

Measuring Children's Care Arrangements and Their Educational and Health Outcomes Internationally

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Published online: 19 April 2016
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Abstract Globally, there are many reasons children grow up without one or both parents. In higher-income nations, a parental break up is a major force behind non-nuclear family care arrangements whereas in low-income nations, higher death rates and the need to migrate for work may dictate whether or not children regularly see their parents, let alone live with them. Given the importance of children's care arrangements for their development, this essay summarizes efforts to measure trends in children's care arrangements in two regions of the world—Southeast Asia and sub-Saharan Africa. Background on what determines children's care arrangements and the association between child care arrangements and children's development in these two regions are summarized. The results from the World Family Map project, an annual report that seeks to monitor the health of family life around the globe, are presented. This essay ends with a discussion about the strengths and limitations of international measurement of children's care arrangements and directions for the field. Care arrangements—including family structure and living arrangements—are associated with many other indicators of family health, including non-marital childbearing, poverty, parental education, employment, and public spending. However, the literature has paid little attention to how care arrangements are associated with children's wellbeing in an international context. This essay, therefore, focuses on family structure and children's living arrangements

with the acknowledgement that these family contexts are confounded with other social and family indicators of wellbeing.

Keywords International · Care arrangements · Family structure · Child wellbeing

Much of the research documenting how children fare in different care arrangements comes from western samples. For example, in the USA, children who are raised by single mothers generally have worse cognitive (Carlson and Corcoran 2001), social (Cavanagh and Huston 2006), academic (Brown 2004), and health (e.g., Chen and Escarce 2010) outcomes than children raised by two biological parents. In the USA, less than 5 % of children live without either parent, and most of these children are living with a grandparent (Census Bureau 2015). Children living with grandparents also do not fare as well, on average, as their counterparts in married biological parent families (Foster and Kalil 2007).

Findings from US samples are difficult to generalize at a global level because the US context is different from the context in lower-income countries, mostly because of what causes a child to live with one or no parents. In the USA, living with one parent is most often the result of the parental relationship breaking up. This is the common antecedent of non-nuclear family care arrangements in countries that have already undergone a demographic transition in which death and fertility rates are low and trends in marriage and family formation are changing (Lesthaeghe 2010). As countries undergo a demographic transition, the expectation is that marriage patterns will change such that divorce, cohabitation, and non-marital childbearing are more common. Theories of the demographic transition suggest that most or even all countries will follow a similar transition, although the timing of such transitions is variable. Thus, in many non-US contexts, especially in low-income countries that

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have not yet made a full demographic transition, a change in children's care arrangements is more likely to result from the death of a parent, poverty, natural or political disasters, or labor migration than in the USA (Save the Children 2015).

Moreover, children are more likely to be orphaned (defined as children with only one or no living parents) in low-income countries than in higher-income countries. Four million of the world's orphans live in industrialized countries; the remaining 149 million live in low-income countries. The vast majority of orphans worldwide are from Africa and Southeast Asia (131 million orphans; UNICEF 2012). While the surviving parent or extended relatives, such as grandparents, tend to take care of these children, some are cared for in foster care or are institutionalized. These care arrangements (family, foster care, and institutional) can have consequences for children's development.

Scholars argue that in Africa and Asia, orphans are more likely to live with a surviving parent or with extended family than in institutions. Although there are no reliable national estimates of the numbers of children who live in institutions (Case et al. 2004; Zhao et al. 2007), this argument is supported by global estimates that only 2 million children of the estimated 153 million orphans live in institutions (UNICEF 2009). Compared to children living with one or both biological parents, non-institutionalized children living without both parents tend to have poorer school outcomes (Bicego et al. 2003) and are given less food and medical resources (Anderson 2005), and when orphans do not live with relatives or live with distant relatives, these associations are even stronger (Case et al. 2004).

Despite the small proportion of orphans living in institutions (a UNICEF-sponsored epidemiological study of 251 orphans in China found that 1.2 % of orphans up to age 18 lived in orphanages; Zhao et al. 2007), their developmental context is important to note. Living in an institution away from any family or caregiver, especially at a young age, is associated with devastating developmental outcomes. A study comparing orphans living in institutions to children living with their families in Russia found that the children living in orphanages had significantly lower IQ scores (up to 3 standard deviations lower on some subtests), empathy, and levels of conformity. However, the age of placement in the orphanage buffered this association; 6- and 7-year-old children who had been institutionalized at an earlier age had worse outcomes than 6- and 7-year-old children who had been institutionalized at a later age (Sloutsky 1997). Other studies of Romanian orphans found that compared to never institutionalized children, institutionalized orphans showed significant intellectual delays. If the orphans were adopted early in life, before about 2 years of age, over time their IQ scores improved to normal levels. However, if the orphans stayed in institutions beyond 26 months, they never reached normal cognitive abilities (Fox et al. 2011; Rutter and the English and Romanian

Adoptees Study Team 1998). Much of this research comes from Eastern European orphanages, and therefore it is unclear if the findings generalize to an Asian or African context.

Given that the antecedents of children's non-nuclear care arrangements in low-income countries differ from those in high-income countries, it is important to study how children fare in different care arrangements around the world. A number of factors shape the economic and social contexts in which children are raised, including, but not limited to, family structure, high death rates due to disease, poverty, natural and political disasters, and labor migration. While we acknowledge that a multitude of factors can influence children's care arrangements, we focus on a subset of these factors for the purpose of this study (labor migration, family structure, parental death from HIV/AIDS, and norms surrounding care arrangements). We chose these factors because Asia and sub-Saharan Africa have some of the highest rates of absolute poverty¹ in the world. Explaining variability in children's outcomes above the influence of poverty is particularly relevant when up to 64 % of a country's population lives below the poverty line (Lippman and Wilcox 2013). However, we acknowledge that poverty influences parents' ability to maintain stable care of their children (Roby 2011), and note it as a relevant context throughout this paper. We also acknowledge the profound influence that natural and political disasters can have on a child's developmental context, but omit them from the present discussion because they tend to be more localized than is the focus on this paper. For example, researchers examining how children fare after a natural disaster examine small geographic regions, often at a county level, because of how localized such disasters may be (e.g., Gunnsteinsson 2015).

An important question that comes from the research literature on family structure and children's care arrangements is why children would have worse health, cognitive, or social outcomes when they grow up without both biological parents. One explanation is economic: children living without two adult caretakers have fewer resources than children living with two adults (McLanahan and Sandefur 1994; Jiang et al. 2014). This diminished access to resources results in less food, fewer cognitive-stimulating toys and opportunities, and less time the single caregiver has for the child. Another explanation is psychological: children miss their parent(s) when they are separated, mourn their parents when they die, experience stress due to changing circumstances, or feel the psychological effects of a stigmatized care arrangement (Foster et al. 1997). These psychological mechanisms may explain social and academic outcomes in particular. These two explanations are not as relevant to institutionalized children who can face abhorrent living conditions that are likely to overshadow any other factors influencing their development

¹ Absolute poverty is defined as the percent of the population living on less than US\$1.25 per day.

(Zeanah et al. 2006). Especially when children are young, an environment completely absent of any stimulation (colors, toys, people) and physical touch (hugging, cuddling, interacting with a care giver), as is reported in Eastern European institutions, leads to intellectual, verbal, physical, and social delays (see Zeanah et al. 2003 for a review). Thus, the explanations that are relevant to most children in alternative care arrangements are economic and psychological, and these mechanisms may influence children differently depending on their cultural and social contexts. Therefore, understanding the economic (labor migration), demographic (marriage and divorce patterns, family breakdown), and sociocultural (parental death from HIV/AIDS, norms surrounding care arrangements) contexts of Southeast Asia and sub-Saharan Africa is important for understanding how children's care arrangements are likely to influence their development. The goal of this paper is to highlight what contexts shape children's likelihood of living in different care arrangements in Southeast Asia and sub-Saharan Africa and how their care arrangements are associated with their educational and health outcomes.

Understanding the Southeast Asian Context

There are three major economic, demographic, and socio-cultural contexts that have shaped families in Southeast Asia in recent years. Economic factors over the last two decades have resulted in a remarkable increase in international labor migration (Hoang et al. 2015). The global HIV/AIDS pandemic has left a number of children orphaned or in alternative care arrangements (Roby 2011). As in many parts of the world, fostering has existed for a long time in Southeast Asia. However, due to the cultural emphasis on the family, extended family care is more common than fostering outside of the family (Issifou 2015). There has been a social revolution resulting in demographic changes in women's marriage rates in Southeast Asia. While marriage at one time was close to universal in Asia (Smith 1980), the proportion of women who do not marry has nearly doubled since the 1970s (Jones 2005). What these contexts collectively mean for children is that increasing numbers are growing up with one or no parents. Because of Asia's strong cultural emphasis on nuclear families and parental care arrangements, sociocultural factors might influence how children fare in alternative care arrangements.

Labor migration has transformed the lives of millions of individuals and their families in Southeast Asia as poverty and political conditions encourage parents to search for work outside of their home countries and leave behind children and/or a spouse. As a result, there are millions of children that are growing up without their father, mother, or both and are left in the care of one parent, other relatives, fostered, or in institutions (Yeoh et al. 2005; Hoang et al. 2015). The change in family living arrangements caused by labor migration stands

in stark contrast to Asian cultural values that emphasize the central importance of married parents and the family (Wu et al. 2002). While labor migration is viewed as something done for the family's sake and is valued as an honorable act done for the family's survival (Asis 2006), children who are socialized to think of the family as their central social unit may encounter negative consequences when families are broken up. Research finds that Indonesian, Thai, and Filipino children have worse psychological wellbeing when their fathers are absent due to labor migration, compared to children living with both parents (Graham and Jordan 2011; Parreñas 2005). However, research generally finds that children's physical health does not suffer when their fathers are absent due to labor migration (Asis 2006). This stability of children's physical health when fathers are absent may be due to the high percentage of Asian children living with extended family who may provide access to more resources.

Another important context that shapes the family and children's care arrangements in Southeast Asia is HIV/AIDS. While HIV/AIDS prevalence rates are relatively low in Asia, with an average rate across Southeast Asian adults of 0.56 %, there are some countries with higher than average rates. Myanmar, Thailand, and Cambodia have the highest HIV prevalence rates in Asia—around 2 % of their adult populations—and therefore, the children in these countries are most likely to suffer the consequences (Piot et al. 2001). A community-based study of HIV orphans and vulnerable (HIV-OV) children in Myanmar found that less than half of these children had two living parents. Nearly one third of these children did not live with either parent. HIV-OV children were also more likely to be displaced from their original homes and separated from their siblings than non-HIV-OV children. HIV-OV children had more behavioral problems and worse health including a higher risk of being HIV-positive and having a recent history of illness compared to their non-HIV-OV counterparts (Mon et al. 2013). These results collectively provide some explanation for variability in children's outcomes when their care arrangements change: children who lose a parent to AIDS may have worse outcomes than children whose parent moves away for work.

A central demographic and social context that influences children's developmental ecology is marriage because it provides social and legal structures that support both parents raising a child. Women in particular are delaying or avoiding marriage altogether in Southeast Asia because of increased educational attainment and the resulting career opportunities it brings (Jones 2005). The result is fewer children born generally in these countries, and more are born out of wedlock. However, the relative rates of non-marital childbirth are still low in Southeast Asia as childbearing is largely seen as a "packaged deal" with marriage (Jones 2007).

Researchers also document changing divorce rates in Islamic Southeast Asia. In particular, divorce declined throughout the

twentieth century from relatively high rates (a decline from around 300 divorces per 1000 marriages to around 100 divorces per 1000 marriages), but there are signs that this trend is reversing. Researchers argue that as Southeast Asia globalized, the tradition of arranged marriages among Islamic groups declined, leading to fewer divorces. However, in recent years, more than 500 divorces per 1000 marriages were reported among the Islamic population in Southeast Asia. Among non-Islamic groups in Southeast Asia, the divorce rate was and continues to be moderate to low and stable (Dommaraju and Jones 2011). This is likely because divorce is still met with a strong cultural disapproval, and once children are born, divorce is less common (Jones 2007).

These studies collectively suggest that the marriage culture in Asia is generally a strong one. The family—bound by marriage—is embedded in strong cultural values of comportment and how to structure one's life. It is reasonable to expect, therefore, that a change in the nuclear ideal of family is associated with stress to the family as a whole and the child specifically, which may influence health, social, or cognitive outcomes. One important conclusion from this research is that children of single-parent families may not fare worse than their two-parent family counterparts if circumstances that lead to one parent leaving are considered to benefit the family. Thus, children's alternative living arrangements in Southeast Asia may be associated with better developmental outcomes than in some parts of the world.

Understanding the Sub-Saharan African Context

Scholars have noted for decades that child fostering—that is when children do not live with either biological parent—has been a common practice in many parts of sub-Saharan Africa and many social and economic factors influence the decision to foster (Hosegood et al. 2007; McDaniel and Zulu 1996). These factors boil down to the same set of three that are relevant in Southeast Asia. Patterns in union formation and dissolution, migration, and adult mortality—especially from AIDS—influence the sub-Saharan African family context.

Historically, African marriage rates were nearly universal due to cultural norms of polygyny and a preference for a large number of children in most African countries (Boserup 1985). African women married young, and, although divorce was not uncommon, they tended to remarry quickly, never being out of a union for long (Reniers 2003). However, scholars also argue that “marriage” has a different meaning in Africa than it does in the USA or Europe and, therefore, despite historically high rates of marriage (Caldwell et al. 1989; Therborn 2004), marriage and changes to the institution in parts of Africa may not be as relevant as other factors for children's developmental context as in other parts of the world. Marriage is a self-defined state in Africa (Mensch et al. 2005), and up to 50 %

of women in parts of sub-Saharan Africa who report being married are in informal or unofficial marriages (a marriage without a civil, religious, or traditional wedding ceremony, or a dowry; Kamgno and Mengue 2014). Moreover, children do not by default live with both parents when they are unofficially married or in cases of parental labor migration (Beauchemin et al. 2015; Kamgno and Mengue 2014). Therefore, marriage and cohabitation may not be a meaningful differentiation in much of sub-Saharan Africa and may not always mean that children live with both parents.

Differences in the meaning of marriage in Africa and the USA might be linked to differences in children's care arrangements, but there is also great diversity in how stable marital unions are across African countries and within countries at different ethnic and socioeconomic levels (Smith-Greenaway and Clark 2015). Women are marrying later in sub-Saharan Africa than they were 20 years ago (Mensch et al. 2005), but “marriage” remains a fluid state, encompassing both official and unofficial status which often depends on other factors such as geographic location, ethnicity, and socioeconomic status. A study of unions in Cameroon found that urban women were more likely to be in an unofficial marriage than rural women, a trend that has increased since the 1990s. However, a woman's ethnicity, age, education, and occupation also predicted her marriage status (unofficial versus official; Kamgno and Mengue 2014).

To support this argument, the little research available documenting how divorce is associated with children's outcomes in Africa yields inconsistent results. Gage (1997), using a national sample of Kenyans, found that there is no consistent pattern to children's health based on their mother's marital status. Children living with polygynous mothers are less likely to be fully vaccinated than children living with married mothers, and children living with never married mothers are more likely to be fully vaccinated. There was no difference between children's likelihood of being fully vaccinated when they lived with divorced versus married mothers, although they were more likely to receive the full polio vaccination series when they lived with divorced compared to married mothers. However, children living with married mothers were less likely to be undernourished than were children of divorced, never married, or polygynous mothers. Another study of children with married, divorced, or widowed mothers (not polygynous or never married) in Burkina Faso found that children with divorced mothers were significantly more likely to die and not enter school than were children with married mothers. However, children of widowed mothers were less likely than children of divorced mothers to enroll in school (Thiombiano et al. 2013). These findings suggest that factors other than marital status in and of itself, such as whether children live with both parents and/or other adults, may be stronger predictors of children's wellbeing. Because children do not by default live with both parents while the later are married, other factors that contribute to children living with

or apart from their parents are especially important to consider for sub-Saharan African children's wellbeing.

One such influence on children's living arrangements is urbanization. A qualitative study in Nigeria suggests that urbanization and the resulting economic opportunities, particularly for women, lead to multiple changes in family structure including less reliance and coresidence with extended family and more single-mother households (Wusu and Isiugo-Abanihe 2006). Similarly in Kenya, urbanization has been rapid and, as a result, children live in a variety of care arrangements (Ndugwa et al. 2011). Urban residents in Cameroon are more likely to cohabit than their rural counterparts who are more likely to be formally married (Kamgno and Mengue 2014). While families often move to urban centers for economic opportunities, once there, they can face high levels of unemployment, poverty, and other stressors that shape family living arrangements, marital stability, and child wellbeing (Kamgno and Mengue 2014; Ndugwa et al. 2011). In South Africa, apartheid-era policies placed additional strains on family relationships. When rural parents moved to South African cities for work opportunities, they legally could not bring their spouses or children with them under apartheid-era laws (Clark and van Heerden 1992). Because of the strain this placed on marriages, men often ended up with two families (an urban and a rural one), or women left their children with relatives or a foster family to move with their husbands to urban centers (Ramphela 2002). This explanation coupled with economic factors may partially explain why unofficial marriages are so common in South Africa, why their prevalence differs for rural versus urban women and women of different ethnic and socio-economic backgrounds in multiple sub-Saharan countries, and why marriage in and of itself may not be a reliable indicator of children's living arrangements in parts of Africa, especially South Africa.

Related to marital status, whether or not children are born to married parents is likely to predict their care arrangements. Estimates from South Africa, for example, suggest that as many as 70 % of Black children were born out of wedlock in 1990 (Burman and van der Spuy 1996). Cultural tradition dictates that these children stayed with their mothers' family, which limits contact with their biological fathers. Some researchers have noted that many of the children in South Africa born to unmarried parents or within an unofficial marriage are abandoned by their fathers, who are often not able to provide for them and therefore do not consider themselves genuine fathers (Richter and Morrell 2006). Thus, while children with married parents do not necessarily live with both parents, children without married parents are more likely to live with just their mother or their mothers' family than with both parents.

The relatively recent and fast urbanization in much of sub-Saharan Africa has changed not only marriage patterns and children's care arrangements but also migration patterns in

parts of sub-Saharan Africa (Luke and Munshi 2006). In addition to families migrating to cities together to seek job opportunities, many parents in Africa move away from their families to find employment. When parents move away from their children, children's living arrangements change, they may have fewer resources available to them, and their overall stress increases (Strohschein 2005). A study of Black children in South Africa examining the association between relatedness (how closely a child is related to adults in the household) and investment in that child found that relatedness was positively associated with spending more money on food and health care for the child when families lived in urban centers. This association was not found for children living in rural areas, although the authors speculate that rural families can acquire food and medical care without spending money (e.g., by growing food or trading services). The authors also found that children who lived with close relatives were more likely to go to school regularly and do better in school than those who lived with more distant relatives or non-relatives (Anderson 2005). Other research in Uganda and Zimbabwe also finds that relatedness is associated with better schooling outcomes for children (Roby 2011). These findings suggest that children's developmental outcomes may vary widely depending on with whom they live. Even if they live with close relatives, children may not receive as many resources as they would with biological parents.

These findings suggest that the already low-income or otherwise disadvantaged children in sub-Saharan Africa may experience the most negative consequences from changes in their care arrangements due to marriage or migration factors. However, beyond abandonment by a parent or a temporary change in living arrangement, children's care arrangements may be most altered by the death of a parent. In some countries of Africa, parental death is commonly due to HIV/AIDS infection. Africa is the area hardest hit by the AIDS pandemic. South Africa, in particular, has the highest prevalence of people infected with HIV/AIDS in the world (Shisana et al. 2005). By recent estimates, 12 million children have lost both parents to AIDS in sub-Saharan Africa, and many more have lost one parent to AIDS (UNAIDS 2008). These orphans often suffer adverse outcomes. In addition to experiencing more limited financial and social resources and increased stress related to parental death, orphans whose parents die from AIDS often experience additional psychosocial difficulties in dealing with their loss. One small study in South Africa found that 73 % of orphans aged 6 to 19 had clinical level symptoms of post-traumatic stress disorder (PTSD; Cluver and Gardner 2006). A more recent and large-scale study by the same authors found that teenagers orphaned by AIDS in South Africa reported more depressive symptoms, PTSD, and conduct problems than did non-orphaned teens (Cluver et al. 2007). Another study of 11–15-year-olds in Uganda found that compared to non-orphans, AIDS orphans

reported higher levels of anxiety, depression, and anger (Atwine et al. 2005). In studies with western samples, psychological problems such as depression and anxiety are linked with poor academic, social, and psychological outcomes in adolescence and adulthood (e.g., Jaycox et al. 2009). These studies collectively suggest that AIDS-orphaned children are likely to experience a change in care arrangements, change in resources, and psychological adjustment problems that reduce their overall wellbeing.

One limitation of this research is that it is unclear what happens to children who do not have relatives or neighbors to take them in when a parent dies. While orphanages exist in Africa, there are few, if any, studies that document children's developmental outcomes when they live in orphanages or other institutions. Considering the high number of AIDS orphans in Africa, this is a significant gap in the literature.

Collectively, the research from sub-Saharan Africa suggests that definitions of marriage, and therefore the nuclear family, have been changing for some time. Because of the long history of shared child rearing among kin networks and fostering, it is possible that African families have learned to adapt to alternative care arrangements and that children's outcomes are more influenced by other sociodemographic and cultural factors. On the other hand, the long-term stress and disadvantage that come from families being torn apart might have strong health, social, and cognitive ramifications for children and their families. These findings collectively suggest that sub-Saharan Africa, like Southeast Asia, may have unique associations between children's care arrangements and their developmental outcomes.

Measurement of Child Care Arrangements Internationally

The studies summarized in this paper provide important insights into the Southeast Asian and sub-Saharan African social, economic, and demographic contexts that shape the family. However, there are some notable limitations in the available research about these two regions. First, while there are some studies that use large or national data sets, most of the studies summarized use relatively small, select samples that aim to explore the psychological consequences of different care arrangements that are caused by losing a parent to HIV/AIDS, migration, or other factors. These studies are important because they help us understand psychological processes in different scenarios. However, the generalizability of the research findings of these small-scale studies is limited because they often involve non-representative samples or qualitative methods that are difficult to reproduce. Moreover, most of the studies were country-specific, also limiting their generalizability to other contexts. There is little evidence to support whether the findings from one place apply to other locations.

Second, none of the studies that reported findings other than demographic trends used large-scale, nationally representative data. Finally, there are some groups of children that are not studied at all at a national level. Specifically, to the best of our knowledge, there is no national data of any country in Africa or Southeast Asia documenting the number of orphans in institutions and their outcomes.

The benefit of country-specific research with Southeast Asian and sub-Saharan African families is that the field gains very specific information about that one country, so we understand more about the nuance and mechanisms between one exposure and outcome. However, it is unclear whether these trends extrapolate to other populations, the larger region, other children, or other situations. These limitations in measuring care arrangements and the psychological, health, and social consequences for children suggest that a more systematic look at international research about children's care arrangements and their measurement is warranted.

One way to think about these different approaches is through a methodological lens. Measurement of care arrangements across the world is conducted using two different data collection and analysis methodologies: qualitative and quantitative. Each method contributes to the field in unique ways and reflects different perspectives of what variables, trends, and mechanisms of care arrangements and children's wellbeing are valuable to study in an international context. Quantitative data provide broad indicators of care arrangements that are comparable across countries. One advantage of quantitative data collections is that when studied systematically and in a representative population, generalizable claims can be made. One additional advantage of quantitative data is that they can give probabilistic explanations for how likely outcomes are to occur. With the ability to conduct more rigorous statistical analyses, these advantages of quantitative data should not be underestimated.

However, one trade-off in deciding to use quantitative data is that it can be challenging to study both probabilistic mechanisms and large-scale representative samples. In order to make generalizable claims at a national or international level, quantitative data require representative samples that are time-consuming and expensive to collect and often are very large. Quantitative data collection also requires relatively low participant burden in order to ensure adequate response rates. These types of data collection efforts tend to have demographic information about family formation, change, and migration, but little information about family processes or child and adult wellbeing. The downside to quantitative data that can provide a large-scale picture of demographic trends is that psychological or other explanatory variables tend to be missing from such data. Datasets that collect information about the explanatory variables or that burden participants with more detailed data collection can help explain causal mechanisms, but may still struggle with representativeness or

breadth. It is possible to collect quantitative data from smaller samples, and though these analyses contribute to our understanding of child development and can help identify how demographic factors are associated with wellbeing, these types of data sources cannot provide estimates of broader demographic trends in communities or nations.

In contrast, qualitative data typically provide information specific to a single community or population in order to capture culturally specific information that provides insights into local perspectives of demographic phenomena (Mack et al. 2005). For example, qualitative data can help illuminate why a probable relationship does not occur in certain populations or circumstances. Qualitative data also has drawbacks that are especially relevant to international research on care arrangements. The sample sizes are small, and participants are not randomly selected or representative of target populations; together, these downsides make drawing generalizable conclusions difficult or impossible. Also, qualitative data is often limited by the specific mechanisms it is studying. For example, a qualitative study of care arrangements among families engaged in labor migration will likely draw different conclusions for child wellbeing than will a qualitative study of care arrangements in families facing an AIDS-related death, even if both studies are conducted in the same country and with similar ethnic populations. Different conclusions do not mean that they both cannot be true or do not coexist. Both may be true. However, policy implications drawn from these conclusions need to be understood with nuance, care, and an awareness of the potential unintended consequences in other realms. However, this example illustrates how qualitative research can inform quantitative data collection. It can be a particularly useful tool for the research community when used in conjunction with quantitative research to inform generalizable data collection efforts. Quantitative surveys that fail to assess why children are in alternative care arrangements (e.g., because of the death of a parent, a change in family structure, being put up for adoption, or their parents' work schedules) or the cultural implications of alternative care arrangements may miss powerful predictors of variability in how children adjust to alternative care arrangements.

Another reason that international research on how family formation changes due to migration is particularly challenging is that, increasingly, migration is a cross-country issue. An article summarizing the conceptual and methodological challenges in transnational family research argues that current research tends to focus on one country at a time when these issues have crossed international boundaries. Specifically, labor migration is often transnational, and to understand how families engaged in labor migration fare, research must become multi-site with data collection in different nation states (Mazzucato and Schans 2011). While some qualitative and small-scale quantitative studies have begun to move in this direction to follow families through their transnational migrations, more

systematic data collection efforts are sorely needed. Aligned with Mazzucato and Schans' (2011) argument, much of the currently available data on care arrangements globally comes from individual country sources such as Statistics Canada, Germany Federal Statistics Office, and the Australian Bureau of Statistics Monthly Population Survey. There are, however, several notable international quantitative data collection efforts that provide care arrangement information across nearly 100 countries, which are described in more detail in the section below.

One last point is that any data collection effort is only as valuable as the preparatory work that went into it. The proper operationalization of concepts, a well-specified design, sufficient sample size, and high-quality instrumentation and data collection are essential to produce valid results. Without the above elements as necessary pre-requisites, all of the above questions about qualitative versus quantitative data, research that crosses borders, causality, or sample size are not even necessary to consider. A sample of 5000 people is only useful if the thought that went into the design of the study, the sample size, the instruments, and data collection were rigorous, transparent, and trust-worthy.

Methodology and Data

Data

The World Family Map (WFM) Project is a recent, non-partisan, non-sectarian initiative that seeks to monitor the health of family life globally and learn more about how trends in the family affect children's wellbeing. The WFM publishes an annual report of global trends in family structure, family socioeconomics, family processes, and family culture in every region of the world (Lippman and Wilcox 2013, 2014; Scott et al. 2015). It is the first of its kind to provide internationally comparable data for low-, middle-, and high-income countries on key family characteristics.

WFM draws data from many sources to address trends in the family in 49 countries in all global regions. Data were selected for their quality and coverage of countries and indicators of family structure, socioeconomics, processes, and culture. Data sources were also chosen in which multiple countries were represented, but data from the same source was not available for all countries or in the same year across countries.

The following data sources were used in the WFM project:

1. *Demographic and Health Surveys* (DHS). DHS surveys over 90 low-income nations about population and health.
2. *Food and Agriculture Organization* (FAO). The FAO compiles information about food and agricultural indicators worldwide.

3. *Integrated Public Use Microdata Series-International* (IPUMS). IPUMS is a compilation of censuses from countries throughout the world.
4. *International Social Survey Program* (ISSP). The ISSP is a collaboration between national surveys to ensure comparability across countries.
5. *LIS* (formerly Luxembourg Income Study). LIS collects data on the income and wealth of individuals in middle- and high-income countries.
6. *Organization for Economic Cooperation and Development* (OECD). OECD provides international statistics on family and child wellbeing.
7. *Program for International Student Assessment* (PISA). PISA assesses literacy, math, and science internationally.
8. *UNICEF Innocenti Research Center*. The Innocenti Research Center publishes a report on measuring child poverty, which was used for relative international poverty rates.
9. *World Values Survey* (WVS). WVS is an international survey of political and sociocultural values.

Measures

Independent variables We focus on results from the WFM project that use three measures of children's care arrangements as predictors of children's wellbeing: *living arrangements*, *family structure*, and *union instability*. Children's *living arrangements* were categorized as whether children live with probable extended family (adults in their household other than biological parents) and with both, one, or no biological parents. *Family structure* was defined as the percent of adults of reproductive age (18–44 years old) within a country that are married (legally joined as a couple) or cohabiting (living together but not in a legal capacity). And *union instability* was defined as a change in mothers' family structure. The WFM researchers used the following categories of union instability: (1) continuously in first union was defined as mothers whose children were born during their first and enduring union although these children did not necessarily live with both parents (e.g., in cases of labor migration); (2) never in a union indicated that mothers were never married or in a cohabiting union; (3) divorced/dissolved cohabiting union indicated that mothers were currently single at the time of data collection but were at some point living romantically with a partner prior to data collection. The divorce or dissolution could have occurred before the child's birth; (4) widowed indicated that the mothers' resident partner died and she did not repartner; and (5) repartnered/newly partnered was defined as mothers who had had at least two coresidential (either married or cohabiting) relationships. The first relationship could have occurred before the child's birth, and in some cases mothers were living with their child's father but are classified as repartnered. If mothers were single at their child's birth but then began to live

with their child's father, they were classified as newly partnered. The classifications were due, in part, to the DHS data, which did not provide union dates other than for the first union. Thus, it was not possible to determine whether children of repartnered women were born during the current union.

Dependent variables Children's wellbeing was measured with four measures of educational outcomes, which were measured when children were between 11 and 15 years old, and three measures of health outcomes, which were measured when children were 5 years old or younger. The educational outcomes available differed by country.

In high- and middle-income countries, the PISA measures of reading *literacy* and *grade repetition* were examined. The reading literacy scale assessed a range of contextual reading tasks that provides a culturally sensitive measure of reading literacy. The mean score of all 15-year-old children from participating countries was 493. Grade repetition was measured by the percent of 15-year-olds who have ever repeated a grade.

In low-income countries, the DHS was used to obtain the percent of children between ages 11 and 14 who were enrolled in school (*school enrollment*) and those not progressing on time through school (*behind expected grade for age*).

Children's health outcomes were measured for children between 0 and 5 years old in low-income countries using DHS data. *Recent diarrhea* is an indicator of acute illness and was measured by whether the child had diarrhea in the 2 weeks preceding the survey. *Stunted growth* is an indicator of long-term health and was measured as a height-for-age more than two standard deviations below the median of a healthy population. *Child death* was used as a measure of the most extreme poor health outcome.

Control variables Control variables varied by data set and were included to help isolate the association between family structure, union instability, and children's health and educational outcomes. While the associations we report are not causal, the inclusion of control variables helps determine how family structure and union instability predict children's outcomes above the influence of known covariates. Control variables included the following: child's gender, urban residence, birth order, length of preceding birth interval, whether the child has deceased siblings, maternal age, maternal education, household asset index,² geographic region, the number of children under age 5, the number of

² The asset index is as follows: 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; and 8 = 0 or 1 of the following (poor floor, poor drinking water, and poor toilet) and a car.

children between 5 and 15 years old, and the presence of women or men other than the mother or mothers' partner.

Analysis

We use two primary analyses in this paper. First, we report, using descriptive techniques, the living arrangements and family structure of adults and children across two global regions: sub-Saharan Africa and Southeast Asia. We then report on the associations between children's living arrangements and family structure and their health and educational outcomes using ordinary least squares and logistic regression to estimate these associations after accounting for relevant background factors such as child age, maternal education, etc. (see list of control variables above).

Results

The results presented in this essay focus on two global regions: sub-Saharan Africa and Southeast Asia. For these regions, data were drawn from IPUMS, DHS, and national censuses. To describe children's care arrangements around the world, the WFM documents living arrangements and family structure. We report results from the 2015 WFM report, but note when trends in living arrangements, marriage, and cohabitation change from the 2013 to the 2015 WFM reports.

Living arrangements In Southeast Asia and sub-Saharan Africa, more than 40 % of children lived in households with probable extended family members. In Southeast Asia, the percentage of children living with probable extended family was consistent across countries examined, ranging from 43 to 44 %. In sub-Saharan Africa, this percentage ranged from 46 % in Ethiopia to 70 % in South Africa (Table 1) (Scott et al. 2015). These trends show that overall, the sub-Saharan African countries included in the analysis have more variability in children's living arrangements than the Southeast Asian countries included in the analysis.

Children were especially likely to live with both biological parents in Southeast Asia, with between 85–88 % of children in all Southeast Asian countries included in the WFM living with both parents (Scott et al. 2015). Children were less likely to live with both biological parents in sub-Saharan Africa; South Africa had the highest percent of children living with one (43 %) parent, and South Africa and Uganda had the highest percent of children living with no parents (20 %) (Scott et al. 2015). These results are consistent with other work using DHS data (e.g., Zulaika and Martin 2015). Ghana and Tanzania were close to these 20 % cut-points for children living with no parents (Scott et al. 2015). Only 36 % of children lived with both parents in South Africa.

Compared to the relatively stable living arrangements in Southeast Asia across the WFM reports, trends in living arrangements in sub-Saharan Africa changed notably. The Democratic Republic of Congo, Ethiopia, Ghana, Kenya, and Nigeria saw changes in children's living arrangements between at least two consecutive reports; living arrangements in South Africa, Tanzania, and Uganda were stable. In Kenya, for example, 2003 data indicate that 61 % of children lived with two parents (Lippman and Wilcox 2013), whereas 6 years later 56 % lived with two parents (Lippman and Wilcox 2014; Scott et al. 2015). The WFM reports collectively identify changing patterns in living arrangements in sub-Saharan Africa.

Trends in marriage and cohabitation More than 50 % of adults of childbearing age (18–49 years old) in Indonesia, Malaysia, the Philippines, the Congo, Ethiopia, Kenya, and Tanzania were married in the 2015 WFM report, with a high of 75 % in Indonesia. In South Africa, 26 % of adults were married, the lowest percentage in all of Southeast Asia and sub-Saharan Africa. More adults of reproductive age were cohabiting in Africa compared to Southeast Asia; between 3 % (Nigeria) and 25 % (Uganda) were cohabiting in Africa, whereas only the Philippines had measureable numbers of cohabiting adults (9 %).

The Philippines, Democratic Republic of Congo, Nigeria, and South Africa show changing patterns in marriage and cohabitation across the WFM reports. For example, data from the Philippines in 2001 indicated that 72 % of the adult population between the ages of 18 and 44 were married (Lippman and Wilcox 2013). In 2008, this estimate fell to 58 % (Lippman and Wilcox 2014). In 2011, an estimated 68 % of adults were married (Scott et al. 2015). These numbers illustrate an overall decline in marriage. There has been a co-occurring increase in cohabitation in the Philippines. Across the same reporting periods and using data from the same years, cohabitation increased from 3 to 9 %. This overall upward trend in cohabitation shows that roughly the same percent of adults in the Philippines were living together between 2001 and 2011, but the way in which they live together (in marriage or cohabitation) has changed.

Trends in union instability Union instability was assessed only in the 2014 WFM report. Union instability was more prevalent in Africa than it was in Asia (see Table 2). Nearly 94 % of mothers of young children in Asia were in their first continuous union whereas in Africa, 76 % of mothers with young children were in their first continuous union. In both countries, relatively few mothers have never been in a union, although compared to in Asia, nearly 15 times as many women in Africa had a child without ever being in a union (.19 % in Asia and 2.93 % in Africa). Compared to women with a young child in Asia, nearly four times as many women

Table 1 Children's living arrangements and family structure in Southeast Asia and sub-Saharan Africa

Children's living arrangements											
Indicators	Indonesia ^a	Malaysia ^c	Philippines ^c	Congo ^d	Ethiopia ^e	Ghana ^a	Kenya ^g	Nigeria ⁱ	South Africa ^j	Tanzania ^l	Uganda ^e
Extended family	44	43	43	49	46	64	49	60	70	60	48
2 parents	85	88	85	64	74	54	56	78	36	66	56
1 parent	9	9	10	22	14	31	30	12	43	17	24
0 parents	6	3	5	14	12	16	15	10	20	17	20
Adults' Family Structure											
Indicators	Indonesia ^b	Malaysia ^c	Philippines ^b	Congo ^d	Ethiopia ^e	Ghana ^f	Kenya ^h	Nigeria ^e	South Africa ^k	Tanzania ^l	Uganda ^e
Married	75	64	68	51	63	50	58	48	26	60	45
Cohab	<1	–	9	14	4	11	4	3	12	7	25

Note. Extended family = % of children living with probable extended family; 2 parents = % of children living with two parents; 1 parent = % of children living with one parent; 0 parents = % of children living with no parents. Adults' family structure is based on the percent of adults of reproductive age (18–44) married or cohabiting.

Cohab cohabiting

^a 2010 IPUMS

^b 2012 IPUMS

^c 2000 IPUMS

^d 2013–2014 DHS data

^e 2011 DHS

^f 2009 IPUMS

^g 2008–2009 IPUMS

^h 2013 DHS

ⁱ 2007 IPUMS

^j 2013 IPUMS

^k 2011–2012 DHS data

with a young child in Africa were repartnered (3.88 and 15.42 %, respectively) or divorced (1.17 and 4.30 %, respectively). Nearly half as many women in Asia (.77 %) were widows compared to Africa (1.49 %).

Children's care arrangements and their educational outcomes One reason children's care arrangements are important to study is that they have the potential to influence a number of developmental outcomes that have profound implications for children's wellbeing. One outcome that is especially relevant in low-income countries is children's educational achievement and attainment. Both researchers and outreach organizations throughout the world note the importance of children at least completing primary schooling, and they seek to ensure that children everywhere are afforded this right (United Nations 2015). As noted in the sections above, there is evidence that children's care arrangements would influence their educational outcomes (e.g., Brown 2004). While findings are limited and mixed in non-Western countries (Anderson et al. 2001; Fuller and Liang 1999; Heaton et al. 2002; Mboya and Nesengani 1999), there are theoretical reasons to expect that care arrangements would influence children's educational outcomes. Biological parents are theoretically more likely to invest in their children than in less closely related adults or non-relatives for evolutionary

reasons (biological parents have a greater interest in the survival of their children than other relatives or non-relatives) or economic ones (the family's resources may be more strained when children live with one or no parents compared to when children live with two parents).

Using PISA, OECD, and DHS data, the WFM researchers summarized children's educational attainment and achievement by living arrangement for each global region (Scott et al. 2013). Consistent with previous research, Scott and colleagues found that children living in high- and middle-income countries tended to have better educational outcomes when they lived with two parents. Children living with two parents in these countries had higher reading literacy scores than

Table 2 Percent of mothers reporting union instability

Mothers' union instability	Africa (%)	Asia (%)
Continuously in first union	75.86	93.99
Never in a union	2.93	0.19
Repartnered/ newly partnered	15.42	3.88
Divorced/dissolved cohabiting union	4.30	1.17
Widowed	1.49	0.77

children living with one or no parents. Children living with two parents in these countries were also less likely to repeat a grade than their counterparts living with one or no parents. Children living with no parents had lower literacy scores and were more likely to repeat a grade than those living with one parent (results not shown).

However, children living in low-income countries were not consistently educationally disadvantaged when they lived with one parent. In five out of ten Asian countries (including Indonesia and Malaysia), children living with one parent had statistically equal literacy scores to children living with two parents (Table 3). And, in 6 of the 15 low-income countries examined, children living with one parent were less likely to be behind the expected grade for their age than children living with two parents. For the remaining countries, there was no statistical difference in a child’s grade for their expected age based on whether they lived with one or two parents (results not shown). Living with neither parent, however, was associated with lower literacy scores and being behind the expected grade for the child’s age in nearly every low-income country.

One final educational outcome that Scott and colleagues (2013) examined among low-income countries was whether children aged 11–14 were enrolled in school. In most countries, living away from both parents was associated with a lower likelihood of being enrolled in school. For children in the Philippines, living with one parent was associated with a lower likelihood of being enrolled in school. In Nigeria and South Africa, there was no association between family structure and children’s enrollment in school (Table 4).

One important caveat of these findings is the way the PISA measures two-parent households. In the 2009 data, which were used for these analyses, biological two-parent families were grouped with non-biological two-parent families. Using the 2000 PISA data that separated biological from non-biological two-parent families to assess whether the type of two-parent family predicts of children’s educational outcomes, Scott and colleagues (2013) found that there were important differences in children’s outcomes related to the biological status of their two parents. Removing step-parent families (i.e., children who live with one biological parent and one non-biological parent) from the analyses increased the statistical differences in educational outcomes between children living with two biological parents and children with only one parent (but a biological one). However, it is unclear if these differences are due to changes over time in the association between family structure (living with two versus one parent) and children’s educational outcomes or true differences in how children fare when they live with both biological parents versus one biological and one step-parent. 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 (Park 2007; Park and Sandefur 2006; Schiller et al. 2004).

Table 3 Southeast Asian children’s educational outcomes by living arrangements

Outcomes	Indonesia	Malaysia	Philippines
Literacy scores			
Two parents	416	421	–
One parent	386*	409	–
No parents	378*	373**	–
% repeated grade			
Two parents	14	–	–
One parent	22*	–	–
No parents	25*	–	–
% behind expected grade for age			
Two parents	9	–	31
One parent	11	–	35
No parents	9	–	34*
% School enrollment			
Two parents	91	–	92
One parent	87	–	89*
No parents	85*	–	84**

Note. Literacy scores = average reading literacy score of students. Average literacy score across all PISA countries = 493. – indicates no available data. * indicates significantly different from 2 parents. ** indicates significantly different from 2 and 1 parents. Significance indicated after controlling for: wealth, parent education and employment, gender, and language spoken in the home (literacy and repeated grade), and wealth, parent education, gender, region of country (behind expected grade and school enrollment)

Family structure and children’s health outcomes Another important developmental outcome that may be related to children’s care arrangements, especially in low-income countries, is health. Children in low-income countries have higher child mortality and morbidity than their counterparts in middle- and high-income countries. Moreover, when resources are scarce, living without the income and care of two parents may place

Table 4 Sub-Saharan African children’s educational outcomes by living arrangements

Outcomes	Ethiopia	Kenya	Nigeria	South Africa
% Behind expected grade for age				
Two parents	70	71	63	16
One parent	64*	71*	49*	20
No parents	69***	77**	58***	23
% school enrollment				
Two parents	77	89	70	97
One parent	77	88	88*	97
No parents	68***	82***	80**	97

Note. * indicates significantly different from 2 parents. ** indicates significantly different from 1 parent. *** indicates significantly different from 2 and 1 parents. Significance indicated after controlling for wealth, parent education, gender, and region of country

children at risk for worse health outcomes. The WFM researchers summarized how union instability—a measure of change in family structure—was associated with children's health outcomes in WFM global regions including Africa and Asia (DeRose et al. 2014).

Children of separated mothers (divorced or those whose non-marital unions had dissolved) were 18 % more likely in Africa and 52 % more likely in Asia to have stunted growth compared to children of continuously coupled mothers. Children of repartnered mothers were 16 % more likely in Africa and 35 % more likely in Asia to have had recent diarrhea than children of continuously coupled mothers. In Africa, children of divorced mothers and children whose mothers were never in a union were nearly 20 % more likely to have recent diarrhea than children whose mothers were continuously coupled. Children whose mothers were widowed were no more likely to be stunted or have recent diarrhea (only in Asia) than children whose mothers were continuously coupled (Table 5).

Children whose mothers were divorced, widowed, or repartnered had a higher risk of dying in both Africa and Asia than children whose mothers were continuously coupled; in Africa and Asia respectively, children of divorced mothers were 26 and 30 % more likely to die, children of widowed mothers were 20 and 43 % more likely to die, and children of repartnered mothers were 27 and 34 % more likely to die.

To summarize, Scott and colleagues (2013; 2015) and DeRose and colleagues (2014) found that there were important differences in patterns of care arrangements across countries and in the association between care arrangements and children's educational and health outcomes. Asia was one of the global regions with the highest prevalence of two-parent households whereas Africa was one with the lowest. In particular, South Africa had the most variable care arrangements (36 % of children lived with two parents, 43 % with one, and 20 % with none), but care arrangements in South Africa were not related to school enrollment or expected grade (literacy not

available). However, in parts of Asia where there was relatively little variability in children's care arrangements, living without both parents was associated with poor educational outcomes, but not when children lived without only one parent. Moreover, both of these sets of findings differ from the associations found in higher-income regions. Alternative care arrangements were associated with worse health outcomes and increased risk of death for children in Africa and Asia. Children of divorced and repartnered mothers had the highest risks of diarrhea, stunting, and death in Africa. In Asia, children of divorced or repartnered mothers had the worst health outcomes of children from all care arrangements, but children of widowed mothers were at the greatest risk of death.

Strengths and limitations of WFM data The strengths and limitations of the WFM data sources help define what conclusions can be drawn about children's care arrangements when using these types of national and international data sources. The WFM is the first project of its kind to provide information on family trends across 49 countries. It used a range of data that was selected for quality, coverage of countries and indicators, rigorous data collection methods, and data that were harmonized across countries. This methodology results in a synthesis of data that allows for comparisons of family trends at the international level. The WFM is the first study to cover both high- and low-income countries in the northern and southern regions of the world, as well as a broad range of family indicators of wellbeing, functioning, and general trends. It also relates family characteristics to child outcomes using the best available data.

However, there are several notable limitations to the WFM data. Most of the data sources excluded children living without a parent, which was most common in Europe. Further, many data sources underreported children in institutions and group settings or who were homeless. This underreporting makes it difficult to accurately describe children living without either parent or

Table 5 Children's relative risk of health outcomes by mother's union instability

	Africa			Asia		
	Diarrhea	Stunting	Death	Diarrhea	Stunting	Death
Never in a union	20	ns	ns	ns	ns	ns
Repartnered/ newly partnered	16	ns	27 ^a	35	ns	34
Divorced/dissolved cohabiting union	19	18	26	ns	52	30
Widowed	-18	ns	20	ns	ns	43

Note. Numbers indicate children's percent risk of each health outcome compared to children whose mothers are continuously in first union. Significance is calculated after controlling for: child gender, urban residence, maternal age and education, a household asset index, region of the country, presence of women (men) other than the mother (father) in the household, number of children under the age of 5 (only for diarrhea and stunting), number of children aged 5–15, and child age (only for death)

ns not significant

^a Indicates significantly different from never in a union

children in institutions. The data also used different definitions of some key variables. For example, definitions of child age, who constituted a parent (based on the biological relation, definition of fostering), and one's marital status varied from country to country. This variability made comparisons difficult. There is also little information about non-resident parents. In fact, some data sources did not have an explicit measure of "parent" and head of the household was used as a proxy in those cases.

The data sources also did not always have data collection waves at comparable times across countries. Therefore, there are a range of dates reported for each care arrangement by country. For example, the percent of children living in households with (probable) extended family members comes from data collected in 2000 for Malaysia to 2014 in the Democratic Republic of the Congo. This is a large time range, during which changes in these trends may have occurred.

Conclusions

Given these limitations, these data should be interpreted with caution because these associations are not causal. For each country, the year of data collection, definitions of family constructs, and other factors may lead to incomplete comparisons across countries. For example, in the Asian countries where cohabitation was measured, it was often reported by less than 1 % of the population. For many countries, data on cohabitation is not available. In sub-Sahara African countries, "marriage" may be a flexible term. So the differences one might expect between a married or cohabiting couple might not be as comparable in Africa as in other countries. Moreover, the data are unable to determine whether a change in family structure leads to child health outcomes or vice versa. For example, it is possible that a child's death leads to the dissolution of a relationship or happens along with the death of a partner.

These findings therefore beg the question, why do differences in children's outcomes by family structure exist? The authors suggest that it is possible that in Asia, widows—who are more likely to be perceived positively and therefore receive more family and community support than divorced or single mothers—drive the association between living in a one-parent household and children's more positive educational outcomes. This finding reflects the important influence that cultural context can have on family and care arrangements. In societies that place a high value on marriage, and where most adults are married, the way one becomes a single parent is likely to have a strong influence on the effects of single parenthood on child and family outcomes. Thus, if children's care arrangements change because a parent moves for work or dies, it is possible that the children and families will be viewed more positively by society than when parents divorce or women have children outside of marriage. However, this explanation does not explain the higher risk of death among children of widowed mothers. Perhaps other

culturally contextual variables could shed light on this association. Another possible explanation is that the death of a spouse leads to increased stress, less social support, fewer resources, and therefore less focus on children and their care. The data used cannot address these mechanisms.

In some countries of sub-Saharan Africa, the WFM researchers suggest that the care arrangements observed in the data reflect high rates of HIV/AIDS infections. Thus, in sub-Saharan Africa where many adults are dying from HIV/AIDS-related illness, factors other than family structure might be more salient for children's outcomes. For example, the WFM reports that the African countries included in their sample have some of the highest rates of absolute poverty in the world. African countries also have some of the highest rates of child under-nourishment. Both of these trends may matter more for children's ability to attend school and their health outcomes than family structure per se. The currently available international data are not able to address these "why" questions. The inability to answer questions about causality highlights the need for qualitative research that can examine these questions and begin to get an idea of the mechanisms explaining the associations reported in the WFM project.

Beyond qualitative data, the findings from the WFM and this essay suggest that better quantitative data sets are also needed. Better data from each country about parental survival status, non-resident parents, children living in institutions, group homes, and homeless children and more detailed information about parental unions are needed to accurately document changing trends in global families. An ideal data set would be longitudinal or cross-sectional and track family formation, dissolution, living arrangements, and more from birth to adulthood. It would have frequent iterations, multiple cohorts, consistent dates of data collection, multiple respondents (children, parents, family members outside of the household), consistent definitions across countries, a complete household roster that links all individuals, comprehensive background information such as parental health, employment, and education, and child outcomes in multiple developmental domains (physical, social, emotional, and cognitive). Qualitative research will help inform researchers how best to create this ideal data set and exactly what background questions, cultural assessments, and child outcomes are most relevant in an international context. But until the field has generalizable, in-depth, international data, these trends will be difficult to track and explain.

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