Condemned or Condoned?
Pre-Marital Childbearing among Young African Women
and the Transition to Marriage

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Introduction

The severe HIV/AIDS epidemic in Africa has led to tremendous scholarly interest in sexual and romantic relationships in the region. Expansive social science literatures have analyzed the sexual behaviors, practices, and norms that contribute to the high, yet variable, levels of HIV-prevalence across African countries (Bongaarts et al. 1989, Bongaarts 2007, Clark 2004, Clark, Bruce and Dude 2006, Swidler and Watkins 2007, Watkins 2004).

Much of this research has focused on the contributing role of many “non-Western” sexual behaviors and practices, such as initiation ceremonies (Kapungwe 2004, Vincent 2008), child marriage (Clark 2004, Nour 2006) polygyny (Reniers and Tfaily 2008, Reniers and Watkins 2010, Reniers and Tfaily 2012), and “transactional” relationships that involve the exchange of sex and material goods (Côté et al. 2004, Swidler and Watkins 2007). The adoption of these non-Western behaviors in many parts of sub-Saharan Africa has contributed to an implicit assumption that what constitutes normative and appropriate sexual behavior in the region differs from other cultural contexts (Parker 2001). In fact, Caldwell and colleagues have explicitly argued that Africa is distinct in its greater degree of “sexual freedom”, especially among women (Caldwell, Caldwell and Quiggin 1989). In addition to the non-Western sexual behaviors listed above, the high levels of non-marital sex and childbirth in many African communities, and their general social acceptance and normativity (LeGrand and Mbacké 1993, Meekers 1994), is often highlighted as indicative of unmarried African women’s considerable sexual latitude (Caldwell, Caldwell and Quiggin 1989).

Other research directly rivals the idea that unmarried African women enjoy freedom to engage in non-marital sex and childbirth without consequence. Instead, this literature points to evidence of social parameters and constraints on unmarried women’s sexual behavior in diverse

In this paper, we attempt to reconcile these opposing narratives of the social norms surrounding unmarried African women’s degree of sexual freedom, and the resulting social significance of non-marital childbearing. We use Demographic and Health Survey data from 29 African countries to provide a comprehensive, multi-country assessment of whether non-marital childbearing—a public symbol of a non-marital sexual relationship—bears negative consequences for African women. We specifically analyze whether non-marital childbearing influences women’s future marriage, which is perceived as essential to a successful life among African women (Frye 2012) and is an important source of their social and economic status (Hakansson 1994, Holtedahl 1993, Lewis 1984, Meekers 1994, Potash 1989, Yana 1995). If unmarried African women enjoy considerable sexual freedom, and non-marital childbearing has limited social repercussion, it follows that non-marital childbearing should have no influence on women’s future marital prospects. In fact, if there is widespread acceptance of non-marital childbearing, and is viewed as a symbol of women’s potential as a partner (Kisekka 1976), it could be associated with greater success in the marriage market. Conversely, if there are social constraints placed on non-marital sex, and non-marital childbearing is stigmatized, it follows that
it will have long-term, negative consequences for women, including disadvantage in the marriage market.

In the following sections, we provide an overview of the literature on non-marital sex and childbearing in sub-Saharan Africa. In doing so, we highlight the two distinct perspectives of its normativity and social acceptance, and outline the analytic implications of each for understanding the significance and meaning of non-marital childbearing for African women. We then use DHS data to present an overview of current levels of non-marital childbearing across 29 contemporary African countries. Finally, we present results from a series of country-specific hazard models assessing non-marital childbearing and women’s subsequent entry into marriage. We document a strong, negative relationship between non-marital childbearing and African women’s entry into marriage, which parallels evidence from North America (Bennett, Bloom and Miller 1995). The findings challenging the idea that non-marital childbearing is inconsequential for African women. Instead, across diverse African countries, our results suggest that there are socially meaningful controls and expectations surrounding the context in which sex and childbearing occur, and that deviation from these expectations have long-term consequences for African women.

**An “African” Sexuality: Women’s Sexual Freedom and Non-Marital Childbearing as Inconsequential**

Anthropological studies of African cultures have long noted distinct aspects of sexual norms and behaviors, with general agreement that sex is a “pervasive element” of life in many parts of the region (Smith and Dale 1920, Volume 2: 35-36). Yet, from the perspective that African cultures and religions are most concerned with the virtues and benefits of reproduction, many researchers argue that there are few constraints placed on sexual behavior because it is viewed as merely a
means to a more important end (Kettel and Kettel 1972, Parkin 1987, Phillips, Mair and Harries 1953). The culmination of earlier anthropological writings informed, Caldwell, Caldwell, and Quiggen’s (1989) influential paper, which provided a synthesis of the anthropological evidence on many sexual practices in Africa, including polygyny, widespread divorce, high fertility, long periods of postpartum abstinence, initiation ceremonies, and extra- and non-marital affairs. Caldwell et al. (1989) concluded that Africa represents an “alternative civilization – very different in its workings, including its patterns of sexual behavior” (185).

Caldwell et al (1989) argue that the high degree of “sexual freedom” that unmarried African women enjoy is especially unique to Africa, which is evidenced by the widespread acceptability of non-marital sex and childbearing in many African communities (Caldwell et al 1989: 191). This idea—that that non-marital childbearing is prevalent and normative, and even welcomed, in many African communities (especially those in Western Africa)—is a persistent theme throughout much of the anthropological, demographic, and sociological literatures on the context of sex and childbearing in the region (Dynowski-Smith 1989, Karanja 1994, Laburthe-Tolra 1981, Oppong and Wery 1994, Shell-Duncan and Wimmer 1999). Though some studies have argued that the normativity of non-marital childbearing is more recent, contemporary phenomenon and not necessarily rooted in traditional African societies (Abega et al. 1995, Calvès, Cornwell and Enyegue 1996, Cochrane and Farid 1989, Cohen and Bledsoe 1993, Geary 1986, Lesthaeghe 1989, Locoh and Makdessi 1995, Mainet 1985, Meekers 1994, Mensch, Grant and Blanc 2006, van de Walle and Baker 2004), together these studies suggest that non-marital childbearing is the norm—not the exception—in many African communities (LeGrand and Mbacké 1993).
In line with the perspective that non-marital sex and childbearing is generally socially normative and acceptable behavior, this work suggests that non-marital childbearing bears little meaningful consequences for women (Caldwell, Caldwell and Quiggin 1989, Dupire 1962, Gessain 1963, Paulme 1963, Southall 1961). In fact, some research suggests that non-marital childbearing likely benefits women, at least in terms of their future marital prospects by demonstrating their potential as a marital partner (Karanja 1987, Southwold 1972). From this perspective, it follows that:

**Analytic Implication:** In general, there will be high levels of non-marital childbearing across sub-Saharan African countries, especially those in Western Africa, reflecting its normativity and social acceptance. Non-marital childbearing will have a non-significant or possibly positive influence on women’s subsequent marital prospects.

**Social Constraints on African Women’s Sexuality and the Costs of Non-Marital Childbearing**

Other scholarship directly opposes the idea that there is distinctiveness to women’s sexuality in Africa and instead contends that sexual norms and constraints in the region are similar to those found in other world regions (Brokensha 1988, Miller and Rockwell 1988, Waite 1988). In line with this perspective, several studies have highlighted the social constraints and boundaries placed on African women’s non-marital sexual behaviors. In fact, considerable work has explicitly argued that non-marital sex is socially unacceptable in many African communities and that there is pressure on African women to remain chaste (Beidelman 1982, Boddy 1989, Kisekka 1976, Lindstrom, Kiros and Hogan 2009, Lughod 1986, Worthman and Whiting 1987). Other work has argued that non-marital sexual relationships which are kept private and discrete are generally acceptable, but that this is not the case if the relationship is publicized by a non-
marital pregnancy (Johnson-Hanks 2002, Mbiti 1973, Middleton 1973, Muller 1976, Njeru 1973, Paulme 1963, Raum 1973). However, even this more relaxed view of non-marital sex is remarkably similar to that which has been documented in the United States: though non-marital sex is common, non-marital childbearing bears greater social sanctions (Luker 1996), further implying little distinctiveness in Africa’s sexuality.

Though some research suggests that the social disapproval of non-marital childbearing is rooted in historical, traditional African cultures, other work points to the contemporary social conditions contributing to strong cultural opposition to non-marital sexual relationships in the region. For instance, Ahlberg (1994) noted that educational programs geared toward adolescent girls in several African countries (Tanzania, Zambia, Kenya, and Uganda) clearly promote a message of “no sex before marriage”. This is consistent with Frye’s (2012) work in Malawi and the cultural messages that schoolgirls receive, and in turn their shared understanding, that non-marital sexual relationships are a sign of personal weakness and have the potential to interrupt their ability to achieve their educational goals.

Together, this perspective directly challenges the idea that there is widespread permissiveness in unmarried African women’s sexual behaviors, and instead implies that the public display of such behavior through a non-marital pregnancy and childbirth bears stigma, marginalization, and dishonor (Collard 1982, Guyer 1984, Johnson-Hanks 2002, Laburthe-Tolra 1981, Mturi and Moerane 2001, Pankhurst 1992). In fact, Johnson-Hanks (2002) argues that non-marital childbearing is such a dishonor to highly-educate Beti women in Cameroon that they often seek abortions—which are widely opposed and stigmatized—because they are the “lesser shame”. Madhavan and colleagues’ ethnographic work from South Africa offers a similar account, concluding that even in Southern African communities where non-marital births are
common (Garenne and Zwang 2006, Zwang and Garenne 2009), they carry significant stigma 
(Madhavan, Harrison and Sennott 2013, Zwang and Garenne 2009). From this perspective, 
although having children before marriage is a life order sequence many young women follow, it 
is socially understood that this is out of appropriate sequence and that marriage is the expected 
and ideal arena for births (Preston-Whyte and Zondi 1989).

Further evidence from Cameroon and Tanzania suggests that unmarried mothers are 
“spoiled” in the marriage market, and that non-marital childbearing has lasting, negative 
consequences for women’s likelihood of marriage (Calvès 1999, Klein Hattori and Larsen 2007). 
Given that marriage is perceived as a key element of the successful transition to adulthood by 
African women (Frye 2012), and is important to their economic (Hakansson 1994, Potash 1989) 
and social status (Holtedahl 1993, Lewis 1984, Meekers and Calvès 1997, Yana 1995), it is 
important to understand whether these country-specific findings are reflective of a broader reality 
across the whole of Africa. Together, this perspective implies:

**Analytic Implication:** In general, there will be low levels of non-marital childbearing 
across sub-Saharan African countries, reflecting it’s socially undesirability. Non-marital 
childbearing will have negative consequences for women, including a lower likelihood of 
subsequent marriage, across diverse country contexts.

**Data and Analytic Samples**

Data for this study come from 29 Demographic and Health Surveys (DHS) collected in sub-
Saharan Africa since 2000. We use the most recent survey for the following countries: Burkina 
Faso, Benin, Burundi, Democratic Republic of the Congo, Congo (Brazzaville), Cameroon, 
Chad, Ethiopia, Gabon, Ghana, Guinea, Ivory Coast, Kenya, Liberia, Lesotho, Madagascar, 
Mozambique, Nigeria, Niger, Namibia, Rwanda, Sierra Leone, Senegal, Sao Tome Principe,
Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. Table 1 includes information on each country and sample.

The datasets come from nationally-representative, cross-sectional surveys. The DHS uses a stratified random sampling approach, with clusters providing the primary sampling unit. Within each selected cluster, the DHS randomly samples families. Household heads complete a full roster of members, from which the DHS identifies eligible women. We leverage data from interviews with reproductive age women that include full information on women’s childbearing and marital histories, including the timing of their children’s births and their first marriage. With these detailed data, we are able to analyze whether non-marital childbearing is associated with women’s subsequent marriage prospects.

We focus specifically on marriage at age 13 or older and exclude the small number of women in each country that were married before becoming a teenager (see Table 1 for sample exclusion). The circumstances surrounding child marriage differ markedly, and we are most interested in union formation that occurs at or around the mean age at marriage in each country (which ranges from 16 in Niger to 22 in Namibia), thereby motivating our focus on marriages at or after age 13. There are a small percentage of women in each country who had a non-marital birth before age 13, in which case they begin the hazard analysis coded as having had a non-marital birth.

Measures

Dependent Variable

Marriage timing. All women are asked whether they are currently married or in a cohabiting union at the time of the interview. Among women who have ever been married (or in a cohabiting union), the DHS asks the year of their first union. Combining this information with
their age, we are able to analyze the age at which each woman formed their first union. In the
hazard file, we code women as “0” until the age they marry (starting at age 13), at which time
they are coded as “1”.

**Independent Variables**

**Non-marital childbearing**

We categorize women as having had a **non-marital birth** using data from the reproductive
history calendar. Among other questions, mothers are asked information on the timing of their
first child’s birth. With this information, combined with information on women’s union
formation, we create a time-varying binary indicator of whether each woman had a non-marital
birth. In the hazard file, women are coded as “0” until the age they had a non-marital birth, at
which time they are coded as “1” for all subsequent observations. In a small percentage of cases
mothers gave birth the same year they were married, in which case we assume that the birth was
part of the marital process, and thus do not consider the birth a non-marital one.

**Controls**

In terms of **age**, we measure women’s age using a continuous indicator. We also account for
women’s age using a categorical indicator for women’s birth cohort: 1950s, 1960s, 1970s, 1980s,
or 1990s. We also include women’s childhood place of residence (rural versus urban), women’s
educational attainment, and an indicator for when women became sexually active to address
women’s selection into sexual relationships, which predispose women to both non-marital
pregnancy and marriage.

**Analytic Strategy**

We begin the results with a descriptive overview of the sample of women across the 29 sub-
Saharan African countries, including an overview of the prevalence of women who have
experienced a non-marital birth to develop an understanding of the extent to which non-marital childbirth is practiced in contemporary African settings.

Next, we present results from the 29 multivariate hazard models—estimated on each country sample separately—to help us answer the study’s central question of whether non-marital childbirth influences women’s subsequent marriageability. These models appropriately handle the censoring that is present in the data: because not all women have entered marriage by the time of the survey, women who are unmarried at the end of the observation period are right censored. The model is specified as:

$$\logit(h_i) = \alpha_t + \beta_i X_i$$

where $h_i$ is the hazard that woman $i$ marries at time $t$; $X$ is a vector of covariates and $\beta$ represents the corresponding coefficients.

If unmarried African women do, in fact, enjoy considerable sexual freedom, and non-marital childbirth does not bear meaningful social repercussions, there should be little or no difference in the marital patterns of women who have versus have not had a non-marital birth. Conversely, if women’s non-marital sexual behavior—especially that which is made publicly visible with the birth of a child—bears social cost, non-marital childbirth will bear a marriage penalty compared to their peers.

Results

Levels of Non-Marital Childbearing in Contemporary Sub-Saharan Africa

Table 1 provides information on the countries and samples included in the study, as well as descriptive statistics on the average age of first birth and marriage, as well as the percentage of women who had a non-marital birth. In the vast majority of countries (22 of 29), the average age of marriage is younger than the average age of birth. In the majority of countries where this is
not the case, the difference in the average age of marriage versus first birth is by a fraction of a year, with a more meaningful gap of 1-2 years in only three countries (Gabon, Namibia, and Swaziland). These results suggest that, with the exception of a very few countries, by and large the transition to marriage typically happens either before or in conjunction with the transition to motherhood throughout Africa.

Table 1 further provides information on the prevalence of women who have had a non-marital birth in each country. As shown, the percentage of women who have had non-marital births in contemporary Africa is generally low. In only nine countries do more than 20% of women report having had a non-marital birth. And merely three countries (Namibia, Gabon, Swaziland) do more than one-third of women report a non-marital birth, which is comparable (and in many instances lower) than the level of non-marital fertility in several European (France, Sweden, United Kingdom), Latin American (Argentina, Chile, Colombia, Mexico, Peru), North American (United States), and Oceanic countries (Australia, New Zealand). In fact, in ten countries, fewer than 10% of African women have had a non-marital birth. These descriptive findings give little indication that patterns of non-marital fertility point to a distinct degree of sexual freedom among unmarried African women. In fact, the comparably low levels of non-marital fertility in contemporary Africa suggest that if there is any distinctiveness, it lies in the high degree to which sex and reproduction is controlled by and occurs within the context of marriage.

Is Non-Marital Childbearing Consequential for Women’s Subsequent Marriage?

To understand the extent to which non-marital childbearing disadvantages women, in Table 2 we show results from the discrete time-hazard models, estimated individually for each country. In the first model set, we present the direct coefficients for the relationship between premarital
childbearing and timing of marriage. As shown by the odds ratios of less than one, premarital births are consistently associated with a lower likelihood of union formation across each of the African countries in the study. That is, having a non-marital birth significantly slows down the timing of African women’s marriage.

Though the association is statistically significant in each country, the magnitude of the relationship does vary considerably. Aligning with past evidence suggesting that non-marital childbearing is most permissive in Western Africa compared to other sub-regions, we do find that West African countries have some of the smallest marriage penalties associated with it (e.g., Ivory Coast, Nigeria, Ghana, and Sierra Leone). That is, though we find no evidence that non-marital childbearing is without consequence, it does appear to have the least impact in many Western African countries. Moreover, aligning with the argument that non-marital childbearing is highly stigmatized in many Eastern African countries, we find that some of the most dramatic marriage penalties associated with non-marital childbearing are in Eastern African countries, including Burundi, Rwanda, and Zimbabwe.

In a second model, we include an interaction to test whether the marriage penalty associated with non-marital childbearing varies according to women’s age. The consistently negative interaction terms confirm that the marriage penalty associated with non-marital childbearing increases with women’s age. This suggests that non-marital childbearing reduces women’s marriageability, and that is the disadvantage is larger among older women, implying that the marriage penalty may be getting somewhat smaller over time.

**Discussion**

The severe HIV/AIDS epidemic in sub-Saharan Africa has fostered tremendous interest in sexual behaviors, practices, and norms in the region. Many non-Western dimensions of family life in
Africa—child marriage, initiation ceremonies, polygyny, transactional sex—have garnered tremendous international attention, contributing to the notion that there is a distinctiveness to sexual behaviors in the region.

In support of this notion, a large body of literature has pointed to the high degree of “sexual freedom” among unmarried African women, and the general permissiveness of non-marital sex and childbearing. Yet, in stark contrast, other research has arrived at the precisely opposite conclusion: that there are tight social constraints placed on unmarried African women’s sexual behaviors, and that non-marital childbearing is highly stigmatized and consequential for African women and children. In this paper, we reconcile these two, distinct portraits of sexual norms and non-marital childbearing in Africa by providing a comprehensive, multi-country analysis of the levels of non-marital childbearing and the consequences they bear for women.

The descriptive results reveal that levels of non-marital childbearing are rather low in most contemporary sub-Saharan African countries. In only three African countries (Namibia, Gabon, and Swaziland) do the percentage of women who have had a non-marital birth reach proportions similar to those in many countries in Europe, Latin and North America, and Oceania. That is, though researchers have labeled non-marital fertility as “appreciable” in Africa (Bongaarts, Frank and Lesthaeghe 1984), it is no more “appreciable” than in several other contemporary settings across the globe. These results indicate little distinctiveness in the patterns of non-marital childbearing in the region. Instead, if there is any distinction it is that childbearing appears to be better organized within marriage in most African countries than other global regions.

We also find clear evidence that non-marital childbearing lowers African women’s future marital prospects, again implying that there are clear sanctions in order for women who maintain
non-marital sexual relationships, similar to that which has been documented in the United States and elsewhere (Bennett, Bloom and Miller 1995). In the American context, the marriage penalty experienced by never married mothers is often attributed to men’s disinterest in investing in children. However, given the commonality of out-fostering children from previous relationships to relatives upon marriage in Africa (Grant and Yeatman 2014), it is striking that even with this strong, fostering system in place, single mothers still experience a large marriage penalty. This directly contradicts the common narrative in the literature that non-marital births are highly normative and inconsequential events in Africa. Interestingly, however, we do find some evidence that the size of the marital penalty differs across sub-regions of Africa, with evidence that it is significantly larger in some Eastern African versus Western African countries, which aligns with past work suggesting that non-marital childbearing is generally more acceptable in the latter versus the former.

Though our results provide clear evidence that non-marital childbearing is generally rare in most African countries, and is consequential for women in all African countries, it is important to recognize that our findings are only relevant to contemporary Africa. Thus, our study cannot speak to whether these findings are reflective of a new social phenomenon or are reflective of social realities that match those in historical periods. Though we do find some evidence that the marriage penalty is greatest among older African women, further analyses are needed to assess possible evidence of change over time. That is, it is possible that female sexuality was historically “freer” but that recent social change has shifted the transition to adulthood and, in turn, the context of sex and family life. In fact, the HIV/AIDS epidemic itself may have elicited social and behavioral change linked to non-marital sex and childbearing. In addition to the changing disease environment shifting the social significance of non-marital sex,
the expansion of education may be another social condition that has shifted sexual mores, especially for girls. The expansion of schools has been greeted with high educational aspirations among young women and strong cultural narratives of the need to avoid sexual temptations. In fact, engaging in romantic and sexual partnerships is seen as a sign of personal weakness and is indicative of a young woman not being disciplined or “serious” about her future (Frye 2012). Thus, it is possible that some of the social penalty associated with non-marital childbearing has been either heightened, or even brought about, in the era of widespread schooling.

Though additional work is needed to develop a better understanding of the extent to which these findings are indicative of the sexual and childbearing landscape that has defined Africa for several generations or are only relevant to contemporary settings, together the findings call into question the notion that unique patterns of non-marital childbearing is indicative of Africa having a distinct, freer female sexuality. Instead, the results suggest that non-marital fertility is generally uncommon and bears considerable, long term disadvantages for the women who experience it—attesting to the social constraints placed on it.
### Table 1. List of Countries, Sample Information, and Key Descriptive Statistics

<table>
<thead>
<tr>
<th>Country</th>
<th>Original Sample</th>
<th>% Excluded Due to Very Early Marriage</th>
<th>Final Analytic Sample of Women</th>
<th>Average age first birth</th>
<th>Average age first marriage</th>
<th>Percent women have pre-marital birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>17,087</td>
<td>0.83</td>
<td>16,946</td>
<td>19.38 (2.97)</td>
<td>18.10 (2.71)</td>
<td>4.37</td>
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<td>Benin</td>
<td>16,599</td>
<td>5.54</td>
<td>15,679</td>
<td>20.83 (4.14)</td>
<td>19.99 (4.19)</td>
<td>11.82</td>
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<tr>
<td>Burundi</td>
<td>9,389</td>
<td>0.50</td>
<td>9,342</td>
<td>21.03 (3.54)</td>
<td>20.23 (3.57)</td>
<td>5.52</td>
</tr>
<tr>
<td>D.R.C.</td>
<td>9,995</td>
<td>2.82</td>
<td>9,713</td>
<td>19.84 (3.55)</td>
<td>18.97 (3.74)</td>
<td>11.12</td>
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<tr>
<td>Congo (Brazzaville)</td>
<td>10,819</td>
<td>1.63</td>
<td>10,643</td>
<td>19.07 (3.37)</td>
<td>19.11 (4.04)</td>
<td>18.99</td>
</tr>
<tr>
<td>Cameroon</td>
<td>15,426</td>
<td>3.95</td>
<td>14,816</td>
<td>19.54 (3.54)</td>
<td>19.11 (4.04)</td>
<td>18.99</td>
</tr>
<tr>
<td>Chad</td>
<td>6,085</td>
<td>4.82</td>
<td>5,792</td>
<td>18.88 (3.07)</td>
<td>17.34 (2.70)</td>
<td>3.40</td>
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<td>Ethiopia</td>
<td>16,515</td>
<td>8.08</td>
<td>15,180</td>
<td>19.89 (3.57)</td>
<td>18.26 (3.36)</td>
<td>4.20</td>
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<td>Gabon</td>
<td>8,422</td>
<td>2.77</td>
<td>8,189</td>
<td>18.67 (3.52)</td>
<td>20.74 (5.32)</td>
<td>41.31</td>
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<td>Ghana</td>
<td>4,916</td>
<td>1.02</td>
<td>4,866</td>
<td>20.23 (3.86)</td>
<td>19.76 (3.92)</td>
<td>14.18</td>
</tr>
<tr>
<td>Guinea</td>
<td>9,142</td>
<td>3.77</td>
<td>8,797</td>
<td>19.30 (3.49)</td>
<td>18.24 (3.26)</td>
<td>7.60</td>
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<tr>
<td>Ivory Coast</td>
<td>10,060</td>
<td>2.56</td>
<td>9,802</td>
<td>19.33 (3.58)</td>
<td>19.49 (4.28)</td>
<td>25.31</td>
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<td>Kenya</td>
<td>8,444</td>
<td>2.37</td>
<td>8,244</td>
<td>19.73 (3.53)</td>
<td>19.70 (3.78)</td>
<td>20.85</td>
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<td>Liberia</td>
<td>7,092</td>
<td>3.21</td>
<td>6,864</td>
<td>19.20 (3.59)</td>
<td>18.94 (4.04)</td>
<td>26.44</td>
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<td>Lesotho</td>
<td>7,624</td>
<td>0.35</td>
<td>7,597</td>
<td>20.13 (3.24)</td>
<td>19.48 (3.45)</td>
<td>15.10</td>
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<td>Madagascar</td>
<td>17,375</td>
<td>3.42</td>
<td>16,781</td>
<td>20.05 (3.80)</td>
<td>19.98 (3.81)</td>
<td>9.49</td>
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<td>Mozambique</td>
<td>13,745</td>
<td>2.65</td>
<td>13,381</td>
<td>19.35 (3.55)</td>
<td>19.52 (4.39)</td>
<td>22.81</td>
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<td>Nigeria</td>
<td>33,385</td>
<td>4.37</td>
<td>31,926</td>
<td>20.19 (4.09)</td>
<td>19.24 (4.23)</td>
<td>8.92</td>
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<td>Niger</td>
<td>11,160</td>
<td>5.33</td>
<td>10,565</td>
<td>19.35 (3.42)</td>
<td>17.28 (2.84)</td>
<td>3.34</td>
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<tr>
<td>Namibia</td>
<td>9,804</td>
<td>0.76</td>
<td>9,729</td>
<td>20.47 (3.95)</td>
<td>23.00 (5.79)</td>
<td>46.25</td>
</tr>
<tr>
<td>Rwanda</td>
<td>13,671</td>
<td>0.24</td>
<td>13,638</td>
<td>21.61 (3.42)</td>
<td>20.74 (3.52)</td>
<td>8.03</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>7,374</td>
<td>5.51</td>
<td>6,968</td>
<td>19.69 (4.30)</td>
<td>18.75 (4.20)</td>
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</tr>
<tr>
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<td>15,688</td>
<td>6.15</td>
<td>14,723</td>
<td>20.42 (3.87)</td>
<td>19.34 (4.23)</td>
<td>9.61</td>
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<tr>
<td>Sao Tome Principe</td>
<td>2,615</td>
<td>0.54</td>
<td>2,601</td>
<td>19.09 (2.97)</td>
<td>18.82 (3.32)</td>
<td>17.03</td>
</tr>
<tr>
<td>Swaziland</td>
<td>4,987</td>
<td>0.58</td>
<td>4,958</td>
<td>18.88 (3.21)</td>
<td>21.64 (4.82)</td>
<td>49.82</td>
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<tr>
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<td>10,139</td>
<td>1.41</td>
<td>9,996</td>
<td>19.55 (3.11)</td>
<td>18.76 (3.32)</td>
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<tr>
<td>Uganda</td>
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<td>2.73</td>
<td>8,437</td>
<td>19.01 (3.09)</td>
<td>19.76 (3.32)</td>
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<tr>
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<td>2.02</td>
<td>7,002</td>
<td>18.89 (2.89)</td>
<td>18.58 (3.20)</td>
<td>19.24</td>
</tr>
<tr>
<td>Zimbabwe</td>
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<td>0.94</td>
<td>9,085</td>
<td>19.78 (3.15)</td>
<td>19.68 (3.91)</td>
<td>15.24</td>
</tr>
</tbody>
</table>

Source: Demographic and Health Survey
### Table 2. Country-specific discrete-time logit models predicting relationships between women's entry into motherhood, age, and marital timing

#### Model 1: Direct influence of premarital childbearing and education on marriage

<table>
<thead>
<tr>
<th></th>
<th>Premarital birth</th>
<th>Mothers' Age (in Years)</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>Coeff.</td>
<td>SE</td>
</tr>
<tr>
<td>Burkin Faso</td>
<td>0.59</td>
<td>-0.52</td>
<td>0.06</td>
</tr>
<tr>
<td>Benin</td>
<td>0.65</td>
<td>-0.43</td>
<td>0.04</td>
</tr>
<tr>
<td>Burundi</td>
<td>0.37</td>
<td>-0.99</td>
<td>0.08</td>
</tr>
<tr>
<td>Dem. Repub. of Congo</td>
<td>0.88</td>
<td>-0.13</td>
<td>0.04</td>
</tr>
<tr>
<td>Congo (Brazzaville)</td>
<td>0.81</td>
<td>-0.21</td>
<td>0.03</td>
</tr>
<tr>
<td>Cameroon</td>
<td>0.68</td>
<td>-0.38</td>
<td>0.04</td>
</tr>
<tr>
<td>Chad</td>
<td>0.58</td>
<td>-0.54</td>
<td>0.10</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0.72</td>
<td>-0.32</td>
<td>0.06</td>
</tr>
<tr>
<td>Gabon</td>
<td>0.88</td>
<td>-0.13</td>
<td>0.04</td>
</tr>
<tr>
<td>Ghana</td>
<td>0.81</td>
<td>-0.21</td>
<td>0.06</td>
</tr>
<tr>
<td>Guinea</td>
<td>0.68</td>
<td>-0.39</td>
<td>0.07</td>
</tr>
<tr>
<td>Ivory Coast</td>
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<td>0.04</td>
</tr>
<tr>
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<td>-0.53</td>
<td>0.04</td>
</tr>
<tr>
<td>Liberia</td>
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<td>0.05</td>
</tr>
<tr>
<td>Lesotho</td>
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<td>0.06</td>
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<td>Madagascar</td>
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<td>0.04</td>
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<tr>
<td>Mozambique</td>
<td>0.69</td>
<td>-0.37</td>
<td>0.03</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0.82</td>
<td>-0.20</td>
<td>0.03</td>
</tr>
<tr>
<td>Niger</td>
<td>0.72</td>
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<td>0.12</td>
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<tr>
<td>Namibia</td>
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<td>Rwanda</td>
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<tr>
<td>Sierra Leone</td>
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<td>Senegal</td>
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<td>0.05</td>
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<tr>
<td>Sao Tome Principe</td>
<td>0.74</td>
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<td>0.08</td>
</tr>
<tr>
<td>Swaziland</td>
<td>0.78</td>
<td>-0.25</td>
<td>0.05</td>
</tr>
<tr>
<td>Tanzania</td>
<td>0.56</td>
<td>-0.58</td>
<td>0.05</td>
</tr>
<tr>
<td>Uganda</td>
<td>0.66</td>
<td>-0.41</td>
<td>0.05</td>
</tr>
<tr>
<td>Zambia</td>
<td>0.65</td>
<td>-0.44</td>
<td>0.05</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>0.35</td>
<td>-1.05</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Each model controls for childhood residence, age at sexual debut, education, and birth cohort

***p<.001; **p<.01; *p<.05
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