Decision-Making Patterns and Contraceptive Use: Evidence from Uganda

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ABSTRACT

We differentiate two decision-making patterns where women have a voice—joint decisions and wife-dominated decisions—and test whether these as well as husband-dominated decisions each have distinct effects on contraceptive use. We confirm that wife-dominated decisions are the most likely to result in contraceptive use: in Uganda where fertility is high, joint decisions were more likely to result in traditional reproductive behavior. We also identify important community-level effects: in communities where husband-dominated decision-making is more common, the wife holding autonomous views does not promote contraceptive use as much as it does in more egalitarian settings.

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INTRODUCTION

Understanding of the effect of decision-making patterns on contraceptive use has been constrained by a fundamental inconsistency between theory and measures. The dominant theoretical paradigm since the 1994 International Conference on Population and Development emphasizes the reproductive autonomy of individuals. In contrast, measures of decision-making have commonly viewed joint decision-making within couples as the most "modern" form. As a result, the literature reveals the contrasts between traditional (husband-dominated) decision-making and joint decision-making, but does not reveal whether women's autonomous decision-making is associated with distinct reproductive outcomes. A second pervasive inconsistency between theory and measures is that gendered roles and attitudes are recognized as products of collective socialization (Gage 1998; Kane 1996; Mhloyi 1996; Ramirez-Valles, Zimmerman, and Newcomb 1998), but these are rarely measured at the community level when predicting reproductive outcomes (exceptions include Balk 1994; Kritz, Makinwa-Adebusoye, and Gurak 2000; Mason and Smith 2000; Morgan et al. 2002).

We address both of these issues by analyzing whether use of modern contraception varies according to three different modes of decision-making within couples, and also according to the decision-making patterns dominant in the couples' communities. We are therefore able to identify how decision-making patterns influence contraceptive use employing a model that is consistent with commonly accepted perspectives regarding reproductive choice and social influences. Our data are from Uganda, a setting with large variation between communities in

common decision-making practices and also with substantial variation in the reproductive preferences and outcomes of individual women.

BACKGROUND

Three decades ago, egalitarianism was seen as the main feature of "modern" families and society, indeed as an inevitable product of modernization. Family typologies ranged from traditional to modern, where the modern family system was equated with an egalitarian family structure characterized by joint decision-making patterns (Hill, Stycos, and Back 1959). Following this typology, a number of studies have examined the role of egalitarian gender-role attitudes on reproductive outcomes. It is generally posited that individuals and communities with egalitarian gender-role attitudes are more likely to have positive contraceptive attitudes and behavior than those with traditional attitudes (Hill, Stycos, and Back 1959; MacCorquodale 1984; Ntozi 1990; Olson-Prather 1976). Others have observed that marital dyads characterized by more egalitarian gender-role patterns desire, and have, smaller families (Bagozzi and Van Loo 1980; Chapman 1989).

The 1990s witnessed a major shift of emphasis from an egalitarian family system that is characterized by interdependent cooperation between spouses to one that emphasizes individual choice (Obermeyer 1995). With reproductive rights, defined generally as the right of individuals to decide "freely and responsibly" the number and spacing of births, becoming increasingly a major focus in reproductive health, individual autonomy in reproductive decisions has since become a dominant paradigm in examining reproductive outcomes (Morgan and Niraula 1995). Nonetheless, while individual autonomy commands an important role in the general literature on contraceptive use, it has not made its way into the literature on couple decision-making patterns. Women's role in reproductive decisions is often measured by how much they participate in joint

decisions, not by whether they take decisions autonomously (e.g., Balk 1994; Gammage 1997; Hollos and Larsen 1997; Kritz, Gurak, and Fapohunda 1993; Oheneba-Sakyi et al. 1995; Perveen 2001; Schuler and Hashemi 1993).

The distinction we are highlighting between women participating in joint decisions and women taking autonomous decisions may or may not matter for contraceptive use. It is not a priori clear that greater women's autonomy would predict lower fertility because almost everywhere besides West Africa, aggregate fertility preferences of men and women are very similar: many cases of spousal disagreement about fertility goals involve pronatalist women married to men who want to limit childbearing (Bankole and Singh 1998; Mason and Taj 1987). Reproductive autonomy may give women the ability to actualize both high and low fertility preferences (see DeRose, Dodoo, and Patil 2002). Nonetheless, given the strong inverse relationship between variables that proxy for women's empowerment (like education and employment) and fertility, it seems inherently plausible that women making autonomous decisions might use modern contraception more than those participating in joint decision-making. Reproductive autonomy includes choices about the timing of pregnancies and not simply the total number of children. Furthermore, autonomous decision-making may represent a departure from norms that socialize women to want more children (Folbre 1983) and from institutions like polygyny that may also constrain reproductive choice.

Regardless of whether the contraceptive use of individual women who make autonomous decisions differ from outcomes of their counterparts who decide jointly with their husbands or those who defer to husbands in decision-making, community norms regarding decision-making may influence fertility. In fact, community-level influences may matter more for the contraceptive use of a given couple than do the couple's own decision-making pattern. Although

some have questioned the dominant role that is often assigned to socialization in determining individual attitudes and behavior (see Udry 1994, for instance), others have shown stronger and consistent effect of socialization over sociobiological factors in human attitudes and behavior (see Granberg and Granberg 1985; Losh-Hesselbart 1987; Muriuki 1993).

While previous studies have not considered normative modes of decision-making as a community-level influence on reproductive outcomes, the existing literature nonetheless provides ample reason to believe these might be relevant. For instance, Ezeh (1997) demonstrated that women living in areas with high rates of polygyny had lower rates of contraceptive use regardless of whether they personally were in a monogamous or polygynous union. Monogamous women are influenced by the prevailing pronatalist norms in communities characterized by high rates of polygyny, and in the same way women with unusually high levels of participation in decision-making may nonetheless be influenced by prevailing norms in communities characterized by high rates of husband-dominated decision-making. As another example, Kravdal (2002) found that in communities where women's education was higher, the fertility of all women—not just the educated—was substantially lower. Women's participation in decision-making might work in a similar fashion, with even women whose husbands control decision-making having higher rates of contraceptive use if the community context is one where it is normative for women to have a voice. As a final sobering example, Pallittoa and O'Campo (2005) found that Colombian women living in municipalities with high rates of intimate partner violence had vastly higher rates of unintended pregnancies, whether or not they were individually abused; they also found higher degrees of male patriarchal control in the community elevated unintended pregnancy rates. These findings clearly support the notion that communities where men dominate decisions might be ones where contraceptive use is lower.

Additionally, there may be important cross-level interactions with the importance of individual characteristics depending on the community context. Fuwa (2004) has shown that individual attributes matter less in determining household division of labor in less egalitarian countries. Joint decision-making may differ little from husband-dominated in communities where men usually control decisions; in such a context a couple's "joint" decision may be more heavily influenced by the man's preferences than in a context where husband's dominance were less common. Community norms help determine how much value is placed on a woman's opinion (see Kabeer 2000).

THE SETTING AND THE DATA

Our empirical analyses uses data from the 1995/96 Negotiating Reproductive Outcomes (NRO) Study which surveyed 78 communities in 2 districts in Uganga. Makasa district is in the south of Uganda, west of Lake Victoria and not far north of the borders with Tanzania and Rwanda. Lira district is north of Lake Kyoga and closer to Sudan and Kenya. Both districts are heavily rural, but they differ with respect to types of crops grown, HIV prevalence, dominant ethnic groups, and other cultural factors like bridewealth payment customs. Lire district is generally less socioeconomically advanced with lower literacy, higher infant mortality, and less cash cropping (Blanc et al. 1996), but there is still substantial variation between communities within both Lire and Makasa districts.

The NRO study was conducted by the Demographic and Health Surveys (DHS) program. At the first stage of sample selection, enumeration areas (EAs) were selected systematically with probability proportional to size from the sampling frame of the 1991 census. A random stratified

sample of 40 EAs was selected from each district.[1] Then, households were systematically selected within each EA. In Lira District, one in three households were covered in selected EAs while the sampling fraction in each EA in Masaka district was tailored to achieve the number of households projected from the 1991 Census (or from the 1995 DHS household listings for EAs that were also sampled in the DHS). All women aged 20-44 who were de jure household members were eligible for interview provided that they met certain marital status criteria; the response rate was 92.2%. Further details on the design and implementation of the study may be found in Blanc et al. (1996).

Although 1750 women were successfully interviewed, we excluded the 90 that were in stable sexual unions rather than married or living together. We also randomly selected one respondent per household to prevent our analysis from being biased by household-level fixed effects. The resulting analytic sample was 1582 women. The interviews covered a wide variety of topics relevant to our research including data on decision-making patterns in the household, gender-specific responsibilities in the household, and views and perceptions regarding ability to control one's own life, in addition to family background and relationships, fertility desires, and contraceptive use.

DATA AND METHODOLOGY

Decision-Making Variables

The NRO study asked a general question relating to overall decision-making at the household level and several other questions on decision-making relating to specific issues, gender-roles and responsibilities regarding these specific issues, and views regarding individual

[1] Due to logistical problems in the field, interviews were conducted in only 39 of the selected EAs in each district.

and family responsibilities. Table A1 in the appendix gives a list of the questions we used when constructing our key independent variables and their response options. We use women's responses to the decision-making and personal control questions because our focus is on whether women's experience of their own influence over household decisions has a direct effect on their contraceptive use.

For questions dealing with decision-making patterns (hereafter referred to simply as *decisions*), the response options were self, spouse, both, and other. The array of variables regarding *decisions* affords us a distinct advantage over studies that have had to rely on one or a few proxy variables in attempting to operationalize egalitarianism or traditionalism in decision-making (see Govindasamy and Malhotra 1996; Safilios-Rothschild 1982 and discussions therein). We do not follow earlier work where the focus has been on joint decision-making versus other types of decision-making (see MacCorquodale 1984; Olson-Prather 1976), but rather identify three decision-making patterns: husband-dominated, joint, and wife-dominated.

The husband-dominated decision-making pattern is characterized by response options that conform to traditional gender-role expectations: the man is generally the sole decision maker. Joint decisions are those shared by husband and wife, characterized by "both" responses to the questions on *decisions*. The woman making the decisions characterizes the wife-dominated pattern.

We created an index for each of these three patterns based on the decision-making that the wife reported across eight questions (see first panel of Appendix Table 1). We weighted the general question about whose opinion carried the most weight in household decision-making almost twice as heavily as the seven specific items because it likely reflects the couple's general decision-making style. For decisions regarding children (health care, education, and fosterage),

one point was added to the husband-dominated index if the husband decided, one point to the joint index if both spouses participated, and one point to the wife-dominated index if the wife decided (if the respondent reported "other", the item did not count toward any of the total scores). Equal weights were given to each index for questions regarding children because children belong to both parents. For decisions regarding spending of money the wife earned, support for her parents/relatives, and what food to cook, the wife deciding contributed less than a point to the wife-dominated index since her sphere of influence would be greater in these matters even where decision-making was highly traditional (see Gammage 1997 for a discussion of spheres commonly belonging to women). Similarly, the wife reporting that her husband decided about support for his own parents/relatives contributed less to the husband-dominated index than other decisions he was reported making alone. The weights we assigned were based on the principles outlined above, but their actual values were somewhat arbitrary.[2] Nonetheless, by allocating weights we avoided imposing arbitrary equality between the index items and also obtained the additional advantage of avoiding "ties" with respect to the decision-making pattern that characterized the couple. We assigned an overall decision-making pattern to each respondent based on the index having the highest total score. In almost half of the couples (48.9%), the wife

[2] The value added to the wife-dominated index if her opinion carried more weight than her husband's was 1.931; it was one for decisions about the children, 0.780 for spending her own earnings, 0.450 for what food to cook, 0.700 for care of her own parents, and 1.500 for care of his parents. The reciprocal of these numbers determined what was added to the husband-dominated index if he decided. For joint decisions, all items were valued at 1 besides the general question at 1.931, spending her own money at 0.910 and food cooked at 0.850. Since drafting this paper we have re-weighted the index based on deviations from average responses: this is less arbitrary and still carries the advantage of considering less traditional responses more heavily. The tables here are based on the old index: the new one will be used in future drafts.

reported husband-dominated *decisions*; 41.2% of couples made primarily joint *decisions*, and 9.9% displayed a pattern that was mostly wife-dominated.

We averaged each of the three decision-making indexes at the community level and used the individual-level proportions to define cut-offs for our cluster-level *decisions* variable. Because 10% of couples had decision-making patterns that were best characterized as wife-dominated, clusters where the average index of wife-controlled *decisions* was in the top decile were coded as having a wife-dominated decision-making pattern in the community (n=8 out of 78). Matching the proportion of husband-controlled decisions at the individual level, clusters in the top 55% of the distribution for the average husband-controlled decision index that were not already considered wife-dominated were coded as husband-dominated (n=36), and the remaining 34 clusters were coded as joint. This scheme characterized clusters distinctly with respect to the most common decision-making patterns practiced within them: the cluster mean score for joint decision-making was significantly higher in the joint clusters than in the other clusters (3.12 versus 2.24 and 2.26). Similarly, the cluster means on the other indexes were significantly different according to the types we assigned.

Personal Control

While our focus is on the effect of decision-making patterns on contraceptive use, we recognize that women vary with respect to the degree of personal control they believe they have (Inkeles and Smith 1974). Those who assign greater import to fate rather than agency, or who believe that other people control their lives, are likely to differ from more autonomous individuals regardless of their decision-making patterns. We assessed women's views and perceptions regarding their ability to control their own lives. We constructed an index (which we subsequently refer to as *views*) from their endorsement or opposition to seven statements

reflecting fatalism and subordination to the desires of others. For statements assessing *views*, the response options were: agree, disagree, and no opinion. When the woman agreed to a statement that emphasizes her individual role (or disagrees with a statement that emphasizes the role of the husband or other family members relative to hers), one point was added to her autonomous views index. The NRO instrument also included nine statements more specifically tapping reproductive autonomy, but we did not include these in order to avoid endogeneity bias. However it is also quite interesting to note that in this high fertility society, there is only a modest correlation (0.27) between the index of general views and one for reproductive health views. Autonomy in other arenas clearly does not automatically confer reproductive autonomy.

Other Independent Variables

Other controls at the individual level are the woman's age and education. Age is a continuous variable measured in years. Education is represented by a set of dummy variables with no education as the reference category and primary education distinguished from secondary and higher. At the community level we control for region, type of place of residence, and education. Region is a dummy variable with "0" representing Lira and "1" Makasa. Rural areas are coded "0" and urban areas "1". There are two continuous education variables: the proportion of women in the cluster having primary or higher education, and the proportion having secondary or higher. The influence of having a higher proportion of women in the community educated to at least the primary level would have underestimated if our community primary education variable had excluded the most educated (i.e., a cluster could have a low proportion primary educated either if overall schooling levels were low or if secondary enrollments were high; we do not treat these kinds of cases equivalently).

Dependent Variable

Our outcome variable is modern contraceptive use. This reflects whether fertility is regulated by effective volitional means. Women use modern contraception for a wide variety of purposes from stopping childbearing to spacing births to choosing whom to have children with, but in all instances—even where birth spacing is a health measure meant to *increase* successful childbearing—it reflects whether women are acting to achieve their reproductive goals.

Estimation Techniques

As we noted earlier, the NRO study involved a multi-stage cluster sampling design within each of the two selected districts. The hierarchical nature of the data allows for the use of multilevel models with cluster at the higher level (n=78). Traditional single-level analyses of the relationship between decision-making and contraceptive use ignore the established fact that gender is a social construct and gender relations and women's personal control beliefs are products of the socialization process (Gage 1998; Kane 1996; Mhloyi 1996; Ramirez-Valles, Zimmerman, and Newcomb 1998). Different communities may therefore have different conceptions of gender roles and established norms and mores that govern gender relations. Individuals within a given community may conform to their community's expected behavioral patterns even when their individual views and opinions differ. Individual views and opinions, however, may also be strongly influenced by shared values. In addition, the outcome variable, use of modern contraceptive methods, may be influenced by community factors. For instance, factors such as access to modern methods are likely to be shared in common by women in a given community, which may in turn enhance or limit their use of such methods. As a result, one may observe high correlation in the behavior or views of women in a given community regarding a specific issue.

We model the use of modern contraceptive methods using two-level logistic regression models of the form:

$$\log(P/1\text{-}P)_{ij}=b_0 + b_1x_{1ij} + \ldots + b_kx_{kij} + e_{ij} + U_j \quad (1)$$

where $\log(P/1\text{-}P)_{ij}$ is the log odds of modern contraceptive use for a particular woman *i* in the j^{th} community, the xij's are the covariates defined either at the woman or cluster level, and e_{ij} and U_j are the residuals at the woman and cluster levels, respectively. These are assumed to have normal distribution with mean zero and variances σ_e^2 and σ_μ^2.

The statistical package HLM (Hierarchial Linear and Nonlinear Modeling) was used for the multilevel logistic regressions (Bernoulli model). HLM provides estimation of population-average models using Generalized Estimating Equations (GEE), and we used the robust option for the standard errors (see Bryk and Raudenbush 1992).

RESULTS

Descriptive contrasts between Lire and Makasa

These will be provided in the conference version of the paper.

Socioeconomic Differentials in Decision-Making Patterns

Overall, few couples practice decision-making patterns that are mostly wife-dominated (10%). The most common pattern for *decisions* is husband-dominated (49% of couples), and joint *decisions* characterize 41% of couples. Table 1 shows variations in couple's decision-making patterns by selected socioeconomic characteristics. Although a number of studies have attributed the lower fertility desires of younger women to their more egalitarian relationships with their spouses and their more positive gender-role attitudes compared to older women

(Bradley 1995; Chapman 1989), the results in Table 1 reveal that younger women report more husband-dominated *decisions* than older women. The relative role of women in decision-making tends to increase with age. This findings is consistent with other studies in the African context that show stronger women's influence on reproductive outcomes at older ages or after more children have been born—when such influence is likely to have little or no impact on reproductive outcomes (Bankole 1995; Dodoo 1998; Ezeh 1993).

Couples in Masaka, compared to those in Lira, have substantially lower levels of joint decision-making. Women are less likely to take autonomous decisions in rural areas than in urban areas. As expected, the relative power of the wife in decision-making tends to be greater at increasing levels of education. However, the wife's education does not have a monotonic relationship with either husband-dominated or joint decision-making.

Bivariate Relationships between Decision-Making Patterns and Contraceptive Use

As we noted earlier, patterns of decision-making may represent a community attribute much more than an individual characteristic. Table 2 presents the bivariate relationships between *decisions* at both the individual and community levels and use of modern contraceptives. The pattern of the results is the same at both levels: joint decision-making is associated with the lowest levels of contraceptive use, husband-dominated decision-making is associated with intermediate levels, and wife-dominated decision-making is associated with the most modern contraceptive use. However, the magnitude of the differences is greater in the community-level relationships. That is, women who live in communities characterized by high levels of wife-dominated decision-making have greater contraceptive use rates than do the subset of individual women who make decisions autonomously. Twenty-seven percent of women who take decisions autonomously were using modern contraception at interview and the figure rises to 34% among

women living in communities where wife-dominated decision-making is common (even though only 21% of individual women in such communities report wife-dominated *decisions*, not shown). The outcomes for the other two decision-making patterns are more consistent between the individual and community levels. Therefore, wife-dominated decision-making stands in stronger contrast to the other two patterns when we consider the community context.

It is clear from Table 2 that joint and wife-dominated patterns of decision-making have distinctly different implications for contraceptive use. While women participate in decision-making in both instances, these preliminary results urge for caution in the conclusions of earlier research that treats both types of decision-making as equivalent.

Multivariate Analysis

Model 1 in Table 3 provides multilevel estimates of the relationship between *decisions* and contraceptive use. It shows that husband-dominated decision-making at the individual level is associated with significantly lower odds of contraceptive use, while women living in communities where wife-dominated decision-making is most common have significantly higher probability of using contraception. Overall use in the sample is 18%, the same level predicted by the intercept ($e^{-1.726}$=0.18). Among couples where the husband takes most decisions, the odds ratio is 0.73 ($e^{-0.311}$), meaning that predicted use is 73% of that in the reference category (joint decisions) or 13%. In communities where the wife takes most decisions, contraceptive use is 3.2 times as likely ($e^{1.167}$), predicted at 58%.

These fairly dramatic results do not survive in Model 2 where we introduce the control variables: individual *views*, age, and education; community *views*, district, urban residence, and education. Both individual and community *views* are associated with higher odds of contraceptive use. Individual women with *views* reflecting more personal control as well as

women living in communities where these autonomous *views* are common—regardless of their own *views*—have significantly elevated probabilities of contraceptive use (11% if the individual woman's index increases by one point above the grand mean; 43% higher if the community average increases by one point above the grand mean). This finding is worth taking note of, particularly because education is controlled (and has large substantive as well as statistically significant effects at both the individual and community levels). The total effect of education may actually be underestimated when we control for *views*, because one of the pathways through which education could affect contraceptive use is by imparting less traditional and less fatalistic views. We show that autonomous views matter over and above that which can be explained by education level and therefore represents an independently important determinant of modern contraceptive use.

Model 3 adds interactions between *decisions* and *views* to test whether the effect of decision-making patterns varies according to degree of personal control: it does. First, at the individual level, women who report taking most decisions themselves show much higher rates of contraceptive use than those whose *decisions* are better characterized as being joint with their partner. Women with more autonomous views also have significantly higher contraceptive use. However, the significant negative interaction between *views* and wife-dominated *decisions* indicates that these effects somewhat substitute for one another rather than being mutually reinforcing (or at least additive). If a woman does not perceive herself as having influence over her own life, making decisions alone is a particularly important determinant of contraceptive use. It seems that women with more traditional views move away from contraceptive use when they make decisions jointly with their husbands while these same traditional women choose modern contraception if they make decisions independently.

Second, we also find that individual *views* are less important in determining contraceptive use in communities where men generally dominate decisions. The cross-level interaction between individual *views* and community husband-dominated *decisions* is statistically significant. That is, women holding more autonomous views are less likely to have elevated rates of contraceptive use in communities where most decision-making is husband-dominated. Predicted probability of use is 28% higher for each point increase on the *views* index in communities characterized by joint decisions, but only 2% higher for each point on the *views* index in communities characterized by husband-dominated decisions. Contraceptive use rates are higher (insignificantly) in communities where husband-dominated decisions prevail, but the effect of the woman's personal control views is significantly smaller in such communities.

The results in all three models show consistently significant effects for the random effects, suggesting that contraceptive use is correlated among women in the same community. In the final model, an additional 13% of the variance in contraceptive use was explained by unmeasured variation between communities ($p<0.01$). These results imply that single-level models for this outcome variable are not appropriate. Furthermore, we demonstrate that theoretically important influences on contraceptive use have distinct effects at the individual and community levels.

DISCUSSION AND CONCLUSION

We have examined the relationship between decision-making patterns, personal control beliefs, and contraceptive use. Our most basic conclusion is that women participating in decision-making does not automatically lead to more contraceptive use. This is seen most clearly in the bivariate analysis where joint decision-making at both the individual and community levels was associated with lower rates of contraceptive use than either husband-dominated or

wife-dominated decision-making. In a high-fertility society such as Uganda, many will hold traditional reproductive ideals and receive social support for them: in this context, those who might have individually chosen more innovative reproductive outcomes will likely be influenced toward more normative ones through the process of joint decision-making.

Two lessons emerge here that challenge common assumptions about decision-making patterns and fertility. First, the most traditional decision-making (husband-dominated) does not necessarily lead to the most traditional reproductive outcomes. Joint decision-making can support high fertility. Second, women's influence over contraceptive use is inadequately measured where joint decision-making and wife-dominated decision-making are considered together. Participation in decisions is not the same as control over decisions. Our multivariate analyses underlined this second point: women who take decisions independently had far greater rates of contraceptive use relative to those participating in joint decision-making.

Our study highlighted the importance of variation in decision-making patterns between communities and therefore demonstrated that single-level models are inappropriate for understanding contraceptive use. Measurable community characteristics influence individual behavior. This kind of analysis needs to be extended to include settings where modern contraceptive use does not represent such an extreme departure from normative behavior. Where contraceptive use is more common, joint decision-making seems less likely to be associated with lower use rates. The distinction between controlling decisions and participating in them is theoretically important everywhere, but its substantive effect on contraceptive use levels might vary considerably according to social context.

Our results urge for caution in current efforts to improve reproductive health outcomes through the involvement of men. If such involvement implies joint decisions between couples, it

could undermine women's agency in achieving their reproductive goals, especially in settings where husband-dominated decisions are more common. Autonomous decisions by women in one sphere of life, however, may be detrimental to their well-being in other spheres. Further research is needed to fully explicate the circumstances in which women may be encouraged to make autonomous decisions and others where such decisions may prove to be too costly for them. More specifically, it would be unwise to encourage women's autonomous decisions to use modern contraception without first assessing whether the risk of domestic violence increases for women who unilaterally choose to employ modern methods (see Bawah et al. 1999 for a discussion of family planning use and wife beating).

Additionally, we highlight that perceptions of personal control (*views*) interact importantly with decision-making patterns. At the individual level, autonomous views and wife-dominated decision-making are somewhat substitutable: taking decisions alone is an especially important determinant of contraceptive use for women with traditional views. Perhaps there is more regression to the mean associated with joint decision making if women do not feel they have strong influence over their own lives. At the community level, husband-dominated decision-making dampens the effect of individual women's autonomous views: women's views matter more in contexts where their participation in decision-making is more common. This indicates that in the most traditional communities, women's *views* matter the least.

Such findings support the salience of community-level interventions to increase personal control. Even though schools generally socialize students away from fatalistic views (Inkeles and Smith 1974), they could be doing more in this area, particularly by employing curricula that offer possibilities to female students other than fulfilling traditional gender roles (see Lee and Lockwood 1998) and that offer decision-making models that serve as alternatives to men's

dominance. Furthermore, our finding that schooling and autonomous views independently promote contraceptive use argues for the importance of programs outside of formal schooling that endeavor to raise girl's sense of personal control and mastery over their bodies. Interventions encouraging sports participation have shown promising results (Brady and Khan 2002).

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TABLE 1: Bivariate Relationships with Decision-Making, Uganda NRO, 1995

	% Husband-dominated	% Joint	% Wife-dominated	*No. of cases*
Total	49	41	10	*1625*
Age group				
20 – 24	59	36	5	*536*
25 – 29	47	44	10	*445*
30 – 34	44	43	12	*322*
35 – 39	44	42	15	*219*
40 – 44	34	49	17	*103*
Region				
Masaka	57	31	11	*875*
Lira	39	58	8	*750*
Type of residence				
Urban	49	38	13	*893*
Rural	49	45	6	*732*
Education				
No education	47	46	7	*395*
Primary	53	37	10	*863*
Secondary +	42	45	13	*367*

TABLE 2: Bivariate Relationships between Decision-making Patterns and Contraceptive Use, Uganda, NRO 1995

Decisions	Using modern contraceptives (%)	No. of cases
Individual Level Decision Making Patterns		
Husband-dominated	17	794
Joint	16	670
Wife-dominated	27	161
Community Level Decision Making Patterns		
Husband-dominated	17	846
Joint	14	618
Wife-dominated	34	161

TABLE 3: Multilevel Predictions of Current Modern Contraceptive Use, Uganda NRO, 1995

Independent variables	Model 1		Model 2		Model 3	
Individual-level variables						
Decision-making (ref=joint)						
Husband-dominated	-0.311**	(0.116)	-0.153	(0.147)	0.259	(0.521)
Wife-dominated	0.019	(0.238)	-0.005	(0.263)	1.987**	(0.716)
Personal control index (*Views*)			0.104*	(0.053)	0.245*	(0.107)
Views x husband-dominated *decisions*					-0.099	(0.127)
Views x wife-dominated *decisions*					-0.496**	(0.165)
Wife's age			0.033**	(0.012)	0.035**	(0.011)
Wife's primary education			0.564**	(0.227)	0.531*	(0.228)
Wife's secondary or higher education			1.077***	(0.214)	1.043***	(0.220)
Community-level variables						
Decision-making (ref=joint)						
Husband-dominated	0.213	(0.312)	0.202	(0.182)	0.289	(0.190)
Wife-dominated	1.167**	(0.373)	0.185	(0.336)	0.294	(0.405)
Personal control index (Community *Views*)			0.405*	(0.184)	0.317	(0.186)
Makasa Region			1.043***	(0.210)	1.065***	(0.215)
Urban			0.412	(0.232)	0.446*	(0.232)
Proportion primary educated			0.891	(1.008)	0.917	(1.030)
Proportion with secondary/higher education			2.153***	(0.576)	2.198***	(0.585)
Cross-level interactions						
Views x husband-dominated community-level decisions					-0.225*	(0.100)
Views x wife-dominated community-level decisions					-0.150	(0.239)
Views x community-level *Views*					0.030	(0.156)
Intercept	-1.726***	(0.145)	-2.320***	(0.122)	-2.366***	(0.120)
Degrees of freedom						
Individual level	1620		1611		1606	
Community level	75		70		70	
Log likelihood	-2274.542		-2342.630		-2333.121	

Notes: Population averaged models with robust standard errors. Coefficients are log-odds of modern contraceptive use. Standard errors are in parentheses.
*** p≤.001; ** p≤.01; * p≤.05

APPENDIX TABLE 1: List of Variables Used in Constructing Indexes

PANEL A: Decision-Making Index (*Decisions*)

1.	Who mainly decides how the money you earn will be used: you, your husband/partner, you and your husband/partner jointly or someone else?	1. Respondent decides.....W 2. Husband/partner decides.....H 3. Jointly with husband/partner.....J 4. Someone else decides .....0 5. Jointly with someone else.....0 6. Not Applicable 0
2.	In your home, does your opinion carry about the same weight as your husband/partner's opinion, more weight than his opinion, less weight, or is your opinion not taken into account at all?	1. Same weight.....J 2. More weight.....W 3. Less weight .....H 4. Not taken into account .....H
	Who has the final say in your home on the following: you, your husband/partner, both of you or someone else?	
3.	What food to cook	1. Respondent.....W 2. Husband/partner.....H 3. Both respondent and husband.....J 4. Someone else .....0 5. Not applicable.....0
4.	Children's health care	
5.	Children's education	
6.	Support for own parents/relatives	
7.	Support for partner's parents/relatives	
8.	Fostering children	

H – Husband-dominated decision-making
W – Wife-dominated decision-making
J – Joint decision-making
0 – Set to zero (0)

PANEL B: Personal Control Index (*Views*)

	Now I am going to read you a series of statements. After I read each statement, please tell me whether you agree with the statement, disagree with it, or have no opinion one way or the other	
1.	It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad luck.	1. Agree ..... T 2. Disagree .....A 3. No opinion 0
2.	I have often found that what is going to happen will happen, whether I want it to or not.	
3.	My life is chiefly controlled by people with more powers than me	
4.	In order to get what I want, I have to conform to the wishes of others.	
5.	What others in the family want should always come first before what I want	
6.	I can generally determine what will happen in my own life	1. Agree.....A 2. Disagree ..... T 3. No opinion 0
7.	When I get what I want, it's usually because I've worked hard for it.	

T – Traditional views

A – Autonomous views

0 – Set to zero (0)