

SOCIAL IDENTITY AND COMMUNITY EFFECTS ON EMERGENT BIRTH LIMITATIONS IN SOUTHERN ETHIOPIA

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INTRODUCTION

This study grows out of a long line of research on ethnic differences in fertility in developed and developing countries. Especially at issue is whether ethnic groups that are in the minority maintain higher-than-expected fertility given their patterns of residence and sociodemographic characteristics. In many developing nations, the focus has been less on diversity in ethnic identity than on the way in which particular traditional religious or ethnic cultural beliefs and practices affect the role of women and reproduction. The current study suggests that in these situations cultural identity moderates the fertility limitation associated with community development and opportunities for women.

This research is unique in its focus on a nation, Ethiopia, that is synonymous with ethnic, linguistic, and religious diversity (Library of Congress 2002). No group is ascendant in all areas of the nation; the ethnic groups are mixed residentially in some communities and are segregated in others. While all observers agree that the unique personal identities that result from this diversity are fundamental elements of social organization, attitudes, and behaviors, there has been no systematic treatment of these issues. This is in some part due to the political sensitivity of such studies and their potential results.

As in many African counties, ethnic groups in Ethiopia have been quite distinct for a long time. This long period of exclusiveness, compounded by ethnic competition for political power, has resulted in increased intensity of ethnic affiliation (Library of Congress 2002). Ethnic commitments in Ethiopia intensified after the new government came to power in May 1991. Since then an increasing number of ethnic-based political parties have been formed and new federal regions have

been demarcated along ethnic lines. This in turn has led to a greater ethnic sentiment and increasing variety in its social institutions; and the issue of numerical strength has gained salience, especially among minority ethnic groups.

Given this increasing pattern of ethnic intensity, any differences in fertility and fertility-related behaviors will have important social, economic, and political consequences for the future of the nation. This research is designed to overcome an important gap in social science research on social identity and its relationships to population dynamics, specifically to measures of fertility limitation among individual women. The population of Ethiopia is at a very early stage in the transition to low fertility. The three measures of emergent birth limitation we examine are whether a woman (a) gives a numeric response to a question about the number of children she sees as ideal (instead of saying it is up to God or fate), (b) knows one or more modern (i.e., nontraditional) contraceptive methods, and (c) has past or current use of contraceptives, or intends to use a contraceptive in the future.

This will be accomplished through the following analytic goals:

1. Measure the direct effects of social identity (ethnic, religious and language), personal and household characteristics on fertility limitation.
2. Measure the effects of community economic opportunities, infrastructure, community crisis, and community development strategies on fertility limitation, net of social identity, personal, and household characteristics.
3. Determine the extent to which social identity moderates the fertility limitation response to community economic opportunities, infrastructure, crisis, and development strategies.

This paper is organized into six sections. The next section provides a short description of the Southern Nations, Nationalities, and People's Region (SNNPR). Section three is a brief review of previous studies on ethnic and religious fertility differentials and discusses their applicability in the Ethiopian context. In section four, we present our data source and operational definitions of variables, and discuss data quality and methods of analysis. Section five presents the findings of the study in three subsections which: describe the sample population; explore how individual, family and community characteristics differ among the ethnoreligious groups; investigate variations by

social identity in fertility limitation, controlling for individual, family and community characteristics; and test for differences in the fertility limitation responses to community variables by ethnoreligious status. Finally, in section six, we summarize the main findings of the study, make conclusions, and provide some policy recommendations.

THE SETTING

The SNNPR is one of the ten federal regions of Ethiopia (see Figure 1). It has a land area of 117,506 square kilometers and a population of 11.1 million in mid-1997. Made up of poor farming villages, the region accounts for over one-tenth of Ethiopia's land area, and about one-fifth of its national population. Although the SNNPR has the highest population density in the country with 95 persons per square kilometer, it is one of the least urbanized regions of Ethiopia. In 1997, less than 7 % of its population was living in urban areas; the largest city and the regional capital, Awassa, has a population of 69,000. This densely populated region is also characterized by high infant and child mortality, a high level of fertility, and an extremely low level of contraceptive use. As of 1997, the region exhibits an infant mortality rate (IMR) of 102 deaths for every 1,000 live births, and a total fertility rate (TFR) of 6.8 children per woman (CSA, 1996).

The SNNPR is an extremely diverse region of Ethiopia in terms of ethnicity, inhabited by more than 80 ethnic groups, of which over 45 (or 56 %) are indigenous to the region (CSA 1996). These ethnic groups are distinguished by different languages, cultures, and socioeconomic organizations.

Although none of the indigenous ethnic groups dominates the ethnic makeup of the national population, there is a considerable ethnic imbalance within the region. The largest ethnic groups in the SNNPR are the Sidama (17.6 %), Wolaita (11.7 %), Gurage (8.8 %), Hadiya (8.4 %), Selite (7.1 %), Gamo (6.7 %), Keffa (5.3 %), Gedeo (4.4 %), and Kembata (4.3 %). While the Sidama are the largest ethnic group in the region, each ethnic group is numerically dominant in its respective administrative zone, and there are large minority ethnic groups in each zone.

The SNNPR is also diverse in terms of its religious composition, and differs from other regions due to its experience with strong Protestant missionary activity. There are five major religions: Orthodox Christianity, Roman Catholicism, Protestantism, Islam, and Traditional (non-

monotheistic). Protestants form the largest religious group, accounting for about 35 percent of the population. Protestant denominations include the Fellowship of Evangelical Believers (Ethiopian branch of the Sudan Interior Mission), Evangelical Church Mekane Yesus (Scandinavian, German and American Lutheran roots), Bethel Evangelical Church (sponsored by American United Presbyterian Church), and Seventh-Day Adventist. The Orthodox Christians and Muslims constitute the second and third largest religious groups in the region, comprising 28 and 17 percent of its population, respectively. The Orthodox Christian religion is rooted in the writings of St. Mark, and combines elements of belief in a Trinitarian God with non-Christian traditional beliefs. Weekly religious services are only a small part of being an Orthodox Christian. Several holy days require prolonged services, singing and dancing, and feasting. One of the most important religious requirements is the keeping of 165 fasting days per year, when meat, dairy products, alcohol, and sexual relations are prohibited. Islam came to Ethiopia at the time of Mohammed. Ethiopian Muslims are orthodox Sunni. While Muslims in Ethiopia recognize that they are subject to Ethiopian law, local matters involving individuals or families often are settled in *Shia* courts. Over 15 percent of the population of the SNNPR adheres to traditional beliefs or has no organized religion. These beliefs are diverse in their specifics but commonly include the existence of a remote God identified with the sky, and best addressed through spirits. These spirit beliefs closely resemble the spirit elements of Christian and Muslim believers. Other religions (Behais, Jehovahs, Jews, etc.) are but an insignificant minority, barely 2.5 percent.

Regardless of religious affiliation, all but the most educated clerics and laity believe in the existence of active spirits (*adbar*); and Ethiopians worry about the evil eye (*buda*). The *adbar* spirits is believed to protect the community rather than the individual or family. The female *adbar* is thought to protect the community from disease, misfortune, and poverty, while the male *adbar* is said to prevent fighting, feuds, and war and to bring good harvests. People normally pay tribute to the *adbars* in the form of honey, grains, and butter. This emphasis on the social and behavioral aspects of religious identity and shared interests in spirits reduces somewhat doctrinal differences which are so problematic in many other nations (Library of Congress 2002).

The languages spoken in the SNNPR can be classified into four linguistic families: Kushitic, Nilotic, Omotic, and Semitic. The majority of the ethnic groups in the region are from the families of Kushitic and Omotic languages, and ethnic groups belonging to the Nilotic language family are

mostly in the minority. Among the largest ethnic groups, the Gamo, Goffa, and Wolaita are members of the Omotic linguistic family. While the Hadiya, Kembata, Sidama, and Oromo are from the Kushitic linguistic group, the Gurage and Amhara belong to the Semitic language family (BOPED 1996).

The extreme ethnic, religious, and linguistic diversity of the population makes the SNNPR an ideal setting in which to explore ethnic and religious identities of individuals, and how these sources of identity influence fertility behavior. The various ethnic and religious groups intersect and differ in a variety of ways, producing distinctive patterns of individual identity. Some communities are relatively homogeneous with others being quite diverse. It is a fundamental belief of nearly all providers of reproductive health services and most researchers that this extreme level of heterogeneity produces uniquely diverse cultures in which there are great difficulties in promoting fertility limitation and contraceptive use.

Ethnographic community studies are better suited to the description of commonalities than they are to description of diversity within communities and rarely provide information on heterogeneity among villages. Demographic microsurvey data on individuals in multiple communities are well suited to addressing the question of the influence of identity and community on reproductive outcomes.

This study of social identity and fertility in the SNNPR is useful for the information it can provide about reproductive-related behaviors in a diverse but neglected African population. It also serves as a useful case study, providing insights into the new patterns of African population dynamics that emerge in multiple crises and are characterized by ethnic and religious diversity. The results of this study can also be helpful in the formulation and implementation of population programs that are better suited to the conditions affecting the fertility and contraceptive behavior of different ethnoreligious groups.

PREVIOUS RESEARCH

The roles of ethnicity and religion as determinants of fertility have been the subject of considerable discussion in the fertility literature in both developed and developing countries. Although no consensus has been reached on the mechanisms through which ethnicity and religion affect fertility,

three major explanations dominate the literature. These are the assimilation (or characteristics) hypothesis, minority-group status hypothesis, and cultural hypothesis (Goldscheider and Uhlenberg 1969; Ritchey 1975; Jiobu and Marshall 1977; Mosher and Hendershot 1984; Mosher and Goldscheider 1984; Mosher et al. 1986; Stephen et al. 1988; Kollehlon 1989; Pick et al. 1989; Forste and Tienda 1996).

The first explanation, the assimilation hypothesis, suggests that differences in reproductive outcomes between majority and minority ethnic or religious groups are due to differences in socioeconomic and demographic factors. To put it simply, the effect of ethnic or religious group membership is spurious (because ethnic/religious group membership is correlated with socioeconomic and demographic factors known to affect reproductive behavior) or indirect (because membership in an ethnic/religious group may affect the socioeconomic and demographic factors). This suggests that once compositional differences are controlled, differentials in fertility outcomes will disappear.

The second hypothesis, the minority-group status hypothesis, admits the relevance of socioeconomic and demographic factors in explaining differences in reproductive-related outcomes between the majority and minority groups, but asserts that minority-group status exerts an independent influence on fertility behavior. This hypothesis states that the fertility of the minority group will be lower (or the use of contraceptives will be higher) than that of the majority group if certain conditions are met. These conditions include: the minority group must have similar socioeconomic and demographic attributes as the majority group; the group must not have pronatalist norms, instead desiring to acculturate the values of the majority group; and the minority group must have aspirations for upward mobility with no feelings of insecurity and marginality. When these conditions are not met, the minority group will have higher fertility (or lower contraceptive use) than the majority group. The Ethiopian setting is one in which minority status is expected to be associated with higher fertility. We believe this situation will be strongest for Moslems and Orthodox Christians (who are most resistant to fertility limitations) when they live in minority situations.

The third explanation, the cultural hypothesis, postulates that ethnic/religious group differentials in reproductive-related behavior may be due to differences in norms, values, and attitudes toward

fertility-related behavior among ethnic/religious groups. Distinctive aspects of cultures or norms about fertility and fertility control may produce distinct patterns of fertility outcomes among different ethnic/religious groups. Hill (1985), in his study in Mali, also noted that the diverse lifestyles of ethnic groups in many African countries may lead to divergent patterns of fertility behavior even though they live in comparable physical settings. We believe that an important, but overlooked way in which ethnoreligious groups resist fertility limitation involves an interaction between culture and community. In situations in which community factors promote birth limitation, cultural norms against fertility limitation will hinder women's attempts to limit fertility (Calvin Goldscheider, personal communication).

One common limitation of the above three hypotheses is the assumption that institutional factors affecting fertility behavior (such as family planning services and government policies) are equally available to, or affect equally, members of different ethnic/religious groups. Their implicit assumption is that what determines differences in fertility behavior between minority and majority groups is individuals' orientation toward family size and contraceptive use, but not the institutional contexts in which reproductive behavior takes place. To overcome this drawback, recent studies have emphasized the role of community characteristics and government policies in understanding ethnic and religious differentials in fertility (Murty and De Vos 1984; Govindasamy and DaVanzo 1992; Forste and Tienda 1996).

These studies contend that, while minority-group status and socioeconomic and cultural factors undoubtedly play important roles in accounting for ethnic or religious differentials in fertility, such differentials must also be caused by community characteristics and government policies and programs. Murty and De Vos (1984), for example, argue that ethnic discrimination in the provision of family planning services, or discomfort in discussing sensitive topics such as reproduction with someone outside of one's ethnic group, or language barrier could explain ethnic differences in fertility and contraceptive use.

Others attribute ethnic and religious differentials in fertility-related behaviors to varying ethnic/religious groups' responses to broad-based government policies and programs (Govindasamy and DaVanzo 1992). It is argued that ethnocentric practices in developing countries, such as the channeling of scarce public resources to areas where members of dominant elites are concentrated,

subsequently creates social inequality by benefiting members of some ethnic groups more than others. This in turn leads to demographic diversity among ethnic and religious groups.

Another limitation of previous studies of ethnic and religious fertility differentials is that they all consider ethnicity and religion as two distinct attributes. We describe later our research on the SNNPR which shows that neither ethnicity and religion, nor language group by itself is an adequate specification of an individual's social identity. Rather social identity is determined by the combinations of these statuses.

The third, but most important, limitation of previous demographic research is the little emphasis given to community ethnic or religious diversity in understanding ethnic/religious fertility differentials. We argue that, drawing upon the sociological tradition, human reproduction occurs in and is influenced by a social context, a context in which diversity is an important element. While family-planning services and other structural community characteristics are important, community diversity may also manifest itself as a variety of potential effects that shape reproductive behaviors. For example, as is often the case in many African countries, diversity brings a very difficult problem of social identity. Each identity group may feel that its safety lies in its size and proportion. This anxiety over numbers is an obstacle for efforts to reduce fertility levels or increase the provision of family planning services (Pai Panandiker and Umashankar 1994).

In addition, demographic studies of innovation and diffusion have shown that communities serve as social networks through which information and new ideas flow (Bongaarts and Watkins 1996; Montgomery and Casterline 1996). These studies further indicated that characteristics of networks are relevant for the diffusion of new ideas and information about smaller family size and contraceptive use. Research in Kenya, for example, has revealed that personal networks in which fertility preferences and family planning were discussed were relatively homogeneous (Bongaarts and Watkins 1996). In the United States, in contrast, Granovetter (1974) found that information about job opportunities was less readily available in socially homogeneous groups than in heterogeneous groups. Similarly, Bott (1971) indicated that homogeneous networks permitted less autonomy for innovative behavior with regard to the division of household labor by gender.

Extending these ideas to fertility change, one can argue that, depending on socioeconomic and cultural contexts, community diversity may either inhibit fertility change, or serve to promote the diffusion of new ideas and information about fertility limitation and contraception. While we cannot *a priori* predict the direction of the probable effects, we expect community diversity to have important influences on the fertility and fertility-related behaviors of women in the SNNPR.

In this paper, we consider the usefulness of the assimilation, minority-group status, and norms hypotheses for understanding the patterns of reproductive-related behaviors within the SNNPR context. We also consider the role of community diversity and service availability, as well that of marital homogamy, in explaining the fertility limitation of women in the SNNPR. We ask whether different ethnoreligious groups, majority and minority groups, endogamous and exogamous women, and diverse and homogeneous communities are likely to have different patterns of reproductive behaviors. We believe, however, that testing the minority-group status hypothesis with the type of data we have, and within the socioeconomic context of the SNNPR, is difficult. We use this hypothesis as a theoretical guide to examine whether membership in a dominant group in a local community has any impact on the reproductive behavior of women.

DATA AND METHODS

The Data

The data used in this study come from the Community and Family Survey (CFS) conducted in May 1997. The CFS, a representative survey covering SNNPR, was a collaborative project of the Demographic Training and Research Center (DTRC) of Addis Ababa University and the Population Studies and Training Center (PSTC) of Brown University (DTRC/PSTC 1998).

The CFS was a stratified probability sample of women aged 15–49. Households were identified using a three-stage cluster sampling procedure. Five major zones in the region were first selected. These zones represent about 80 % of the population of the SNNPR. The remaining 20 % live in extremely remote mountainous and lowland areas (See Figure 1). Even in the sample areas included in the study the peasant associations sometimes required a full day walk or travel by draft animals.

The five selected zones were stratified into rural and urban areas. In the rural stratum, one highland and one lowland *wereda* (a unit roughly similar to a New England township) were selected at random from each zone to capture agricultural ecology niches. The urban sample is representative of the selected zones as a whole. Places are designated as urban based on their legal status as local government centers. Often these are small agricultural towns. The only major town in the SNNPR is Awassa which is site of 4 of the 9 urban areas. Twenty-nine communities (20 rural villages and 9 urban areas) were selected at random for the survey. Nearly all eligible women in the selected households were successfully interviewed, resulting in a final sample of 2,550 women aged 15–49 (DTRC/PSTC 1998).

This 1997 microlevel survey gathered a wealth of information on the marital and fertility behaviors of women aged 15–49, and on their family and community situations. Information was also collected on the household situation (from heads of households), and the community (from knowledgeable community leaders). We use data for 1,250 currently married women in their first marriage who are ages 20–49 and married to the household head. We include women who are ages 20 and older because of selection biases on marriage for younger women. Marriage and reproductive outcomes were collected from the individual respondent. Information on the ethnic origin, religion, and religious devotion of these women and their husbands was obtained from the household record as reported by the household head.

An assessment of the data collected in the 1997 CFS showed that the data are of good quality. The response rate for household interviews was 95 %; for individual interviews it was almost 100% (DTRC/PSTC 1998). Previous analysis of information collected in the 1997 CFS also revealed no serious biases, misreporting, missing cases, or out-of-range values (Hogan et. al. 1999). The quality of the data is especially good for survey work done in an African context. We attribute this to the use of local people as field supervisors who (using a letter from the regional governor) gained access to communities and the cooperation of the village heads. Interviewers for the women’s survey were women from the local areas; most had a high school education. Interviewers and supervisors were trained for five full days, and then carefully monitored and supervised in the field. All interviews used one of five local languages or Amharic, as the respondent preferred. This differs from most national surveys which use Amharic-speaking interviewers questioning the respondent

through a translator. We believe choosing interviewers of the same linguistic and ethnic group as the respondents greatly facilitated the field work and substantially improved the quality of data.

Measuring Ethnic and Religious Identities

We develop our measures of ethnic and religious identity on the basis of earlier work by Hogan and Berhanu (2003). They used the religious, ethnic, and linguistic data from the CFS to calculate indices of dissimilarities and other measures of the social distances of groups to identify twenty-two ethnoreligious groups (that is, groups defined by both ethnicity and religion of the women). The strongest evidence of the appropriateness of defining social identity on the basis of these three dimensions of identity is the persistently high degree of marital homogamy (90 % and above) observed. While the level of homogamy tended to be smaller for groups that were not majorities in their communities, the relationship was by no means perfect (e.g., Catholics/Other Christians in Sidama and Kembata/Timbaro had a 97 % rate of self-selection, even though almost all of that population lived in communities in which they were not the dominant group). Hogan and Berhanu successfully used these 22 distinct social identities to examine fertility and family planning behavior. They largely ignored the role of community characteristics, and calculated no interactions (due largely to sample size considerations for all but the largest groups). In order to be able to include a more complete set of personal, family, and community characteristics in our models as controls, and to measure interactions between social identity and community characteristics in fertility limitation, we distinguish a reduced set of nine ethnic-religious identities.

Ethnic Identity. The ethnic identity of the respondent and her husband was determined from the response of the household head to the following question: “To what ethnic group does [name] belong?” Although the CFS identified 52 ethnic groups in the study area, we consider only seven major ethnic groups (Sidama, Hadiya, Wolaita, Kambata, Gurage, Silte) and the remaining were lumped together to form “Other” ethnic groups. This was done to maintain a reasonable number of women in each ethnic category.

Mother Tongue. The CFS asked each ever-married woman whether she and her first husband had the same mother tongue (language) before they got married. If the answer was no, then she was further asked whose language she and her husband speak in their home.

Religious Identity. The religious identity of the respondent and her husband was determined from the response of the household head report to the question “What is [name’s] religious denomination?” The responses to this question were divided into three religious groups: (1) Christian (Coptic Orthodox, Catholic, and Protestant), (2) Moslem, (3) Traditional/others (i.e., persons without religious identification or those who adhere to traditional beliefs, B’hai, Jehovah’s Witnesses, Jews, etc). The CFS also asked each ever-married woman whether she and her first husband had the same religion before they got married. If the answer was no, she was further asked whose religion she practiced after marrying her first husband. We use this information to determine whether the respondent and her husband had different religions before her marriage.

Ethnoreligious Identity. We use ethnic and religious identities of women and their husbands to identify their ethnoreligious groups. Theoretically, there are 21 (7 x 3) possible combinations of ethnic and religious identities. However, to maintain a reasonable number of cases in each cell, we consider only 9 distinct, but bounded ethnoreligious groups. This was made possible by regrouping the various ethnic groups into the same ethnic-religious category. These nine social identity groups are Christian-Sidama, Christian-Hadiya, Christian-Wolaita, Christian-Kambata, Christian-Gurage, Christian-Others, Muslim-Silte, Muslim-Others, and Traditional-any. Most of our discussions and interpretations of the results apply to these ethnoreligious groups.

Community Measures

We use ten measures to explore the effects of community on birth limitation variables of women. The CFS collected much more information about communities, community life, and community problems than is usual in demographic studies. In this study, "community" is defined as *kebele*, the smallest administrative unit in Ethiopia: the peasants’ association (PA) in rural areas and the urban dwellers’ association (UDA) in urban areas. As noted above, the CFS covered 29 kebeles (20 PAs and 9 UDAs) (DTRC/PSTC 1998). The dimensions of community life we examine are described below.

Ethnoreligious Majority Status in a Community. We defined a respondent woman as “ethnic majority,” “religious majority,” or “ethnoreligious majority” if her ethnic, religious, or ethnoreligious identity is the most common in her community. We distinguish women who are in

the majority on all three dimensions of identity from women who are in the minority on one or more dimensions.

Ethnoreligious Diversity. A major factor characterizing communities is ethnoreligious diversity. We determine whether a community is “homogeneous” or “diverse” using a measure of diversity called the “entropy index” (White 1986).

The entropy index is defined as:

$$H_i = - \sum_{k=1}^K P_{ik} \ln(P_{ik}),$$

where $i = 1$ to I ($I = 29$ is number of communities).

$$P_{ik} = N_{ik} / N_i$$

N_{ik} = number of persons in k^{th} ethnic or religious group in the i^{th} community,

N_i = total population size of the i^{th} community, and

K = total number of ethnic, religious, or ethnoreligious groups in the SNNPR.

The entropy index is not bounded from above. Since comparison is our main interest here, we normed this index by dividing by its maximum value, $\ln(K)$, where K is as defined above. The resulting index has a value that ranges between 0 and 1. Larger values of this index (close to 1) indicate ethnic or religious diversity in a community, whereas lower values of the index (close to 0) suggest homogeneity in ethnoreligious composition. To facilitate interpretations of results, we divide communities into three groups: diverse, intermediate, and homogeneous. Communities whose index values fall in the top and lower 25 % of the distribution are considered as diverse and homogeneous, respectively. Those whose values fall in the middle 50 % of the distribution are referred to as intermediate. For the purpose of multivariate analyses, we recode this variable into an ordinal scale as 0 = homogeneous, 1 = intermediate, and 2 = diverse.

Main occupation. On the basis of consensus of the key community informants during the focus group discussion as to the activities of the community population, two categories of main occupational activities are created: those whose population is reported to be ‘all or almost all’ in agricultural occupation, and those with other options. We hypothesize that communities in which there are nonagricultural occupations will have greater exposure to the world outside the village and

provide an environment in which families are more likely to emphasize smaller family size with greater human capital investment in women and children.

System of farmland distribution. This is the key community informants' consensus as to the major mechanisms or systems in which people in the community obtain access to farm land. In some communities there is predominance of inheritance while in other communities access to farm land depends on other mechanisms such as gift upon marriage, contract/lease, sharecropping/rent, government redistribution, and others.

Craft work activity. Craft production practices is purported to have a connection to emergent birth limitation behaviors, through its impact on the incomes of women. During the small focus group discussion the informants agreed as to the extent of craft work activities in their respective communities. Two categories are formed: those where such practices prevail, and those without it.

Epidemic outbreaks. Whether there has been any serious outbreak of infectious diseases in the locality which killed many children and adults since the change of government (1991). We expect that this problem could increase pronatalist tendencies, as the population tries to replace deceased family members which in turn reduce emergent birth limitation.

Water problem. This measures whether or not the community had any problem obtaining adequate water for drinking and cooking at certain times of a year. We expect that communities facing this problem will have a greater recognition of the need for fertility limitation. Alternatively, however, water shortage could reduce fertility limitation efforts if child labor is the primary mechanism to increase per capita water consumption.

Number of years of severe food shortage. Community informants also reported the number of years of severe food shortage faced since 1991. The response ranges from 0 (none) to 5 or more years. Given 'food-for-work' programs as the main channel of food aid provision during hunger and starvation, we expect that repeated episodes of food shortages increase the likelihood of emergent birth limitations.

Number of modern health services. We expect that quality health services have the potential to influence birth limitation attitudes or behaviors. The number of either static or mobile modern health services available to the community was identified by the key community informants. These include, among other factors, the measure of availability of contraceptive services and availability of family planning information or education. The number of services available ranges from 0 (none) to 22 (all services asked were available).

Community need. In response to the priority need of the community, several needs were listed by the key informants. For purpose of this paper we grouped the lists into two broad categories: investment in human capital (health care and schooling) and economic development (economic variables such as road, water points, electricity, credit, flour mills, etc). We expect that communities that emphasize the need for human capital investment will be more favorable for women's aspirations and more supportive of fertility limitation.

The use of community variables in the models means that the data include multiple women from the same *kebele*, and therefore that the observations are not independent. We have corrected this problem by adjusting the standard errors of the estimated coefficients for clustering effects using the Huber correction procedure in Stata (StataCorp 1999).

Measuring Outcomes

When women were asked their ideal number of children (as an open-ended item) they either responded with a number, or with the statement "it was up to God," "fate will decide" or some variant. We treat a numeric response as an indication that a woman thinks that the number of children she will have is subject to her control. The second measure used to drive the potential of fertility limitation is knowledge of one or more modern contraceptive methods. This measure indicates that a woman, if she decides to limit her fertility, has the knowledge needed to do so. Contraceptive prevalence rate is extremely low in the study area. Third, women interviewed in the CFS were asked: "Do you or your husband currently use any family planning method to avoid or delay getting pregnant?" In response, only 2 % of currently married women aged 15–49 answered yes (Hogan et al. 1999). Those not using a method were then asked: "Do you or your husband intend to use any family planning methods in the future?" About one-fifth of the

women responded affirmatively, indicating a predisposition toward future use. In Ethiopia, where use of modern contraceptive methods has just begun, we expect that effects of ethnoreligious group membership and community diversity on contraception are more likely to be expressed in receptivity toward future use rather than in use per se. Using this information, we construct a binary dependent variable “Contraceptive Use/ Plan.” This variable is coded as 1 if the respondent has used, is currently using, or intends to use in the future, and 0 if no use or planned use is indicated. While these may seem fairly low thresholds to measure the potential for fertility limitation, they are appropriate to the Southern Region of Ethiopia. This is a place where the transition to a low fertility regime has only barely begun.

We interpret numeric response, knowledge of any method, or current use/ future plan to use contraception as *favorable* conditions of fertility limitation. These conditions are strongly correlated. Controlling for any one of the three measures (ideal fertility, contraceptive knowledge, or use/plan to use), women who give a favorable response to any one of the other measures are nearly 2 times more likely to give favorable response to the third measure. Taking this into account, we derive the extent of individual woman’s *emergent birth limitation* in an ordinal scale by combining responses to the three measures. We defined this scale as: ‘*Very low*’ if a woman gave non-numeric response, knows no methods of contraception, and non-user or no intention of future use of contraception; ‘*low*’ if she gave only one of three favorable responses; ‘*high*’ if two favorable responses are given; and ‘*very high*’ if a she gave favorable responses in all the three questions. Accordingly, 13% of the study women fall in the ‘very high’ whereas 35% in the ‘very low’ order.

We include a variety of demographic and socioeconomic controls in the models (see Figure 2). These are selected based on their theoretical and empirical significance. Demographic research has clearly demonstrated that marriage is the principal determinant of fertility exposure in developing countries. Both the timing of first marriage and the age difference between spouses are important factors affecting the timing of childbearing, completed family size, fertility preferences, and contraceptive use (Casterline et al. 1986; Hogan et al. 1999). Household structure (immediately after marriage and currently) is important, with patrilocal residence leading to larger family sizes. The significance of the institution of polygyny for fertility and contraceptive use has also been shown by many studies. Polygyny is often

associated with women's low status and gender inequality within marriage, which in turn translates into high fertility patterns and low level of contraceptive use (Boye et al. 1991; Ezeh 1997). Similarly important are women's literacy and, as an actual measure of her autonomy, the wife's involvement in decision-making. Homogamy of the husband and wife is important in reinforcing the effects of social identity on emergent birth limitation. Finally, our model includes measures of the social and economic status of the household—the quality of the housing environment, household mean education, how the household head perceives their economic status relative to other households in the community. Each of these variables is associated, and in some cases, dependent on, women's ethnoreligious group. Definitions of all variables used in this analysis are provided in Figure 2. Table 1 provides means and standard deviations of these variables.

Methods of Analysis

We begin by describing the three components of fertility limitation measures (Table 2), establishing the relationship between social identity and emergent birth limitation (Table 3) and describing the demographic and socioeconomic characteristics of women and their households (Table 4). In Table 5 we identify the different community experiences of women by their social identity. Table 6 measures the effects of social identity on a emergent birth limitation, controlling for individual, household and community variables. The multivariate method we employ is the ordered logistic regression model. We estimate the likelihood of *very high*, *high*, *low* or *very low* emergent birth limitation, with these treated as four categories of a ranked outcome. In the table displayed, an odds ratio of 1.00 indicates that the independent variable has no effect. An odds ratio greater than 1.00 indicates an increased likelihood of emergent birth limitation relative to the likelihood of fertility limitation of the immediately lower category. An odds ratio less than 1.00 indicates a reduced likelihood of emergent birth limitation. Finally, we test for statistically significant interactions between social identity and the effects of the community variables on emergent birth limitation.

FINDINGS

Description of the Sample Population

The SNNPR is a poor, uneducated population at a very early stage of the fertility and mortality transitions. Less than 10 % of women and only one-quarter of husbands are literate. More than 95 % of these women were born and live in a rural community. Age at marriage is under age 15 for about one-fifth of all women, with more women marrying at ages 15–19. A majority of women marry men from the same village or town. Forty-one percent of the women have husbands who are ten or more years older. More than one-quarter of the women are in marriages in which the husband has at least one additional wife. The mean number of children ever born is 4.2, and more than one-third of the women have experienced one or more child deaths.

There is little recognition of fertility limitation, with almost two-thirds of women unable to name an ideal number of children they want to have, responding instead that their lifetime family size is “up to God.” Over one-half wanted another child soon, with most of the remainder desiring to space rather than limit their births. Only one-third of the women have access to family planning services from any source. Consistent with this, only 51 % of women know at least one method of family planning, and only 4 % of these currently married women were using a family planning method at the time of the study. However, there seems to be some interest in contraceptive use over the lifetime; over one-quarter of the women either have experience using contraceptives or indicated their intention to use family planning methods sometime in the future. When put together, only 13% of the women possessed all the three conditions favoring the potential for fertility limitation (numeric response, knowledge of contraception methods, and use/plan to use contraception) (Table 2). Nearly a quarter (23%) are the second potential group showing favorable condition in two of the indicators. The vast majority (35%) of the study women have the lowest emergent birth limitation, with negative answers to all three fertility limitation indicators. Marked variations are observed across the social identity groups (Table 3). Muslim Silte women show exceptionally low potential for fertility limitation. Five out of six of this group is either not using or planning to use contraception, know no contraceptive methods, and give a non-numeric family size. Christian Kambata, and Christian Gurage women are also the second and third largest groups who lack the desirable attributes for fertility limitation.

The broad social portraits considered in this paper differ greatly across social identities (Table 3). The Christian ethnic group, except Sidama, has characteristics most commonly associated with

fertility limitation—over a quarter of the women are literate, their marriages are relatively more likely to be heterogeneous in ethnicity, language or religion, about one out of three are involved in decision-making, and their families are fairly well off (fewer than 50% have low quality housing and 40% have adequate food). Muslim Silte and traditional religion followers, on the other hand, have almost no women who are literate or involved in decisions. At least 26% of Muslim ethnics and traditionalists are involved in a polygamous marriage, 60% have low quality housing, and about two-thirds are poor and lack adequate food. Other groups are between these extremes. Polygamy is somewhat less common among Muslims who are not Silte and one-quarter of their marriages are heterogamous.

The Christian groups differ considerably in the extent to which women are involved in decisions, level of polygamy, and economic situations. Christian Sidama has one of the largest levels of polygyny. Their households are poor, with 81% of houses being low quality and less than 10% having adequate food. In this regard, the Christian Sidama situation resembles the extreme poverty of the Muslims. In order to understand the extent to which social identity influences emergent birth limitation, it is essential that these various characteristics of women and their household be taken into account. We make no effort to determine if the relationships are spurious or mediating. The interrelationships (many rooted in government actions imposed on the population groups) are too complex to try to disentangle with these retrospective cross-sectional data.

The extent to which women in a community are in the majority ethnic, linguistic, and religious group and the extent to which their communities are heterogeneous vary greatly, between and within religious groups by ethnic classification (Table 4). Women who are Muslim are most likely to be in predominantly agricultural villages and least likely to be in villages with craft work. In combination with their low literacy and infrequent participation in decision-making, these women do not live in circumstances in which fertility limitation is likely. Community food shortage varies within Christian religion between ethnic groups, but about the same within Muslims. While only 6% of Christian Gurage are in villages that have had one or more years of severe food shortage, this percentage is higher than 90% among Christian Hadiya and Christian Kambata. Nearly 47% of Muslim Silte or other Muslims are in villages that have frequently experienced severe food shortages. Almost all Muslim Silte women live in communities affected by repeated outbreaks of epidemics. At least 80% of other Muslims, Christian Wolaita and traditionalist women are reported

to be residents of communities with critical water shortages. Christian Sidama and Muslim Silte women live in villages where roads, water projects and other programs for physical development dominate over the desire for programs to improve health, education, and employment opportunities. Christian Kambata puts a premium on human capital investment.

The ethnic-linguistic-religious affiliations that define women's social identity relate in complex ways to their personal, family, and community characteristics. It is not the case, as in many demographic studies of the developing world, that the Muslim women are always in the most unfavorable positions. The other Christian group consists largely of Orthodox Christians whose practices as Coptic resemble in many ways the Old Testament. And the Protestants are largely present as a result of missionary activity by fundamentalist groups. As seen in Table 2, only 17% of Muslims Silte provides one or more emergent birth limitations (numeric family size, knowledge of modern contraception, or use/future use of contraception) compared to 80% of Muslims others. Somewhat fewer Christians Sidam, Wolaita, and Christian others show very low potential for fertility limitation, compared to 46% of Christian Hadiya, 62% Christian Gurage, and 66% Christian Kambata. The Muslim Silte women are least likely to know of a contraceptive method whereas the Muslim other women are the most knowledgeable. Despite their sometimes greater knowledge, Muslim women are least likely to use or plan to use family planning. Thus, social identity is related in complex ways to emergent birth limitation in Southern Ethiopia, but the nature of these relationships cannot be fully understood unless associated characteristics of the women and the places they live are taken into account.

Multivariate Analysis

Net of controls for other personal, family and community variables, social identity has a straightforward relationship to emergent birth limitation. Net of other variables, women whose identity are Muslim Silte are substantially less likely to display emergent birth limitation (Table 6). In fact no social identity group considered in this study has as low emergent birth limitation as Muslim Silte. Christian Kambata and Christian Hadiya are the second group with less likelihood of birth limitation knowledge, attitude, and behaviors. Each is relatively better than Muslim Silte but significantly lower than three other social identity groups. The patterns for Christian Gurage, Muslim other, and Traditionalist are very alike. They are less likely to give numeric ideal fertility, know modern contraception, or use/plan to use contraception as compared to two social identities

but otherwise statistically indistinguishable from the remaining five identity groups. The fourth pattern is that of other Christians. They show significantly higher probability as compared to the three social identities (Christian Hadiya, Christian Kambata, and Muslim Silte), lower than two groups (Christian Sidama, Christian Wolaita) and indifferent from the remaining three groups. This study shows that Christian Sidama and Christian Wolaita are the two social identity groups with the highest potential for fertility limitations given individual, family, and community variations. They rate far above the remaining groups in terms of giving numeric responses to ideal fertility, knowledge of modern contraception and current use or future intentions of using of contraception.

Women who have the same social identities as their husbands are less likely to display emergent birth limitation. Women in communities with diverse social identities are 1.6 times as likely to give a numeric response to ideal family size, have knowledge of contraceptives, or currently use or intend to use contraception as compared to those women living in communities with relatively homogenous social identities. We find no evidence that indicates minority social identity directly affects emergent birth limitation. The importance of community diversity is consistent with the idea that women who have access to a wide range of views and information about emergent birth limitation are more likely to have responses favorable to that outcome.

Wives' literacy is not significantly related to emergent birth limitation, once the mean education level of household members is taken into account. A higher mean level of education in the household increases the likelihood of fertility limitation, on each of the three measures. Wives who are more involved in key decisions are more likely to give favorable response in at least one of the three measures. In particular, they rate higher in giving a numeric ideal family size and more often know contraceptive methods. The overall effect of polygyny on fertility limitation is marginally negative. Wives in such unions are slightly less likely to use/intend to use, to know about a contraceptive method, or to give numeric response to ideal family size. The overall negative effect is in agreement with the works that examine polygyny as a factor associated with women's low status and gender inequality within marriage, which in turn translates into high fertility patterns and low level of contraceptive use (Boye et al. 1991; Ezeh 1997). On the other hand, the weak negative effect is consistent with earlier research on Southern Ethiopia which suggests that polygamy, while an important form of marriage, does not greatly affect fertility (Hogan et al. 1999). Contrary to the patterns in other nations, the pattern of residence after marriage and currently do not have major

impacts on fertility limitation. There is evidence of a relationship between relative economic status of the household and emergent birth limitation. Once individual, other household level factors and community contexts are taken into account, women in economically below average households are becoming significant more likely for fertility limitation. On the other hand, inadequate food for the household has no net effect.

Women who live in villages that experience crises relating to water shortage are significantly more likely to show emergent fertility limitation. However, epidemic outbreaks and frequent famine per se does not result in women giving a numeric response to ideal family size or knows about contraception, nor is it associated with intended or current contraceptive use. Each additional health service in a community is associated with an increase in the likelihood of emergent birth limitation.

Though there is a sign indicating that women in communities with some off-farm economic activities are better off in terms of birth limitation potential, this effect is yet to produce a substantial differential. Agricultural communities in which land is passed from one generation to the next are decidedly pronatalist. Contrary to expectations, an opportunity for women to engage in the production and sale of crafts is associated with pronatalist responses. These two community situations perhaps reflect the low status of women in the SNNPR. Traditionally, male household members inherit family plots. In Ethiopia in general and rural Ethiopia in particular, craftworkers (smiths, tanners, potters, weavers, woodworkers, etc.) are known to be marginalized minorities. They are spatially segregated, economically disadvantaged, politically disempowered, socially excluded and culturally subordinated (Pankhurst 2001:2).

There are clear direct effects of social identity on emergent birth limitation, but the nature of these effects change considerably even controlling for the key personal, family and community characteristics. To determine whether there are interactions between social identity and community variables, net of main effects and controls for personal and family variables, we re-estimated the model of Table 6, adding an interaction term for social identity with each community characteristic in turn. The chi-square test statistic, degrees of freedom, and significance level for each interaction are provided in Table 7. It is clear that each ethnoreligious group significantly interacts in some way with community characteristics (except health services).

An inspection of the interactions as they relate to each ethnic group indicate that the Muslim Silte are even less likely to display emergent birth limitation when they are in the majority in the community, in almost entirely agricultural villages, and in communities with severe food shortages. But, being a member of craft producing, ethnoreligiously diverse, or human development oriented communities enhances the emergent birth limitations of Muslim Silte more than it does the potentials of any other social identity groups considered in this study. Being Christian Wolaita in a craft producing community also boosts birth limitation probabilities. Though not as high as for Muslim Silte, the reduced probabilities of emergent birth limitation when a social identity in a situation of majority status holds true for traditionalists, Christian Hadiya, Christian Kambata, and Muslims others. Traditionalists, Christian Kambata, and other Christians are also significantly benefiting from community diversity. Like Muslim Silte, the negative influence of community food shortages on the chances of fertility limitation is also more pronounced among Christian Hadiya. On the contrary, the interaction effects community level food shortages and being Christian Wolaita women is associated with increased likelihood of birth limitations.

Farmland inheritance interacts with social identity differently. As compared to Christian Sidama or other Christians living in communities practicing non-inheritance, Christian Wolaita and Christian Hadiya women in predominantly farmland inheriting communities are more likely pronatalists. On the other hand, traditional religion followers who reside in such communities are more likely to indicate characteristics favoring birth limitation. As compared to Christian Sidama in epidemic free communities, Christian Hadiya, Christian Kambata, and Muslims Others in communities with repeated outbreaks of epidemics are less likely to demonstrate emergent birth limitation. Christian Hadiya in communities with water shortage show less likelihood of contraceptive knowledge, use/plan to use, or giving numeric ideal family size as compared to Christian Sidama in communities without water problems.

CONCLUSIONS

The fertility regime in Southern Ethiopia differs dramatically by social identity, manifest in ethnic, religious, and linguistic group memberships. Emergent birth limitation in the Muslim Silte population is observed less often even though we have controlled for social and women's variables

also seen as the means by which Muslims Silte limit the adoption of family planning by women in their communities. These include controls for women's age at marriage, residential patterns after marriage, participation in decision-making, and access to information. Muslim Silte women differ greatly from women in other groups in the population in that they are distinctly less likely to give a numeric response to ideal family size, to know a modern method of contraception, and to have used or expect to plan to use contraceptives to limit fertility. Interestingly, however, these differences are not found uniformly among the Muslims of other ethnic/linguistic identity. Rather, the distinctive Muslim pattern is observed among the Silte who live in villages in which they are the majority and in which little ethnoreligious diversity is observed. We believe this points to the strong Muslim control over women and family life, reinforced by local *Shia* family courts. When Muslims live in less concentrated settlements they display emergent belief limitation at a level between that of Muslims Silte and other ethnoreligious groups.

In contrast to prior research that did not control for community factors, many differences are found among the other ethnoreligious groups. Next to Muslim Silte, being Christian Kambata or Christian Hadiya is associated with the lower likelihood of fertility limitation. What we also found, however, were a variety of statistically significant interactions involving the Christian groups. In particular these groups have more mixed patterns, especially in regards to their greater contraceptive knowledge, that seem to be a product of living in ethnoreligiously diverse communities. Together these findings suggest that future research on social identity effects on fertility behaviors must consider the social and not just the doctrinal aspects of religious identity, and must take into account the community settings in which these social aspects of religion take place.

Christian Sidama, with the lowest literacy, and Christian Wolaita, with the highest literacy rate, are the two social identities most favoring emergent birth limitations. A majority of the Sidama Christians are Protestant. We anticipate that, as some studies suggest, the spread of Protestantism in the Southern regions might be among the key route to modernization, social cohesion, amelioration of social exchange and integration between the minority and majority (Seba 2001: 228-43) that might in turn continue to playing key roles contributing to the uniqueness of Christian Sidama women's potential for emergent birth limitation. On the other hand, the relatively higher literacy of Christian Wolaita identity might take the major share of the explanation.

What do these findings offer as evidence to assess the minority status, assimilation, and cultural explanations of high fertility among minorities? The evidence does not support the minority status hypothesis—fertility is higher among ethnic groups living in concentrated communities with little exposure to other groups. There is strong evidence for at least one form of the assimilation hypothesis—Muslim or Christian women in diverse communities are more likely than women in homogeneous communities to be in the emergent birth limitation group. The cultural hypothesis also receives strong support, with Muslims enforcing traditional codes of conduct for women and family in villages in which they are dominant and *Shia* courts are presumed active.

The SNNPR has many needs in regards to social and economic development, improving women's status, and promoting the quality rather than just the number of children. The construction of health clinics and schools are the most urgent, both to improve maternal and child human capital. These institutions will also be a source of information about women's roles, the advantages of small family size, and investment in the quality of children. While the concentration of ethnoreligious groups in certain religious communities is unlikely to disappear, the conservative impact of such isolation could be modified somewhat by the building of basic transportation systems (roads and buses) between rural villages and market towns. But until major crises relating to hunger in households, and community problems of food shortage, water, and famine are addressed, it is unlikely that more basic infrastructures will become available to the Ethiopian peasants who are desperately in need. The impact of such disasters and preparations for them are especially burdensome for women who are responsible for *ensete* (the root food eaten during famine) and diverted from other productive activities.

NOTE

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Figure 1. Map of Ethiopia and the Study Area

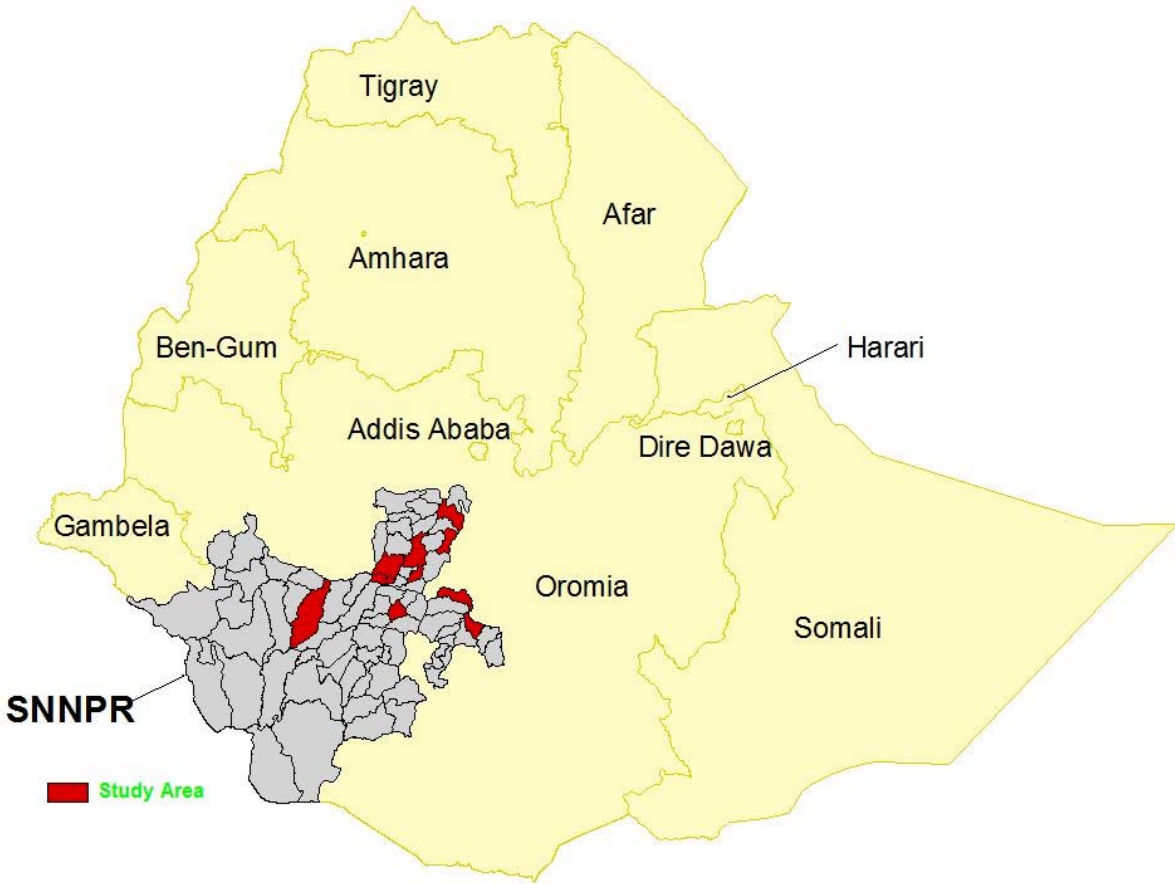


Figure 2: Definition of Variables in the Analysis of Emergent Birth Limitation: Southern Ethiopian Women Age 20-49 in Their First Marriage

Variable	Operational Definition
Emergent birth limitation	We defined favorable condition for fertility limitation when each of numeric response, knowledge of any modern contraception, and use/plan to use contraception are response of the study woman. The complements are unfavorable conditions. Emergent birth limitations is ‘very <i>high</i> ’ if three favorable responses are given, ‘ <i>high</i> ’ if two favorable and one unfavorable response, ‘low’ if one favorable and two unfavorable responses, and ‘very <i>low</i> ’ if no favorable responses is given.
Women’s ethnoreligios identity	Classifying women according to their reported ethnicity and religion groups, nine distinct ethnoreligios identities are formed. These are Christian-Sidama, Christian-Hadiya, Christian-Wolaita, Christian-Kambata, Christian-Gurage, Christian-Others, Muslim-Silte, Muslim-Others, and Traditional-any. Christian religion comprises Protestant, Coptic Orthodox, and Catholic. Christian-Sidama is treated as a reference.
Wives’ literacy	0 if a woman is illiterate (could not read and write in any language); 1 if literate
Polygyny	0 if a woman is in monogamous union; 1 if in a polygynous union
Household structure	Four types of household structure are constructed by cross classification of the family type upon first marriage and the current family type. 1 = <i>Post-marital patrilocal & current simple</i> – those women who married into their husbands’ parental house and currently living in family made of wife, husband, and their biological children ; 2 = <i>post-marital simple & current simple</i> – those married into their own house and currently living in simple family; 3 = <i>post-marital patrilocal & current complex</i> – those who moved into husbands’ parental house and currently living in an extended family household; and 4 = <i>post-marital simple & current complex</i> – those married into their own house later formed an extended family household. In regression analysis binary numbers are created and the first category is treated as a reference group
Marital Homogamy	The extent of marital homogamy is measured on the basis of ethnicity, religion, and mother language of husbands and wives at time of first marriage. A value of 0 is assigned to those partners who differ in at least one of these measures (exogamous); 1 if both are from the same ethnic, religious, and language groups (homogamous).
Wife’s involvement in decision making	Women were asked various questions as to their decision making autonomy within their household. Six of these questions include who makes decision: ‘to purchase major (expensive) items such as blanket, cassette recorders/ radio, watch’; ‘how much earned money to spend on food or how much of the food item produced be eaten’; ‘who gets how much food and what food within your household’; ‘when to spend money on medical or health care services for a sick man’; ‘ when to spend money on medical or health care services for a sick woman’; and ‘ whether you would join a women’s group or association in your area’. Either ‘both’ wife and husband or a response that the’ wife’ makes decisions are coded 1, 0 otherwise. We summed the binary responses to these six questions and created an ordinal variable that ranges from 0 (no involvement at all) to 6 (wife completely involved in decisions either as an independent decision maker or as a joint decision maker with the household.

Figure 2: Definition of Variables (Continued)

Variable	Operational Definition
Housing quality	An index of housing quality is created by summing binary values on whether the household does have (1) or not have (0): a window, a corrugated iron roof, two or more rooms, a radio, a television, and a plow. The ordinal values range from 0 (none of them) to 6 (all of them). This variable constitutes the most objective measure of household wealth in both rural and urban places.
Household mean education	The mean of the highest educational grade attained by each household member aged 6 years and above.
Subjective household economic status	Household heads indicated their perceptions about the economic status of the household as compared with other households in their community. The responses are grouped into three: 1= <i>below average</i> , 2= <i>average</i> , and 3= <i>above average</i> . In the regression models, they are treated as binary responses with ' <i>average</i> ' being the reference.
Household staple food consumption per week	Number of times per week the household consumed each of seven staple foods: <i>Taffi</i> ; Barley; Wheat; Maize; Sorghum/Millet; <i>Kocho</i> ; Sweet potatoes/ <i>Godare/Boyay</i> /or other potato or root. Sum of counts of staple food consumption by type-per-week ranges from 0 (five cases) to 40 (one case). This variable is treated as an interval measure of food adequacy in the regression analysis.
Ethnoreligious composition	This variable is a community level indicator based on joint distribution of religion and ethnicity. A woman who is a member of particular ethnic and religious group in which that category is the numerically major ethnic-religion group is in the majority (value 1); otherwise 0.
Ethnoreligious diversity	Standardized entropy index measuring community level extent of ethnoreligious diversity. Women who live in a community whose value of entropy index lie with the first quartile of the distribution are labeled ' <i>0=homogenous</i> ' community, the middle 50 percent ' <i>1=intermediate</i> ', and the top 25 percent as ' <i>2=diverse</i> '. This variable is treated as ordinal scale in the regression analysis.
Main occupation	On the basis of consensus of the key community informants in the focus group discussion as to the activities of the community population, two categories of main occupational activities are created: almost all occupations are in agriculture (code 1), and 0 if the community includes other occupations.
System of farmland distribution	Key community informants consensus as to the major mechanisms or systems in which people in the community obtain access to farm land. It is coded 1 if mainly through ' <i>inheritance</i> '; 0 otherwise (gift upon marriage, contract/leas, sharecropping/rent, government redistribution, and others).
Craft work activity	Key community informants' consensus on the proportion of families in the community producing articles/crafts works (such as leather, pottery, black smith articles, wooden goods) in their home for sale. If ' <i>half</i> ' or ' <i>more than half</i> ' or ' <i>almost all</i> ' are coded 1; 0 otherwise.
Epidemic outbreak	Whether there has (1) or has not (0) been any serious outbreak of infectious diseases in the locality which killed many children and adults since the change of government (1991).

Figure 2: Definition of Variables (Continued)

Variable	Operational Definition
Water problem	Whether the community does (1) or does not (0) have any problem obtaining adequate water for drinking and cooking at certain times of a year.
Number of years of severe food shortage	Key community informants' consensus about the number of years of severe food shortage the community faced since 1991. The response ranges from 0 (none) to 5 (5 years or more). This is treated as an interval variable in the multivariate analysis.
Number of modern health services	The number of either static or mobile modern health services available to the community. The value range from 0 (none) to 22 (all types of services asked about were available). This is treated as an interval variable in the multivariate analysis
Priority community need	Key informants' identification of the top priority needed by their respective community: 1 if for investment in human capital (healthcare or school), 0 otherwise (economic variables such as road, water points, electricity, credit, flour mills, etc)

Table 1. Means and Standard Deviations of Variables Used in the Ordered Logistic Regression Analysis: Southern Ethiopian Women Age 20-49 in Their First Marriage

Variables	Mean	Standard deviation
DEPENDENT VARIABLES: Emergent birth limitation		
Very high	0.131	0.338
High	0.234	0.423
Low	0.285	0.451
Very low	0.350	0.477
SOCIAL IDENTITY:		
Christian Sidama	0.177	0.381
Christian Hadiya	0.149	0.356
Christian Wolaita	0.099	0.299
Christian Kambata	0.078	0.269
Christian Gurage	0.049	0.216
Christian others	0.155	0.362
Muslim Silte	0.126	0.332
Muslim others	0.094	0.293
Traditional	0.073	0.260
WOMEN & HOUSEHOLD:		
Wife Literate	0.203	0.403
Polygynous marriage	0.266	0.442
Household structure		
Post-marital patrilocal to current simple	0.446	0.497
Post-marital simple to current simple	0.274	0.446
Post-marital patrilocal to current complex	0.168	0.371
Post-marital simple to current complex	0.114	0.318
Homogamous marriage	0.814	0.389
Wife's involvement in decisions making	2.698	2.237
Housing Quality	1.727	1.496
Household mean education	1.736	2.637
Household economic status		
Below average	0.188	0.391
Average	0.419	0.494
Above average	0.393	0.489
Household staple food consumption per week	13.344	5.518
COMMUNITY:		
Ethnoreligious Majority	0.567	0.491
Ethnoreligious Diversity	1.020	0.691
Mainly in agriculture	0.680	0.467
Farm land inheritance	0.421	0.494
Craft work activities	0.480	0.500
Epidemic problems	0.546	0.498
Water problems	0.582	0.493
Numbers of years of severe food shortage	1.746	1.433
Number of modern health services	4.818	6.961
Human capital as a priority investment need	0.670	0.470
DEMOGRAPHIC CONTROLS:		
Age of the women	30.822	7.489
Age at first marriage	17.384	3.643
Spousal age difference	9.263	8.295
Number of children who have died	0.524	0.771

Table 2. Percentage Distribution of Emergent Birth limitation Behaviors: Women Age 20-49 in Their First Marriage

Emergent birth limitation	Numeric Ideal fertility	Contraception Knowledge	Contraception Use/Plan to use	Number of women	Percent
Very low (34.96%)	No	No	No	437	34.96
Low (28.48%)	No	No	Yes	50	4.00
	No	Yes	No	205	16.40
	Yes	No	No	101	8.08
High (23.44%)	No	Yes	Yes	89	7.12
	Yes	No	Yes	24	1.92
	Yes	Yes	No	180	14.40
Very High (13.12%)	Yes	Yes	Yes	164	13.12
TOTAL				1250	100

Table 3. Percentage Distribution of Emergent Birth limitation Behaviors by Social Identity: Women Age 20-49 in Their First Marriage

Social Identity	Emergent birth limitation behavior			
	Very high	High	Low	Very low
Christian Sidama	19.91	38.91	26.70	14.48
Christian Hadiya	6.99	23.66	23.66	45.70
Christian Wolaita	29.84	34.68	27.42	8.06
Christian Kambata	4.08	10.20	19.39	66.33
Christian Gurage	6.56	8.20	22.95	62.30
Christian others	24.74	24.23	38.66	12.37
Muslim Silte	0.64	3.18	13.38	82.80
Muslim others	5.93	32.20	41.53	20.34
Traditional	6.59	16.48	45.05	31.87
Total Population	13.12	23.44	28.48	34.96

Note: Chi-square tests for each of the nine tables are statistically significant ($p < .05$)

Table 4. Percentage Distribution of Women and Family Characteristics by Social Identity: Southern Ethiopian Women Age 20-49 in Their First Marriage.

Social Identity	Woman		Family			
	Literate	Highly involved in decision making	Homogamous	Polygamous	Low quality household	Enough food
Christian Sidama	10.4	25.3	94.6	33.5	81.0	8.1
Christian Hadiya	27.4	31.7	76.3	23.1	47.3	39.8
Christian Wolaita	34.7	79.0	91.1	21.0	57.3	79.8
Christian Kambata	29.6	20.4	79.6	11.2	34.7	60.2
Christian Gurage	18.0	36.1	86.9	23.0	26.2	14.8
Christian others	38.1	30.4	53.6	17.5	47.9	36.1
Muslim Silte	1.9	7.0	93.6	45.9	72.6	36.9
Muslim others	15.3	13.6	77.1	28.8	58.5	36.4
Traditional	2.2	3.3	89.0	26.4	93.4	32.6
Total Population	20.3	27.5	81.4	26.6	59.9	35.8

Note: Chi-square tests for each of the nine tables are statistically significant ($p < .001$)

Table 5. Percentage Distribution of Community Characteristics by Social Identity: Southern Ethiopian Women Age 20-49 in Their First Marriage

Social Identity	Concentration		Economic		Problems				
	Majority	Diverse	Mainly Agriculture	Craft Work	Epidemic	Water	One or more years of food shortage	One or more health clinics	Human capital
Christian Sidama	71.0	19.5	45.7	57.9	34.8	46.6	33.9	29.9	41.2
Christian Hadiya	49.5	12.9	80.1	47.9	64.5	42.5	90.3	55.4	83.9
Christian Wolaita	62.1	51.6	68.5	78.2	75.8	89.5	56.5	90.3	79.0
Christian Kambata	50.0	6.1	91.8	66.3	90.8	31.6	93.9	34.7	94.9
Christian Gurage	72.1	26.2	68.9	91.8	16.4	11.5	6.6	26.2	85.3
Christian others	20.6	54.1	40.7	44.3	32.0	63.4	48.5	76.8	80.4
Muslim Silte	94.9	5.1	94.9	5.1	98.7	56.1	45.9	47.8	28.0
Muslim others	56.8	25.4	78.0	28.8	46.6	94.1	47.5	25.4	63.6
Traditional	35.2	16.5	69.2	40.7	22.0	81.3	25.3	44.0	80.2
Total Population	56.6	24.9	68.0	48.0	54.6	58.2	52.3	50.0	67.0

Note: Chi-square tests for each of the nine tables are statistically significant ($p < .05$)

Table 6. Ordered Logistic Regression of Emergent Birth limitation: Southern Ethiopian Women Age 20-49 in Their First Marriage

Variables	β (Standard estimate)		Odds ratio	95% Confidence Interval for the Odds Ratio
SOCIAL IDENTITY:				
Christian Sidama (ref.)			1.000	
Christian Hadiya	-1.9671 ***		0.140	[0.084, 0.234]
Christian Wolaita	-0.4673		0.627	[0.351, 1.120]
Christian Kambata	-2.1123 ***		0.121	[0.063, 0.234]
Christian Gurage	-1.9456 ***		0.143	[0.067, 0.306]
Christian others	-1.2615 ***		0.283	[0.175, 0.459]
Muslim Silte	-3.5001 ***		0.030	[0.015, 0.060]
Muslim others	-1.6589 ***		0.190	[0.110, 0.328]
Traditional	-1.5929 ***		0.203	[0.119, 0.346]
WOMEN & HOUSEHOLD:				
Wives' literacy: Illiterate (ref.)			1.000	
Literate	0.1753		1.192	[0.798, 1.780]
Marital type: Monogamous marriage (ref.)			1.000	
Polygynous marriage	-0.3509 *		0.704	[0.536, 0.924]
Household formation: Patrilocal to simple (ref.)			1.000	
Simple to simple	-0.0701		0.932	[0.694, 1.253]
Patrilocal to complex	0.2104		1.234	[0.882, 1.727]
Simple to complex	-0.2609		0.770	[0.512, 1.160]
Marital selection: Exogamous (ref.)			1.000	
Homogamous	-0.3446 *		0.709	[0.512, 0.981]
Wife's involvement in decisions making	0.0763 *		1.079	[1.014, 1.149]
Quality of the housing environment	0.0559		1.057	[0.933, 1.198]
Household mean education	0.1452 ***		1.156	[1.078, 1.241]
Household economic status: Average (ref.)			1.000	
Below average	0.3698 *		1.447	[1.034, 2.026]
Above average	0.2401		1.271	[0.973, 1.662]
Household staple food consumption per week	-0.0135		0.987	[0.963, 1.011]
COMMUNITY:				
Ethnoreligion composition: Minority (ref.)			1.000	
Majority	-0.1408		0.869	[0.669, 1.128]
Ethnoreligion diversity	0.4712 ***		1.602	[1.125, 2.050]
Main activity: Some none- agriculture (ref.)			1.000	
Mainly agriculture	-0.0256		0.975	[0.605, 1.570]
Farmland distribution tradition: None inheritance (ref.)			1.000	
Inheritance	-1.2684 ***		0.281	[0.197, 0.402]
Craft work activities: No (ref.)			1.000	
Yes	-0.5959 ***		0.551	[0.392, 0.774]
Epidemic problems	-0.0693		0.933	[0.666, 1.307]
Water problems	0.6196 ***		1.858	[1.337, 2.582]
Numbers of years of sever food shortage	0.0688		1.071	[0.947, 1.212]
Number of modern health services	0.0306 **		1.031	[1.009, 1.054]
Main investment needs: Economic development (ref.)			1.000	
Human capital	-0.3031		0.738	[0.536, 1.017]
Constants: Q1 (very high potential)	-0.9645 *			
Q2 (high potential)	0.8099			
Q3 (low potential)	2.6706 **			
-2 Log L	2590.308			

* P-value < 0.05 ** P-value < 0.01 *** P-value < 0.001

Note: Women's age, age at first marriage, spousal age difference, and number of children dead are control variables.

Table 7. Comparing the Main Effect Models With Models that Include Interaction of Women’s Social Identity With Community Variables: Southern Ethiopian Women Age 20-49 in Their First Marriage

Model	Difference in (-2 Log L)		
	DF	Chi-Square	
Main effect	38	738.79	***
Interaction effects — Social identity with:			
1. Ethnoreligious majority	8	54.01	***
2. Ethnoreligious diversity	8	80.79	***
3. Mainly Agricultural community	8	33.58	***
4. Farmland inheritance	8	51.30	***
5. Craft work	8	32.96	***
6. Epidemic outbreak	8	65.45	***
7. Water problem	8	64.40	***
8. Number of years of severe food shortage	8	78.84	***
8. Number of modern health services	8	11.63	
9. Human capital investment priority need	8	64.81	***

* P-value < 0.05

** P-value < 0.01

*** P-value < 0.001