to one or many other factors including high stress, social disorganization, lack of attachment to neighborhood institutions, lack of connections to information networks on jobs, lack of neighborhood resources, and difficulty creating political alliances to attract public resources. Specifically with regards to education, high poverty neighborhoods are related to lower education attainment or higher rates of dropping out (Ainsworth 2002; Small and Newman 2001). If we consider slums akin to high poverty neighborhoods in the American context, we might expect that living in slums would have similar effects to living in a high poverty neighborhood in the United States, leaving slum children more likely to be out of school and idle.

Structural deficits

Structural deficits are another reason one may expect slum residence to impact school attendance. Slum children may not have good access to government schools. Distance from schools has often been shown to be a predictor of school enrollment of children (Huisman and Smits 2009). Slum children may face one or multiple variations on the idea of distance. First, particularly in very large slums, children may actually be a considerable physical distance from a school. Even if there is not a large physical distance from a home to a school, covering that distance may be difficult making it akin to a long distance. Slums are often built on pieces of land that are undesirable for higher income residents, such as areas directly abutting highways and railroads, atop very steep slants, or along the banks of rivers. Additionally, some slums have higher crime, for example, perhaps making it difficult for children to get to school on their own.

Many slums are segregated by ethnicity or religion, and in places or times of ethnic and religious tension, children may not be able to venture across the boundaries of these groups. Finally, while Indian government policies and efforts have been aimed at increasing the number and availability of primary schools (through 8th or 9th grade), there has not yet been a similar effort for secondary schools. It is possible, then, that slum children may face all of these problems at a heightened level for secondary schools, which are fewer in number.

Second, in India and many other countries some, many, or all slums are not recognized as legal addresses by the local, state, and national governments; the slums and residents of those slums are not eligible for certain municipal benefits such as trash collection. In some places, government schools may not enroll students who live in illegal slums. Other slums in typically non-populated areas, such as along highways, riverbanks, on airports, or in heavily industrial areas, may not be included in the catchment areas for any government school, leaving children with no school to attend. Practices and laws regarding the administration and handling of slums vary greatly both between countries, cities, and municipalities and even within cities, as large cities are often broken up into local districts with their own sets of practices, making this difficult to test.

Opportunity cost models

There may also be slum effects on children's work and idleness. Children in slums likely have better access to more work than children in rural areas, as well as be in a labor market with higher demand, perhaps increasing the proportion of children working. Slums have particularly vibrant informal economies including a great deal of informal economic production that happens on the streets and in homes (Agarwala 2006). This informal economy may afford children living in slums more economic opportunities than both their non-slum urban counterparts and rural

counterparts. Alternatively, it is possible that the concentrated poverty of slums may isolate slum children from labor markets when compared to other urban children. The small body of work on idleness does not lend to any obvious impacts slum residence may have on idleness. Again, this is an empirical question that has yet to be answered.

EDUCATION AND POLICY IN INDIA

India is an obvious choice of country to undertake a study of slums, schooling, and disadvantage. The sheer size of India's total population also makes it an important case for studying: its population of 1.15 billion is approximately one-sixth of the total world population, and it likely contains an equal share of the world's absolute poor living on under $1 per day. India is experiencing high rates of urban growth: the country is projected to go from approximately one-third to two-thirds urban over the next thirty years (United Nations Centre for Human Settlements 1996). Additionally, India has a substantial slum population. In the 2001 census data on slums were collected, and estimate that 22% of urban residents are slum dwellers, with cities such as Mumbai reaching over 50% of the urban population in slums.

In terms of education, India is committed to increasing enrollment and access to education for its entire population. In fact, education is a right guaranteed to citizens in the Constitution: "The State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine". A large network of government schools fills this need, but these schools have been of varying quality and accessibility for decades following the country's independence.

Starting in 1986, India's New Education Policy made primary education a national priority and committed increasing resources to this end, up to at least six percent of the GDP per

year. Several federally sponsored programs were launched to improve primary education. In 1994 the District Primary Education Programme (DPEP) was started by the federal government, aimed at universalizing primary education by reforming and revitalizing the primary education system, particularly in rural areas which tend to suffer from low enrollment. The program opened 160,000 new schools, delivering education to approximately 3.5 million children (Ministry of Information and Broadcasting 2009). In 2002, the Indian government in conjunction with the World Bank, UNICEF, and over 7,000 small NGOs launched a new education program called Sarva Shiksha Abhiyan (loosely translated to "Education for all now") which builds on the initiatives of the earlier DPEPs to improve access to education by creating more local schools, training teachers, developing teaching materials, and monitoring learning outcomes. Sarva Shiksha Abhiyan was the first program to support upper primary education for grades six through eight (World Bank 2009). In the same year, the Supreme Court of India announced a groundbreaking ruling on the right to food, directing the federal government to fully implement a scheme to provide cooked, mid-day meals free of charge to all children in primary schools. This has not only had nutrition benefits for children, but also has attracted students to schools and thereby increased enrollment.

Secondary education has only recently entered the public dialogue as an important and necessary next step in India's development. Traditionally, the low rates of secondary school attendance were seen as a compounded consequence of low primary school enrollment. The view clearly has merit since as primary school enrollment rose, so did demand for secondary school. Prime Minister Manmohan Singh in his 2007 national Independence Day address recognized the trend and urged it forward. "As our primary education programmes achieve a degree of success," he noted, "there is growing demand for secondary schools and colleges. We

are committed to universalizing secondary education. An extensive programme for this is being finalized." Progress on this frontier remains elusive, however. No major national programs have yet tackled the problems of low secondary school enrollment. In 2004 the Ministry of Human Resource Development of the Government of India commissioned a report on the universalization of secondary education (CABE Committee 2004). Though government schools are legally supposed to be free, recent government studies show that secondary school students (even those attending free government schools) incur expenses for schooling, including for books, uniforms, transportation, and testing fees (Mehta 2002). Government commissions and others have called for increased financial support for secondary education (such as free books), as well as vastly expanded secondary education infrastructures, particularly to serve traditionally disadvantaged groups.

India is a country of great extremes and inequality in education. It is worthwhile to note that at the high end of Indian education, there are the world class Indian Institutes of Technology, with ferociously competitive admission and a physics establishment that rivals many developed nations. India also has the longest track record of any country with affirmative action; in efforts to reduce caste inequality, in each entering class for college a certain number of spots are reserved for children of scheduled castes and tribes. At the same time, the vast majority of Indian children never see the inside of a high school.

THE RESEARCH GAP

I aim to fill gaps in our knowledge about the disadvantages associated with slum life in terms of children's school enrollment, work, and idleness. I investigate simple yet important unanswered questions: do children in slums attend school at lower rates than their urban and

rural peers? Are they more likely to work for pay? If there are disparities in school attendance, work, and idleness by location, how much of these disparities are attributable to differences in family and background characteristics, such as socioeconomic status?

METHODS

Data for this chapter come from the third wave of National Family Health Survey, conducted in 2005-2006. The survey is under the purview of the Ministry of Health and Family Welfare of the Government of India and is the Indian component of the Demographic and Health Surveys. The household survey covers a wide array of household characteristics, as well as asking a set of detailed questions for up to 35 household residents. I use data on children ages 5-18 at the time of the study. Information is gathered for all children at these ages on their school attendance. For analyses including information on children's work activities, the sample is limited to children ages 5 through 14, as the NFHS surveys ask about work only for children through age 14.

The NFHS-3 data are by far the best data for this study. These data are the first to use rigorous data collection across India on slums. For the first time, the third wave of the NFHS collected oversamples in eight cities based on the 2001 Indian Census to obtain slum and non-slum estimates for population and health indicators. These cities are Delhi, Chennai, Hyderabad, Indore, Kolkata, Meerut, Mumbai, and Nagpur. These oversamples of urban areas for slum and non-slum estimates make the NFHS data unique and very rich in possibilities for looking at slum residents and disadvantage. While some other national surveys of India have included markers of slum residence, these surveys present a much less a detailed picture of living conditions for

each household surveyed. The comprehensiveness of these data allow me to conduct analyses of slum outcomes that no other research has been able to do.

The question of how to measure and define slums is an important one worthy of its own analysis and study. For ease of measurement and interpretation as well as comparison and replication with other studies, for this paper I use the Indian census definition of slums. That is, a place is a slum if in the 2001 Indian census it was defined as a slum. This definition allows for comparison to census data as well as replication in future studies.

I examine the effects of residence on children's activities using two modeling strategies. First, because school attendance receives the most attention and focus, I predict the chances of a child being enrolled in school using logistic regression. I look at the effects of residence alone, as well as including a wide set of family and background characteristics that have been deemed important to school enrollment in the literature on schools in the developing world. Next, I use multinomial logit regression to predict children's activities in one of four categories: in school only, working only, neither working nor in school (idle), and both in school and working. Again, I examine the raw effects of residence, then examine the effects of residence over and above family and background characteristics.

Ideally a hierarchical or fixed effects model would be used to allow for effects at the neighborhood level. Unfortunately, geocodes and the neighborhood clusters indicators are not currently available due to privacy concerns of the Indian government's, rendering such models impossible. To account for this, I ran models interacting the residence variables with each of the independent variables; I also ran separate models for each location. On the whole, these models were not informative, and unless specifically discussed there were no differences in estimates across locations. To allow for clustering in the data, I only consider significance at the $p<0.01$

level, rather than the standard $p<0.05$ level. Since clustering does not bias point estimates but instead artificially deflates standard errors, using a lower level of significance accounts for this.

The set of family and background characteristics I include in my models are rooted in the large literature on children's school attendance, work, and idleness. Table 1 shows the full set of family and background variables I include in my model and their coding. Several socioeconomic factors affect children's school enrollment. Children from families with more economic resources are more likely to be enrolled in school (Basu 1999; Huisman and Smits 2009). Economic resources mean parents can pay for direct costs such as school fees and books. Additionally, families with more economic resources face lower opportunity costs of their children not being able to work or contribute to family income. For this paper, the log of NFHS wealth index is used for a measure of wealth.

—Table 1 about here—

Father's occupation has been found to have an impact on school enrollment. (Breen and Goldthorpe 1997; Huisman and Smits 2009). Unfortunately, the data on father's occupation are quite limited, and approximately two-thirds of the children in the sample are missing data on their fathers' occupation, either due to having a missing father or sampling design. As such, I do not include father's occupation in the models.

Mothers' employment status could have competing effects on children's school enrollment. A working mother may necessitate girl children staying at home to complete domestic chores. Alternatively, a mother working may increase her power to send her children to school. The literature is not conclusive on these effects. I include a dummy variable for whether or not a mother works outside the home.

Lastly, parents' with more education more often have children who are enrolled and stay in school (Buchmann and Brakewood 2000; Colclough et al. 2000; Ersado 2005; Smits and Hosgör 2006; Mugisha 2006; Huisman and Smits 2009). For girls, maternal education is especially important (Emerson and Souza 2007a). I code parents' education into four categories: no education, primary education, secondary education, and higher education.

The second set of family level factors often important for school enrollment is demographic factors. These include things such as living with extended family, a child's birth order and number of siblings, having a missing parent, and being a biological child. Younger children often have more opportunities to go to school because older children are responsible for domestic or outside work (Buchmann and Hannum 2001; Emerson and Souza 2008; Huisman and Smits 2009). I use a child's birth order as a number corresponding to their birth order, so a first child is coded 1, the second child is coded 2, and so on[2]. Often (although not always) the literature often finds that more children in a family means lower chances of children attending school (Buchmann and Hannum 2001; Pong 1997; Chernichovsky 1985; Huisman and Smits 2009), perhaps because resources are being split among more children, leaving less money for each child's schooling. I include the number of children in the family.

RESULTS

Table 2 shows basic descriptive statistics on the activities of children by place of residence. These numbers are for children ages 5-14. Although school attendance was asked of children up to age 17, questions about children's work outside the home were only asked of

[2] Though some studies lump birth order together (Huisman and Smits 2009), implying that higher order births are not distinguishable from one another, I consider each birth on its own. I ran models both ways, but there were no substantive differences in the results.

children ages 5 to 14. This is an unfortunate inconsistency in the survey that is worked around as best as possible in these results. The first important finding in Table 2 is that across place of residence, a large majority of children are enrolled in school, ranging from 69% in rural areas to 76% in non-slum urban areas. Non-slum urban children do attend at higher proportions than either rural or urban slum children, however. Very few children overall are engaged only in work outside the home, from 2 to 3 percent. There are surprisingly high percentages of children who are neither working nor in school. Nearly one quarter of rural children are idle, and 17-19% of urban children are idle. Lastly, more children are both working and in school than working alone, and slum children are more represented at 7% in this category than are either other urban children or rural children.

—Table 2 about here—

More descriptive statistics are presented in Figure 1, Figure 2, and Figure 3, showing the age patterns of school, work, and idleness by place of residence. Figure 1 shows school attendance through age 17. Overall, school enrollment rises with age until around age 8, when in all locations attendance is very high at 85-90%. Around age 11, coinciding with the shift to late primary education, attendance starts to drop. The patterns by residence are interesting: slum children's school attendance is close to that of non-slum children until age 10 or 11, when it falls off and becomes more similar to proportions of rural children. By the middle and late teenage years, there are large differences in proportions of children attending school. At ages 15 and later, the difference in urban non-slum children's school attendance and both rural and slum children's school attendance is roughly 20%. This implies that though the numbers in Table 2 indicate smaller differences in school attendance, these disparities grow considerably past age 14 (as included in that table). Were family and background characteristics the sole factor

responsible for differing rates of school attendance by place, the age trends in school attendance should be parallel to one another. The marked change in slum children's school attendance by age suggests that slums have some relationship to school attendance not solely explained by background.

—Figure 1, Figure 2, and Figure 3 about here—

Figure 2 shows the proportion of children working outside the home by age, regardless of school attendance status. Proportions of children working outside the home increase with age across residence. Slum children are most likely at all ages to be working. Other urban children and rural children have similar rates of working outside the home. Figure 3 shows the proportion of children idle by place. The proportion of children idle starts near 70% for all residence locations then drops quickly with age before leveling off around ages eight and nine. Around age eleven the proportions begin to slightly rise again, increasing between 5 and 10% by age 14. Still, of children ages eight to fourteen, no more than 20% of children are idle, and considerably fewer at some ages.

Next, I consider the impact of family and background characteristics in explaining differences in activities by place of residence. First, I examine school enrollment alone using logistic regression. Table 3 shows results from logistic regression models predicting child school attendance in the year of the survey. Model 1 shows the raw effects of location. Model 2 includes the set of background characteristics. Because of the patterns observed by age in the descriptive data, an age squared term is included to capture the shape of enrollment seen in the graph in Figure 1.

—Table 3 about here—

Many of the results in the final model are what one would expect given the literature. The chances of a child being in school rise with age, and then fall, as indicated by the age and square of age terms. Wealth predicts higher school attendance. Girls, Muslim children, and children from scheduled castes, scheduled tribes, and other backwards castes are all less likely to be attending school. Parents' characteristics also predict school attendance: mothers and fathers having no education predicts lower chances of school attendance, and fathers having secondary and higher education positively predict school attendance. Having a missing father results in 20% lower odds of being in school, as does having a missing mother. Children in larger families also have lower chances of attending school.

Next we move to our variables of interest, the location of residence. In the bivariate models, residence has clear effects. Children in non-slum urban areas have odds of being school that are 1.8 times the odds of both slum and rural children, who are indistinguishable from one another. Once controlling for family and individual characteristics in model 2, however, children in slums are at the highest risk for not attending school.

Theorizing that family and individual characteristics may have varying impacts across locations, I ran models including interaction terms of residence and individual and family predictors, and I also ran separate models predicting school attendance in rural, slum, and non-slum urban areas to compare how coefficients differ across models (results not shown). Overall, almost all of the predictors had very similar effects in rural, slum, and other urban areas. Only a few predictors had different impacts across location of residence. Wealth was the first, and had the clearest relationship with location and schooling. Wealth has the strongest influence in non-slum urban areas, followed by slums and finally rural areas. In particular, the wealth coefficient for non-slum urban areas is 2.13, compared to a coefficient of 1.44 in slums and 0.7 in rural areas

(each of these is significant at the $p<0.001$ level). One way of interpreting this is that wealth buys the most advantage in non-slum urban areas, whereas it buys the least advantage in rural areas, with slums falling somewhere in the middle. Additionally, the interactions show that girls are less likely to attend school only in rural areas; in slums and non-slum urban areas, girls are as likely to be in school as boys. The coefficient for being female is -0.56 in rural areas ($p<0.001$), compared to coefficients that are not significantly different from zero in both types of urban areas.

Table 4 shows results from a multinomial logit regression of children's activities on predictor variables. Children can be in one of four outcome categories: attending school only, working only, idle (neither in school or working), or both working and in school. Because school attendance is implicitly considered the ideal activity for children in the literature, school attendance is the base outcome that other outcomes are compared against. The first model, including just residence and age, is shown on the top half of the table. Here, we see some varying patterns of the effect of residence. Rural and slum children are more likely than urban non-slum children to be idle instead of in school. Slum children are more likely than any other children to be working instead of in school. And lastly, all urban children (slum and otherwise) are more likely to be both working and in school than rural children.

—Table 4 about here—

These patterns change once child and family characteristics are taken into account. All else held equal, rural children are less likely to be idle, working, or working and in school rather than just in school as compared to all urban children. This is an important finding, as the literature often considers structural factors (such as the lack of nearby schools) as the reason rural children have lower rates of school attendance, whereas this research suggests that once

family characteristics are taken into account, rural children are actually more likely to attend school.

Various other interesting patterns appear in these models with regards to family and child characteristics. Idleness is related to several factors, including being female, of a scheduled castes and tribe, or Muslim, having a missing mother, and having a mother with low education. Working has varied predictive factors. Children with working mothers are much more likely to be working themselves whereas higher wealth and having a father with a secondary or higher education predicts lower chances of working. Lastly, looking to both working and being school. Girls are less likely to be both working and in school than just in school, whereas children with working mothers are more likely to be working while in school than just in school.

Again theorizing that the mechanisms at work may be different across places of residence, I ran models interacting location of residence with the individual and family predictors (results not shown). Overall, the vast majority of individual and family factors have the same impacts across location. Again, wealth had varying impacts. Wealth predicts higher chances of being in school than being idle, but this effect is almost twice as strong in urban non-slum areas than in rural or slum areas (slum effect size -0.92, rural effect size -0.92, urban non-slum effect size -1.57, all significant at $p<0.001$). This can be interpreted that wealth protects against a child being idle, but it is much more protective in non-slum urban areas than in slums or rural areas. Wealth predicts higher chances of being in school as compared to working, but this impact is less in rural areas than urban areas, either slum or non-slum (slum effect size -1.81, rural effect size -1.81, urban non-slum effect size -0.6, all significant at $p<0.01$). Here the interpretation may be that wealth protects against child labor, but it is much more protective in urban areas (slum or non-slum) than it is in rural areas.

The logistic model predicting school attendance shows that slum residence is negatively related to school attendance, all else held equal. The multinomial model reports that slum residence has no relationship with school attendance when family and individual characteristics are taken into account. On the surface, this seems to be conflicting reports of how slum residence may matter. To further investigate the exact nature of this relationship, I revisited logistic models predicting school attendance. As seen in Figure 1, the raw proportions of slum children attending school from around age 14 and on drop more quickly for slum children than other urban children. The multinomial models only look at children through age 14, as children's work is only considered through this age. Thus, it may be that slum residence has a negative impact on school attendance at older ages, and the multinomial model may not be reflecting this given its inclusion of only ages 5 through 14. I revisited logistic models, this time running separate models for children ages 5-13 and children ages 14-18, reported as models 3 and 4 of Table 3. Here, we see that slums are indistinguishable from other urban areas under age 14, but are negatively associated with school attendance from age 14 and on, even taking into account family and background characteristics. This explains the discrepancy between the model predicting school attendance alone and the multinomial models: slum residence is only negatively related to school attendance in children of secondary school age.

The primary and secondary school separate models indicate that several individual and family characteristics have very different effects on primary versus secondary school attendance. Wealth is a stronger predictor of secondary school attendance than primary school attendance. The impact of parents' education varies considerably for primary and secondary school attendance. For primary school attendance, both the mother and father's completion of primary school is a positive predictor of a child attending school, while having a secondary education or

higher has no additional benefit. For secondary school attendance, however, parents having secondary education and higher education has increasing impacts. For instance, a child whose mother has a secondary education is has odds of being attending school 1.6 times those of a child whose mother has only a primary education, and a child whose mother has higher education has odds twenty-four times greater. The same pattern follows with paternal education: a child whose father has a secondary education has odds of attending secondary school 1.5 times higher than other children, and a child whose father has higher education has four times the odds of attending secondary school.

CONCLUSIONS

There are three important results pertaining to residence and children's activities found in this research. First, living in slums predicts lower chances of a child being enrolled in secondary school, but not primary school. This indicates that something is going on that causes more children in slums to stop their schooling after primary school than in other urban areas or rural areas, all else held equal. Given the current state of secondary education in India, and in particular the lack of any centralized effort to reform and universalize secondary education, it is likely that slum children face a lack of infrastructure. Observation in various slums in India indicates that primary schools are relatively common and accessible, but secondary schools are scarce. In addition, as Agarwala (2006) showed the incredibly abundance of low-skilled, home based informal work in slums, it is likely that older slum children have many economic options in the informal economy. It is likely that the scarcity of secondary schools, combined with an abundance of informal work opportunities create the low rates of secondary school attendance for slum children. As India moves forward with plans and policies to universalize secondary

school attendance, the disadvantages of slums should be a focus of narrowing the gaps between marginalized and dominant groups. Further research should be done to better understand these forces at work amongst older children, including in-depth quantitative and qualitative work examining school and informal work in secondary school age slum children.

The finding that slum residence is important to secondary school attendance but not primary school attendance raises a more general issue: the predictors of secondary school attendance are not the same as the predictors of primary school attendance. The vast majority of literature on school attendance in the developing world either focuses solely on primary school attendance or lumps all school attendance through age 18 together. This research indicates that lumping primary and secondary school together would be a mistake, as the predictors of each are unique. In particular, it seems that more attention needs to be given to looking at secondary school attendance as primary school attendance rates climb near saturation. In India, for example, my data show that by age 11 around 90% of all children are attending school, leaving only room for small improvements. Vast improvements are needed in secondary school attendance, however. A new line of research investigating secondary school in the developing world is needed to further international goals of improved education for the developing world.

The next major finding in this chapter is that for children ages five through fourteen, rural children are not in fact disadvantaged in terms of school attendance. In fact, once taking into account family background, rural children are actually more likely to be in school than their urban counterparts. This finding runs counter to much of the literature as well as to many of the implicit assumptions of development practitioners that focus on increasing access to education in rural areas. Many studies of the developing world continue to show that rural children have lower levels of school attendance, even controlling for socioeconomic and other family

characteristics. This does not mean, however, that these data are flawed or incorrect. Rather, it is possible and even likely that the high levels of primary school attendance that India have achieved make it different from many other developing world countries, such as much as sub-Saharan Africa. Having reached very high levels of primary school attendance, it is possible that India is facing a new set of challenges with regard to education. Rather than rural residence being a detriment, it appears that urban residence may be a detriment to school attendance. Again, further research is needed to investigate why this shift has taken place and why urban children may be disadvantaged. It may be, for instance, that the more vibrant economy of cities draws more children to work and out of school. As an increasing proportion of developing countries reach high primary school attendance, India's patterns are likely to become common to many countries.

This research points to the fact that some family and background characteristics vary by place. Most notably, wealth appears to buy more advantage and protection in some areas. Family wealth buys children the most advantage in school attendance in non-slum urban areas, followed by slums, and finally rural areas. This suggests that rather than being great equalizers where the poor experience greater access, in fact cities may further entrench inequality by rewarding the rich even more than in rural areas. Again, this is a fine point that begs for more study into how wealth plays out in various contexts. As India and the rest of the world continue to rapidly urbanize, the nature of inequality will shift from being predominantly an urban-rural inequality to an intra-urban inequality. The finding in this paper that wealth buys more in cities than rural areas suggests that cities may actually expand inequality by rewarding the wealthy more than in rural areas. In this research I examined advantages wealth confers for educational attendance. As education is one of the best tools to reducing poverty and inequality, the greater advantages of

wealth in urban areas are somewhat alarming, particularly given than wealth most certainly confers additional advantages in not just school attendance but the quality of schools attended as well.

Lastly, this data support the conclusion that India has made phenomenal progress toward universal primary enrollment. Enrollments of around 90% for all groups around ages seven through eleven indicate a great deal of success in implementing universal education. If India and other countries can tackle the problems of secondary education with as much force and gusto as it tackled primary education, universal secondary education is within it reach.

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FIGURES AND TABLES

Table 1: Descriptions, measurements, and means used in the analysis by place of residence, National Family Health Survey 2005-2006

Variable Description	Measurement	Rural	Slum	Urban non-slum
Wealth	Log of DHS wealth factor score	11.5 (.76)	12.2 (.41)	12.5 (.34)
Mother's employment	Employed = 1	48.0%	33.5%	24.8%
Father's education				
No education	Yes = 1	28.0%	25.8%	11.8%
Primary	Yes = 1	14.5	12.1	7.3
Secondary	Yes = 1	28.2	31.8	39.1
Higher education	Yes = 1	3.3	7.2	22.4
Mother's education				
No education	Yes = 1	53.7%	45.2%	24.9%
Primary	Yes = 1	11.8	7.9	7.1
Secondary	Yes = 1	16.9	27.3	35.5
Higher education	Yes = 1	1.0	3.9	16.9
Total kids in home	Number of kids in the home	3.77	3.85	3.18
Female child	Female =1	49.7%	47.7	46.5
Missing parent				
Father missing	Yes = 1	25.8	23.1	19.2
Mother missing	Yes = 1	16.5	15.8	15.4
N		38,642	3,324	4,380

Table 2: Proportion of children in work, school, and idleness by place of residence, National Family Health Survey 2005-2006

	Rural	Urban slum	Urban non-slum
School only	69.3%	70.8%	76.0%
Work only	2.1	3.3	2.0
Idle (no school or work)	24.5	18.8	17.2
Both school and work	4.1	7.0	4.8
N	71791	7035	9150

Table 3: Odds ratios and standard errors from logistic regression of school attendance on residence and background characteristics

	Model 1		Model 2: Full Model		Model 3: Ages 5-13		Model 4: Ages 14-18	
	OR	SE	OR	SE	OR	SE	OR	SE
Residence								
Rural	1.00	0.04	1.86***	0.05	1.60***	0.06	2.56***	0.08
[Reference = Slum]	1.00		1.00		1.00		1.00	
Urban non-slum	1.90***	0.06	1.19**	0.06	1.03	0.08	1.28**	0.09
Child Characteristics								
Age	4.01***	0.02	4.71***	0.02	15.18***	0.05	0.04***	0.44
Age squared	0.94***	0.00	0.93***	0.00	0.88***	0.00	1.09***	0.01
Female child			0.70***	0.02	0.77***	0.03	0.59***	0.04
Family Background								
Wealth			2.08***	0.02	1.86***	0.02	2.94***	0.04
Scheduled caste			0.72***	0.04	0.74***	0.05	0.70***	0.06
Scheduled tribe			0.81***	0.04	0.77***	0.06	0.96	0.07
Other backwards caste			0.73***	0.03	0.75***	0.04	0.75***	0.05
Muslim			0.62***	0.03	0.61***	0.04	0.59***	0.05
Christian			0.99	0.06	0.73***	0.08	1.75***	0.11
Other non-Hindu religion			1.06	0.07	0.79***	0.09	1.82***	0.12
Mother has no education			0.59***	0.04	0.54***	0.05	0.64***	0.08
Mother has secondary education			1.11	0.05	1.03	0.06	1.62***	0.1
Mother has higher education			0.92	0.11	0.84	0.13	24.29**	1.01
Mother not in home			0.79***	0.06	0.55***	0.09	0.47***	0.11
Mother works outside home			0.94	0.03	1.03	0.04	0.73***	0.06
Number of kids in home			0.92***	0.01	0.94***	0.01	0.92***	0.02
Father has no education			0.68***	0.04	0.59***	0.05	0.73***	0.07
Father has secondary education			1.20***	0.04	1.07	0.05	1.52***	0.07
Father has higher education			1.46***	0.08	1.07	0.1	4.22***	0.23
Father not in home			0.80***	0.04	0.67***	0.06	0.84	0.08
Observations	46346		46346		31282		15064	
Pseudo R-squared	0.13		0.23		0.24		0.24	

** p<0.01, *** p<0.001

Table 4: Relative risk ratios from multinomial logit models of children's activities on residence, child, and family characteristics, National Family Health Survey 2005-2006

	Idle vs. Attending School		Working vs. Attending School		Working and in school vs. Attending School	
	Odds ratio	SE	Odds ratio	SE	Odds ratio	SE
Model 1						
Residence						
Rural	1.09	0.06	0.61***	0.11	0.67***	0.09
[Reference=Slum]	1.00		1.00		1.00	
Urban non-slum	0.58***	0.08	0.57***	0.16	1.02	0.11
Age	0.13***	0.04	0.44***	0.11	1.07	0.08
Age squared	1.09***	0.00	1.05***	0.01	1.00	0.00
Pseudo R-squared	0.112					
Model 2						
Residence						
Rural	0.60***	0.06	0.30***	0.13	0.69***	0.09
Urban non-slum	0.90	0.08	1.17	0.16	1.08	0.11
Child characteristics						
Age	0.09***	0.04	0.28***	0.12	1.12	0.08
Age squared	1.12***	0.00	1.07***	0.01	1.00	0.00
Female child	1.31***	0.03	1.03	0.07	0.78***	0.05
Family background						
Wealth	0.52***	0.02	0.52***	0.05	1.12	0.05
Scheduled caste	1.34***	0.05	1.32	0.12	1.07	0.08
Scheduled tribe	1.28***	0.06	1.12	0.13	1.02	0.10
Other backwards caste	1.32***	0.04	1.43***	0.10	0.87	0.07
Muslim	1.63***	0.04	1.36**	0.10	0.63***	0.08
Christian	1.35***	0.08	0.75	0.23	0.44***	0.18
other	1.20	0.09	0.88	0.21	0.54***	0.18
Mother has no education	1.82***	0.05	1.84***	0.15	1.08	0.08
Mother has secondary education	0.96	0.06	0.78	0.20	1.17	0.09
Mother has higher education	1.27	0.13	0.15	1.04	0.69	0.20
Mother not in home	1.80***	0.09	1.68**	0.20	1.20	0.15
Mother works outside home	0.92	0.04	2.16***	0.09	1.35***	0.06
Number of kids in home	1.06***	0.01	1.26***	0.03	1.06	0.02
Father has no education	1.67***	0.05	1.52***	0.11	0.80**	0.08
Father has secondary education	0.96	0.05	0.54***	0.14	0.89	0.08
Father has higher education	0.90	0.10	0.27**	0.47	0.63***	0.14
Father not in home	1.42***	0.06	1.52***	0.12	0.56***	0.10
Psuedo R-squared	0.182					
N=34006						

** p<0.01, *** p<0.001

Figure 1: Proportion of children attending school by place of residence, National Family Health Survey 2005-2006

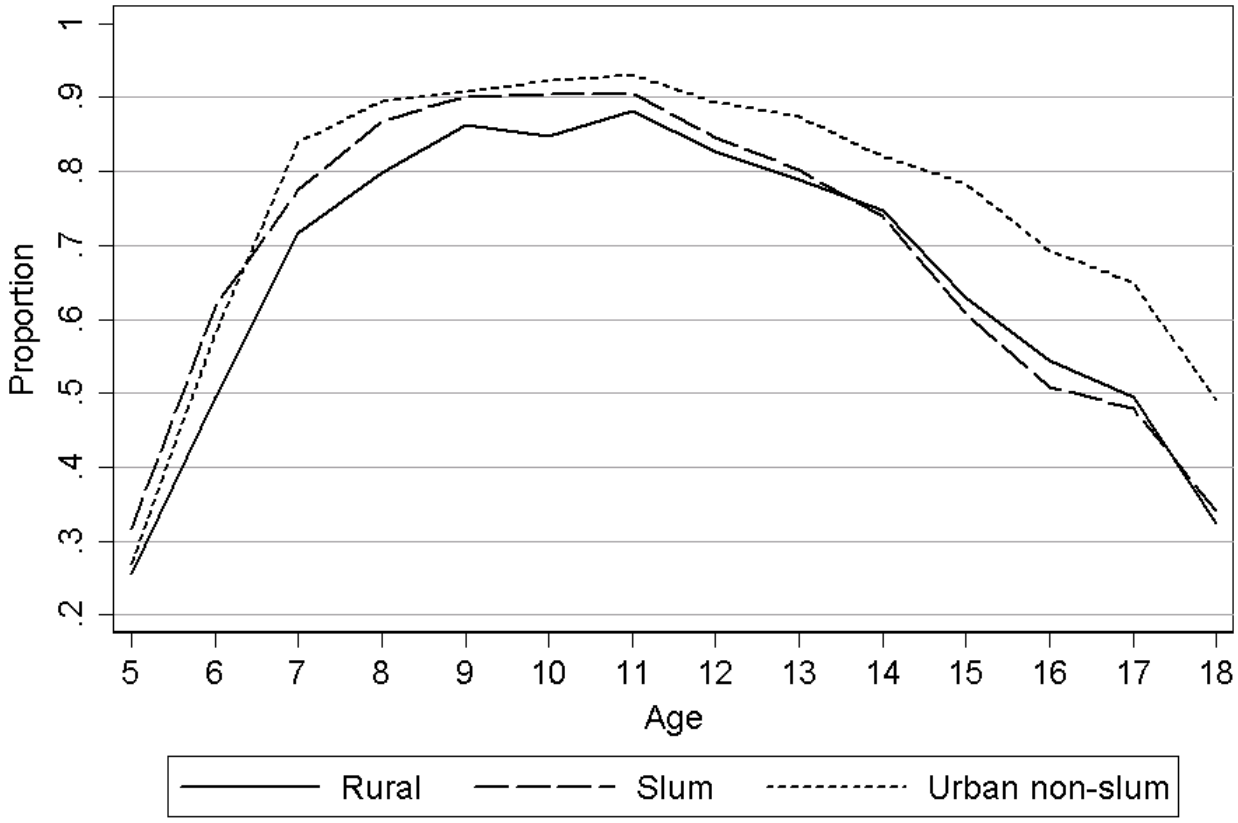

Figure 2: Proportion of children working outside the home by place of residence, National Family Health Survey 2005-2006

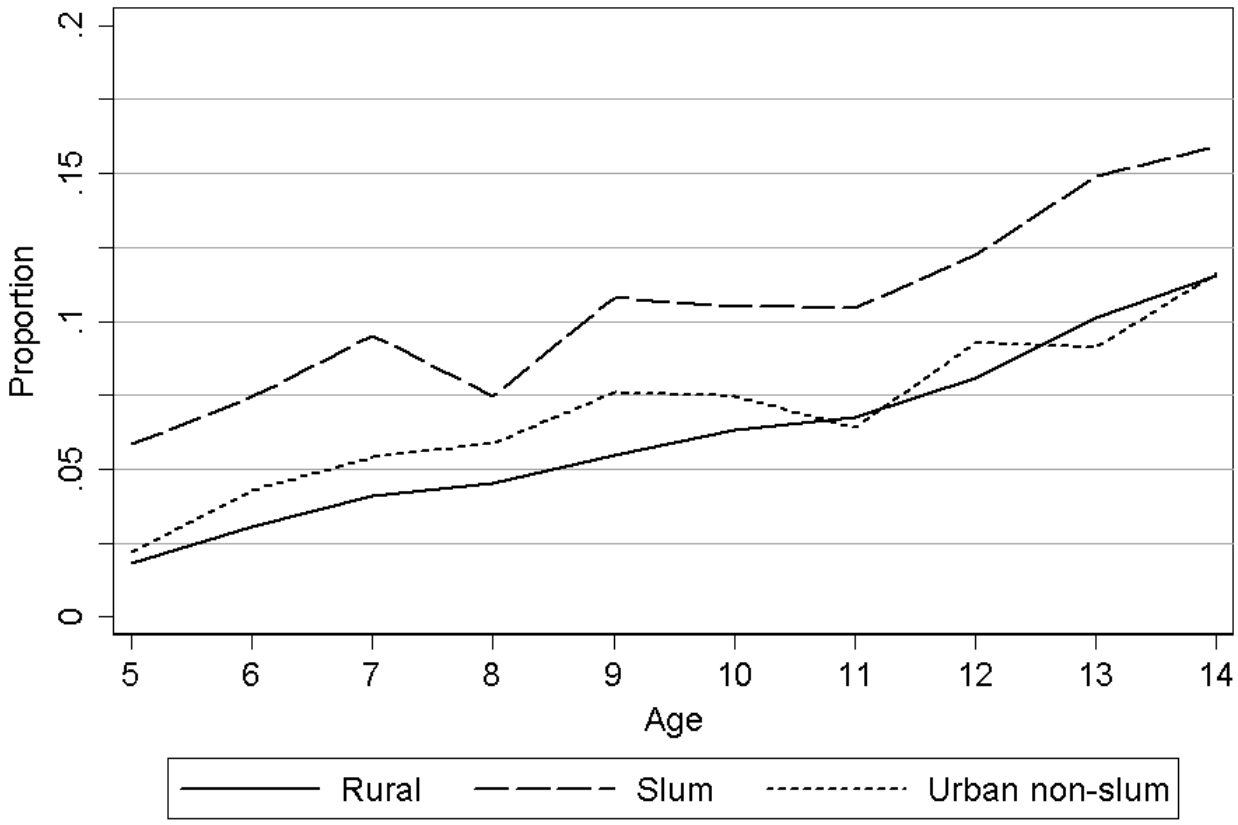

Figure 3: Proportion of children idle by place of residence, National Family Health Survey 2005-2006