

Tradition and Change: The Transition to Adulthood Among Ethiopian Women**

Summary

This paper uses the 2000 Demographic Health Survey in Ethiopia to explore intercohort changes in women's age at marriage, first sexual intercourse and first birth, and to link those changes to theories of role competition, human capital, and social dislocation. We find that in Ethiopia higher education is associated with not only a delay in marriage and childbearing, but a delay in the onset of sexual activity as well. We identify the central importance of marriage for providing women with social recognition, economic security, and social honor as essential for understanding the relationship between education and premarital sexual behavior in Ethiopian society.

Background

Demographic decompositions of recent fertility decline in urban Ethiopia identify delayed marriage among recent cohorts of women as a major component of the decline in urban fertility (Sibanda et al. 2003; Lindstrom and Woubalem 2003). Studies conducted in other African countries find that as age at marriage increases, premarital sex becomes increasingly common, often leading to a rise in premarital fertility (Bledsoe and Cohen 1993; Gage-Brandon and Meekers 1993; Meekers and Ahmed 2000). This increase in premarital fertility typically is linked to increases in the autonomy of women (education and labor force participation), a weakening of family controls over the sexual behaviors of daughters associated with migration to cities, and the opportunities and lifestyles associated with urban residence. These explanations are based mostly on research on African populations in which norms about marriage and fertility have traditionally tolerated extramarital childbearing.

But in Ethiopia, a society in which premarital sexual activity by women traditionally has not been tolerated, the rise in age at marriage has not been accompanied by a rise in premarital fertility. In fact, in an analysis of fertility change in Addis Ababa based on the 1984 and 1994 censuses, Lindstrom and Woubalem (2003) find that non-marital fertility actually declined during the intercensal period. This paper further documents this apparent exception, and investigates the reasons why general expectations about increases in premarital fertility do not occur.

Contraceptive use and abortion are two methods by which premarital fertility can be kept low in the presence of delayed marriage; a third is a delay in the start of sexual activity. In this paper we use data from the 2000 Ethiopia Demographic and Health Survey (DHS) to examine the patterns and determinants of age at first sexual intercourse, first marriage, and first birth among several cohorts of Ethiopian women. In particular we focus on the influence of schooling and place of residence on the timing of these early life course events, and test for cohort changes in their effects. We argue that the impact of women's education on premarital sexual behavior is conditioned by the value that men place on sexual chastity as an attribute of a prospective wife, and the centrality of marriage for conferring status and organizing social and economic life. In a setting such as Ethiopia, where marriage is universal and men expect a first wife not to have had prior sexual relations with other men, the opportunity costs of premarital sex in the form of diminished marriage prospects increase rather than decrease with education.

*David P. Lindstrom and Dennis P. Hogan • Population Studies and Training Center • Brown University • USA

†Gebre-Egziabher Kiros • Institute of Public Health • Florida A&M University • USA

Delayed marriage is now a well established trend in African countries. The increase in age at marriage is largest in urban areas, but there is also evidence of a rise in age at marriage in rural areas as well (Blanc and Grey 2002). Delayed marriage is widely believed to be associated with increases in school enrollment at the secondary level and above, rural-urban migration, and increases in female non-agricultural employment (Ikamari 2005; Kinfu 2000). In general, delayed marriage is an important component of the decline in total fertility in societies where childbearing occurs largely within marital unions. The actual contribution of delayed marriage to fertility decline depends in part on what happens to premarital fertility. In a number of African societies, age at first intercourse has remained relatively unchanged or has not risen as fast as the age at marriage (Blanc and Way 1998). In the absence of effective contraceptive use, increased exposure to premarital sexual relations among adolescent girls and young women is often accompanied by a rise in premarital fertility (Agyei et al. 2000; Bledsoe and Cohen 1993; Meekers 1994a; Mensch et al. 2001; Singh et al. 2000).

Many studies identify education and place of residence as important social determinants of changes in the timing of the transition into sexual activity, marriage, and childbearing (Jejeebhoy 1995; Kaufman and Meekers 1998; Lesthaeghe et al. 1989). Theory and evidence are in strong agreement on the positive relationship between education, urban residence and age at marriage. Three general hypotheses dominate the literature on education and family formation (Lindstrom and Brambila-Paz 2001; Yabiku 2005). First, role incompatibility between the status of student and that of wife and mother reduces the risk that young women who are enrolled in school will marry and begin childbearing. Second, education is an investment in human capital: it decreases a woman's expected dependence on a husband's earnings, and it increases the opportunity costs of foregoing employment to take on the roles of wife and mother. The improved earning power that education offers women, therefore, encourages them to delay marriage and childbearing. Third, schooling is a transformative experience for young women; it increases their awareness of alternative roles to those of wife and mother; it promotes independence and a greater say in choice of husband; and it weakens the hold of traditional norms regarding the timing and desirability of marriage and motherhood; all of which delay marriage and first birth. Urban residence reinforces the effects of education by providing a wider array of employment opportunities for educated women, an expanded marriage market, and a less restrictive socio-cultural environment compared to village life.

There is considerably less agreement on the predicated and observed effects of education and urban residence on premarital sexual activity and premarital childbearing (Meekers 1994a). The social dislocation thesis suggests that education, urban residence, and economic change gradually breakdown traditional means of social control over adolescent sexual behavior and socialization by bringing boys and girls together outside of the supervision of parents and traditional rural based kinship groups, and by eroding traditional moral codes through exposure to Western values about sex, sexual autonomy, and marital life (Caldwell et al. 1982; Cherlin and Riley 1986; Gueye et al. 2001; Meekers 1994b; Rwenge 2000; Shell-Duncan and Wimmer 1999; Zabin and Kiragu 1998). In the absence of effective contraceptive use early premarital sexual activity raises the risk of premarital births.

However, there are also reasons to expect education and urban residence to be associated with a delay in the start of sexual activity. Schooling and employment opportunities in the urban sector encourage girls to develop occupational and economic aspirations that would be jeopardized by early marriage and childbearing. The risk of an early, unplanned pregnancy posed by premarital sexual activity encourages girls who would have higher opportunity costs to delay first intercourse. The knowledge and skills that girls acquire in school and the experience of being with boys in the classroom also enhances girls' sense of control over their lives and their ability to negotiate with boys, all of which increase their ability to decide when to begin sexual activity.

Evidence in support of both the social dislocation thesis and the prediction that schooling delays the onset of sexual activity can be found in sub-Saharan Africa. In Cameroon, Calvès (1999:291) finds that premarital pregnancies and births are on the rise, especially in urban areas and among educated youth. In a study of youth in Accra, Ghana Agyei et al. (2000) find that unmarried girls in urban areas are at a higher risk of pregnancy than

girls in peri-urban and rural areas, but that schooling is associated with a later age at first intercourse. Kebede et al. (2005) find in a survey of youth in Addis Ababa that the risk of pre-marital sex is substantially lower among in-school youth compared to out-of-school youth, and Meekers and Ahmed (2000) find in a survey of urban youth in Botswana that for girls being in school is associated with a lower risk of initiating sexual activity. In a wider analysis of DHS data for seven sub-Saharan African countries Gage-Brandon and Meekers (1993) find that the impact of education on sexual activity among never-married women is inconsistent across countries.

The presence of substantial variation in the relationship between education, place of residence and the onset of sexual activity suggests that context plays a fundamental role in how education affects the timing of first intercourse and the relationship between sexual initiation and entry into marriage. Although a positive relationship between education and age at marriage is found in diverse national and cultural contexts, there is little evidence to suggest that higher education is leading to a convergence towards the Western model of courtship and marriage that is implicit in early formulations of the demographic transition. In spite of the spread of secondary and higher education, there continues to be considerable variation in the role of parents and elders in spouse selection, how prospective spouses meet, and norms regarding premarital sexual behavior and courtship (see Meekers 1995 for case of Togo). Studies in many non-European countries find that arranged marriages or the close involvement of parents in selecting or approving a spouse remains common among highly educated young people. We suspect that the dislocation hypothesis regarding the role of Western education in eroding traditional norms regulating premarital sexual behavior is problematic as well. The resiliency of traditional norms regarding premarital sexual behavior and in particular the uneven application of these norms to women and men, are likely to be an important source of variation in the relationship between education and premarital sex, and premarital sex and marriage.

The individualistic model of adolescent sexual behavior implicit in the dislocation hypothesis assumes that adolescent boys and girls hold gender neutral views about the appropriateness of premarital sexual behavior and in particular the effect of sexual experience with other partners on one's suitability as a potential spouse. The hypothesis also locates social control of sexuality in the parental generation, and downplays the important role that age peers play in regulating sexual behavior. Young men's preference for virgin brides or for a bride who has not had sexual relations with another man is likely to have more influence on a young woman's decisions about premarital sex than what her parents think. The potential cost of premarital sexual activity for a young woman is a decline in her marriage prospects. This is a very high cost in societies where status is conferred through marriage and virtually all aspects of adult social and economic life are organized around marriage. Girls who engage in premarital sex are at risk of damaging their reputation if the relationship does not progress to marriage and other potential suitors learn of her sexual history. The risk of damage to a woman's reputation is greatest among women who operate in more restricted marriage markets where there is greater connectivity of social networks. This describes well the situation of more educated women in societies with relatively low levels of education. While contraception provides protection against premarital pregnancies, it does not protect a woman's reputation. For more educated women the opportunity costs of premarital sex are greater because their marriage prospects are better than uneducated women. More educated women also operate in more restricted marriage markets because of the tendency of men to marry women with levels of education equal or lower than their own.

Context

Ethiopia is an ethnically and linguistically diverse country with over 80 ethnic groups and 9 major language families. The Amhara, a Semitic speaking people, and the Oromo, a Cushitic speaking people, are the two largest ethnic groups with 30 and 32 percent of the population respectively. The next two largest groups, the Tigray and the Somali each constitute approximately 6 percent of the population. Roughly 50 percent of the population is Orthodox Christian, 10 percent is Protestant, and 33 percent is Muslim, with followers of traditional African and other religions accounting for a small percentage of the population (CSA 1998).

In spite of the ethno-linguistic and religious diversity, centuries of constant social, economic, and political interaction have produced common cultural traits and forms of social organization and expression that provide the foundation for a greater Ethiopian culture (Levine 1974).

Although there remain distinct ethnic differences in access to education, rural-urban migration and marriage practices (age at marriage and the prevalence of polygamy and divorce), entry into marriage in Ethiopia is near universal among all groups, with only 1 percent of men and women age 35 and above having never married (CSA 2001:77). Marriage is of central importance to all aspects of life in Ethiopia; in one way or another, practically all essentials are organized, procured, and guaranteed through the institution of marriage (Weissleder 1974:72). A strict division of labor, which makes the performance of tasks not of one's gender almost taboo, provides a compelling pragmatic rationale for entry into marriage. For women, in particular, being single or in a household without a man is associated with marginalized social status, dependence on kin, and greater vulnerability (Pankhurst 1992).

Among the Amhara, who for centuries have been the most dominant cultural and political group, very early age at marriage is common. According to the 2000 DHS over 50 percent of women currently aged 20-49 in the Amhara region were married by age 15 (CSA 2001). Early marriages are viewed strategically by parents because they provide a means to extend the family's social networks, which are a critical source of aid during times of crisis and household need. Political crisis and war, refugee status and forced relocation, and recurrent economic crises and famines in Ethiopia make it critically important that strong social networks be available. According to Dagne (1994:36) the competition to find desirable partners for one's own children means that the earlier a marriage is arranged, the less parents have to worry about.

A girl's virginity before marriage is highly valued in Ethiopia, and is considered one of the primary requirements for a good marriage partner (Weissleder 1974). A girl who is not a virgin at first marriage is considered unfit for family life. Marriage customs among the Amhara and the Oromo include the ceremonial display of the wedding sheet after the union is consummated. While animal blood or blood from a cut can be surreptitiously applied to the sheet, the groom must be complicit in the deception. If a bride is found not to be a virgin, the groom has the right to beat her, publicly humiliate her, dissolve the marriage, and demand the return of his gifts and money that he spent toward the wedding (Dagne 1994; Holcomb 1973; Reminick 1976). The potential damage to a girl and her family's reputation and her marriage prospects provides a strong incentive to girls to preserve their virginity before marriage or for the men who will be their husbands. Because first marriages generally involve a bond between households, a bride's virginity is not simply a matter of honor; it has an economic value to parents (Pankhurst 1992:122)

Even though no sex before marriage is the general norm, there is a gender imbalance in approving it when it takes place. In focus groups with youth in Addis Ababa, Taffa et al. (2002b) found that in general, premarital sex is accepted for boys, but is unacceptable for girls and is widely considered to bring shame to girls' families. Evidence of the double standard with regard to premarital sex is pervasive in the rural highlands where gonorrhea was traditionally expected to affect almost every adolescent male as a mark of maturity. Prostitution is the major source of gonorrheal infection in Ethiopia: an estimated 80-95% of all cases of STDs in Ethiopia are transmitted by prostitution (Feleke and Kloos 1993: 296). Because grooms bring most of the assets into a marriage, their outcome in the marriage market is not an important determinant of their future economic well-being. However, for brides, their future welfare hinges on how well they do in the marriage market (Fafchamps and Quisumbing 2005a:22-23).

Marriages in many parts of Ethiopia can be divided into six types: ceremonial marriage (*serg*), religious marriage (*k'urban*), civil marriage (*semanya*), marriage preceded by the provision of labor (*k'ot'assir*), paid labor marriage (*gered* or *demoz*), and marriage by abduction (*t'ilf*). The types of marriages differ in terms of the involvement of parents in the match; the level of formality, ceremony and expense; and expectations of labor exchanges (Pankhurst 1992:106-07). Marriage by abduction and civil marriage are now the standard forms of marriage, although ceremonial marriage, which involves considerable expense, remains common in urban areas. In rural areas arranged marriages are the norm, whereas abduction marriage provides a socially acceptable way to circumvent parents' or brides' disapproval of a match (Fafchamps and Quisumbing 2002).

Girls are compliant with their parents' desires because they cannot afford to sever the links to their paternal home due to the importance of family networks for accessing resources, especially in the event that a marriage fails. There are, however, opportunity costs and risks associated with early marriage and the early initiation of sexual intercourse, especially sexual intercourse prior to marriage. Very early age at first marriage and premarital first sex are associated with marital instability and divorce, multiple partners; poverty, and subsequent drift into prostitution or paid domestic work (Duncan et al. 1993; Tilson and Larsen 2000). Girls are therefore caught between family pressures to marry and their own desire to avoid entry into an arranged marriage at an early age; and they are caught between the pressure from boyfriends to engage in premarital sex and the need to delay sex until marriage or until they are in a relationship that they are confident will lead to marriage. Girls with higher levels of education are in the best position to negotiate these competing pressures and assert some degree of autonomy.

Data and Methods

Data for this paper come from the 2000 Ethiopia Demographic and Health Survey. The survey was conducted by the Central Statistical Authority of Ethiopia and was designed to be nationally representative. A total of 15,367 women aged 15-49 were interviewed; in this paper we use information on age at first intercourse, age at first birth, and age at first marriage for 14,682 women who had valid responses (no missing values) on all of our dependent and independent variables of interest.

We divide our analysis into four parts. First, we examine the distribution of early life course transitions and how these distributions have changed across cohorts. Second, we examine the social determinants of the timing and marital context of first intercourse using discrete-time hazards models. We treat the start of sexual activity as a competing risk with first intercourse at time of marriage and first intercourse prior to marriage as alternative outcomes. Third, we examine the social determinants of entry into marriage among women who begin sexual activity before marriage. Finally, we model the hazard of a first birth after the start of marriage. In all three of our multivariate analyses we use interactions between our key explanatory variables and cohort to determine whether the underlying processes of start of sexual activity and family formation have changed over time.

In any analysis that uses retrospective data on the timing of early life course events, the quality of the data is an issue. In an analysis of World Fertility Survey data, Lesthaeghe et al. (1989) found that older women tend to over-report their age at first marriage. Blanc and Rutenberg (1990) report a similar tendency among older women in the DHS as well as a tendency to over-report age at early births. The presence of this type of reporting error in the data would bias downward estimates of cohort increases in the age at marriage and first birth. Sibanda et al. (2003) in a decomposition analysis of the proximate determinants of fertility in Ethiopia using the 2000 DHS generated predicted values of total fertility very close to observed values, which is a good indicator of relatively complete coverage of key proximate determinants by the survey including marriage. As we will report below, we also find a consistent pattern of cohort declines in age at first intercourse, first marriage, and first birth which is also a positive indicator of the quality of the data.

Results

Descriptive Analysis

Figure 1 presents Kaplan-Meier estimates of the survival functions for age at first intercourse, first marriage, and first birth by cohort. The median ages at each event are indicated by the vertical dashed lines that bisect each of the curves. The survival curves for all three events have shifted to the right across cohorts, with the largest change occurring between the second and most recent cohorts. Both the median ages at first intercourse and at first marriage have increased from 15 to 16 years, and then to 19 years. Along with the rise in age at marriage there has been a significant rise in the age at first birth. The median age at first birth has risen from 18 to 19 years, and then to 22 years, with approximately 40 percent of the youngest women still childless by age 25. This is a very significant change from the oldest cohort of women, in which only 10 percent of women were still childless at age 25. The near equivalence in the shape of the survival curves for first intercourse and first marriage indicates that marriage and the start of sexual activity are very closely linked in Ethiopia, as is the start of childbearing. The parallel shift in the curves across cohorts suggests that the close linkage between these three early life course events has not fundamentally changed over time.

Figure 1. Survival Curves for Early Life Course Transitions by Cohort, Women Aged 15-49, 2000 Ethiopia DHS.

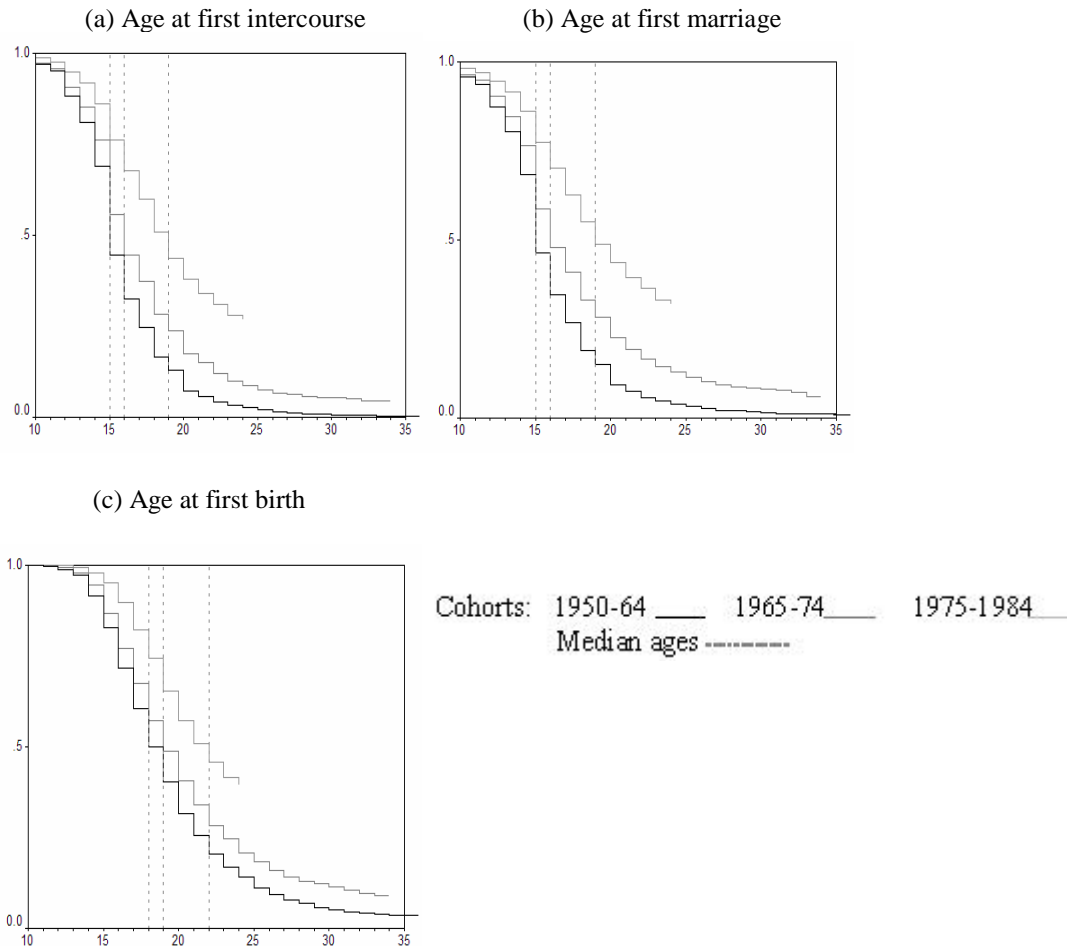


Table 1 explores the relative sequencing of first intercourse, first marriage, and first birth by cohort. Pre-marital intercourse is relatively common among women in Ethiopia. Roughly four out of every ten women in the two oldest cohorts started sexual activity before marriage. Among the most recent cohort the figure is lower (23 percent), but will rise as women in the cohort age and enter into sexual activity. The eventual percentage of women in the youngest cohort with premarital sexual experience, however, is unlikely to exceed the level of earlier cohorts since close to three-quarters of the women in this cohort were already married by the time of the survey. In spite of the relatively high percentage of Ethiopian women who have first intercourse before marriage, very few have premarital births. Only two percent of women in the sample had a premarital birth, and there is little indication that the prevalence of premarital births has changed across cohorts.

One reason for the low prevalence of premarital births is that most women who begin sexual activity before marriage enter into marriage soon afterwards. Seventy-one percent of the women who are married and had premarital sex, married within one year of the start of sexual activity, and an additional 16 percent married within 1-2 years of first intercourse. Although the DHS does not allow us to determine whether a woman's first sexual partner before marriage was the man she married, the short interval between first intercourse and marriage suggests that in most instances premarital sex is a prelude to marriage. This relationship is consistent with the high value placed in Ethiopian society on the virginity of a prospective wife. Across cohorts there is some evidence that the interval between the initiation of sexual activity and entry into marriage is increasing, with more women marrying 1-2 years after first intercourse rather than in the first year. Nevertheless, even among the most recent cohort 90 percent of married women who had premarital sex married within 2 years of first intercourse.

Table 1. Pre-marital Intercourse, Pre-marital Births, and Time to Marriage by Cohort, Women Aged 15-49, 2000 Ethiopia DHS.

	Cohort			
	1950-64 %	1965-74 %	1975-84 %	Total %
Pre-marital intercourse	38.5	39.7	22.9	32.1
Pre-marital birth	2.6	3.0	0.6	1.8
Number of women = 14,682				
Interval between first intercourse and marriage among women with pre-marital intercourse				
Less than 1 year	75.4	67.0	71.6	71.2
1-2 years	14.1	16.6	18.6	16.4
3-5 years	6.4	7.7	8.0	7.4
6+ years	4.1	8.7	1.8	5.0
Number of women = 5,105				

The changes in age at first intercourse, entry into marriage and start of childbearing occur in the context of a gradual increase in girls' education and slow but steady urbanization in Ethiopia. Although progress has been made in expanding educational opportunities to women, particularly at the primary level, a very high percentage of Ethiopian women continue to have no formal schooling (Table 2). Sixty-four percent of women in the most recent cohort have no education compared to 91 percent of women in the oldest cohort. The percentage of women with a primary-level education has approximately quadrupled across the three cohorts, from 6 percent of women in the oldest cohort to 23 percent of women in the youngest cohort; and the percentage of women with a secondary or higher-level education has increased from 3 percent to 13 percent of women.

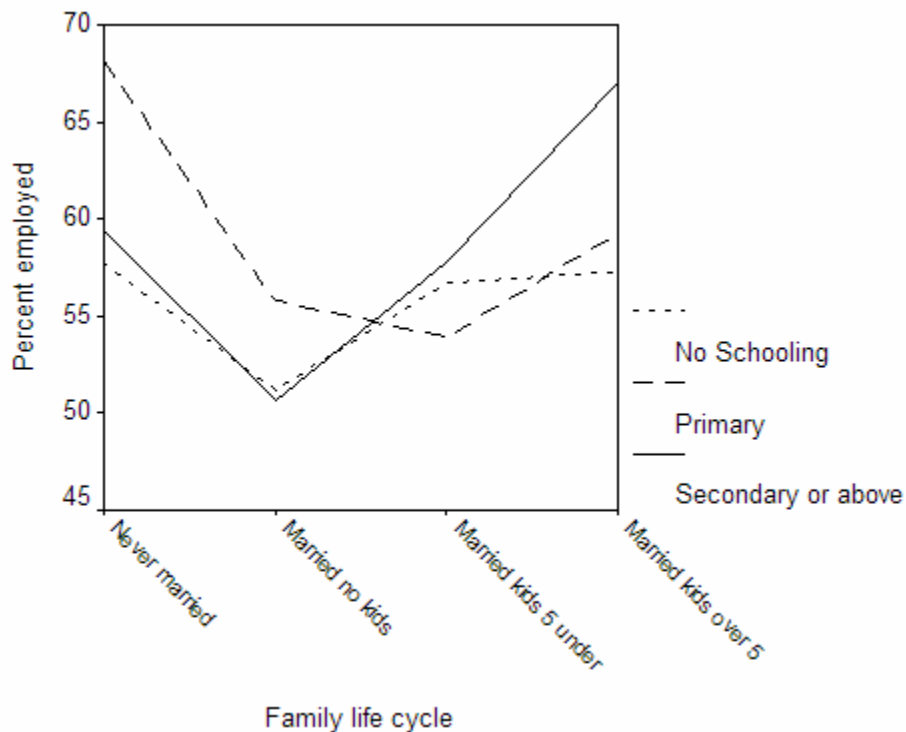
Table 2. Selected Descriptive Statistics by Cohort, Women Aged 15-49, 2000 Ethiopia DHS.

	Cohort			
	1950-64 %	1965-74 %	1975-84 %	Total %
Education				
No formal education	91.0	73.2	64.2	74.3
Primary	6.1	16.0	22.9	16.3
Secondary	2.9	10.8	12.9	9.5
Place of residence				
Rural	85.5	81.6	78.9	81.5
Town	10.7	14.0	15.9	13.9
City	3.7	4.4	5.2	4.6
Religion				
Christian (Orthodox, Prot., Catholic)	65.7	68.2	65.7	66.4
Muslim	30.3	28.2	30.9	29.9
Traditional/other	4.0	3.6	3.5	3.7
Ethnicity				
Affar	1.0	0.8	0.6	0.8
Amhara	31.6	29.7	28.4	29.7
Gurage	5.8	5.2	6.0	5.7
Oromo	33.6	33.7	38.9	36.0
Sidamo	4.1	4.8	3.4	4.0
Somali	1.2	1.4	1.1	1.2
Tigray	6.8	7.0	6.3	6.6
Welaita	2.0	2.5	2.4	2.3
Others	13.8	14.8	12.9	13.7
Number of women = 14,682				

The relatively low levels of education are related to the predominantly rural nature of the country. Over 81 percent of the women in the sample live in rural communities. In the more remote rural areas many women do not have access to primary schools, let alone secondary schools. The percentage of women living in towns and cities increases slightly across the three cohorts, indicating the slow but steady pace at which Ethiopia is urbanizing.

In the human capital approach to marriage, employment is a key mediating factor in the relationship between education and the transition into marriage and childbearing. Figure 2 presents the percentage of women currently working by stage of family life and level of education. The figure is based on cross-sectional data reflecting the employment and stage of family life of women in the sample at the time of the survey. The cross-sectional nature of the data is well-suited for characterizing the opportunity costs of early marriage and childbearing as perceived by young unmarried women. In contemplating the consequences for employment of entering into marriage and motherhood young women will look at the work status of married women with children with the same level of education as their own.

Figure 2. Employment Status by Level of Education and Stage of Family Life, Women Aged 15-49, 2000 Ethiopia DHS.



Note: Does not include women currently in school.

Overall, employment among women in Ethiopia is relatively common. Employment includes work on family plots or a family business as well as wage employment. At any stage of family life and any level of education at least 50 percent of the women in the sample are working. A u-shaped curve describes the relationship between employment and the stage of family life. (Comparisons should not be made between women with different levels of education at the same stage of family life since so many of the women with no education live in rural areas.) The level of employment is highest among never married women and among women with children over age 5 and it is lowest among recently married women and women with toddlers. The disruptive effects of marriage and childbearing on employment appear to be greatest for women with secondary schooling or beyond. Around 50 percent of women with a higher education who are married and without children are working compared to 67 percent of similarly educated women with children over age 5. Employment levels among women with little or no schooling are also at their lowest point at entry into marriage and the start of childbearing. The relative differences in the opportunity costs of the early stages of family life are especially great for more educated women given their greater earning power.

Age at First Intercourse

The descriptive analysis clearly indicates that the start of sexual activity, marriage and childbearing are occurring at progressively older ages among recent cohorts of women in Ethiopia. Although the median age at marriage has increased by three years, the prevalence of premarital intercourse does not appear to have increased, and premarital births remain relatively rare. We interpret the low level of premarital fertility and the relatively short interval between first intercourse and marriage among women who engage in premarital sex as evidence of the persistence of conservative norms and values regarding premarital sex for women. We also showed that the disruption in employment associated with marriage and the start of childbearing is greatest for women with a secondary education or beyond. In this section we use discrete-time hazard models to estimate the nature and strength of the relationship between schooling, place of residence and the transition into sexual activity and adult family roles, and to determine whether these underlying relationships have changed over time.

To estimate the discrete-time models we constructed a person-year file in which every woman contributes one record for each year she is exposed to the risk of the event in question. In the analysis of first intercourse, we start the risk period at age 10 for all women. For women who report first intercourse at an age less than 10, we recode age at first intercourse to 10. In all of our models we include as covariates birth cohort, student status, level of education, place of residence, religion, ethnicity and duration of exposure to risk (age – 10 years). Student status, level of education, and place of residence are time-varying to capture changes in roles, status, and social context that influence the risk of transitioning into adult roles. We also include in all of the models time-varying continuous measures of duration and duration-squared to allow for duration dependence in the underlying hazard of each event.

We begin with a discrete-time multinomial logit regression model to examine the occurrence of first intercourse by marital status. Table 3 presents the estimated odds ratios for the covariates included in the model. The first and second columns in the table correspond to the risk of first intercourse at the time of marriage, and the risk of first intercourse before marriage, respectively, compared to not starting sexual activity. The third column is from the same statistical model, but presents the odds ratio for the risk of first intercourse prior to marriage compared to at the time of marriage.

Consistent with what we saw in the survival curves, the duration-specific (age – 10) risk of first intercourse whether within marriage or prior to marriage decreases across cohorts. Women in the youngest cohort are one-third as likely to marry and begin sexual activity at a given age as women from the oldest cohort, and they are less than one-half as likely to begin sexual activity outside of marriage. These results are net of compositional differences in education and place of residence.

The effects of education are consistent with both the role conflict and opportunity costs hypotheses. Girls who are in school are at a significantly lower risk of marriage, and they are even less likely to become sexually active outside of marriage. Even after they exit school, adolescent girls and young women with a primary or secondary education are at a lower risk of entry into marriage or first intercourse before marriage than girls with no schooling. Controlling for student status, girls with a secondary level education are at one-sixth the risk of marriage at a given age compared to girls with no schooling, and they are at one-half the risk of having first intercourse outside of marriage. These results are completely at odds with the predictions of the social dislocation thesis. As girls become more educated they are not only delaying marriage, they are also delaying the start of sexual activity.

As expected, urban residence is associated with a lower risk of first intercourse at the time of marriage. However, consistent with the dislocation thesis, urban living is associated with an increased risk of intercourse before marriage. The results for schooling and place of residence suggest that while urban living is associated with greater opportunities for premarital sexual activity, the opportunity costs associated with premarital sex are sufficiently large to discourage more educated adolescent girls and young women to begin sexual activity before marriage. Even with the overall higher risk of premarital sex in urban areas, girls with a secondary level education living in cities are still at a lower risk of first intercourse outside of marriage ($0.54 \times 1.21 = 0.65$) than girls with little or no schooling living in rural areas.

Table 3. Odds Ratios for Predicting Hazard of First Intercourse, Women Aged 15-49, 2000 Ethiopia DHS.

	First intercourse at time of marriage vs. not started sexual activity	First intercourse before marriage vs. not started sexual activity	First intercourse before marriage vs. at time of marriage
	Odds ratio	Odds ratio	Odds ratio
Cohort (ref.=1950-64)			
1965-74	0.76**	0.80**	1.05
1975-84	0.36**	0.44**	1.24**
Currently attending school	0.61**	0.30**	0.49**
Education (ref.=No formal education)			
Primary	0.53**	0.75**	1.41**
Secondary	0.16**	0.54**	3.40**
Place of residence (ref.=Rural)			
Town	0.71**	1.37**	1.94**
City	0.72**	1.21**	1.68**
Religion (ref.=Christian)			
Moslem	1.26**	0.73**	0.58**
Traditional	1.14*	0.80*	0.70**
Ethnicity (ref.=Amhara)			
Affar	0.83**	0.74**	0.88
Gurage	0.31**	0.35**	1.14
Oromo	0.54**	0.35**	0.64**
Sidamo	0.27**	0.80**	3.02**
Somali	0.40**	0.16**	0.40**
Tigray	0.24**	1.32**	5.47**
Welaita	0.60**	0.15**	0.25**
Others	0.58**	0.33**	0.58**
Duration (years)	2.11**	2.03**	0.96
Duration squared	0.97**	0.97**	1.00
Number of women = 14,682			
Number of life years = 114,490			
LR Chi-square = 13,306**			

* $p < .05$, ** $p < .01$

Among women who become sexually active, the odds that first intercourse occurred before marriage compared to at the time of marriage is 24 percent higher in the most recent cohort of women compared to the oldest cohort. While younger women are delaying the onset of sexual activity, either as part of marriage or before marriage, when they do become sexually active it is more likely to occur before marriage than was the case for earlier cohorts of women. In other words, while early marriage and early initiation of sexual activity before marriage are both viewed as costly and undesirable, early marriage is viewed as the more costly and less desirable of the two. The same basic relationship between early marriage and first intercourse before marriage also holds for women with schooling and women living in urban places.

We next ask whether the effects of education and urban living have changed across cohorts. Specifically, are the opportunity costs of early marriage or premarital sexual activity even higher among more educated women in the youngest cohort compared to earlier cohorts or is the underlying relationship education, urban residence and premarital sexual activity reversing itself and heading more in the direction predicated by the social dislocation hypothesis? To answer these questions we estimated a model with interactions between level of education and cohort, and a model with interactions between place of residence and cohort. The models include all the variables included in the main effects model shown in Table 3.

Table 4. Odds Ratios for Effects of Education and Place of Residence Interacted with Cohort on the Hazard of First Intercourse, Women Aged 15-49, 2000 Ethiopia DHS.

Interaction Models for Predicting First Intercourse	First intercourse at time of marriage vs. not started sexual activity	First intercourse before marriage vs. not started sexual activity	First intercourse before marriage vs. at time of marriage
	Odds ratio	Odds ratio	Odds ratio
<u>Interaction Model 1: Education × Cohort[†]</u>			
Education (ref.=No formal education)	1.00	1.00	1.00
Primary	0.50**	0.90	1.79**
Secondary	0.26**	0.71**	2.75**
Interactions			
Primary × Cohort 1965-74	1.12	0.92	0.82
Primary × Cohort 1975-84	1.00	0.66**	0.66**
Secondary × Cohort 1965-74	0.55**	0.78*	1.43*
Secondary × Cohort 1975-84	0.56**	0.66**	1.18
LR Chi-square = 13,349**			
<u>Interaction Model 2: Residence × Cohort[†]</u>			
Place of residence (ref.=rural)	1.00	1.00	1.00
Town	0.78*	1.35**	1.74**
City	0.84*	1.33**	1.58**
Town × Cohort 1965-74	0.79	1.02	1.28
Town × Cohort 1975-84	0.94	1.03	1.09
City × Cohort 1965-74	0.82	1.01	1.23
City × Cohort 1975-84	0.76*	0.76**	1.00
Number of women = 14,682			
Number of life years = 114,490			
LR Chi-square = 13,329**			

[†]Interaction models include all variables from main effects model in Table 3.

* $p < .05$, ** $p < .01$

The results for the cohort and education interactions indicate that the delaying effects of secondary education on marriage and the start of sexual activity are stronger among women in the two most recent cohorts compared to the first cohort. In the case of place of residence, the delaying effect on marriage of living in a city is stronger among women in the most recent cohort. Women in the most recent cohort who live in cities are also significantly less likely to begin sexual activity before marriage at any age than earlier cohorts of women, and in fact they are at the same risk of having first intercourse before marriage as women living in rural areas ($0.76 \times 1.33 = 1.02$).

The results from the models of first intercourse suggest that the costs of early marriage and premarital sexual activity are large enough, and increasingly large, to encourage women and especially women with higher levels of education to delay marriage and the start of sexual activity. These costs have apparently increased in recent years among the most educated women in Ethiopia, and they have risen in major urban areas to the point where the liberalizing effects of city life on women's premarital sexual activity have actually been reversed.

Age at First Marriage

Although younger and more educated women are delaying the start of sexual activity, they are more likely than older and less educated women to have first intercourse before marriage. In the descriptive analysis we found that most women who have premarital intercourse marry shortly afterwards, although there is some evidence to suggest that the interval between first intercourse and marriage has increased in recent cohorts. In this next section we examine the transition into marriage among women who have first intercourse before marriage. Table 5 presents the odd ratios for the hazard of entry into marriage among this group of women. Similar to what we found in the case of first intercourse, more recent cohorts of women are delaying marriage as are women with a primary level education. However, in contrast to the risk of first intercourse, women with secondary education are much more likely to marry at every age after first intercourse than women with no schooling.

Table 5. Odds Ratios for Predicting Hazard of Entry into Marriage after First Intercourse before Marriage, Women Aged 15-49, 2000 Ethiopia DHS.

Independent Variables	Entry into marriage vs. remaining single	
	Main effects model	Interaction model
	Odds ratio	Odds ratio
Cohort (ref.=1950-64)		
1965-74	0.73**	0.72**
1975-84	0.68**	0.71**
Currently attending school	0.29**	0.30**
Education (ref.=No formal education)		
Primary	0.50**	0.50**
Secondary	7.71**	7.45**
Place of residence (ref.=Rural)		
Town	0.45**	0.45**
City	0.35**	0.35**
Premarital birth	1.86**	1.98**
Premarital birth × Cohort 1965-74		1.08
Premarital birth × Cohort 1975-84		0.66*
Religion (ref.=Christian)		
Moslem	2.09**	2.10**
Traditional	1.56**	1.56**
Ethnicity (ref.=Amhara)		
Affar	4.67**	4.68**
Gurage	0.80	0.81*
Oromo	1.62**	1.63**
Sidamo	3.71**	3.70**
Somali	2.56**	2.57**
Tigray	1.09	1.10
Welaita	3.10**	3.12**
Others	1.51**	1.52**
Duration (years)	0.68**	0.68**
Duration-squared	1.02**	1.02**
Number of women = 5,105		
Number of life years = 16,587		
LR Chi-square	8,154.2**	8,162.4**

* $p < .05$, ** $p < .01$

The substantially higher risk of marriage among this group of women is likely related to their relatively older age at first intercourse. Because women with a secondary level education begin sexual activity at significantly older ages than less educated women, once they become sexually active they are more likely to marry soon afterwards. This finding may also reflect the higher opportunity costs of engaging in premarital sex with someone whom they are not likely to marry. Because women with a secondary education or beyond have more to lose in terms of diminished marriage prospects than women with little or no schooling, they are more likely to delay sexual intercourse until they are in a relationship that they are confident will rapidly transition into marriage.

In contrast to the effect of secondary education, urban residence is associated with a lower risk of marriage after first intercourse. Women living in towns and cities are between one-half and one-third as likely to marry in a given year after first intercourse as women living in rural areas. Because the effect of secondary education is so strong (odds ratio = 7.7), even after taking into account the delaying effect of living in a town or city, women with a secondary level education are still much more likely to marry in a given year after first intercourse than less educated women regardless of where they live. The predictions of the dislocation hypothesis in terms of a greater likelihood of premarital intercourse and a longer time to marriage after premarital sex hold true for women with little or no schooling living in urban areas, but not for women with higher education.

Having a premarital birth also increases the likelihood that a relationship transitions into marriage. Women with a premarital birth are 1.86 times as likely to marry in given year as women without a birth. We could not determine whether this relationship weakens as the duration from birth increases because of the relatively small number of premarital births. We did, however, test whether the effect of a premarital birth on entry into marriage has changed across cohorts. The interaction for the second cohort is not statistically significant, but the interaction with the most recent cohort is. Women born after 1975 who have a premarital birth are still more likely to marry in any year than women without a birth ($1.98 \times 0.66 = 1.31$), but their risk of marriage is significantly lower than that of women with premarital births in earlier cohorts. This decline in the risk of marriage after the birth of a child could reflect an increased marriage penalty associated with a premarital birth, or it could reflect a greater acceptance of such births and a decline in the pressures to marry.

Age at First Birth

In our final analysis we examine the risk of a first birth after entry into marriage. In preliminary work we estimated models of first birth that started the risk period at age 12, and included a time-varying dummy variable for marital status. However, because very few births in the sample occur before marriage, our estimates of the effect of marital status and their standard errors were extremely large. The very low level of premarital births suggests that much of the effects of the socioeconomic and background variables on age at first birth operate through their effects on age at marriage. For example, in Table 6 we see that cohort differences in the risk of a first birth after marriage are substantially smaller than was the case with the risk of first intercourse and entry into marriage. In fact, women in the second cohort are slightly more likely to have a birth in a given year after marriage than women in the first cohort. The risk of a first birth among women in the most recent cohort drops to a level that is only slightly lower than the risk of a first birth experienced by women in the oldest cohort. Once women enter into marriage, education is no longer a significant factor in determining the timing of a first birth. Residence in a city is associated with a higher risk of a first birth compared to residence in rural areas. Because city living is associated with delayed marriage, once women marry they tend to accelerate the timing of a first birth.

Table 6. Odds Ratios for Predicting Hazard of First Birth after Entry into Marriage, Women Aged 15-49, 2000 Ethiopia DHS.

	First birth after marriage vs. no birth	
	Main effects model	Interaction model
	Odds ratio	Odds ratio
Age cohort (ref.=1950-64)		
1965-74	1.07**	1.09**
1975-84	0.93*	0.96**
Currently attending school	1.14	1.09
Education (ref.=No formal education)		
Primary	1.02	1.03
Secondary	1.10	1.48**
Interactions		
Primary × Cohort 1965-74		1.00
Primary × Cohort 1975-84		0.96
Secondary × Cohort 1965-74		0.70**
Secondary × Cohort 1975-84		0.64**
Place of residence (ref.=Rural)		
Town	1.00	1.00
City	1.24**	1.24**
Religion (ref.=Christian)		
Moslem	0.97	0.97
Traditional	0.82**	0.82**
Ethnicity (ref.=Amhara)		
Affar	0.83**	0.83**
Gurage	1.25**	1.26**
Oromo	1.56**	1.56**
Sidamo	1.73**	1.73**
Somali	1.79**	1.79**
Tigrai	1.14**	1.14**
Welaita	2.03**	2.04**
Others	1.40**	1.40**
Duration (years)	1.40**	1.41**
Duration-squared	0.98**	0.98**
Number of women = 10,496		
Number of life years = 49,811		
LR Chi-square	2,185.5	2,200.1

* $p < .05$, ** $p < .01$

We again estimated models with interactions between cohort and education, and cohort and place of residence to test for changes over time in the effects of education and urban residence. Only the interactions between education and cohort were significant. Once again we find evidence that the effects of secondary education on the transitions into adult family roles are changing across cohorts. Women with a secondary education in the more recent cohorts are increasing the spacing between marriage and a first birth. In fact, the odds ratio associated with a secondary education drops from 1.48 in the first cohort to 1.04 (1.48×0.70) in the second cohort, down to 0.95 (1.48×0.64) in the most recent cohort. This switch in directions accounts for the lack of a significant secondary education effect in the main effects model.

Discussion

In our analyses of women's early life course transitions we find that the age-specific risks of transitioning into sexual activity, marriage and childbearing decline across cohorts. The progressively lower risks of entry into marriage and having a first birth are expected. The lower risk of first intercourse prior to marriage is contrary to what has been observed in many other sub-Saharan African countries where the age at marriage has risen. The result however is consistent with the very low levels of nonmarital fertility in Ethiopia. The gradual rise in educational levels across recent cohorts of women is an important factor behind the delay in the transitions into adult roles. The effects of education operate through both prolonged enrollment in school and higher levels of completed schooling. The incompatibility of student and adult family roles reduces the risk of early marriage, and the experience and skills that girls acquire in school have lasting effects on how they assess the costs and negotiate the timing of transitions into adult roles. In the context of Ethiopia where marriage and the onset of childbearing traditionally occur at young ages, even a modest increase in girls' education can have a significant impact on age at marriage and first birth.

We find especially strong effects of secondary education. However, rather than moving in the direction of more permissive premarital sexual behavior as predicted by the social dislocation hypothesis, we find that unmarried women with a secondary education are becoming more cautious. Not only is the risk of premarital first intercourse among women with a secondary education lower in the most recent cohort than in earlier cohorts, the waiting time until marriage among those women who engage in premarital sex is also shorter than in earlier cohorts.

We interpret this trend as a response to the increasing opportunity costs of early marriage and childbearing. The expansion of educational opportunities for girls, particularly at the secondary level and beyond, is a very recent development in Ethiopia. Less than 10 percent of women age 15-49 have more than 8 years of schooling in Ethiopia. Enrollment in secondary schools showed little signs of growth in the late 1980s and early 1990s because of the disruptive effects of the civil war (Degefe and Nega 1999). The recovery and growth of the urban sector during the years following the end of the civil war has improved the employment opportunities for women with higher levels of education. Because the supply of well educated women remains relatively limited, the economic incentives for educated women to delay marriage and childbearing are powerful. We found additional support for this interpretation in the relatively higher levels of employment, and greater variability in employment across the stages of family life, of women with secondary education and beyond. The very limited supply of well educated women in Ethiopia contrasts with other sub-Saharan African countries where the expansion of educational opportunities for girls is more established and has outpaced the growth of employment opportunities in the urban sector.

The absence of a rise in premarital intercourse and births in Ethiopia in the face of delayed marriage derives in part from what ethnographic research has shown is the continued sway of traditional values that severely admonish women's sexual experience before marriage but are more permissive towards men's. The emphasis placed on the chastity of unmarried girls and young women does not mean that premarital intercourse is uncommon. Approximately 40 percent of the women in the sample began sexual activity before marriage. The vast majority of these women, however, married soon after first intercourse suggesting that intercourse is considered a prelude to marriage. Girls' desire to avoid or delay sexual activity before marriage stems not only from a desire to avoid an unwanted pregnancy but also the desire to protect their reputation and preserve their marriage prospects.

Secondary and higher education may also instill in adolescent girls the confidence to be more assertive in their relations with adolescent boys, and better prepare them to repel the sexual advances of boy friends and avoid situations that have the potential to lead to coercive sex. In a recent study of sexual initiation among youth in Addis Ababa, Fekadu (2001) reports that close to three-quarters of the girls interviewed felt they had little control over the sexual advances made by male partners and 31 percent reported that rape was the reason for their first sexual intercourse. In another study of youth in Addis Ababa, Taffa et al. (2002a) report that close to one-quarter of the girls interviewed reported that forced sex or rape was the reason for first sex.

While these studies do not report the relationship between girls' education and coercive sex, the negative relationship that we find between education and premarital intercourse suggests that more educated girls may be better equipped to protect themselves against unwanted sexual intercourse.

Our results are consistent with Meeker's (1994a) observation that a rise in premarital sexual intercourse does not require nor necessarily signal the deterioration of social controls on adolescent sexual behavior: it can occur simply through increased exposure to the risk of premarital sex brought about by a delay in marriage. The Ethiopian experience has important implications for how we think about the role of education in transforming adolescent sexual behavior. The emphasis on the individual in Western education may very well encourage young people to question the value of traditional norms that regulate premarital sexual behavior. However, *a priori* there is no compelling reason to expect that young men will become more accepting of prior sexual experience in a prospective wife, particularly if it is customary for unmarried adolescent males to access sex through prostitution. The risk of HIV/AIDS may even reinforce the value placed on the sexual chastity of a prospective wife. The maintenance of the double standard in men and women's premarital sexual behavior is derived in part from the disadvantaged position of women in the marriage process. In Ethiopia, a woman's future depends more on who she marries than is the case for men. While education provides women a degree of economic independence, social recognition and status is still derived from marriage.

The Ethiopian experience points to the close inter-relationship between family formation behaviors and systems of social stratification. Ethnographic research sets the study of demographic behavior in the larger system of economic rewards, prestige, and social honor. Too often survey based demographic research has neglected these key aspects of communities and societies. The implications of this research is that it is not simply enough to look at a woman's own characteristics (school enrollment, education, labor force participation and earnings) and the improved opportunities available to urban residents to understand women's family formation experiences. Modernization theories and ideas of economic maximization are attractive in the current intellectual climate, and evidence from other parts of sub-Saharan Africa supports the centrality of these ideas. But women's own education and earning power tell much of the story of changes in marriage age and premarital sexual activities and childbearing only in situations in which the prestige and financial security of young women depend on their natal family or on their own actions. In situations where successful marriage remains the only practical avenue to social recognition, economic security, and social honor available to women, education discourages early premarital sexual activity by increasing what women have to lose from having their reputation and therefore their marriage prospects damaged. Women who are enrolled in school and with greater education use their personal and natal family resources to delay marriage and childbearing, and only engage in premarital sex once their marriage is assured.

These observations about family change in Ethiopia have particular importance to the study of family formation in the nations of northern Africa and northern sub-Saharan Africa as well as in many of the nations of Central and West Asia where marriage is central to the definition of a satisfactory and secure adult life. In spite of, or perhaps because of, the contractual and arranged nature of marriage in Ethiopia, marriages tend to be unstable and adultery is common among both men and women once marriage occurs and childbearing begins (Fafchamps and Quisumbing 2005b; Giel and Luijk 1968; Pankhurst 1992; Weissleder 1974). When husbands divorce their wives, the women typically are able to re-secure their social and economic standing through remarriage (albeit to a less desirable marriage partner). Men similarly tend to remarry soon after a divorce leading to a pattern of serial marriages. In other societies that value virginity and also are concerned with the sanctity of the marriage bond for women, marriage will have even greater centrality in women's lives. In those situations we anticipate that the effects of education, labor force participation, and urban residence will be even greater than observed for Ethiopia.

References

- Agyei, W.K.A., R.B. Biritwum, A.G. Ashitey and R.B. Hill. 2000. "Sexual Behaviour and Contraception among Unmarried Adolescents and Young Adults in Greater Accra and Eastern Regions of Ghana." *Journal of Biosocial Science* 32:495-512.
- Blanc, A.K. and A.A. Way. 1998. "Sexual Behavior and Contraceptive Knowledge and Use among Adolescents in Developing Countries." *Studies in Family Planning* 29(2):106-116.
- Blanc, A.K. and S. Grey. 2002. "Greater than Expected Fertility Decline in Ghana: Untangling a Puzzle." *Journal of Biosocial Science* 34:475-495.
- Blanc, A.K. and N. Rutenberg. 1990. "Assessment of the quality of data on age at first intercourse, age at first marriage, and age at first birth in the Demographic and Health Surveys." Pp. 41-79 in *An Assessment of DHS-I Data Quality*. DHS Methodological Reports, No. 1. Columbia, Md.: Macro Systems Inc.
- Bledsoe, C. and B. Cohen. 1993. *Social Dynamics of Adolescent Fertility in Sub-Saharan Africa*. Washington D.C.: National Academy Press.
- Caldwell, J.C., P. H. Reggy, and P. Caldwell. 1982. "The causes of demographic change in rural South India: A micro approach." *Population and Development Review* 8(3):689-727.
- Calvès, A.E. 1999. "Marginalization of African single mothers in the marriage market: Evidence from Cameroon." *Population Studies* 53:291-301.
- CSA [Central Statistical Authority, Ethiopia]. 1998. *The 1994 Population and Housing Census of Ethiopia, Results at Country Level, Summary Report*. Addis Ababa, Ethiopia: Central Statistical Authority.
- CSA [Central Statistical Authority, Ethiopia and ORC Macro]. 2001. *Ethiopia Demographic and Health Survey 2000*. Addis Ababa, Ethiopia and Calverton, Maryland: Central Statistical Authority and ORC Macro.
- Cherlin, A. and N. Riley. 1986. "Adolescent fertility: An emerging issue in sub-Saharan Africa." PHN Technical Note 86-23, The World Bank, Washington, D.C.
- Dagne, H.G. 1994. "Early Marriage in Northern Ethiopia." *Reproductive Health Matters* 4:35-38.
- Degefe, B. and B. Nega (eds.). 1999. *Annual Report on the Ethiopian Economy Volume I 1999/2000*. Addis Ababa, Ethiopia: Ethiopian Economic Association.
- Duncan, M.E., L. Mehari, G. Tibaux, and A. Pelzer. 1993. "Social Aspects of Obstetrics and Gynecology." Pp. 307-318 in H. Kloos and Z.A. Zein (eds.), *The Ecology of Health and Disease in Ethiopia*. Boulder: Westview Press.
- Fafchamps, M. and A. Quisumbing. 2002. "Control and Ownership of Assets Within Rural Ethiopian Households." *The Journal of Development Studies* 38(6):47-82.
- Fafchamps, M. and A. Quisumbing. 2005a. "Assets at marriage in rural Ethiopia." *Journal of Development Economics* 77:1-25.
- Fafchamps, M. and A.R. Quisumbing. 2005b. "Marriage, Bequest, and Assortative Matching in Rural Ethiopia." *Economic Development and Cultural Change* 53:347-380.
- Fekadu, Z. 2001. "Casual sex-debuts among female adolescents in Addis Ababa, Ethiopia." *The Ethiopian Journal of Health Development* 15(2):109-116.
- Feleke, W. and H. Kloos. 1993. "Sexually Transmitted Diseases." Pp.295-306 in H. Kloos and Z. A. Zein (eds.), *The Ecology of Health and Disease in Ethiopia*. Boulder: Westview Press.
- Gage-Brandon, A.J. and D. Meekers. 1993. "Sex, Contraception and Childbearing before Marriage in Sub-Saharan Africa." *International Family Planning Perspectives* 19(1):14-18.
- Giel, R. and J.N. van Luijk. 1968. "Patterns of Marriage in a Roadside Town in South-Western Ethiopia." *Journal of Ethiopian Studies* VI(2): 61-69.
- Gueye, M, S. Castle, and M.K. Konaté. 2001. "Timing of First Intercourse among Malian Adolescents: Implications for Contraceptive Use." *International Family Planning Perspectives* 27(2):56-70.
- Holcomb, B.K. 1973. "Oromo Marriage in Wälläga Province, Ethiopia." *Journal of Ethiopian Studies* 11(1):107-142.

- Ikamari, L.D.E. 2005. "The effect of education on the timing of marriage in Kenya." *Demographic Research* 12(1):1-27.
- Jejeebhoy, S.J. 1995. *Women's Education, Autonomy, and Reproductive Behavior: Experience from Developing Countries*. Oxford: Clarendon Press.
- Kaufman, G.L. and D. Meekers. 1998. "The impact of women's socioeconomic position on marriage patterns in sub-Saharan Africa." *Journal of Comparative Family Studies* 29(1):101-114.
- Kebede, D. et al. 2005. "Khat and alcohol use and risky sex behaviour among in-school and out-of-school youth in Ethiopia." *BMC Public Health* 5:109.
- Kinfu Y. 2000. "Below-replacement Fertility in Tropical Africa? Some Evidence from Addis Ababa." *Journal of Population Research* 17(1):63-82.
- Lesthaeghe, R.J., G. Kaufmann, and D. Meekers. 1989. "The nuptiality regimes in sub-Saharan Africa." Pp. 238-337 in R.J. Lesthaeghe (ed.), *Reproduction and Social Organization in Sub-Saharan Africa*. Berkeley: University of California Press.
- Levine, D.N. 1974 [2000]. *Greater Ethiopia: The Evolution of a Multiethnic Society (Second Edition)*. Chicago: The University of Chicago Press.
- Lindstrom, D.P. and C. Brambila-Paz. 2001. "Alternative Theories of the Relationship of Schooling and Work to Family Formation: The Mexican Paradox." *Social Biology* 48(3-4):278-297.
- Lindstrom D.P. and Z. Woubalem. 2003. "The Demographic Components of Fertility Decline in Addis Ababa, Ethiopia: A Decomposition Analysis." *Genus*. 2003; LIX(3-4).
- Meekers, D. 1994a. "Sexual Initiation and Premarital Childbearing in Sub-Saharan Africa." *Population Studies* 48:47-64.
- Meekers, D. 1994b. "Education and adolescent fertility in Sub-Saharan Africa." *International Review of Modern Sociology* 24(1):1-24.
- Meekers, D. 1995. "Freedom of Partner Choice in Togo." *Journal of Comparative Family Studies* 26(2):163-178.
- Meekers, D. and G. Ahmed. 2000. "Contemporary Patterns of Adolescent Sexuality in Urban Botswana." *Journal of Biosocial Science* 32:467-485.
- Mensch, B.S., W.H. Clark, C.B. Lloyd, and A.S. Erulkar. 2001. "Premarital Sex, Schoolgirl Pregnancy, and School Quality in Rural Kenya." *Studies in Family Planning* 32(4):285-301.
- Pankhurst, H. 1992. *Gender, Development and Identity: An Ethiopian Study*. London: Zed Books.
- Reminick, R.A. 1976. "The symbolic significance of ceremonial defloration among the Amhara of Ethiopia." *American Ethnologist* 3(4):751-763.
- Rwenge, M. 2000. "Sexual Risk Behaviors among Young People in Bamenda, Cameroon." *International Family Planning Perspectives* 26(3):118-130.
- Shell-Duncan, B. and M. Wimmer. 1999. "Premarital Childbearing in Northwest Kenya: Challenging the Concept of Illegitimacy." *Social Biology* 46(1-2):47-61.
- Sibanda, A., Z. Woubalem, D.P. Hogan, and D.P. Lindstrom. 2003. "The Proximate Determinants of the Decline to Below Replacement Fertility in Addis Ababa, Ethiopia." *Studies in Family Planning* 34(1):1-7.
- Singh, S., D. Wulf, R. Samara, and Y.P. Cuca. 2000. "Gender Differences in the Timing of First Intercourse: Data from 14 Countries." *International Family Planning Perspectives* 26(1):21-28.
- Taffa, N., G. Bjune, J. Sundby, P. Gaustad and A. Alestrøm. 2002a. "Prevalence of Gonococcal and Chlamydial Infections and Sexual Risk Behavior Among Youth in Addis Ababa, Ethiopia." *Sexually Transmitted Diseases* 29(12):828-833.
- Taffa, N., J. Sundby, C. Holm-Hansen, G. Bjune. 2002b. "HIV prevalence and socio-cultural contexts of sexuality among youth in Addis Ababa, Ethiopia." *Ethiopia Journal of Health Development* 16(2):139-145.
- Tilson, D. and U. Larsen. 2000. "Divorce in Ethiopia: The Impact of Early Marriage and Childlessness." *Journal of Biosocial Science* 32:355-372.
- Weissleder, W. 1974. "Amhara Marriage: The Stability of Divorce." *The Canadian Review of Sociology and Anthropology* 11(1):67-85.

- Yabiku, S.T. 2005. "The effect of non-family experiences on age of marriage in a setting of rapid social change." *Population Studies* 59(3):339-354.
- Zabin, L.S. and K. Kiragu. 1998. "The health consequences of adolescent sexual fertility behaviour in sub-Saharan Africa." *Studies in Family Planning* 29(2):210-232.

The *Partnership in Improving Reproductive Health Background Reports* present findings from work in progress on the dimensions and determinants of fertility and reproductive health in Ethiopia. This work is being conducted by faculty and advanced graduate students at the following institutions:

POPULATION STUDIES AND TRAINING CENTER • BROWN UNIVERSITY • USA
Box 1836 • Providence, RI 02912 • USA

INSTITUTE OF PUBLIC HEALTH • FLORIDA A&M UNIVERSITY • USA

DEPARTMENT OF POPULATION AND FAMILY HEALTH • JIMMA UNIVERSITY
Jimma, Ethiopia

Funding for this research and the *Background Reports* is provided by a grant from the David and Lucile Packard Foundation, the Compton Foundation, and the Andrew W. Mellon Foundation.