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WOMEN'S AUTONOMY AND REPRODUCTIVE PREFERENCES IN ERITREA

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Summary. Current research and policies on reproductive behaviours in many East African countries focus primarily on proxy indicators of women's autonomy, and very little emphasis is placed on direct indicators of women's autonomy. In this paper, data from the 2002 Eritrea Demographic and Health Survey (EDHS) are used to address some of the most frequently raised questions about the link between women's autonomy and reproductive behaviour. The results from the multivariate logistic models show that although the relationship between women's autonomy and reproductive preferences in Eritrea is complex, some clear, broad patterns exist that have implications for theory and policy. First, although the different dimensions of women's autonomy influence the outcome variables differently in terms of magnitude and statistical significance, most of them have a strong connection; in particular, women's final say in decisions regarding day-to-day household purchases and spousal communication are significant explanatory variables in fertility preferences and ever-use of modern contraception. Second, many background (proxy) variables, particularly household economic condition and employment, exert a strong and independent influence over fertility preferences and ever-use of contraception regardless of a woman's autonomy. In their relationship to reproductive behaviours, therefore, employment and economic status cannot be considered as proxies for women's autonomy in Eritrea. A complete explanation of the relationship between women's autonomy and reproductive preferences must recognize the effects of both the background and direct autonomy indicators. Interventions are needed to improve women's decision-making autonomy and strengthen their negotiating capacity on family planning if an increased desire to limit fertility is to be attained.

Introduction

In recent years, women's autonomy has emerged as a central theme in international development and the reproductive policy agenda. In particular, since the 1994 International Conference on Population and Development (ICPD) held in Cairo (UN, 1994), which saw a major shift in emphasis from an egalitarian family system

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characterized by the interdependent cooperation of spouses to one that emphasizes individual choices, women's autonomy in reproductive decisions has become a dominant paradigm in examining reproductive outcomes (Morgan & Niraula, 1995; IUSSP, 1997). Women's involvement in decision-making is recognized as affecting their reproductive desires and preferences (Mason, 1996). The major theoretical paradigm since the ICPD, which is also a common assumption in the literature on women's reproductive decisions, is that women's autonomy, defined generally as the right of individuals, enables women to decide freely and independently the number of children they want and spacing of births (Obermeyer, 1995). The literature on reproductive behaviour and women's status suggests that women's active participation in decision-making indicates their power within the household and hence increases their adoption of modern contraceptives and reduces desired fertility (Mason, 1987; Balk, 1994). A number of studies examining the relationship between women's role in the household and women's reproductive behaviour have found that women with little autonomy are less likely to innovate and to take risks (Nijogu, 1991; Gage, 1995; Lasee & Becker, 1997). Other studies observed lower fertility and fertility desire to be associated with higher levels of women's autonomy in Bangladesh (Balk, 1994), in many regions of India (Jejeebhoy, 1991) and in Nigeria (Makinwa-Adebusoye & Kritz, 1997; Kritz & Makinwa-Adebusoye, 1999). Such association between lower fertility preferences and higher autonomy are attributed mainly to use of modern contraception among women with higher autonomy (Dharmalingam & Morgan, 1996). It is also suggested that communication between spouses is necessary in order for them to reach agreement on desired family size and for achievement of their reproductive objectives by deciding to use contraception (Ezeh 1993; Salway, 1994). Gender differences in fertility desires, usually attributed to differences in the relative position of men and women in the society, could be reduced through effective spousal discussion on fertility intentions and expectations (Frank & McNicoll, 1987).

However, empirical findings on the association between women's autonomy and their reproductive preferences have been mixed, as many researchers have failed to make a distinction between direct autonomy indicators (such as domestic decision-making, freedom of mobility, spousal communication) and proxy indicators (such as education, employment or income). While some studies (e.g. Sathar *et al*., 1988; Hirschman & Guest, 1990; Martin, 1995) have used education as a proxy for women's autonomy, other studies (e.g. Sathar & Kazi, 1990; Jejeebhoy, 1991; Vlassoff, 1991) used female employment as a proxy indicator to represent women's status in their analyses on the relationship between women's status and fertility. Various aspects of women's decision-making autonomy, such as women's freedom of mobility, their participation in household decision-making, their communication with partner, and their access to and control over earnings or resources have often been overlooked. These authors argue that although education and employment may not necessarily represent gender power relations, they are significant predictors of fertility behaviour. On the other hand, studies that have used direct measures of women's autonomy suggest that women's decision-making autonomy influences reproductive preferences so strongly that it cannot be ignored (Balk, 1997; Malhotra *et al.*, 1995; Jejeebhoy & Sathar, 2001). It has been indicated that proxy indicators are often not sensitive enough to capture the distinction of gender role relation and the ways in which they

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govern women's and men's reproductive behaviour (Mason, 1994; Presser & Sen, 2000). Thus, simply using education or employment as proxy indicators for women's status may underestimate or estimate incorrectly the total effects of other variables on fertility behaviour (Vlassoff, 1991; Qiaozhuan & Chuzhu, 1997).

In particular, in populations where fertility preferences and contraceptive use are affected by the normative pressure of the patriarchal society, like in most East African countries, it is unrealistic to assume that fertility preferences and demand for family planning are solely determined by individual proxy indicators. Even educated women or women with high economic status may fail to translate their fertility preferences into actual behaviour because of male dominance, if their husbands are opposed. The power differential between husbands and wives may hinder the use of contraceptives and thereby lead to increased family size. Many studies have emphasized the resilience of pronatalist social institutions in Africa in noting that African religious customs, lineage and kinship networks reinforce high-fertility social norms, beliefs and values (see, for example, Caldwell & Caldwell, 1987, 1988; Frank 1987; Caldwell *et al*., 1991; Pritchett, 1994).

The major objective of this study is to understand how women's autonomy may have affected women's preferences and choices regarding childbearing and ever-use of contraception in Eritrea. Understanding the relationship between women's autonomy and fertility behaviour is particularly critical for countries in the East African region, where gender inequality is high and continues to persist. In Eritrea, although women's autonomy is considered to have improved during the post-independence period, it is not yet clear whether it systematically elicits different demands for children or contraceptive use. With the exception of the descriptive reports of the 2002 EDHS, there is no evidence on the relationship between women's autonomy and their reproductive behaviour. The evidence from this survey indicates a positive association between aspects of female autonomy and contraceptive use and a negative association between autonomy and desired as well as achieved family size (NSEO & ORC Macro Inc., 2003). Such unadjusted association, however, could reflect the role of other factors that are important in determining women's autonomy or that are the primary driving force behind these relationships. This study, therefore, investigates the links between women's autonomy, fertility preferences and ever-use of contraception using a multivariate framework that controls for various socioeconomic (proxy) factors. It focuses on the analysis of the impact of women's direct autonomy factors on reproductive preferences in the context of other socioeconomic indicators of women's status. It does not attempt to cover health aspects of women (e.g. reproductive, mental or psychosocial health). These issues are not only beyond the scope of this study, but also the data used are limited to consider these issues.

The reproductive and social context of women in Eritrea

In the past three to four decades, Eritrea has been in a state of war with Ethiopia, although the intensity of hostilities has varied over time. Only in recent years has Eritrea lived through a relative peace (1992 to mid-1998). During the 1970s and 1980s, Eritrea suffered human tragedy and socioeconomic devastation of immense proportions because of the 30 years of war for liberation (1961–1991). During this period,

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Eritrea suffered from all kinds of misery, destruction and deaths. In addition, the war for liberation had far-reaching repercussions for the country's demographic situation. For example, infant mortality was very high during the war period (about 80 per 1000 live births). The war also inhibited nuptiality and fertility because a large number of young adults emigrated and/or were displaced, resulting in a distortion of the population pyramid and skewed sex ratios in the population of reproductive ages (Woldemicael, 1999).

The attainment of Eritrea's independence in 1991 fostered high expectations that it would create a new opportunity for socioeconomic development. As anticipated, progress was made between 1992 and 1997. For instance, during this period, Eritrea's GDP grew at an average annual rate of 7%. Infant mortality declined and health care services improved. Education also improved, with the primary gross enrolment ratio increasing from 36% in 1992 to 52% in 1997 (Ministry of Education, 2002), although the gender gap in education is still high. During the period after independence, effort was also made to alleviate the situation for women in Eritrea. The Government of Eritrea, together with international and national organizations, has set the stage for women to participate in building the country. Women workers who were threatened with expulsion from work upon delivery during the colonial regime were granted 60 days paid maternity leave, and the right to equal pay for equal work is clearly stated in the labour proclamation of Eritrea (NUEN, 1999). Furthermore, the government has taken measures in areas of inheritance of property and land, eradication of illiteracy, and the creation of an institutional framework for mass participation, of which the establishment of the National Union of Women's Association is one. These measures are oriented towards tackling the problems of underdevelopment at its roots and towards fully integrating the female population in development efforts and decision-making.

Unfortunately, Eritrea's initial promising socioeconomic growth was disrupted by the border conflict with Ethiopia that started in May 1998 and resulted in a war that continued until 2000. Although a cease-fire accord was reached and a peace protocol signed in 2003, subsequent attempts to put the peace process back on track were ineffective and the conflict still remains unresolved. This border war not only caused loss of human life and huge damage to physical infrastructure, but also reversed much of the progress in socioeconomic trends achieved during the pre-conflict post-independence period (UN, 2002). For example, the conflict resulted in a decline in GDP growth from about 8% annually during 1993–1997 to 4% in 1999, and inflation rose from an average of 6% during 1994–1997 to 27% in 2000 (UN, 2002). The price of food and other commodities rose rapidly in 1998 and continued to rise throughout the period until recently.

The conditions of warfare and the atmosphere of uncertainty they generate also may discourage couples from having children, or at least make them postpone the next birth by means of either traditional or modern contraception, even in the absence of an enduring preference for longer birth intervals or smaller families (Agadjania & Ndola, 2002). It is to be expected that in countries like Eritrea, with frequent swings between periods of war and peace, people are accustomed to uncertainty and take it into account when stating their preferences for future fertility. In Eritrea, the still-fresh memories of the horrors of war and the uncertainty of peace

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may depress the desire for fertility. One could expect that higher-parity women would be more determined than those with fewer children to prevent additional births when the time is not right. Two recent studies (Blanc, 2004; Woldemicael, 2008) have demonstrated a decline in fertility in Eritrea and the decline was partly attributed to a short-term impact of the 1998–2000 border conflict. The impact of the conflict may be particularly detrimental to the well-being of displaced women because these women are less likely to enjoy the benefits of health facilities (e.g. maternity resources and family planning services) and leave (e.g. traditional maternity leave following childbirth) and may suffer from economic hardship (Almedom *et al.*, 2007). Although war-induced deterioration of health and economic decline are important in shaping reproductive preferences, especially of displaced groups, the EDHS data do not allow any examination on the war-induced impacts on reproductive behaviours.

Women's roles and reproductive choices in many sub-Saharan Africa countries could also be constrained by various cultural traditions that restrict women's autonomy and encourage men's dominance. The argument is that both religious laws and cultural practices severely restrict women's decision-making options and their freedom of movement, while at the same time encouraging and rewarding motherhood (Caldwell, 1986). In most cultures of Eritrea, a large family is considered a source of security and insurance during old age and bad times. Underscoring the desire of childbearing in Eritrean cultures, Almedom *et al.* (2005) indicated that daily tasks of childcare and childbearing are a source of deep satisfaction among Eritrean women, even during times of hardship. Most rural societies still exist as networks of mutually interrelated and dependent groups, emphasizing family or group rather than self and the individual. This value is evident in the family system characterized by extended family, residential systems, ancestry and lineage through the fathers or sons of the family (except for very few cultures, such as the Kunama ethnic group). In this case, women do not have individual reproductive decisions and rights apart from those of their husband, kinship networks or culture. In other words, reproductive preferences and birth control is an issue that goes beyond individual women, being affected by many factors including culture, religion and family.

However, even though women in sub-Saharan African countries are often perceived to exercise few or no roles in productive and reproductive decision-making (Makinwa & Jensen, 1995), this should not be over-generalized since the amount of control men have over their wives and the disparity between men and women vary from place to place, change over time, and are influenced by several factors. In Eritrea, for instance, during the armed struggle for independence (1961–91), women fighters were allowed to participate fully and equally in all aspects of activities of the Eritrean Peoples Liberation Front (EPLF), now the Government of Eritrea. During this period, regardless of ethnicity, religion and language, all groups of people participated actively in literacy and political education campaigns for nation building under the EPLF policy of 'unity in diversity' (Almedom *et al.*, 2007). Women, especially, enjoyed some autonomy in participating in administration, decision-making and other non-traditional activities. Thus, the experience that women gained during the war period, coupled with the efforts made to empower women after

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independence, could have had some influence on the role of all women in Eritrea and hence on their fertility preferences.

Despite the fact that understanding the relationship between women's autonomy and their reproductive issues is one of the key factors that may help Eritrea achieve some of its Millennium Development Goals, very little empirical evidence is available on this subject today. This study will try to fill this gap in knowledge. Unlike most previous studies in other countries, which have focused primarily on female education and employment while giving little attention to women's decision-making autonomy, in this study different dimensions of women's autonomy and their relationship with fertility preferences and ever-use of contraception is investigated. The main assumption is that if women's autonomy has an effect on fertility preferences and contraceptive use then the likelihood of limiting childbearing and of ever-use of modern contraception should be higher among women with higher autonomy. It also assumes that the socioeconomic factors (proxies), particularly education, employment, household economic status and rural–urban residence, are still instrumental in affecting women's reproductive preferences, and their effects may not be mediated or captured by the autonomy factors. These issues are particularly worth examining in the Eritrean context because of the complex nature of gender relations and of their importance in developing policies that incorporate women's roles in reproductive and social changes.

Before closing this section, a word or more is important about the concept of women's autonomy. Although women's autonomy is widely referred to in many studies, notably on reproductive and demographic behaviours, the concept remains ill-defined (Presser & Sen, 2000). A fundamental problem that underlies the study of women's autonomy and reproductive or demographic behaviours is how adequately to conceptualize or measure autonomy. There is no single accepted definition that represents it or that captures the multiple dimensions of women's autonomy (Mason, 1995). Alternative terms such as women's status, position or roles are all frequently used in the literature interchangeably to define women's autonomy (Mason, 1986; Bloom *et al*., 2001). Basu (1992) defined autonomy as the individual's capacity and freedom to act independently on her own and on the authority of others; for example, the ability to leave the house without asking anyone's permission, making decisions regarding contraceptive use or household purchases. According to Mason (1995), women's autonomy is defined as the ability to make and execute independent decisions pertaining to personal matters of importance to their life or their family, even though men and other people may be opposed to their wishes. For the purpose of this study, this widely adopted definition is used here. The specific measures of women's autonomy considered here include: the sole decision-making power in large and daily household purchases, the degree to which women can go to visit relatives or friends without their husband's permission, women's communication with their partner regarding family planning, and their attitude towards wife beating. The selection of these direct autonomy indicators is based on a review of the literature and the structure and limitation of the EDHS data used. The literature suggests that these autonomy indicators are likely to be important predictors of women's reproductive preferences (e.g. Balk, 1994; Morgan & Niraula, 1995; Kishor, 2005). The description and categorization of these autonomy variables are give in the description section below.

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Data and Methods

The data used in this study come from the 2002 Eritrea Demographic and Health Survey (EDHS) conducted by the National Statistics and Evaluation Office under the auspices of the USAID Macro International, USA. In this survey, individual women of reproductive age (15–49 years) were interviewed face-to-face on their background characteristics, including their education, work status, decision-making power as well as on their fertility and fertility preferences, contraceptive use, use of maternal and child health services and other related topics. This survey interviewed 8754 women aged 15–49. Most of the analyses are centred on married women (about 6600) to target the main points in which women were asked questions regarding the degree of final say in household decisions, spousal communication, extent of mobility as well as the degree to which women agree or disagree with negative gender norms (i.e. wife beating). By incorporating the above and other measures of women's autonomy in the household and society, the EDHS survey provides a unique opportunity to investigate the link between women's autonomy and reproductive preferences in Eritrea. As a researcher, the author has had several years of research experience and participated in all parts of the 1993 Situation Analysis of Women and Children in Eritrea and other similar surveys and collaborated in different capacities in the EDHS surveys. Such research experience, which is an important requirement for the purpose of the present study, provided the author with a solid understanding of women's roles and status and their association with reproductive health and behaviour.

Bivariate analyses are used to assess if the direct measures of women's autonomy vary by background (proxy) variables (Table 1) and to describe the nature and level of limiting childbearing and ever-use of contraception according to the direct indicators of women's autonomy (Figs 1 and 2). Multivariate logistic models are used for the estimation of three dependent outcomes: limiting child birth, desired family size, and ever-use of contraception (Table 2). Two such models are estimated, one where only autonomy indicators are considered, while the background (proxy) factors are excluded, and a second where the full set of explanatory variables is considered. This approach permits a determination of the extent to which background (proxy) factors, especially education, employment and household economic status, mediate their effect on reproductive preferences through the other measures of women's autonomy.

Description of outcome and explanatory variables

Measuring outcome variables

Three aspects of women's reproductive behaviour are examined: (1) fertility preferences as measured by desire for no more children; (2) fertility preference as measured by desired family size (desired ideal number of children of five or more); and (3) ever-use of modern contraceptive methods.

Desire for no more children and desired family size are used to measure the extent to which married women wish to limit childbearing. Desire for no more children is based on women's response to the following questions asked of all married women: (1) for non-pregnant women, 'would you like to have a (another) child, or would you

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prefer not to have any (more) children?'; (2) for pregnant women, 'aside from the child you are currently pregnant with, do you want to have any more children?'. The variable is categorized into two groups: those who want more children, including those who are undecided, and those who want no additional children (limit). Desired ideal number of children is constructed from women's responses to the following questions: (1) for respondents who had no children, 'if you could choose exactly the number of children to have in your whole life, how many would that be?'; (2) respondents with children were asked, 'if you could go back to the time you did not have any children and choose exactly the number of children to have in your whole life, how many would that be?'. In the present study, this variable is re-defined into two variables: desired family size of less than five and five or more. The rationale for choosing the cut-off point to be five children is arbitrary, but also reflects the average number of children per woman in Eritrea. Contraceptive use is measured by reported ever-use of contraception, determined from responses to a direct question on ever-use of modern contraceptive methods during the 2002 EDHS, and is categorized into two: never-use and ever-use. The main intention here is to examine the demand for contraception and its association with women's autonomy.

Explanatory variables

The main explanatory variables central to the discussion in this paper are women's direct autonomy indicators. But, since women's direct autonomy profiles are often correlated with a number of proxy measures of women's status such as education, household wealth and employment (Kishor, 2005), these proxy measures are included in the analyses. This makes the examination of fertility preferences and ever-use of contraception more complete.

The direct indicators of women's autonomy used in this study are five. These include three indicators of women's domestic decision-making, namely decision-making regarding large purchases, daily household purchases and freedom of movement to visit relatives or friends, and two other autonomy indicators: one that measures women's ability to communicate with their husbands about family planning; and the second that reflects women's attitudes toward husband's violence as measured by wife beating.

Decisions about the two different kinds of purchases (large and daily needs) were meant to tap into economic decision-making in the household, while allowing for variation in participation according to the relative amount of money to be expended and according to whether the decisions are routine or not. The assumption is that if women can decide on the amount of money they need for purchases, they are likely to make independent decisions on their family size. Participation in decisions about visits to family, relatives or friends is expected to enhance women's ability to seek and gain knowledge, which may influence fertility by increasing women's access to means of birth control and reducing the costs of fertility regulation (Cleland & Wilson, 1987).

Among an array of questions designed to measure women's involvement in domestic decision-making, the EDHS asked women the following: 'Who in your family usually has final say on the following decisions?': making large household

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purchases; making household purchases for daily needs; visits to family or relatives.

Five options were offered as replies to each of these questions in the EDHS survey: (1) respondent alone, (2) respondent and husband/partner, (3) respondent and other person in the household, (4) husband alone, (5) someone else. To gain more data in each category, categories 2 and 3, and 4 and 5, respectively, were merged.

Spousal communication about family planning has two categories: 'yes' if the woman has ever discussed family planning with her partner and 'no' if she has never discussed it. The variable on women's attitude towards wife beating is created from answers to questions based on women's agreement on whether a husband would be justified in beating his wife in each of the following situations: if the wife burns the food, if she argues with him, if she goes out without informing him, if she neglects the children, or if she refuses to have sex with him. Our summary measure of women's attitude has two categories: 'no' if the woman disagrees with all the reasons and 'yes' if she agrees with at least one of them. This variable is mainly used to determine the extent of women's acceptance of norms that subordinate their bodily integrity and sexuality to men and its influence on fertility preference and use of contraceptive.

The proxy measures of women's autonomy included in this study are: women's educational attainment, employment, household economic status and rural–urban residence. Women are classified into three categories according to their educational attainments: no education, primary and secondary or higher education. Employment is measured by a dichotomous variable: employed and not employed at the time of the survey. Household economic status is based on information on household ownership of a number of consumer items, as well as dwelling characteristics such as source of drinking water, sanitation facilities and type of material used in flooring (NSEO & ORC Macro, 2003). Since the number of children a woman has influences her fertility preferences and contraceptive use, number of living children is included as a control variable.

Results

Women's direct autonomy indicators versus proxy variables

As a first step towards assessing the link between women's direct autonomy indicators, proxy indicators and reproductive preferences, it is important to look at the relationship between the direct and proxy indicators of women's autonomy. This will give us some idea on how the direct measures of women's autonomy vary by the proxy indicators. The percentage distributions of women's decision-making autonomy, their attitudes toward wife beating, and spousal discussion on family planning are presented in Table 1. Since direct autonomy indicators refer to women's status relative to their partner, only married women are considered here. Overall, 59, 69 and 75% of women reported that they are involved in decisions for making large purchases, making daily purchases and visiting family or relatives, respectively. It is evident from Table 1 that involvement in decision-making varies by the proxy indicators and age of women. For example, younger women tend to be less involved in decision-making of large and daily purchases and visiting family/relatives than older women. Women living in urban areas and those who are more educated have

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higher involvement in household decision-making and visiting relatives than their counterparts living in rural areas and with no education, respectively. Currently, working women and those with higher household economic status also appear to have higher final say in decision-making.

Overall, 27% of women feel that wife beating is never justified (Table 1). Women of older ages are more inclined to agree with at least one of the reasons justifying a husband beating his wife. This may be because younger women have more modern views and are more sensitive to their status. Women with secondary or higher education are more than twice as likely to disagree with wife beating than women with no education. However, it is surprising that one-half of women with secondary or more education still agree that a husband can beat his wife. Women of higher economic status are more likely to disagree with wife beating than women of low economic status. Employment does not make much difference in attitudes towards wife beating.

Compared with older women, younger women are also more likely to discus family planning affairs with their partners. Higher levels of household wealth and employment are both associated with higher involvement in spousal discussion in family planning. Considerable differences in husband–wife discussion are observed with the increase in educational attainment and rural–urban residence, where urban residents and more educated wives have higher involvement in family planning discussion with their partner.

Desire for no more children and ever-use of contraception according to women's autonomy

The main focus of this section is to make a preliminary descriptive assessment of the relationship between direct measures of women's autonomy and desire for limiting childbearing and ever-use of contraception using bivariate analysis. Odds ratios from multivariate logistic regression models are then used to interpret the effects of the former variables on the outcome variables.

Figure 1 shows the percentage distribution of women who desire no more children according to the direct autonomy indicators, while Fig. 2 presents the distribution of women who ever-used modern contraception according to the autonomy indicators. It is evident from Fig. 1 that the proportion of women not wanting any more children is associated with all the autonomy indicators. Women who can make domestic decisions by themselves are more likely to wish to limit childbearing than women who make the decisions jointly with husbands or than women who are not involved at all. Women who find wife beating justifiable are more likely to want more children than their counterparts who do not find wife beating justifiable. Women who discuss family planning with their partner are more likely to want no more children. Thus, differences in women's decision in household matters, freedom of movement and spousal discussion are related to important and measurable differences in their reproductive preferences. These unadjusted relationships indicate that Eritrean women's decisions regarding fertility preferences are not independent of their autonomy within the household on other matters. That is, although women in Eritrea have a low desire to limit childbearing, they are more likely to do so if they have decision-making autonomy.

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Table 1. Percentage of women who say that they alone or jointly have the final say in specific decisions and who disagree with wife beating and discussed family planning, according to selected background variables

Women's background variables	Involved in decision making			Disagree with at least one reason for wife beating[a]	Discuss family planning with partner	Number of women
	Making large purchases	Making daily purchases	Visit to family/relatives			
Age						
<20	38·5	47·1	49·4	30·1	20·0	595
20–29	58·7	68·3	73·6	31·1	21·3	2385
30–39	61·9	71·4	79·0	28·8	21·4	2103
40–49	64·0	73·3	81·6	25·1	15·5	1532
Residence						
Urban	69·4	81·2	82·6	36·5	37·7	2422
Rural	53·2	61·4	70·6	20·9	12·9	4193
Education						
No education	55·2	62·6	71·7	21·9	11·2	4070
Primary	63·6	76·7	78·3	26·0	33·1	1725
Secondary+	69·0	82·7	84·4	51·1	55·5	820
Employment						
Not employed	54·0	63·9	71·6	26·4	18·2	5370
Employed	80·9	88·8	89·2	27·4	30·2	1245
Household economic status						
Low	47·7	54·2	66·4	22·4	10·2	2616
Medium	65·9	75·8	78·8	24·1	22·5	2726
High	68·1	83·1	84·5	40·6	44·2	1273
Total	**59·3**	**68·7**	**75·0**	**26·6**	**20·0**	**6615**

[a]Husband can beat his wife if she argues with him, if she goes outside without informing him, if she neglects the children or if she refuses to have sex with him.

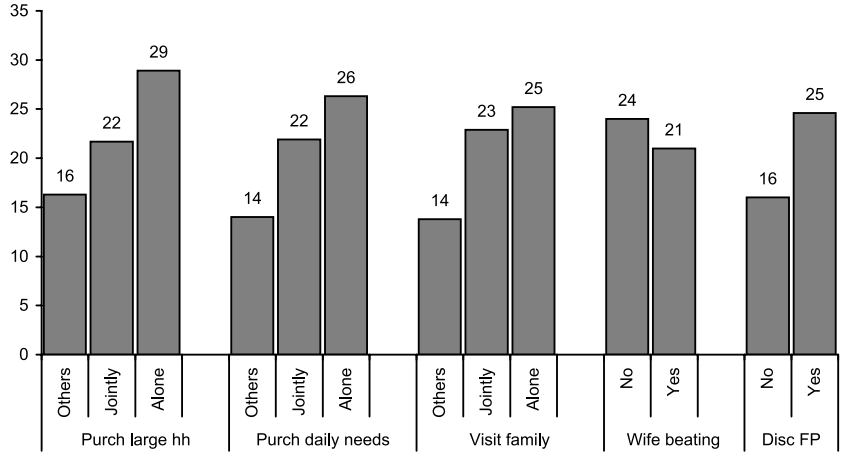


Fig. 1. Proportion of women who want no more children by selected women's autonomy indicators, Eritrea 2002.

It is clear from Fig. 2 that women's joint decision-making has a significant role in ever-use of contraceptive methods. In fact, as can be seen from this figure, the proportion of women who ever-used modern contraception is highest when the decision on large household purchases is made jointly. Similarly, for decisions on visiting family, both women's sole final say and joint decision have the same level of ever-use of contraceptive methods. The relationship between ever-use of contraception and the reasons for which women consider wife beating justified shows the expected pattern: ever-use is higher for women who believe that wife beating is not justified. Women who discussed family planning with their partner are also more likely to have ever-used modern contraception than those who did not discuss family planning with their partner. In general, regardless of the variations in women's autonomy, joint decision-making rather than independent decision-making seems to be Eritrean women's position with regard to ever-use of contraception.

Women's autonomy as a correlate of wanting no more children

The main question here is whether direct measures of women's autonomy have effects on the desire for no more children, and if so, whether such effects are influenced by the proxy indicators. In Table 2, the odds ratios from two logistic regression models are shown, in which the dichotomy of want no more–want more children is the dependent variable. To identify the relative importance of women's autonomy, two models are fitted. The first model (Model 1) includes only women's direct autonomy indicators and the second model (Model 2) or full model adds the proxy indicators and number of living children.

It is clear from Table 2 that in households where women alone make the final decision on household purchases for daily needs, the likelihood of wanting no more children is higher than where the decision is made jointly or by the husband/others. This effect remains unchanged, even after the proxy indicators are added. However,

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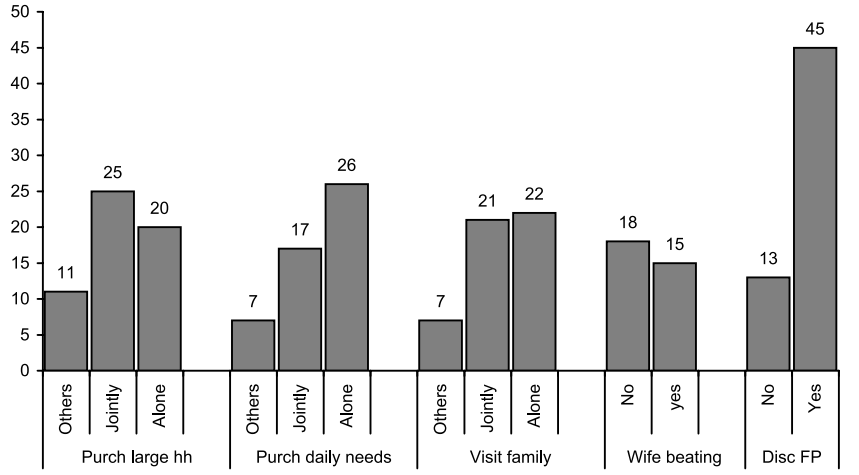


Fig. 2. Proportion of women who have ever-used modern contraception by selected women's autonomy indicators, Eritrea 2002.

in the case of decisions on large household purchases, the likelihood of wanting no more children is higher if the husband or others have the final say, though it is reversed when the proxy variables are included. The odds ratios for decisions on visiting family or relatives indicate that if women jointly with husband or others make the final decision, the odds of wanting no more children are about 40% higher than if women alone or the husband or someone else makes the decision. However, this significant result vanishes when controlling for the proxy indicators. No differential effect on desire for no more children is observed between women who justified wife beating and those who did not. Husband–wife discussion on family planning is significantly related to wanting no more children, where women who discussed family planning with their husbands are about 40% more likely to limit childbearing than those who never discussed it. The odds of wanting no more children increase monotonically as the number of living children increases. Residents in rural areas are less likely than residents of urban areas to want no more children. Women's education appears to make no difference to the desire for limiting childbearing; it is the same for women with no education and those with secondary or higher education. Such limited effect of education on fertility preference is also documented in other studies (Tfaily, 2004). However, as is evident from the earlier section, women's education increases women's decision-making autonomy. From the next section, it is also clear that there is evidence of an ideational effect of education that would decrease large family size and increase contraceptive use. On the other hand, a substantial portion of the effect of household economic status and employment seems to operate through other channels: even after accounting for the women's autonomy variables in Model 2, these two variables have a strong and independent influence on the desire for no more children. These results suggest that they cannot be considered proxies for the direct measures of women's autonomy considered in these models.

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Women's autonomy as a correlate of desired (ideal) family size

In this section, the effects of the various direct autonomy measures on desired family size are examined. Similar to the analysis above, two models are estimated: Models 3 and 4 of Table 2. While Model 3 is estimated to highlight the effects of the direct autonomy factors on desire for large family size (five children or more), Model 4 is estimated to investigate if these effects still hold when the potential confounding effects of the proxy variables are controlled for. It is evident from Table 2 (Model 3) that with the exception of physical mobility to visit family or relatives, women's sole decision-making autonomy decreases desire for large family size. For example, women in households where they have the final say in making large household purchases and in making day-to-day household purchases (either alone or jointly with husband or someone else) are less likely to have large desired family size (five or more children) than those in households where the final decision is made by the husband or others. However, women's decision-making autonomy to visit family or friends is unexpectedly positively related to large desired family size. In terms of women's attitude, women who feel that wife beating is not justified are about 20–40% less likely to desire large family size than their counterparts who feel that wife beating is justified. Consistent with other studies (e.g. Lasee & Becker, 1997), women who claim to have ever-discussed family planning with their partners are found to have smaller desired family size than women who never discussed family planning.

The addition of the proxy variables does not change the effects of women's direct autonomy indicators (Model 4). Women's direct autonomy indicators remain important and statistically significant, although the size of the odds ratios of spousal discussion decreased slightly. The full model shows that the effects of the proxy indicators and other control variables are not mediated by women's direct autonomy indictors; the effects of the former variables on desired family size are strong and significant. Desire for a large family size also increases with the number of living children a woman has.

Women's autonomy as a correlate of ever-use of modern contraception

In this section, the same direct and proxy measures of women's autonomy are used to examine their effects on ever-use of modern contraception. As before, two models are estimated (see Models 5 and 6 of Table 2). The findings indicate some significant, but contradictory effects of women's direct autonomy indicators on the outcome variable. Women who make the final decision on large household purchases alone are least likely to have used modern contraception. This means that women who make the decision jointly with their husband or women who consider this matter to be primarily within the husband's (or others') domain are more likely to have ever-used contraceptive methods. On the other hand, the findings indicate that women's sole decision-making in day-to-day household purchases results in a higher likelihood of ever-using a contraceptive method. In terms of visiting family or relatives, women who have a final say alone and/or jointly with their partner or others are more likely to have used modern contraception. Women who feel that wife beating is not justified are more likely to have used contraceptive methods, but this effect is reversed after the proxy indicators of women's status and other variables are

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controlled. There is a very strong direct association between husband–wife discussion on family planning and ever-use of modern contraception. Women who discussed family planning are three to five times more likely to have used modern contraceptive methods.

The effects of the proxy variables (Model 6), as well as of the number of living children, are not mediated by women's direct autonomy indicators. All of these background (or proxy) variables exert a strong and independent influence over ever-use of contraception regardless of a woman's autonomy in the household, freedom of movement, spousal discussion or her attitudes regarding wife beating. Thus, in their relationship to contraception use, the proxy variables cannot be considered effective proxies of women's autonomy dimensions.

Discussion and Conclusion

In this study, women's autonomy and its association with fertility preference and ever-use of modern contraception are examined using data from the 2002 DHS survey of Eritrea. The primary aim is to determine the effects of women's direct autonomy indicators on fertility preferences and ever-use of modern contraception in the country and to explore whether such effects are influenced by the proxy indicators of women's autonomy, namely education, household economic status, current employment or rural–urban residence. The different dimensions of women's direct autonomy used are women's decision on making large and daily household purchases and on visiting family or relatives, spousal discussion of family planning, and women's attitude towards wife beating.

The findings indicate that in Eritrea the level of women's autonomy is relatively low. In particular, levels of spousal discussion on family planning and women's attitude towards disagreement with husband's violence (or wife beating), which are considered to be the most direct measures of gender inequality, are very low among Eritrean women. However, given the restriction by patriarchal controls and the deterioration and decline of the socioeconomic services due to the border conflict that limit women's participation and ability to make independent decisions, the observed low levels of autonomy are not surprising. Further, the results show that the proxy indicators have a significant influence on direct measures of women's autonomy, where women with higher education, higher household economic status and who are currently employed have higher levels of decision-making autonomy and higher ability to discuss family planning with their partner than other women. These findings are consistent with other recent studies in developing countries (Bolivia, Peru and Nicaragua) focusing on the influence of women's socioeconomic status on their autonomy (Healton e*t al*., 2005).

The findings of the multivariate analyses provide important insights into the relationship between women's direct autonomy indicators and fertility preferences and ever-use of contraception in Eritrea. Although the relationship is naturally complex, some broad patterns are clearly seen that have some important theoretical and policy implications. First, despite the multidimensionality of women's autonomy, the reproductive preferences and use of contraception in Eritrea have a strong connection with most of the autonomy dimensions. One notable finding from the analysis is that

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Table 2. Odds ratios from logistic regression models to predict women's desire to limit childbearing

Variables	Desire to limit childbearing[a]		Desired (ideal) family size[b]		Ever-use of modern contraception[c]	
	Model with autonomy only (Model 1)	Full model (Model 2)	Model with autonomy only (Model 3)	Full model (Model 4)	Model with autonomy only (Model 5)	Full model (Model 6)
Decision on large household purchases						
Respondent	1	1	1	1	1	1
Jointly	1·08	0·82	1·01	1·06	1·65***	1·48***
Husband/other	1·30*	0·97	1·33**	1·27**	1·49***	1·48***
Decision on small (daily need) household purchases						
Respondent	1	1	1	1	1	1
Jointly	0·86	0·84	1·24*	0·92	0·40***	0·51***
Husband/other	0·63***	0·69***	1·93***	1·39**	0·34***	0·55***
Decision on visiting friends or relatives						
Respondent	1	1	1	1	1	1
Jointly	1·42***	1·18	1·01	1·01	1·21*	1·20
Husband/other	1·00	1·15	0·66**	0·70**	0·77*	0·75*
Wife beating						
Yes	1	1	1	1	1	1
No	1·04	1·14	0·59***	0·74***	1·16*	0·79**
Discussed family planning						
Yes	1	1	1	1	1	1
Never	0·58***	0·62***	1·82***	1·25**	0·18***	0·30***
Living children						
0	—	0·01***	—	0·25***	—	0·07***
1–2	—	0·04***	—	0·27***	—	0·50***
3–4	—	0·20***	—	0·58***	—	0·98***
5+	—	1	—	1	—	1

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Table 2. *Continued*

Variables	Desire to limit childbearing[a]		Desired (ideal) family size[b]		Ever-use of modern contraception[c]	
	Model with autonomy only (Model 1)	Full model (Model 2)	Model with autonomy only (Model 3)	Full model (Model 4)	Model with autonomy only (Model 5)	Full model (Model 6)
Residence						
Urban	—	1	—	1	—	1
Rural	—	0·67***	—	1·26**	—	0·50***
Education						
No education	—	1	—	1	—	1
Primary	—	0·83	—	0·79**	—	2·00***
Secondary+	—	1·02	—	0·44***	—	2·26***
Economic status						
Low	—	1	—	1	—	1
Medium	—	1·28**	—	0·83*	—	1·83***
High	—	1·98***	—	0·51***	—	2·89***
Employment						
Not employed	—	1	—	1	—	1
Employed	—	1·61***	—	0·70***	—	1·45***

[a]Want no more children vs want further children.
[b]Five+ children vs smaller family size.
[c]Never used vs ever used.
*Significant at <10%; **significant at <5%; ***significant at <1%.

women who have the sole final say on making purchases for daily needs and who ever-discussed family planning with their partner have significantly higher desire for limiting childbearing and higher ever-use of contraception. This finding means that efforts at improving Eritrean women's autonomy are not just worthy goals in terms of gender equality, but that they can have important repercussions for fertility outcomes and preferences. Second, the continued use of women's employment and economic status as proxies of women's autonomy or status, especially in their relationship to reproductive preferences, is questioned by these results. Employment and household economic status do not mediate the relationship between reproductive preferences and women's autonomy, and hence cannot be considered proxies of women's autonomy; most of their effect on all the outcome variables is channelled through some other mechanisms. On the other hand, the effect of education on reproductive behaviour is not always found to be consistent for all the outcomes in this study. Finally, to a large extent, the results show that despite the considerable variability across measures of women's autonomy, higher autonomy, particularly in making large purchases, visiting family or friends and in spousal discussion, are found to promote for joint rather than sole or independent decision-making in ever-use of contraceptive methods. This suggests that improved women's decision-making at the household level and husband–wife interaction could be good strategies in reducing fertility through their positive association with women's ability to meet their own family-size goals through the effective use of contraception.

Current policies on reproductive behaviour in Eritrea and other East African countries are heavily oriented towards female education and employment and need to be redirected to include women's decision-making autonomy profiles too. The results also strengthen the view that any detailed and comprehensive analysis of factors influencing reproductive preferences or behaviours should include both women's decision-making autonomy and the background (proxy) variables, as most of the effects of the later variables may not be mediated by the former variables. Failure to include the more direct autonomy measures in research and programmes for reproductive behaviour in these countries may have serious implications, not only for family planning, but also for the reliability of fertility estimates that include only proxy variables.

While the findings support the main hypotheses of this study, there are some limitations too. In particular, understanding the role of women's decision-making autonomy in fertility preferences and decisions may be problematic because of its multidimensionality and the difficulty in formulating or defining an appropriate autonomy construct. Some authors concluded that autonomy is a composite of many factors that manifest themselves differently according to social or cultural norms and systems (Jejeebhoy & Sathar, 2001). In addition, the meaning of the word autonomy is hardly ever understood by women interviewed in surveys and translations of the word always carry a negative connotation (Jeffery & Jeffery, 1997). This may suggest that there is a need for qualitative research on the topic to amend the findings from the present study. This, of course, requires more detailed information from large-scale national coverage surveys other than the EDHS. Although the EDHS survey lacks qualitative information, unlike small-scale surveys, it collected several measures of women's' autonomy and reproductive behaviour, and it has filled a gap in our

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knowledge and stimulated new thought in the relationship between autonomy and reproductive preferences. Because of the 30 years of war for independence and the recent border war and subsequent no peace–no war situation, this survey was the most recent to provide the opportunity to undertake a major investigation into reproductive behaviour in Eritrea. Due to lack of timely information on some factors that may link the border conflict with reproductive preferences (e.g. duration of spousal separation), it was not possible to take into account the effect of the border conflict on reproductive behaviour.

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