In the United States and Europe, children reared by both biological parents experience educational advantages over both children in step-families and those raised by sole parents: more years of schooling, greater likelihood of high school completion, higher grades, higher standardized tests scores, and more (e.g., Amato and Keith 1991, Boggess 1998, Hampden-Thompson 2009, Magnuson and Berger 2009, McLanahan and Sandefur 1994; Popenoe, Elshtain, and Blankenhorn 1996, Shriner, Mullis, and Shriner 2010). Comparative education research has shown that living with both biological parents confers the greatest advantage in the highest income countries (Schiller, Khmelkov, and Wang 2004; Chiu 2007), but has done little to explain why living in intact families does not contribute more to the education of children in poorer countries. Further, there is scattered evidence that children living with only one parent have *better* educational outcomes than those living with both (Scott et al. 2013 for Ethiopia, Kenya, Nigeria, India, Egypt, and Turkey; Park 2007a for Indonesia and Thailand; Fuller and Liang 1999 for South Africa).

We make several significant contributions to what is known about the relationship between children's living arrangements and their school attendance in poorer countries. First, we map how the presence of biological parents in the household affects current-year school attendance across 67 countries—a much broader range of relatively poor countries than ever previously assessed. The contrast with high-income countries is much greater than previous literature suggested: in 16 countries children living with only one biological parent are significantly more likely to attend school than those living with both biological parents. We then refine our analysis by considering sources of single parenthood (widowhood, non-marital childbearing and divorce, labor migration), the effects of remarriage, coresidence with extended

family, as well as selection into single parenthood. By showing which of these factors have important effects and where, we emerge with a better understanding of which family structures help keep children attending school in poor countries.

Why the effect of family structure on education varies between countries

In poor countries children living with both of their biological parents have been shown to have better educational outcomes (Anderson, Case, and Lam 2001, Argeseanu 2006, Cherian 1989, Creighton, Park, and Teruel 2009, Huisman and Smits 2009, Mahaarcha and Kittisuksathit 2009, Mboya and Nesengani 1999, Santos et al. 2008, Smits 2007, Soto 2011, Townsend et al. 2002, Willms and Somer 2001), but the evidence is nowhere near as consistent as that which emerges from wealthy countries (Anderson 2003, Heaton et al. 2012, Park 2007a, Psacharopoulous 1997, Scott et al. 2013). What explanations have been offered for why parental presence in the household matters less in some settings than in others?

First, the proportion that became single parents through widowhood rather than non-marital childbearing or divorce varies dramatically across countries. Pong (1996) showed no difference in educational outcomes between Malaysian children living with both parents and those living with widowed mothers, but a substantial disadvantage for children living with divorced mothers. Asian countries in general have stronger marriage cultures than either Latin America and the Caribbean or Africa (Lippman, Wilcox, and Ryberg 2013), and the relatively high proportion of widows among single parents in Asia might explain why children from intact families were not at a consistent advantage there (Schiller et al. 2004; Park and Sandefur 2006; Park 2007a).

A closely related hypothesis is that where extended family plays a prominent role in educational processes, the importance of an intact nuclear family is diminished (Chiu 2007). Thus an additional reason that the rather thin literature on family structure and children's education in Asia (Park 2007a, Park 2007b, Pong 1996, Mahaarcha and Kittisuksathit 2009, Wilcox et al. 2009) does not consistently support a two biological parent advantage may be that extended family resources can substitute for parental presence in promoting good educational outcomes. Children of widows are more likely to receive support from extended family (both theirs and their deceased husband's) than never-married or divorced women. Significant proportions of single mothers live with their parents not only in Asia (e.g., Shirahase and Raymo 2013), but also in Latin America and the Caribbean (Lesthaghe and Roman 2013). In sub-Saharan Africa, "patron" family members help children with academic promise access good schools (Lloyd and Blanc 1996). In a pooled sample of 30 developing countries, children living in extended families were more likely to be enrolled in school (Huisman and Smits 2009). The presence of extended family may substitute for the presence of parents in promoting children's education.[1]

High rates of labor migration may also condition the relationship between children's living arrangements and their educational outcomes. While children living with both biological parents have often been shown to be at an educational advantage in South Africa (Anderson, Case, and Lam 2001, Lu and Treiman 2011, Mboya and Nesengani 1999 for the whole country; Cherian 1989 for Transkei; Townsend et al. 2002 for Agincourt; Argeseanu 2006 for KwaZulu-Natal), work showing that South African children with absent fathers do just as well (Anderson 2003; Heaton et al. 2012) or better (Fuller and Liang 1999) highlights a long history of labor

migration and matrifocal families associated with apartheid. Part of the reasoning appeals to adaptation where fatherless households were a cultural norm, plus resources from absent fathers can also help support children's education.

While it is beyond the scope of this paper to review the effects of migration on children's education, we nonetheless call attention to two specific threads within this literature. First, work stimulated by the New Economics of Labor Migration (Stark and Bloom 1985) focuses on migration as a household strategy that has benefits and consequences for those left behind. Migration disrupts family life which compromises schooling through many channels including the emotional costs of separation, less supervision of children, and children's labor substituting for the absent parent's labor (in both household and market work); in contrast, remittances can improve schooling outcomes by covering school expenses and reducing the need for child labor to meet household economic needs. Empirical studies that assess both positive and negative effects of parental migration generally show that the net effect is positive (at least when the father is the migrant parent). Lu and Treiman's (2011) work on South Africa very clearly identified both the negative effects of parental absence from the home and the positive effects of migrant remittances: where household members other than parents remitted, children were more likely to be enrolled; where a parent migrated but did not remit, children were less likely to be enrolled; and where a parent migrated and did remit, the balance of the positive and negative factors on enrollment was overall positive (but not as positive as the migration of household members other than parents, and negative if *both* parents migrated and remitted). Similar effects have been observed in other contexts with parental migration having a net positive effect on schooling only if there are remittances (Bredl 2011 for Haiti; Giorguli and Gutiérrez 2011 as

cited in Jensen et al. 2013 for Mexico; Hu 2012 for China and 2013 for northwest China; Ishida 2010 for Guatemala).

Second, we note that family disruption due to labor migration is less drastic than family disruption due to parental divorce. This means that even if migration did not have a positive effect on children's education, lumping all parent-absent children into one category would still likely obscure disadvantages associated with divorce, especially given the high proportion of households affected by labor migration in the developing world (Hanson 2010). Literature examining differences among single parent homes provides evidence that migration has quite different educational consequences. Mexican children have far more contact with migrant fathers than divorced fathers, and these ties are associated with better schooling outcomes (Nobles 2011). Divorce compromised the enrollment probabilities of Malaysian children while paternal migration generally did not (Mahaarcha and Kittisuksathit 2009). Similarly, in South Africa both having one deceased parent and parental divorce compromised schooling, but parental absence due to migration usually did not (Lu and Treiman 2011).

Next, the hypothesis that women prefer investments in children more than do men—the maternal altruism hypothesis—has been invoked to explain why children in female-headed households often have better educational outcomes in sub-Saharan Africa (Buchmann and Hannum 2001, Lloyd and Blanc 1996; Woldehanna et al. 2005) and are not disadvantaged in Latin America (Chant 1997, Feijoó 1999 as cited in Ishida 2010). The idea is that men, but especially coresident men, spend household resources that might have been used for school fees or uniforms. Father absence then increases the decision-making power of mothers who prioritize education to a greater extent.

Separation of male and female spheres is hardly unique to sub-Saharan Africa, but is arguably pronounced there (Arnfred 2004). Men's time with their children is minimal even when they do coreside with them (Engle and Breaux 1998). A lack of paternal involvement in supervision or tutoring could explain why there is not a significant advantage to living with both biological parents. Further, in West Africa there is not only separation of spheres, but also a rigidly gendered system of spending responsibilities. While women are responsible for daily expenses for the family, larger periodic expenditures like housing and education are men's responsibility (Bryson 1981, Desai 1992, Lloyd and Gage-Brandon 1993). Men's absence from the home does not obviate the cultural expectation that they will provide for the education of their children. Thus absent fathers who do not remit for other purposes might still provide for educational needs. At first blush this argument seems like it contradicts the maternal altruism hypothesis, but both could operate if men were culturally expected to support education, and women altruistically take on responsibilities that are not culturally proscribed. Therefore any advantage to female-headed household might be magnified in West Africa.

In sum, then, the literature on cultural differences between nations that may mediate the relationship between parental presence in the household and children's education points to differences in proportion orphaned, a buffering role provided by extended family, cultural adaptation to female-headed households, differences in the extent and consequences of labor migration, and gendered spending patterns. Among these, it seems like only labor migration and gendered spending patterns (including maternal altruism) have the potential to explain why children living with only one parent would have *better* educational outcomes than children living with both—the other candidates only explain why they might do just as well. For more guidance

on why poor countries differ so much from richer ones with respect to the effect of living with both biological parents on schooling, we next consider why national income per se would condition the relationship.

Why the effect of family structure on education varies by national income

The explanations we have briefly reviewed so far—sources of single parenthood, extent of support from extended families, cultural adaptation, migration, and gendered spending—all point to reasons why parental presence in the home might matter less in particular areas or with stronger marriage cultures. We add to this list reasons why children living with both biological parents may not experience as strong of an advantage in poorer countries more generally.

It may simply be the case that at lower national income levels, school-level factors matter more than family-level factors in determining educational outcomes. Heyneman and Loxley (1983) demonstrated that in poor countries, school-level factors were stronger determinants of children's performance than family-level factors, but that in richer countries, family-level factors mattered more. The family-level factor Heyneman and Loxley focused on was socioeconomic status: higher status parents were better able to transmit their advantage to their children where opportunities were abundant. In areas with poor schools, everybody did poorly and the socioeconomic gradient was negligible. Heyneman and Loxley's data was from the 1970s before mass education had reached a number of developing countries; data from the 1990s showed that the effect of parental socioeconomic status did not depend on national income in middle- and higher-income countries (Baker, Goesling, and LeTendre 2002; Hanushek and Luque 2003), but parental socioeconomic status still mattered less in the poorer countries of Latin America into the late 1990s (Gamoran and Long 2007). Still more recent data from Latin America and the

Caribbean showed parental socioeconomic status mattered consistently across ten countries with widely disparate income levels (DeRose et al. 2013). Thus while the "Heyneman-Loxley" effect has not been re-evaluated with data from across the globe, the evidence from Latin America and the Caribbean suggests that Baker and his colleagues were right: "family inputs can take on larger effects as schooling quality reaches a threshold throughout a nation".

But why? Why do family inputs become more important as schools become more accessible and as schooling quality improves? One answer is that families with more resources are better able to take advantage of the opportunities that are available in their communities. The literature described above focused on parental socioeconomic status which is hardly the only family-level variable influencing education. Parents can bring to bear other resources to support their children's education. Ishida (2010) suggested that the reason father absence had a greater negative impact on schooling among indigenous people in Guatemala than the majority Ladino population was that indigenous women commonly—more commonly than indigenous men—lacked the language and other skills necessary to interface with schools. Parental time investments supporting children's schooling may differentiate students more as schooling quality reaches a threshold, i.e., as the floor is raised. While higher parental socioeconomic status seems to advantage children consistently across many levels of national income (Schiller et al. 2004, DeRose et al. 2013), living with both biological parents confers a greater advantage in higher income countries (Schiller et al. 2004, Chiu 2007, DeRose et al. 2013). When physical resources become widely available, the benefits accrued from their use may depend on intangible resources like time, attention, encouragement, and supervision (Chiu 2007). This hypothesis is supported by evidence that early home literacy activities contribute to children's later reading performance

more in wealthier countries (Park 2008). It is also consistent with public resources like *Sesame Street* widening educational differentials between poor children who watched alone and middle class children who watched with their parents (Cook et al. 1975 as cited in Morrow 2006).

A second reason why parental presence may matter more at higher national income levels has to do with extended family inputs. The geographic mobility that comes with opportunities created by national wealth may create greater distance between extended family members and thus limit the types of support that extended family can provide (Cochran et al. 1990; Schiller et al. 2004). Further, household extension may be a response to economic hardship and a less prevalent coping strategy in wealthier countries (Fussell and Palloni 2004 and references therein). For both of these reasons, children in wealthier countries may receive fewer intangible resources from their extended families simply because they are less likely to live with them.

Third, the relationship between income and family structure at the individual level seems to be quite different in richer countries than in poorer countries. In richer countries, children with single parents tend to live in households with fewer economic resources; when income is controlled, the estimated advantage to living with both biological parents diminishes. In contrast, living with both biological parents seems more advantageous after controlling for wealth in poorer countries (DeRose et al. 2013). One reason is that poorer adolescents are more likely to marry than to remain in school, and therefore single motherhood is more common among those who have delayed marriage (Calvès 1999) and are of higher socioeconomic status (Yabut-Bernardino 2011). Other evidence supporting this type of selection comes from Argentina and Panama where bivariate analysis showed few differences in educational outcomes by family structure, but an advantage to living with two parents emerged with controls (De Vos 2000).

Similarly, Huisman and Smit's (2009) analysis of 30 developing countries showed no negative effect of father absence in the bivariate, but father absence led to lower enrollment probabilities in the multivariate. It is not the fact of difference between bivariate and multivariate analyses that is instructive here—it is the direction of the differences. In richer countries, children with different living arrangements look more similar after controls are introduced, but in poorer countries they look more different. In poorer countries, the advantage to living with both biological parents is more likely to be observed after controlling for household wealth.

We believe that the importance of different selection factors determining family structure has been overlooked in cross-national studies of the effect of family structure on education. Living with only one biological parent is a less traditional family structure in many parts of the developing world, and it is more common among those who are more modern in other ways as well. For example, a woman who has a modern sector job in a poor economy is unusual: she is more likely to become divorced, and she is quite likely to educate her children whether or not she becomes divorced. At the other end of the spectrum, a girl who drops out of school at age 12 and marries at age 15 has little opportunity to become a single parent, and the same conditions that limited her schooling may disadvantage her children as well. This relationship can also be thought of at the community level: where divorce has become more widespread, schooling has too. Children of divorce are then more likely to be living in communities with ample schooling opportunities. Similarly, children may unlikely to be raised by never married mothers in more remote and rural areas of developing countries where schooling opportunities are poor.

Because this third hypothesis has not received attention in the literature, we take a moment to develop it more fully here by showing that selection into divorce changes as nations

develop. This change was anticipated by William Goode (1963) who postulated that where divorce was innovative, its practice would be concentrated among the elite, but as legal and normative barriers to divorce eroded, lower classes would begin to divorce and would eventually do so more frequently than the upper class because of family strain. Recent research has supported Goode's theory. In the Netherlands, more educated women used to be more likely to divorce, but in the younger cohorts, it is less educated women who are more likely to divorce. The same "cross-over" was observed in Taiwan with less educated women having the highest divorce rates by the 1990-99 marriage cohort (Chen 2012). Even where a cross-over is not observed, trend over time is still toward a concentration of divorce at the bottom end of the socioeconomic spectrum. In Spain, education does not differentiate divorce probabilities, but that represents a change from when educated women were the most likely to divorce (Bernardi and Martinez-Pastor 2011). Japan went from having no educational differentials in divorce in 1980 to having it concentrated among those who had not gone beyond high school by 2000 (Raymo, Iwasawa, and Bumpass 2004). In both the United States and South Korea, the negative relationship between education and divorce has become stronger in recent decades (Martin 2006, Park and Raymo 2013). In short, there is much evidence from wealthier countries that divorce becomes more selective of lower classes over time. We apply this insight to understanding why intact families might support education more consistently in richer countries than in poorer ones: if those most likely to educate their children are also most likely to divorce, then upper class status is codetermining children's education and children's living arrangements.

We recognize that not all poorer countries are ones where divorce is what Goode called an innovation: for example, matriliny in West Africa contributes to higher rates of marital

instability by decreasing the costs of divorce for women (Takyi and Gyimah 2007). Härkönen and Dronker's (2006) also showed that the costs of divorce vary culturally among wealthy nations. Nonetheless, the costs of divorce may be particularly high among the groups least likely to educate their children in many poor countries. Further, migration of divorced women to urban areas as a result of social and economic problems associated with their divorced status (e.g., Sweetman 2010) may give their children the advantage of proximity to schools even if they are not otherwise advantaged. In rural areas with high rates of labor migration, fathers still present in the household may be among the least employable with associated school attendance consequences for their children (see Madhavan et al. 2002). In other words, even where the elite are not the most likely to divorce there may be a spurious relationship between divorce and schooling in poorer countries that explains why living with two biological parents does not appear to be an advantage.

Finally, comparable data on schooling outcomes are not as available in poorer countries than in richer ones. This means that the indicators used to measure education will not differentiate as finely between children in poorer countries than in richer ones. For example, much cross-national education research has made use of data from the Trends in International Mathematics and Science Study (TIMSS) or the Program in International Student Assessment (PISA) which includes standardized tests of achievement (e.g., science, reading literacy) and reports of whether the student has ever repeated a grade. In contrast, common outcomes for developing countries are enrollment in school or being behind grade for age which is an unknown combination of late enrollment and grade retention. Therefore, a fourth reason why the relationship between family structure and children's education may be weaker in poorer

countries is simply the use of coarser data when measuring educational outcomes. Family structure may differentiate achievement more than it differentiates enrollment or on-time progression.

To summarize, the reasons why the effect of parental presence in the household might vary by national income include low quality of schools in poorer areas, increased importance of intangible inputs after physical resources are ubiquitous, greater distance between extended family members in more economically advanced countries, higher socioeconomic status being more predictive of divorce in poorer countries, divorce causing migration to urban centers in poorer countries, and available measures of education not differentiating educational outcomes as well in poorer countries as in richer ones. Among these, only the selection hypotheses could explain why living with only one biological parent might put children at an educational advantage. If children living with one parent are relatively elite or they are concentrated in urban areas where schooling is of higher quality, then we would expect them to be at an educational advantage for reasons related to family structure, but not caused by family structure.

Data

We draw our data from the Demographic and Health Surveys (DHS). DHS data are best known for analysis based on detailed interviews of reproductive-aged women, but there are a number of features of the data sets that make them well-suited for studying the effects of family structure on children's educational outcomes in poorer countries. They are nationally representative surveys that have been fielded in a broad geographic and cultural range of countries (mostly in the Southern Hemisphere) that contain information about relationships between individuals within household, the survival status of the biological parents for children,

and education information for all household members. Many investigations of educational outcomes use school-based samples which carry the obvious disadvantage of excluding out-of-school youth. In school-based samples, the measured effect of student background factors may be attenuated because attrition produces greater homogeneity in the remaining student population (Chudgar and Luschei 2009). Our data allow us to avoid this bias. The issue is particularly important in poorer contexts where schooling is far from universal.

Since 1984, the DHS has administered standard surveys in 82 countries. We utilize 67 of these. Eight of those we skip were surveyed only in round I before education questions were added to the household roster. In five others, the data are restricted or not publicly available. In one, biological parents of the children are not identified on the household roster, and the last was skipped for multiple reasons.[2] We use the most recent survey wherever possible.[3] The 67 countries with the requisite data are listed by region in Table 1.

There is much about children's living arrangements that we would like to know that is not available from the limited questions on the DHS household roster. Merging the household data with data from the individual woman's interviews allows us to determine whether stepparents are present in the household. We also gain some information about absent spouses. Using data from the individual woman's interviews creates a select sample from what started as a nationally representative sample of children in households: all of the children in the merged files coreside with their biological mother who is aged 15-49. We test the magnitude of this selection bias before proceeding with analysis on the restricted sample.

Methods

Analytic Approach

We perform separate analysis for each country, starting by tabulating children's school attendance rates by the number of biological parents that they live with (with tests of statistical significance).We then include several important controls in a logistic regression with attendance in the current school year as the dependent variable. After describing the variation in these results across countries, we omit orphans (children who have lost either parent) from the analysis. This allows us to assess the effects of coresidence with biological parents among children who at least potentially could be living with both biological parents. Comparing the results of the original regressions with those where children with deceased parents are excluded allows us to determine whether any of the variation between countries in the effects of living with only one parent really does depend on the proportion of widows among single parents as the literature suggests.

The next series of steps all share the common goal of breaking down the one biological parent category into more specific—and more helpful—descriptions what the child's living arrangements are. First, we separate biological moms from biological dads. Even though most children living with only one biological parent are mothers, the proportions do vary between countries. The literature indicates that mother absence is worse for children's education than father absence (Case and Ardington 2006, Heaton et al. 2012, Jampaklay 2006, Mahaarcha and Kittisuksathit 2009, Smits 2007, Townsend et al. 2002). While we might explain some of the variation in the effects of children's living arrangements between countries with this step, it primarily serves to establish a benchmark for assessing the impact of sample selection: as explained in the data section above, the analysis based on only the household files is a nationally

representative sample of children, but when we match the household files to the individual woman's interviews, we are left with a sample of children whose mother both lives with them and is of reproductive age. While there is no particular reason to believe that this selection would bias estimates of the differences in attendance probabilities between children living with both biological parents and those living with only their biological mother, it is prudent to check before proceeding.

With children living with both biological parents as the reference category, we then further refine the classification of children living with their biological mother but not their biological father into four groups: 1) children of single mothers, 2) children living with a stepfather, 3) children whose mother is married to their non-coresident biological father, and 4) children with a non-coresident stepfather. We want to carefully explain what we do and do not know about these living arrangements. First, both married mothers and those with non-marital partners are counted as partnered. The DHS marital status codes for most countries distinguish never married, married, living together, divorced, widowed[4], and separated; in a few countries, married and living together are combined. We combine them for all countries. Thus the category of children of single mothers does not include any children living an adult male who is the mother's partner, i.e., represents sole parents whether or not extended family are present. Second, if the mother's partner is absent due to marital separation, the child is also in the single mother category. This means that children whose mother is separated are not counted in either the third or fourth categories where the mother's partner is not in the household.

Children are identified as living with a stepfather if their biological father is not in the household, but the mother's partner is in the household. We call absent partners biological fathers

if the mother has been married only once and the reference child was born during the marriage. This restricted definition of who is a non-coresident biological father excludes children born outside of marriage as well as biological children born to marriages other than the mother's first. It also erroneously includes children fathered by others during the mother's first and still enduring marriage. We adopt this definition admittedly because of data restrictions: we know how many times the mother has been married and the date of her first marriage, but not the date when other marital and non-marital partnerships started. But even though our definition is data-driven, the category of children with absent biological fathers is for the most part too conservative: many more non-coresident biological fathers will be misclassified into the third category of absent stepfathers (which is really mother's partners not identifiable as biological fathers) than non-coresident non-biological fathers will be misclassified as biological fathers. All of the children whose mother's absent partner is assumed to be the biological father have a mother who has been married to that man for the child's entire lifetime. In contrast, the children with absent stepfathers category is an unknown mix of actual stepfathers and biological fathers of children from higher order marriages, and biological fathers of children born outside of marriage. We emphasize that this ambiguity only pertains to children with absent fathers, i.e., the stepfather category is not constructed with the same assumptions as the absent stepfather category.

We then estimate children's attendance with the same controls as before, but with children's living arrangements more precisely measured. We started with categories of children living with two, one, or no biological parents. Now that information from the woman's interviews has been included, all children with no biological parents are excluded because the

sample is comprised of children living with their biological mother. Living arrangements are then categorized as two biological parents, single mothers, mothers and stepfathers, mothers partnered with absent biological fathers, and mothers partnered with absent others (with all the measurement caveats detailed in the paragraph above). We expect that variation between countries in the effects of living with one biological parent will be partly explained by breaking out the one biological parent category because, for example, labor migration does not disrupt ties to the household as much as divorce or separation does.

We next address the hypothesis that extended family can substitute for biological parents in producing good educational outcomes for children. We add a variable indicating whether or not there are other adults present in the household as well as interaction terms with other family structure variables. That is, the main effect of the "other adults" variable is the effect for children living with two biological parents and we measure whether other adults have significantly different effects for children of single parents, children in stepfamilies, and children whose mother's partner is absent (all absent partners).

Finally, we test whether controlling for characteristics of sub-national regions helps explain national-level variation in the effects of children's living arrangements. The idea here is that if divorced women really are more likely to live in areas with better schooling opportunities —either because they are selected into divorce on the basis of being better off or because divorce precipitates migration to urban areas—then statistically controlling for this selection will produce better estimates of the effect of children's living arrangements on their attendance probabilities. We divide regions into their rural and urban areas because the geographic distribution of educational opportunities is so uneven in developing countries; capital cities have a distinct

advantage over other areas, particularly in poorer countries (e.g., Molinas 2010; Escobal, Saavedra, and Vakis 2012). There are roughly 200 observations per area and about 20 areas per country.

Model specification

Our basic model is a logistic regression model predicting school attendance. When we reach the final specification (described above), we employ a multilevel logistic regression model. We use the xtlogit procedure in Stata which allows the effect of children's living arrangements on their attendance to vary with characteristics of their communities (a random effects model). When controlling for factors that influence attendance of all students in the community, we obtain better estimates of the effect of the individual child's family structure on attendance.

Dependent variable. Children aged 8-14 are considered to be attending school if they attended during the current year.[5] School start ages vary between 5 and 7 among the countries in our sample, and we observe attendance starting at age 8 so that all children should be in school. Age 14 is at or near the end of secondary school in all countries. We recognize that there are many children at an educational disadvantage (e.g., having low test scores or lacking functional literacy) who will not be identified as disadvantaged by our rough measure, but children out of school at these ages are among the worst off.

Independent variables.

Number of biological parents in the household. The DHS household questionnaire identifies whether the child's biological parents reside in the household.[6] Children can therefore easily be classified as living with two, one, or no biological parents. (ref=2)

Sole mothers. Children whose mother is never married, widowed[7], divorced, or separated are coded as living with a sole mother. (ref=2 biological parents)

Stepfathers. If the mother's partner is in the household but the child's biological father is not, the child is living with a stepfather. (ref=2 biological parents)

Absent biological fathers. If the mother is still in her first marriage and the child was born during that marriage but the biological father is not in the household, we assume the absent spouse is the biological father. (ref=2 biological parents)

Absent stepfathers. If the conditions for assuming the absent spouse of the biological mother are not met but the mother's partner is not in the household, children are assigned to this category. (ref=2 biological parents)

Child's gender and age. Gender is a dummy variable (0=female, 1=male), and age is a vector of dummy variables because of variation between countries in transition points for continuation of schooling (most importantly, when primary school ends). (ref=8)

Other children. The presence of other children in the household could compromise attendance if the focus child's labor were needed for income or child care, or more simply because of competition between children for resources like school uniforms, books, and transportation costs. Having more siblings has been associated with lower academic achievement (Argeseanu 2006, Downey 2001, Parcel and Menaghan 1994), but the sibling effect is smaller in poorer contexts than in richer ones (Gomes 1984; Chernichovsky 1985; Sibanda 2004). We use two continuous variables to measure other children: the number of siblings (children of the same mother), and the number of other children. For both variables, all values greater than 6 are coded as equal to 6.

Residence. Residence is a dummy variable (0=rural, 1=urban). Residence is a persistent factor impacting educational opportunity (e.g., Benavides and Mena 2010).

Parental education. We define parent's education as the higher of either the mother's or the father's education using six categories: no education, incomplete primary, complete primary, incomplete secondary, complete secondary, and higher. For children living with neither parent (and also in the few cases where parent's education is missing), we use education of the household head. Education of the household head has been shown to be a strong determinant of children's schooling (Case and Deaton 1999).

Household Wealth. We construct a wealth index based on housing quality and ownership of consumer durables. It is an 8-point scale measuring absolute wealth developed by Sarah Giroux (personal communication).[8]

Other adults. This variable is adults other than parents (i.e., stepfathers are not other adults). Rather than counting the number of other adults, we simply measure their presence in the household. (ref=no other adults). Although non-coresident extended family members could theoretically support children's education, recent research has shown no effect of non-coresident extended family and a positive effect of coresident extended family (Zeng and Xie 2011).

Proportion of women who are educated. In our final model (see methods section above), we also control for the proportion of women who have completed primary school in the area where the child lives. This is measured among all women of reproductive age, and helps determine norms for sending children to school. It is also a measure of socioeconomic development.

Proportion of husbands who work in agriculture. Agriculture competes for potential students' time. Areas where agricultural employment is at higher levels are also areas where returns to

schooling are lower than where alternative employment is available.

Community wealth. The household wealth index described above is averaged within areas to create the community wealth variable. Wealthier communities are likely to have better schools that are more worth attending.

Results

Bivariate analysis

Table 1 shows the percentages of children attending school in each country by the number of biological parents in the household. In 38 of the 67 countries, children living with neither parent are significantly less likely to be attending school. Children living with neither parent actually have higher attendance rates in 4 countries, and these are African countries where children are often fostered to other family members who live closer to schools.

Children living with one biological parent have less of a disadvantage than children living with neither. In fact, there are 16 countries where they have significantly better attendance rates and only 22 where they attend significantly less often than children living with both biological parents (29 without significant differences). Therefore, not only does living with only one biological parent fail to carry a uniform disadvantage, but it is associated with an educational advantage in a substantial minority of countries. The only regions where there is no single parent advantage are Southeast Asia and Europe.

Multivariate analysis

Full Sample. Adding the individual-level controls described in the methods section above still leaves us with a mixed picture of the effects of living with only one parent across most regions

(Table 2, column 1). There are about the same number of countries with an educational advantage for children living with only one parent, and many fewer where those living with only one parent fare worse (only 12 as opposed to 22 in the bivariate).

In both North African countries, children living with one parent are more likely to be attending school than those living with both parents. Among the 12 West African countries, 7 show an advantage to living with only one parent, and only in 1 is school attendance significantly lower among children living with one parent. Among the 12 East African countries, children living with one parent have higher attendance probabilities in Kenya, and lower attendance probabilities in 3 others. Among the 7 Middle African countries, there are significant effects of family structure only in Cameroon where children living with one parent do better than their counterparts living with two parents. The story is similar in the 4 Southern African countries where only in Namibia are children living with one parent more likely to attend school.

In Latin America and the Caribbean, there is only 1 country in 11 where children living with only one parent are at an advantage: Honduras. In 5 others spanning the region, they are significantly less likely to be attending school. Family structure does not have significant effects on attendance in the 4 Western Asian countries where attendance rates range from 91-100%. The same is true in the 3 European countries with enrollments at 98-99%.

Results are also not significant in 5 of the 7 South Central Asian countries: in Nepal and Pakistan, children living with only one parent are *more* likely to be attending school than those living with two. In 2 of the 5 Southeast Asian countries, children living with one parent are *less* likely to be attending school.

In sum, the 15 countries where children living with only one parent are at a significant educational advantage are concentrated in Northern and Western Africa, but also sprinkled elsewhere around the globe: Cameroon, Kenya, Namibia, Honduras, Nepal and Pakistan. There are none among the wealthiest countries in the sample, and none in Southeast Asia. In contrast, the 11 countries where children living with only one parent are at a significant educational disadvantage are concentrated in Latin America and the Caribbean. This disadvantage is also significant in Cambodia, Timor-Leste, Burundi, Madagascar, Rwanda, and Sierra Leone.

Analysis confined to children with two living parents. When we omitted children with a deceased parent from the analytic sample, the picture that emerged of the effects of family structure on education was slightly altered (Table 2, column 2). In 3 countries—Bolivia, India, and Uganda—a significant advantage for children living with one parent emerged when the sample was confined to children having two surviving parents; children whose missing biological parent was dead had poorer attendance rates than the other children living with one biological parent. There were 5 countries where a previous advantage to children living with both parents dropped from statistical significance for the same reason. In contrast, a previous advantage to living with one biological parent dropped from statistical significance in Egypt. Notably, there was not a statistically significant disadvantage associated with living with only one parent among non-orphans in any Asian nation.

Living with mothers versus living with fathers. We next separated children living with one biological parent by whether they were living with their mother or their father (Table 2, columns 3 and 4). In every country with significant differences, it was more advantageous to be living

with a mother. Given this pattern, it is not surprising that when we consider the effects of father absence on school attendance, the picture is still further from showing uniform disadvantage relative to living with both biological parents. Father absence is associated with significantly *higher* attendance in 21 countries and significantly lower attendance in only 5 countries. The geographic distribution of the countries is quite similar to before except that, if anything, the advantage to living with only one parent is even more heavily concentrated in Northern and Western Africa. A few countries there are added to the list of those where children living with one parent fare better, and Uganda dropped off the list in East Africa. In Swaziland and Pakistan, children living with just their mother also have greater odds of school attendance than those living with both biological parents.

Analysis confined to children living with an interviewed mother. In order to be able to further differentiate family structure among children living with only their mothers, we needed information from individual women's interviews. We therefore restricted the sample to children living with an interviewed mother. In no case was the estimated effect of living with only the mother significantly changed by this sample restriction. Estimates moved in both directions (two-thirds toward living with only the mother being more favorable than living with both parents and one-third toward living with both parents being more favorable).

The resulting sample was comprised of children living with a reproductive-aged biological mother and whose biological father was still alive. Across the 67 countries, there were only 4 where those living with both biological parents had significantly higher probability of attending school than those whose biological father was absent for whatever reason (except death). In 24

countries, children not living with their biological father were more likely to attend school than those whose father was in the household. In 39 countries, the differences by family structure were statistically insignificant; 9 of these were countries with attendance rates of 98% or higher (Table 2, column 5; see also Figure 1).

Marriage and remarriage. We next separated children living with only their biological mother into four categories: 1) children of single mothers, 2) children living with a stepfather, 3) children whose mother is married to their non-coresident biological father, and 4) children with a non-coresident stepfather (actually children whose mother is married to a man not identifiable as their biological father; see methods section above). Table 3 reproduces results for these groups combined from Table 2, column 5 for comparison with these refined categories that proved to have quite disparate effects on children's attendance probabilities. First, children of single mothers had an attendance advantage in only 8 countries: 5 in West Africa plus Uganda, Namibia, and Honduras. They were significantly less likely to attend school in Burundi, Rwanda, Azerbaijan, India, and Moldova.

India is one of the countries where children living with only their mother were significantly more likely to attend school, but that effect was driven by the advantage among children whose biological fathers were still married to their biological mothers but absent from the home. There were only 58 countries with enough married non-coresident biological parents to estimate the effects on school attendance, and in 20 of these children with absent fathers did better than those who lived with both parents; in 2 countries they did worse. In about half of the countries where absent biological fathers increased attendance, so did absent stepfathers. In contrast, coresident stepfathers hurt more than they helped: children living with a stepfather were

less likely to attend school in 9 countries and more likely to attend in 2 (Côte d'Ivoire and Honduras). Living with a stepfather was about the same as living with a biological father in North and West Africa[9], South Central Asia, Western Asia, and Europe, but the disadvantage showed up in Burundi, Madagascar, Malawi, Chad, Namibia, the Dominican Republic, Colombia, Paraguay, and Cambodia. Figures 2-5 map the results for each of the four categories.

Living with extended family. Other adults in the household have neither a uniform nor a strong effect on children's school attendance (Table 4). Nonetheless, they do explain some of the advantage that we see among children with single mothers in West Africa. In Côte d'Ivoire, Guinea, and Senegal, the higher attendance rates among children of single mothers are no longer statistically significant among children whose mother is the only adult in the household. In these countries, most single mothers live with other adults. In contrast, the attendance advantage that children of single mothers have over children living with both parents pertains *only* among those whose mother is the only adult in the household in Cameroon, the Comoros, and Uganda.

Children living with their mother and a stepfather generally do a little bit better when there are other adults in the household. Among those living with only their mother and a stepfather, there are no countries where their attendance probability is greater than for children living with two biological parents; in 7 countries they are significantly less likely to attend school (4 in East Africa plus Namibia, Haiti, and Paraguay).

Children whose mother is still married but whose spouse is absent from the home also generally do better when other adults are present. The number of countries where an absent biological father increases school attendance was 20 when all such families were considered together, but it drops to 16 when children living with no adults other than their mother are

considered separately. Similarly, the number of countries where having an absent stepfather helps with education drops from 11 among all families to 7 when the mother is the only adult in the household.

Multilevel analysis

When we add the variables that measure the socioeconomic development of the area where the child lives, most of the remaining significant positive effects of living with a single mother disappear (Table 5; see also Figures 6-9). There are two countries where children living with a single mother are still more likely to attend school—Togo and the Comoros. In the Comoros, the advantage is only among single mothers who live apart from other adults (the Comoros are islands between Mozambique and Madagascar; they are too small to show up in Figure 6). The community controls did not change the significant negative effect of living with a single mother in India and Rwanda. Living with a stepfather now carries a significant disadvantage in Nicaragua and Cambodia, but the disadvantage dropped from significance in Mozambique. There are also fewer countries where absent fathers (10) or stepfathers (5) are associated with higher attendance probabilities.

Discussion

The attendance of children living with *neither* parent informs our overall interpretations. Most importantly, the significant disadvantage to children living with neither parent in a majority of the countries confirms that insignificant differences between children living with one versus two parents do not derive from using a weak measure of educational success. Family structure may matter more for more sensitive measures like standardized test scores, but in poor countries it

matters even for whether children show up in school. However, as attendance becomes nearly universal, there is less room for anything (including family structure) to influence it. Only 3 of the 25 countries where attendance is not significantly lower for children living with neither parent are ones that have not achieved mass education, i.e., at least 80% in school. Most of the countries with insignificant results have attendance rates of 90% or higher. Thus our measure is appropriate for many poorer countries, but less appropriate where most children attend school.

Our work does not support the hypothesis that family structure effects are small in some countries because of relatively large shares of widows among single parents. The idea there was that widows receive more social support than other single mothers, so where divorce and non-marital childbearing are relatively rare, then children of single parents would be more similar to those from intact families. If this were the case, the disadvantage to living with only one biological parent should be *greater* after children with a deceased parent were excluded from the analysis. Instead, there were fewer countries where children living with one parent were at a significant disadvantage and more where they were at a significant advantage. Only in Egypt where the positive effect of living with only one parent became insignificant when orphans were omitted from the analysis was the hypothesis that children of widows fared better than other children in one-parent families strongly supported. Even in Asia, children who had lost a parent had lowest attendance probabilities. While it is quite possible that poverty causes both higher parental mortality and lower school attendance, parental mortality can directly interfere with schooling as well (e.g., Case and Ardington 2006, Monasch and Boerma 2004).

Children living with only their mother when their father was still alive were advantaged relative to children living with both biological parents in a large number of countries (24 out of

67). This became less surprising when considering that many times the biological parents of the child were still married. We found that children from intact biological families often did better when their fathers were absent from the home. This is consistent with literature that shows labor migration generally promotes better schooling outcomes (Kuhn 2006 for Bangladesh, Yabiku and Glick 2013 for Nepal, Deb and Seck 2009 for Mexico, Yabiku 2013 for Mozambique, and Townsend et al. 2002 for older children in Agincourt, South Africa; see Creighton et al. 2009 for an exception from Mexico). This points to the importance of marital ties when men do not live with their children.[10] In our data we cannot distinguish labor migrants from other absent fathers and stepfathers, and it is therefore all the more striking that children are often more likely to attend school when living with only their married mother.

Living with a stepfather was disadvantageous for children in more countries than living with a single mother was. Although we could not test any of the reasons this might be so, in countries as diverse as the United States (Edin and Nelson 2013) and South Africa (Madhavan et al. 2012), biological fathers contribute less to their children after the mothers remarry. It is also possible that mothers' remarriage compromises schooling more than we estimate here because children are more likely to be fostered to other relatives after remarriage than when the mother remains single (Grant and Yeatman 2012), and children living with neither biological parent were less likely to attend school in a variety of countries.

Living with adults other than parents was a mixed bag. Overall having additional adults promoted attendance among children living with stepfathers and among those whose mother's partner (whether their biological father or not) was not living in the household with them. But this effect mattered only in a minority of countries. It also promoted attendance among children

of single mothers in some West African countries. Other adults in single mother households *compromised* school attendance in a few other African countries. Notably, in Asia the attendance probabilities for children of single mothers did not differ if there were other adults living in the household. Thus it seems that while extended family might substitute for absent fathers somewhat in West Africa, they play little role in promoting school attendance in Asia.

When we controlled for community characteristics that would help determine the attendance rates of all children, the effects of family structure were attenuated. In other words, there is support for the idea that selection into one biological parent families helps determine variation between countries in attendance rates by family structure. More specifically, the single mother advantage remained in only two countries. While it would be then tempting to conclude that we had mostly explained away all of the surprising advantage that children living with only one biological parent have over those living with both, children living with single mothers and other adults—most likely extended family members—still have higher probability of attendance than children living with both biological parents in two additional West African countries (Burkina Faso and Senegal) and in Ethiopia. In addition, there are many places throughout the Southern Hemisphere where the estimated effect of living with only a single mother is positive, but not statistically significant.

The stronger selection story pertains to married mothers with absent partners. Their children are more likely to attend school than children who live with both biological parents in a variety of countries. However, the advantage pertained in far fewer countries after the community controls were introduced, indicating that these families live disproportionately in better-off areas. Most importantly, there still were only 3 countries where children of single

mothers were significantly less likely to attend school even after introducing community controls. If the concentration of single mothers among the relatively elite and in areas with more schools were a large part of the reason that children living with two biological parents were not at an advantage in poor countries, we would expect to have seen their advantage revealed in the final model. Instead, children's living arrangements are mostly an insignificant predictor of their school attendance. Thus, consistent with analyses of richer countries where family structure has been shown to matter more at higher income levels (Schiller et al. 2004, Chiu 2007, DeRose et al. 2013), it matters little among poorer countries.

The regional patterns in our results offer limited support for cultural explanations of why the effects of family structure vary between countries. It seems possible that West Africa stands out because men do not contribute intangible resources to children's education where they interact with them little, but that would still not explain the single mother advantage. Perhaps the simplest explanation is that in these very poor countries, even another mouth to feed interferes with the ability to keep children in school—but there are other poor countries in our sample. Further work on how culture shapes the effects of family structure should compare matrilineal and partilineal groups in West Africa because matrikin may be particularly likely to support children of single mothers. Gendered spending patterns in the region made fathers responsible for periodic rather than daily expenditures long before schooling became normative, but among matrilineal groups this makes biological fathers responsible for the education of children who do not belong to their lineage. Biological fathers may then be less motivated to invest in education among matrilineal than patrilineal groups, but matrikin may not intervene on behalf of children belonging to them unless the father is absent.

Conclusions

We discovered that in a large number of relatively poor countries across the Southern Hemisphere, children living with their biological mother but not their biological father were more likely to be attending school. This was surprising because although previous literature has shown that the advantage to living with both biological parents is greater in richer countries, there was little to suggest an actual advantage to father absence. This school attendance advantage turned out to be concentrated among children whose biological parents were still married, plus absent stepfathers also sometimes conferred in advantage. Married women living without their husbands come disproportionately from wealthier areas of poor countries. We attribute the rest of the educational advantage among their children to beneficial effects of labor migration, though we have no direct evidence for the cause. What we can be sure of is that living with an unmarried mother improves school attendance in only a couple of countries, and that living with mother and a stepfather does not help anywhere. Any attendance advantage among the children of unmarried mothers is concentrated in the countries of West Africa. We found no support for the hypothesis that variation in the effects of family structure on education is caused by variation in widowhood, and modest support for the hypothesis that negative effects of father absence are buffered by extended family.

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Table 1: School attendance by number of biological parents in the child's household with tests of significant differences from two biological parents			
	Percent of 8-14 year olds attending school		
country and survey year	Living with two biological parents	Living with one biological parent	Living with neither biological parent
Northern Africa			
Egypt (2008)	93	92*	93
Morocco (1992)	54	61***	44***
Western Africa			
Benin (2006)	69	73***	61***
Burkina Faso (2010)	56	60**	56
Côte d'Ivoire (2005)	54	61***	48**
Ghana (2008)	85	89***	86
Guinea (2005)	54	60***	53
Liberia (2007)	57	61**	53*
Mali (2006)	47	47	44**
Niger (2006)	45	43*	41**
Nigeria (2008)	67	78***	79***
Senegal (2010-11)	61	68***	66***
Sierra Leone (2008)	76	74	69***
Togo (1998)	72	77***	68***
Eastern Africa			
Burundi (2010)	88	85***	74***
Comoros (1996)	59	64*	60
Ethiopia (2011)	72	72	68***
Kenya (2003)	88	88	84***
Madagascar (2008-09)	83	74***	72***
Malawi (2010)	94	92***	91***
Mozambique (2011)	83	82	77***
Rwanda (2010)	96	93***	89***
Tanzania (2010)	87	85**	83***
Uganda (2011)	92	91*	89***
Zambia (2007)	88	87	87
Zimbabwe (2010-11)	96	95	91***
Middle Africa			
Cameroon (2011)	86	90***	89***
Central African Republic (1994-95)	64	63	55***
Chad (2004)	49	49	56***
Congo-Brazzaville (2005)	94	93	89***
Congo Democratic Republic (2007)	78	75***	71***
Gabon (2012)	97	97	97
Sao Tome and Principe (2008-09)	95	91***	94
Southern Africa			
Lesotho (2009)	94	94	92
Namibia (2006-07)	92	95***	93
South Africa (1998)	97	97	96
Swaziland (2006-07)	91	93	91
Central America			
Guatemala (1998-99)	80	78	72***
Honduras (2011-12)	88	89**	87
Nicaragua (2001)	79	79	76**
Caribbean			
Dominican Republic (2007)	96	94***	92***
Haiti (2012)	96	95	92***
South America			
Bolivia (2008)	97	97	94***
Brazil (1996)	95	94**	89***
Colombia (2010)	98	97***	95***
Guyana (2009)	97	96	94**
Paraguay (1990)	90	85***	87*
Peru (2007-08)	97	97**	94***
Western Asia			
Armenia (2010)	100	99	100
Azerbaijan (2006)	98	96***	92***
Jordan (2009)	98	97*	98
Turkey (2003)	91	90	95
South Central Asia			
India (2005-06)	86	81***	75***
Kazakhstan (1999)	99	98	98
Kyrgyz Republic (1997)	98	97	98
Maldives (2009)	99	99	99
Nepal (2011)	94	97***	92**
Pakistan (1991)	60	64*	49***
Uzbekistan (1996)	99	97	100
Southeast Asia			
Cambodia (2010)	92	86***	90
Indonesia (2007)	94	90***	89***
Philippines (1993)	91	89**	87***
Timor-Leste (2009-10)	86	82***	84**
Vietnam (2005)	94	93	92
Eastern Europe			
Moldova (2005)	98	98	98
Ukraine (2007)	99	99	99
Southern Europe			
Albania (2008-09)	98	98	95
two biological parent advantage		22 countries	38 countries
two biological parent disadvantage		16 countries	4 countries
difference not significant		29 countries	25 countries
* p < .05, ** p < .01, *** p < .001 levels; two-tailed tests			

Table 2: Coefficient relative to two biological parents, various samples					
	All estimates control for child's gender and age, other children living in the household, place of residence, parental education, and household wealth				
Country	one biological parent	one biological parent, sample confined to children with both parents living	lives only with mother, father alive	lives only with father, mother alive	lives with DHS-interviewed mother, father alive
Northern Africa					
Egypt	0.270*	0.191	0.463*	-.722*	0.539*
Morocco	0.418***	0.428***	0.457***	0.232	0.526***
Western Africa					
Benin	0.181***	0.310***	0.547***	-0.021	0.445***
Burkina Faso	-0.078	-0.057	0.241**	-0.287***	0.143
Côte d'Ivoire	0.465***	0.274***	0.310***	-0.113	0.372***
Ghana	0.293***	0.347***	0.479***	0.096	0.362*
Guinea	0.198**	0.297***	0.328**	0.265***	0.340**
Liberia	0.123	0.135	0.320***	-0.080	0.361***
Mali	-0.074	-0.005	-0.107	0.161	-0.148
Niger	0.018	0.073	0.281***	-.462***	0.297***
Nigeria	0.621***	0.529***	1.051***	0.136*	1.093***
Senegal	0.345***	0.349***	0.418***	0.150	0.469***
Sierra Leone	-.157*	-0.003	0.080	-0.058	0.010
Togo	0.201***	0.324***	0.513***	0.125	0.414***
Eastern Africa					
Burundi	-.265**	-.260*	-0.148	-0.801***	-0.073
Comoros	0.179	0.096	0.155	-.678*	0.186
Ethiopia	-0.087	-0.058	0.044	-.382***	0.061
Kenya	0.233*	0.237*	0.303*	-0.062	0.355*
Madagascar	-.319***	-.371***	-.283***	-.541***	-.246***
Malawi	-0.120	-0.086	-0.092	-0.042	-0.062
Mozambique	0.044	0.043	0.087	-0.176	0.206**
Rwanda	-.493***	-.433***	-.371*	-.924***	-.369**
Tanzania	-0.072	-0.047	-0.067	-0.004	0.023
Uganda	0.164	0.233*	0.140	0.591**	0.307*
Zambia	-0.028	-0.020	-0.002	-0.075	0.088
Zimbabwe	0.090	0.333	0.313	0.436	0.527*
Middle Africa					
Cameroon	0.418***	0.356***	0.619***	0.071	0.553***
Central African Republic	0.033	0.060	0.146	-0.036	0.207
Chad	0.088	0.008	-0.025	0.092	0.035
Congo-Brazzaville	-0.045	0.061	-0.009	0.248	-0.027
Congo Democratic Republic	-0.052	0.007	0.073	-0.128	0.099
Gabon	0.038	0.137	0.179	0.014	0.532*
Sao Tome and Principe	-0.351	-0.259	-0.110	-1.079**	-0.186
Southern Africa					
Lesotho	0.045	0.037	0.204	-0.403	0.109
Namibia	0.447***	0.390**	0.324***	0.671***	0.501**
South Africa	0.182	0.238	0.285	-0.052	0.107
Swaziland	0.257	0.254	0.398***	-0.179	0.614**
Central America					
Guatemala	-0.093	0.032	0.058	-0.253	0.037
Honduras	0.137*	0.231***	0.342***	-.456***	0.322***
Nicaragua	-.172**	-0.099	0.022	-.737***	-0.014
Caribbean					
Dominican Republic	-.289***	-.264***	-.268***	-0.263	-.256**
Haiti	-.230*	-0.089	-0.013	-0.313	-0.050
South America					
Bolivia	0.025	0.349*	0.347*	0.287	0.427*
Brazil	-0.141	0.049	0.096	-0.155	0.048
Colombia	-.450***	-.446***	-.327***	-.744***	-0.330***
Guyana	-0.353	0.045	0.008	0.405	0.104
Paraguay¥	-.443**	-.443**†	-.410*	-.543*	-0.370
Peru	-.217*	-.242*	-0.113	-.806***	-0.124
Western Asia					
Armenia	0.165	0.575	0.530	no estimate	0.533
Azerbaijan	-0.451	-0.497	-0.476	-0.872	-0.553
Jordan	0.069	-0.418	0.142	-1.153**	0.470
Turkey	0.333	0.386	0.401	0.321	0.141
South Central Asia					
India	-0.002	0.264***	0.352***	-.486***	0.346***
Kazakhstan	-0.279	-0.698	-0.601	-1.897	-0.386
Kyrgyz Republic	0.050	-0.458	-0.067	-1.325*	0.037
Maldives	-0.353	-0.319	-0.141	-1.419**	-0.022
Nepal	0.735***	0.841***	1.013***	-0.596	1.102***
Pakistan	0.407***	0.407***†	0.678***	-.491***	0.609***
Uzbekistan	-0.649	-0.508	-0.665	no estimate	0.396
Southeast Asia					
Cambodia	-0.185*	-0.037	0.078	-.573*	0.024
Indonesia	-0.075	-0.014	0.019	-0.101	0.059
Philippines	-0.119	0.142	0.213	0.020	0.174
Timor-Leste	-0.200*	-0.207	-0.078	-.564*	-0.021
Vietnam	0.145	0.373	0.364	0.408	0.139
Europe					
Moldova	0.102	0.120	0.076	0.228	0.138
Ukraine	-0.265	-0.189	-0.246	no estimate	-0.085
Albania	0.582	0.578	0.669	-0.284	0.658
Totals					
two biological parent advantage	12	7	5	21	4
two biological parent disadvantage	15	17	21	4	24
difference not significant	40	43	41	39	39
no estimate				3	
¥ Wealth control omitted for Paraguay					
† no change between first and second models as parents' survival status not in data set					
* p < .05, ** p < .01, *** p < .001 levels; two-tailed tests					

Table 3: Coefficient relative to two biological parents, all children living with biological mother but not biological father and then with attention to marriage and remarriage					
	All estimates control for child's gender and age, other children living in the household, place of residence, parental education, and household wealth				
Country	lives with DHS-interviewed mother, father alive	single mother	mother & stepfather	mother, biological father absent	mother, stepfather absent
Northern Africa					
Egypt	0.539*	-0.054	-1.312	1.128**	no estimate
Morocco	0.526***	0.475	no estimate	no estimate	no estimate
Western Africa					
Benin	0.445***	0.293	0.038	0.394***	0.939***
Burkina Faso	0.143	0.417	-0.098	0.108	0.460
Côte d'Ivoire	0.372***	0.203*	0.455***	0.157	0.385
Ghana	0.362*	-0.171	0.190	0.972**	0.354
Guinea	0.340**	0.658*	0.132	0.389*	0.159
Liberia	0.361***	0.292	0.371	0.476*	0.125
Mali	-0.148	-0.234	-0.293	-.254*	0.449*
Niger	0.297***	0.045	-0.484	0.363***	0.370*
Nigeria	1.093***	0.944***	0.036	1.244***	1.625***
Senegal	0.469***	0.485*	-0.218	0.560***	0.523***
Sierra Leone	0.010	0.095	-0.133	0.281	-0.351
Togo	0.414***	0.598*	-0.276	0.592**	0.577**
Eastern Africa					
Burundi	-0.073	-.374*	-.734*	0.381	0.152
Comoros	0.186	0.095	0.037	0.319	0.601*
Ethiopia	0.061	0.118	0.064	-0.021	0.323
Kenya	0.355*	0.234	1.551	0.293	0.645
Madagascar	-.246***	-0.170	-.436**	0.093	-0.298
Malawi	-0.062	-0.023	-.374**	0.279	0.077
Mozambique	0.206**	-0.001	-0.232	0.697***	0.549**
Rwanda	-.369**	-.682***	-0.476	0.113	-0.714
Tanzania	0.023	0.069	-0.044	0.268	-0.386
Uganda	0.307*	0.624*	-0.239	0.243	0.454
Zambia	0.088	0.140	0.054	0.011	-0.057
Zimbabwe	0.527*	0.441	0.520	0.707*	0.218
Middle Africa					
Cameroon	0.553***	0.387	0.001	0.856***	0.807***
Central African Republic	0.207	0.161	-0.108	0.393	1.040*
Chad	0.035	0.160	-.613*	-0.119	0.473
Congo-Brazzaville	-0.027	0.499	-0.248	-0.905*	-0.342
Congo Democratic Republic	0.099	0.128	-0.031	0.178	0.043
Gabon	0.532*	0.552	0.362	1.156	0.384
Sao Tome and Principe	-0.186	-0.125	-0.554	-0.087	0.203
Southern Africa					
Lesotho	0.109	0.145	0.184	0.712	-0.852
Namibia	0.501**	0.708***	-.718**	0.959**	1.746**
South Africa	0.107	-0.165	0.171	0.506	0.321
Swaziland	0.614**	0.558	-0.266	0.730**	0.636
Central America					
Guatemala	0.037	-0.337	-0.133	0.825**	0.027
Honduras	0.322***	0.265**	0.353**	0.510**	0.517
Nicaragua	-0.014	0.067	-0.195	0.180	0.103
Caribbean					
Dominican Republic	-.256**	-0.125	-.333**	0.344	-.429*
Haiti	-0.050	-0.175	-0.390	0.490	-0.008
South America					
Bolivia	0.427*	0.247	0.001	0.803*	0.346
Brazil	0.048	-0.109	-0.176	no estimate	0.377
Colombia	-0.330***	-0.178	-.238*	-0.027	-0.065
Guyana	0.104	-0.008	-0.357	0.487	1.416
Paraguay¥	-0.370	-0.258	-.680***	no estimate	no estimate
Peru	-0.124	-0.277	-0.101	1.419	0.306
Western Asia					
Armenia	0.533	no estimate	no estimate	0.235	no estimate
Azerbaijan	-0.553	-1.053*	-1.452	-0.268	0.010
Jordan	0.470	0.393	no estimate	0.488	no estimate
Turkey	0.141	-0.375	-0.078	no estimate	no estimate
South Central Asia					
India	0.346***	-.209*	-0.136	0.565***	0.293
Kazakhstan	-0.386	0.025	-1.086	no estimate	no estimate
Kyrgyz Republic	0.037	1.578	-0.423	no estimate	-1.513
Maldives	-0.022	-0.456	0.103	0.587	-0.019
Nepal	1.102***	0.257	0.346	1.265***	0.219
Pakistan	0.609***	0.193	no estimate	0.809***	0.950
Uzbekistan	0.396	no estimate	no estimate	no estimate	-1.520
Southeast Asia					
Cambodia	0.024	0.129	-1.150***	1.017	0.285
Indonesia	0.059	-0.021	-0.137	0.251	0.278
Philippines	0.174	0.243	-0.196	0.830	-0.178
Timor-Leste	-0.021	-0.068	-0.449	0.225	-1.622*
Vietnam	0.139	-0.052	-1.030	no estimate	no estimate
Europe					
Moldova	0.138	-1.002*	no estimate	1.048	no estimate
Ukraine	-0.085	-0.447	no estimate	no estimate	no estimate
Albania	0.658	-0.155	no estimate	0.677	-0.051
two biological parent advantage	4	5	9	2	2
two biological parent disadvantage	24	8	2	20	11
difference not significant	39	42	48	36	44
no estimate		2	8	9	10
	¥ Wealth control omitted for Paraguay				
	* p < .05, ** p < .01, *** p < .001 levels; two-tailed tests				

Table 4: Coefficient relative to two biological parents: effects of living with non-parental adults								
	All estimates control for child's gender and age, other children living in the household, place of residence, parental education, and household wealth							
Country	single mother, no other adults	single mother **x other adults**	mother & stepfather, no other adults	mother & stepfather **x other adults**	mother, biological father absent, no other adults	mother, stepfather absent, no other adults	mother, husband absent, **x other adults**	main effect of non-parental adults in household
Northern Africa								
Egypt	-0.183	0.226	-1.044	-1.083	1.516	no estimate	-0.392	-0.413***
Morocco	-0.301	1.075	no estimate	no estimate	no estimate	no estimate	no estimate	0.102
Western Africa								
Benin	0.570	-0.473	0.355	-0.873	0.441***	0.983***	-0.103	0.075
Burkina Faso	-1.067	2.803***	-0.209	0.330	-0.019	0.316	0.237	0.022
Côte d'Ivoire	0.473	-0.232	0.101	0.677*	-0.326	-0.065	0.625	-0.128
Ghana	-0.148	0.064	0.349	-0.681	0.831*	0.223	0.271	-.318*
Guinea	0.589	0.113	0.394	-0.350	0.482*	0.257	-0.160	0.088
Liberia	0.307	-0.045	0.203	0.374	0.751***	0.394	-0.468	0.067
Mali	0.066	-0.309	-0.198	-0.160	-.424**	0.253	0.337	-.185*
Niger	-0.281	0.422	-0.441	-0.087	0.376**	0.362	-0.021	0.279***
Nigeria	1.008***	-0.173	0.457	-0.775	1.340***	1.719***	-0.180	0.243***
Senegal	-1.190	1.805*	-0.360	0.169	0.404	0.367	0.178	-0.093
Sierra Leone	-0.077	0.155	-0.274	0.253	0.237	-0.403	0.017	0.226*
Togo	1.165*	-0.908	0.055	-0.557	0.882**	0.859**	-0.452	0.036
Eastern Africa								
Burundi	-0.430	0.092	-.912*	1.289	0.266	0.055	0.470	0.018
Comoros	1.049*	-1.251*	0.172	-0.220	-0.049	0.125	0.890*	0.270*
Ethiopia	-0.097	0.397	-0.007	0.275	-0.135	0.202	0.335	0.053
Kenya	-0.241	0.949	1.255	no estimate	0.211	0.588	0.206	-0.069
Madagascar	0.016	-0.408*	-.516***	0.489	0.026	-0.353	0.066	0.411*
Malawi	-0.069	0.130	-.336*	-0.156	0.186	-0.012	0.272	-0.047
Mozambique	-0.121	0.290	-.270*	0.266	0.742***	0.594**	-0.153	0.062
Rwanda	-0.491*	-0.476	-0.270	-0.476	0.221	-0.612	-0.341	0.215
Tanzania	0.044	0.060	0.183	-0.623	0.382	-0.274	-0.182	-0.057
Uganda	1.494**	-1.478**	-0.046	-0.798	0.362	0.595	-0.426	0.284
Zambia	0.360	-0.392	0.195	-0.424	0.020	-0.050	0.000	-0.042
Zimbabwe	0.173	0.525	0.888	-0.975	0.412	-0.208	0.869	0.066
Middle Africa								
Cameroon	0.770*	-0.588	0.112	-0.191	0.802**	0.745*	0.093	0.143
Central African Republic	0.300	-0.279	-0.300	0.461	0.542	1.199*	-0.291	0.288*
Chad	0.373	-0.405	-0.411	-0.438	-0.156	0.429	0.073	0.071
Congo-Brazzaville	1.800	-1.519	-0.570	1.238	-0.702	-0.115	-0.334	0.115
Congo Democratic Republic	0.061	0.144	-0.259	0.687	0.439**	0.294	-0.466	-0.104
Gabon	1.891	-1.585	1.053	-1.219	2.326*	1.682	-1.556	-0.017
Sao Tome and Principe	-0.384	0.628	-0.613	-0.063	-0.815	-0.448	2.133*	-0.526
Southern Africa								
Lesotho	1.147	-1.363	0.503	-0.641	0.438	-1.183	0.312	0.370
Namibia	1.027*	-0.509	-.815**	422	0.770	1.523*	0.358	0.295
South Africa	-0.073	-0.280	0.409	-0.619	0.714	0.513	-0.465	0.348
Swaziland	1.634	-1.356	-0.736	no estimate	0.912*	0.800	-0.351	0.134
Central America								
Guatemala	-0.488	0.235	0.118	-0.718	0.675*	-0.216	0.199*	0.199
Honduras	0.321	-0.056	0.318	0.079	0.456	0.455	0.115	-0.062
Nicaragua	0.052	0.028	-0.267	0.198	0.604	0.597	-0.712	-0.022
Caribbean								
Dominican Republic	0.036	-0.322	-0.191	-0.499	0.370	-0.401	-0.097	0.105
Haiti	0.572	-1.133	-0.579*	0.567	0.501	0.001	-0.105	0.268
South America								
Bolivia	0.904	-0.979	0.000	0.076	0.712	0.264	0.388	0.197
Brazil	-0.301	0.407	-0.353	0.617	no estimate	13.229	-13.881	-0.248
Colombia	-0.309	0.143	-0.264	0.079	0.451	0.519	-0.823	0.059
Guyana	0.798	-1.391	-0.671	1.358	0.923	2.055	-1.271	0.501
Paraguay	-0.287	0.077	-0.983**	0.685	no estimate	no estimate	no estimate	-0.203
Peru	0.179	-0.655	-0.034	-0.216	14.572	13.058	-13.725	-0.050
Western Asia								
Armenia	no estimate	no estimate	no estimate	no estimate	12.500	no estimate	-12.379	-1.361
Azerbaijan	-1.220	0.181	-1.595	no estimate	0.038	0.220	-0.663	0.116
Jordan	12.151	-12.318	no estimate	no estimate	0.488	no estimate	0.012	0.081
Turkey	-0.440	0.174	12.410	-13.373	no estimate	no estimate	no estimate	-.329**
South Central Asia								
India	-0.362*	0.277	-0.125	-0.025	0.421***	0.158	0.287***	0.020
Kazakhstan	0.234	-0.267	-1.277	0.358	no estimate	no estimate	no estimate	-0.665
Kyrgyz Republic	13.058	-11.918	-1.505	no estimate	no estimate	-1.700	0.276	0.219
Maldives	11.388	-12.153	-0.967	no estimate	0.177	-0.554	0.635	0.443
Nepal	12.555	-12.932	0.493	-0.341	1.419***	0.365	-0.376	0.408**
Pakistan	0.190	-0.017	no estimate	no estimate	0.690***	0.857	0.174	0.123*
Uzbekistan	no estimate	no estimate	no estimate	no estimate	no estimate	-2.071	no estimate	-0.686
Southeast Asia								
Cambodia	-0.098	0.420	-0.779	-0.780	0.963	0.235	0.106	-0.160
Indonesia	0.088	-0.180	-0.170	0.135	0.698	0.866	-0.789	0.072
Philippines	0.069	0.311	1.127	-2.258	0.733	-0.426	0.388	-0.066
Timor-Leste	-0.706	0.808	-0.918	no estimate	-0.100	-2.007**	0.742	-0.067
Vietnam	-0.787	1.253	-1.197	0.430	no estimate	no estimate	no estimate	-0.366*
Europe								
Moldova	13.706	-15.400	no estimate	no estimate	0.584	no estimate	no estimate	0.096
Ukraine	-1.528	2.208	no estimate	no estimate	no estimate	no estimate	no estimate	-1.040
Albania	9.694	-9.981	no estimate	no estimate	0.446	-0.147	0.527	0.073
two biological parent advantage	2		7		1	1		
two biological parent disadvantage	6		0		16	7		
difference not significant	57		52		41	49		
no estimate	2		8		9	10		
	¥ Wealth control omitted for Paraguay							
	* p < .05, ** p < .01, *** p < .001 levels; two-tailed tests							

Table 5: Coefficient relative to two biological parents: effects of living with non-parental adults, multilevel models								
	All estimates control for child's gender and age, other children living in the household, place of residence, parental education, and household wealth at the individual level, and women's education, husbands' agricultural employment and wealth at the community level							
Country	single mother, no other adults	single mother **x other adults**	mother & stepfather, no other adults	mother & stepfather **x other adults**	mother, biological father absent, no other adults	mother, stepfather absent, no other adults	mother, husband absent, **x other adults**	main effect of non-parental adults in household
Northern Africa								
Egypt	-0.139	0.186	-0.977	-1.192	1.474	18.625	-0.352	-.389***
Morocco	-0.066	0.687	no estimate	no estimate	no estimate	no estimate	no estimate	0.064
Western Africa								
Benin	0.522	-0.418	0.182	-0.588	0.204	0.823***	0.014	0.091
Burkina Faso	-1.051	3.047**	-0.007	0.089	0.082	0.388	0.228	-0.053
Côte d'Ivoire†	0.180	-0.017	-0.087	0.734**	-0.410	-0.416	0.779	-0.083
Ghana	-0.428	0.060	0.302	-0.831	0.667	-0.005	0.208	-0.294
Guinea	0.529	0.063	0.342	-0.244	0.392	0.190	-0.103	0.066
Liberia	0.241	0.009	0.129	0.494	0.723**	0.355	-0.489	0.087
Mali	-0.011	-0.252	-0.138	-0.086	-0.326	0.380	0.260	-.200***
Niger	-0.130	0.405	-0.371	0.405	0.332*	0.423*	-0.078	0.229***
Nigeria	0.366	-0.017	0.306	-0.854	1.074***	1.194***	-0.854	0.228***
Senegal	-1.391	2.017**	-0.781	0.636	0.469	0.321	0.269	-0.161
Sierra Leone	-0.095	0.173	-0.247	0.264	0.169	-0.453	0.087	0.237*
Togo	1.009*	-0.862	-0.185	-0.583	0.753**	0.610*	-0.403	0.039
Eastern Africa								
Burundi	-0.398	0.038	-.955**	1.293	0.227	0.039	0.499	0.009
Comoros	1.034*	-1.276*	0.060	-0.323	0.065	0.068	0.896*	0.155
Ethiopia	-0.196	0.435*	-0.031	0.228	-0.033	0.322	0.342	0.029
Kenya	-0.601	1.081	1.029	16.862	0.103	0.196	16.862	-0.134
Madagascar	-0.038	-0.294	-.708***	0.575	0.300	-0.181	0.010	0.160*
Malawi	-0.048	0.088	-.297*	-0.175	0.149	0.024	0.232	-0.062
Mozambique	-0.183	0.159	-0.200	0.374	0.268	0.236	0.002	-0.045
Rwanda	-0.505*	-0.476	-0.259	-0.803	0.185	-0.598	-0.309	0.229
Tanzania	-0.034	0.202	0.236	-0.569	0.210	-0.254	.-.150	-0.062
Uganda	0.797	-1.241*	-0.445	-0.677	0.366	0.473	0.081	-0.138
Zambia	0.394	-0.457	0.130	-0.354	0.071	-0.043	94	-0.092
Zimbabwe	0.186	0.521	0.866	-0.932	0.412	-0.204	0.873	0.062
Middle Africa								
Cameroon	0.519	-1.030*	-0.190	-0.009	0.450	0.318	0.084	0.166
Central African Republic	0.297	-0.401	-0.332	0.395	0.576	1.156*	-0.383	0.346**
Chad	0.207	-0.145	-0.607	-0.209	-0.148	0.242	0.206	-0.132
Congo-Brazzaville	1.700	-1.449	-0.649	1.217	-0.742	-0.163	-0.338	0.113
Congo Democratic Republic	0.057	0.169	-0.329	0.794	0.399	0.280	-0.454	-0.104
Gabon	1.856	-1.577	1.025	-1.222	2.299*	1.638	-1.514	0.003
Sao Tome and Principe	-0.482	0.460	-0.679	-0.049	-0.720	-0.534	2.155*	-0.547
Southern Africa								
Lesotho	1.155	-1.433	0.420	0.189	0.445	-1.054	0.189	0.355
Namibia	0.920	-0.578	-.868**	0.636	0.574	1.299	0.483	0.209
South Africa	-0.175	-0.145	0.405	-0.509	0.573	0.440	-0.448	0.313
Swaziland	1.593	-1.083	-1.220	24.178	0.932*	0.683	-0.244	0.066
Central America								
Guatemala	-0.420	0.169	0.114	-0.738	0.713*	-0.155	0.335	0.206*
Honduras	0.308	-0.081	0.247	0.040	0.428	0.351	0.123	-0.091
Nicaragua	0.067	0.007	-.323*	0.252	0.603	0.557	-0.734	-0.016
Caribbean								
Dominican Republic	0.074	-0.365	-0.105	-0.492	0.590	-0.343	-0.069	0.095
Haiti	0.570	-1.179	-0.674*	0.654	0.531	-0.011	-0.213	0.265
South America								
Bolivia	0.892	-1.000	0.035	-0.179	0.646	0.232	0.400	0.262
Brazil	-0.327	0.388	-0.416	0.673	36.586	17.901	-18.494	-0.249
Colombia	-0.291	0.134	-0.252	0.063	0.464	0.521	-0.826	0.048
Guyana	0.782	-1.356	-0.632	1.329	1.000	2.170	-1.282	0.488
Paraguay¥	-0.292	0.022	-1.024**	0.669	14.405	18.001	0.873	-0.208
Peru	0.192	-0.629	0.097	-0.350	20.173	18.618	-19.206	0.014
Western Asia								
Armenia	21.084	no estimate	18.598	no estimate	0.270	20.944	no estimate	-1.446
Azerbaijan	-1.205	0.132	-2.278	16.698	-0.008	0.199	-0.744	0.131
Jordan†	0.414	no estimate	19.469	no estimate	0.459	19.351	no estimate	0.070
Turkey†	-0.264	no estimate	-0.263	no estimate	24.666	23.622	no estimate	-.321**
South Central Asia								
India	-.377*	0.247	0.097	-0.077	0.548***	0.194	0.207	0.046
Kazakhstan	0.285	-0.258	-1.142	0.442	22.122	22.175	0.778	-0.715
Kyrgyz Republic	1.587	no estimate	-0.543	no estimate	24.909	-1.575	no estimate	0.278
Maldives	-0.582	no estimate	0.126	no estimate	0.560	-0.119	no estimate	0.492
Nepal	0.215	no estimate	0.436	no estimate	1.331***	0.227	no estimate	0.365*
Pakistan	0.064	0.061	21.927	no estimate	0.633**	0.726	0.196	0.102
Uzbekistan	23.854	1.124	24.121	1.288	23.024	-2.058	24.290	-0.696
Southeast Asia								
Cambodia	-0.174	0.429	-0.909*	-0.697	0.902	0.134	0.033	-0.128
Indonesia	0.062	-0.138	-0.145	0.211	0.506	0.690	-0.626	0.062
Philippines	0.066	0.287	0.976	-2.119	0.520	-0.627	0.578	-0.091
Timor-Leste	-0.648	0.805	-1.030	15.601	-0.064	-2.059	0.881	-0.055
Vietnam†	-0.909	1.171	-1.029	0.195	24.306	23.822	0.399	-0.380*
Europe								
Moldova	-0.966*	no estimate	25.112	no estimate	0.994	25.455	no estimate	-0.247
Ukraine	-1.611	2.285	25.602		25.845	25.593	1.493	-1.033
Albania	-0.062	no estimate	21.594	no estimate	0.644	-0.109	no estimate	0.106
two biological parent advantage	3		8		1	1		
two biological parent disadvantage	2		0		10	5		
difference not significant	62		58		55	60		
no estimate			1		1	1		
	¥ Wealth controls omitted							
	† Husbands' agricultural employment control omitted							
	* p < .05, ** p < .01, *** p < .001 levels; two-tailed tests							

Figure 1: Effects on School Attendance of Living with Biological Mother but not Biological Father
sample=children living with DHS-interviewed mother, father alive

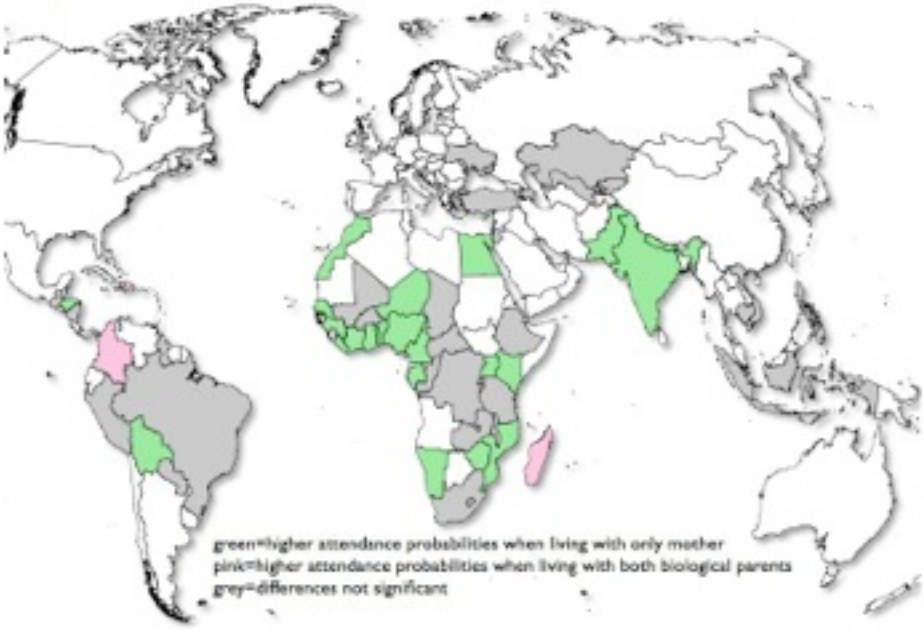


Figure 2: Effects on School Attendance of Living with Single Mother

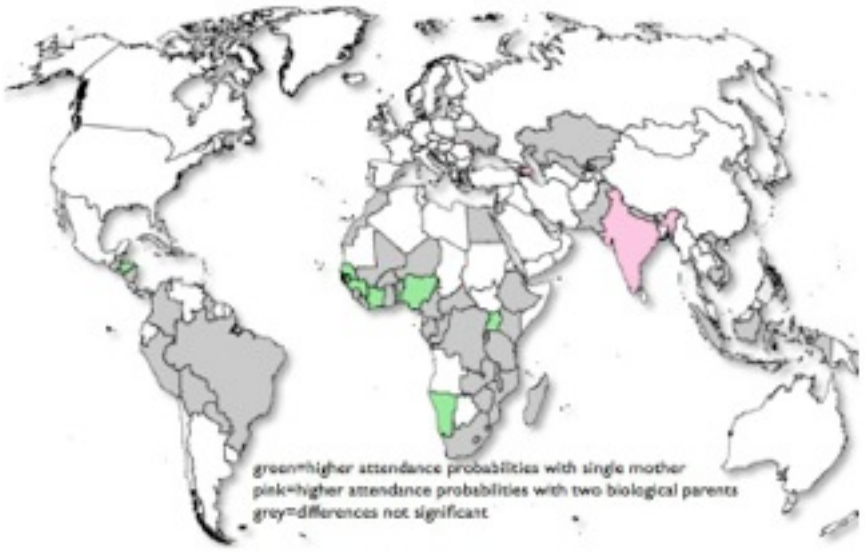


Figure 3: Effects on School Attendance of Living with Mother & Stepfather

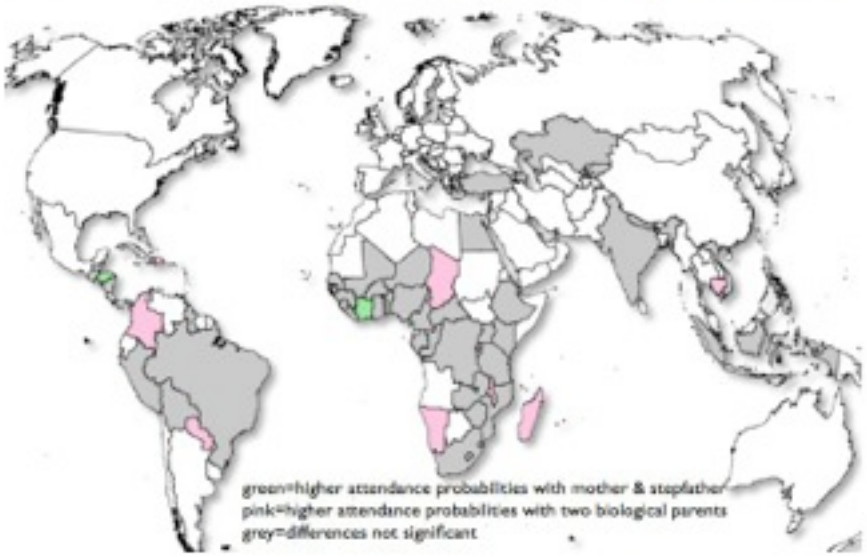


Figure 4: Effects on School Attendance of Living with Mother married to Absent Biological Father

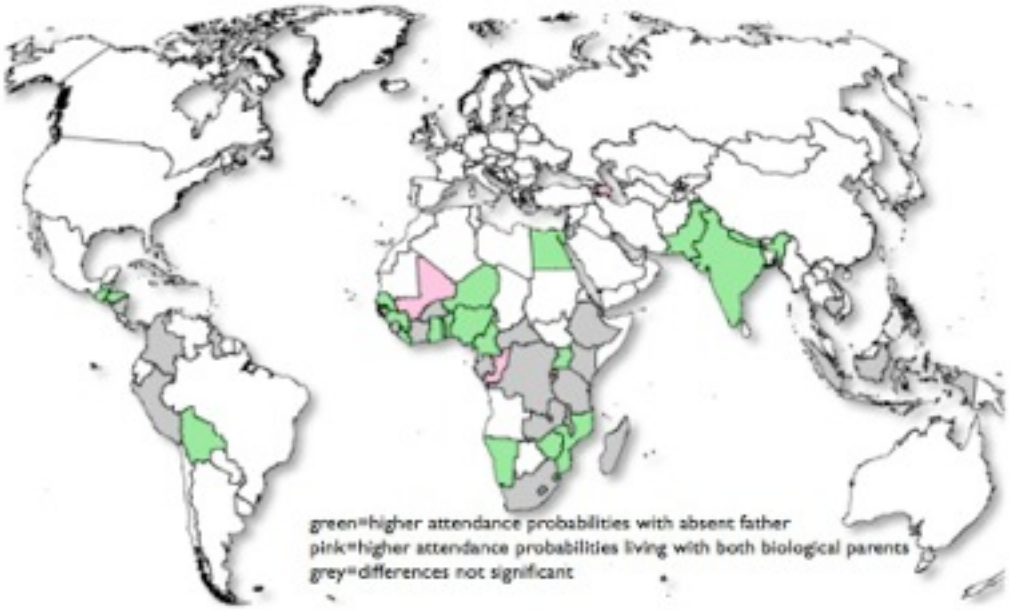


Figure 5: Effects on School Attendance of Living with Mother, Absent Stepfather

Figure 6: Effects on School Attendance of Living with Single Mother & no other adults, with community controls

Figure 7: Effects on School Attendance of Living with Mother, Stepfather, and no other adults, with community controls

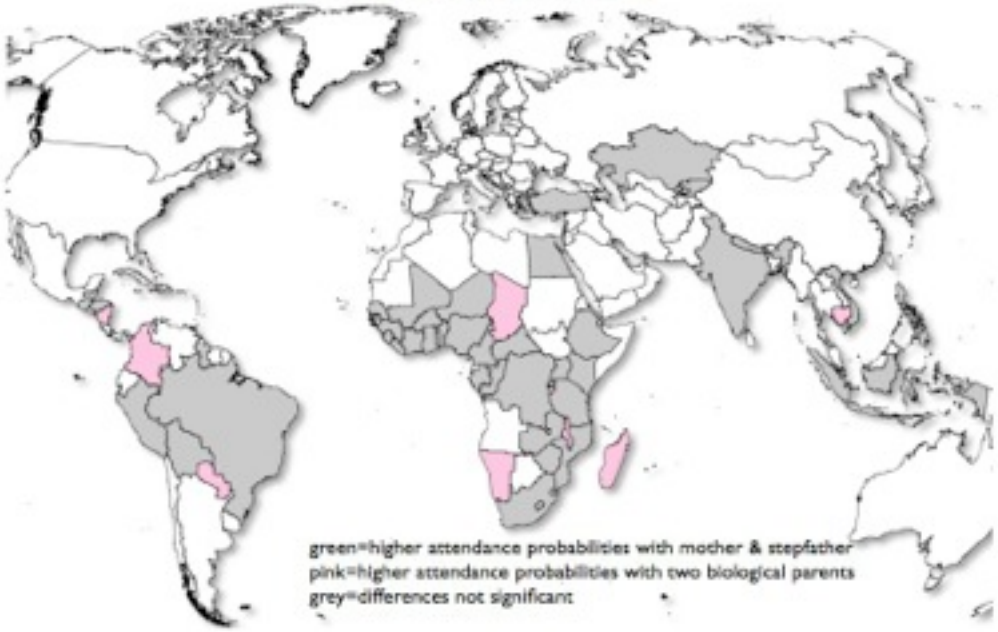


Figure 8: Effects on School Attendance of Living with Mother married to Absent Biological Father, no other adults, with community controls

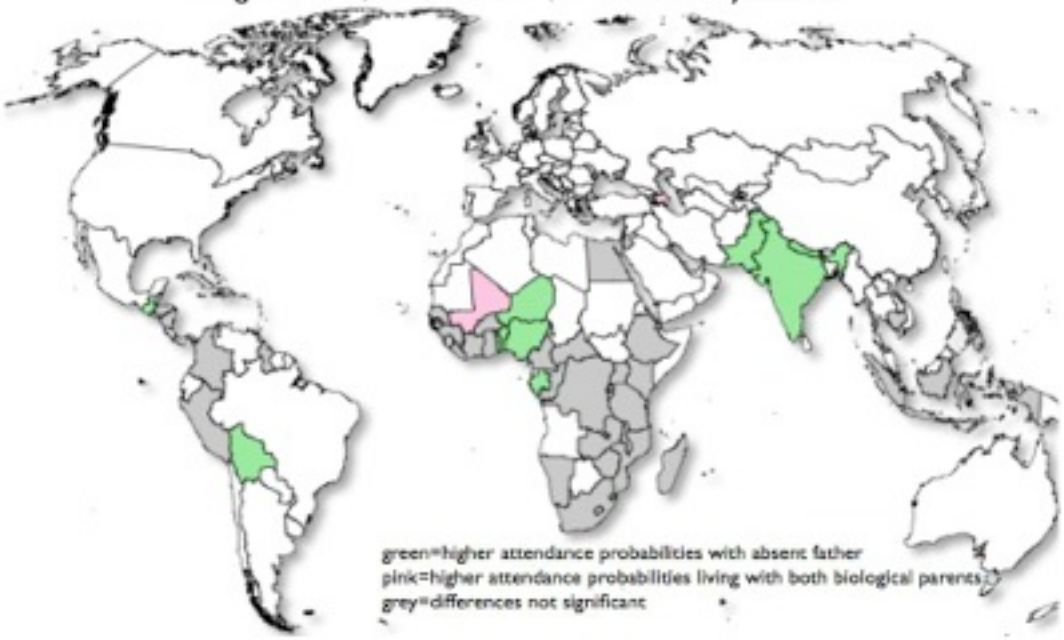
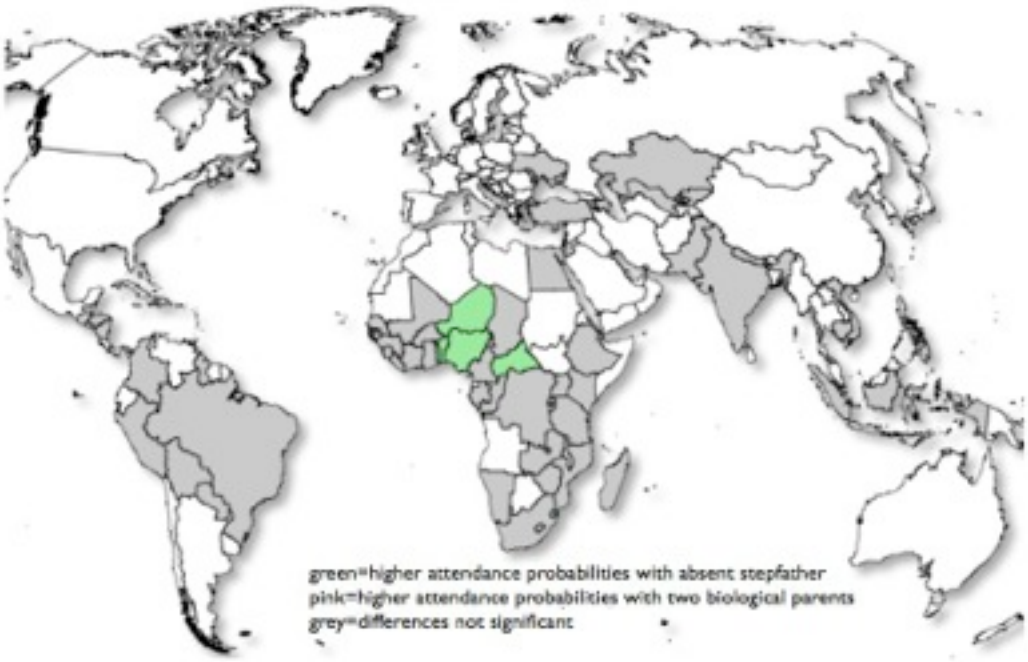


Figure 9: Effects on School Attendance of Living with Mother, Absent Stepfather, no other adults, with community controls



Endnotes

[1] Evidence on actual effects of extended family in the household on schooling is mixed with positive effects in China (Falbo 1991, Zeng and Xie 2011), Malaysia (Mahaarcha and Kittisuksahit 2009), and Japan (Shirahase and Raymo 2013), but negative effects in Mexico (Binder 1995) and other parts of Latin America (De Vos 2000), and mixed evidence from South Africa (Argeseanu 2006, Anderson et al. 2001). Therefore it is possible that even if extended family are not universally helpful for children's education, extended family may still explain why children of single parents in parts of Asia do not have compromised educational outcomes.

[2] Yemen 1997 is restricted; Yemen 1991-92 did not have information on the biological father on the household roster.

[3] Kenya 2008-09, Morocco 2003-04, Pakistan 2006-07, and Philippines 1998, 2003, and 2008 do not have information on biological parents on the household roster; South Africa 2003 is not in the public domain. For Côte d'Ivoire and Vietnam, the most recent survey is an AIDS Indicator Survey rather than a standard DHS.

[4] There are a small number of mothers whose current marital status is widowed even when the sample is restricted to children with two living parents. This does not have to be a data error because the mother could have been widowed by a partner after the child's father. These women are counted as single mothers.

[5] In Brazil, Central Africa Republic, Comoros, Côte d'Ivoire, Gabon, Guatemala, Indonesia, Kazakhstan, Kyrgyz Republic, Pakistan, Uzbekistan, South Africa, Togo (mostly older surveys) the variable was "member still in school" which might include some enrolled students who had not attended in the current year. Preliminary analysis indicated that the effect of family structure on education was not sensitive to whether the dependent variable was still in school (hv110) or attended during the current school year (hv121). Across all countries, 1960 children (0.25%) have missing values for the school variable; these are dropped.

[6] We exclude children who are themselves not usual members of the household because who else is present may not be relevant for them. We also drop the 1030 children (0.13%) where the variable identifying the biological parent's line number on the household roster is missing.

[7] There are no children with a deceased father in the analysis that uses the sole mother variable, but the child's mother could have been widowed after divorcing the child's still living biological father.

[8] 1=poor floor, poor drinking water, and poor toilet

2=2 of the following (poor floor, poor drinking water, and poor toilet)

3=1 of the following (poor floor, poor drinking water, and poor toilet)

4=0 or 1 of the following (poor floor, poor drinking water, and poor toilet) and a radio

5=0 or 1 of the following (poor floor, poor drinking water, and poor toilet) and electricity

6=0 or 1 of the following (poor floor, poor drinking water, and poor toilet) and a television

7=0 or 1 of the following (poor floor, poor drinking water, and poor toilet) and a refrigerator

8=0 or 1 of the following (poor floor, poor drinking water, and poor toilet) and a car

[9] West Africa is actually where 2 of the 3 countries where children coresiding with a stepfather had higher attendance probabilities, but we discount this here because in the next analysis we discover that the presence of other adults—not the stepfather—explains this.

[10] While children of migrants might have better educational outcomes because of positive selection into migration, these children are advantaged even after considering selection. Kuhn (2006) controlled for household wealth 14 years before observed schooling. Similarly Yabiku and Glick (2013) found that only father's post-marital migration experience improved schooling (pre-marital migration had no effect). Hu (2013) observed educational performance while controlling for educational aspirations. Deb and Seck (2009) used an instrumental variable approach adapted to address the non-continuous nature of migration variables. These works all demonstrated an educational advantage to children of migrants not fully explained by selection.