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Authors
Luz, Luciana
Agadjanian, Victor

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Women's decision-making autonomy and children's schooling in rural Mozambique

Luciana Luz[1] and **Victor Agadjanian**[2]

Luciana Luz: lucianaluz@cedeplar.ufmg.br

[1]Cedeplar/UFMG, Brazil

[2]Center for Population Dynamics, Arizona State University, U.S.A

Abstract

BACKGROUND—Women's decision-making autonomy in developing settings has been shown to improve child survival and health outcomes. However, little research has addressed possible connections between women's autonomy and children's schooling.

OBJECTIVE—To examine the relationship between rural women's decision-making autonomy and enrollment status of primary school-age children living in their households and how this relationship differs by child's gender.

METHODS—The analysis uses data from a 2009 survey of rural households in four districts of Gaza province in southern Mozambique. Multilevel logistic models predict the probability of being in school for children between 6 and 14 years old.

RESULTS—The results show a positive association of women's decision-making autonomy with the probability of being enrolled in primary school for daughters, but not for sons. The effect of women's autonomy is net of other women's characteristics typically associated with enrollment and does not mediate the effects of those characteristics.

CONCLUSIONS—Based on the results, we argue that women with higher levels of decision-making autonomy may have a stronger preference for daughters' schooling and may have a greater say in making and implementing decisions regarding daughters' education, compared to women with lower autonomy levels. Results also illustrate a need for considering a broader set of autonomy-related characteristics when examining the effects of women's status on children's educational outcomes.

1. Introduction

The connections between women's position in the household and children's outcomes have been widely examined in the literature. Evidence from both developing and developed countries has shown that when women are in control of household resources they are more likely to act for the benefit of their children (Haddad et al. 1997; Quisumbing 2003). The positive effects of women's autonomy on child survival and nutritional status are

particularly well documented (Caldwell 1986; Dyson and Moore 1983; Mason 1984). Following this evidence and the conceptualization of women's decision-making autonomy as a distinct component of women's status (Kabeer 1999; Yabiku, Agadjanian, and Sevoyan 2010), we examine the association between women's autonomy and primary school enrollment in a rural sub-Saharan setting.

The focus on women's autonomy seems particularly appropriate when analyzing factors affecting primary schooling in a context like rural sub-Saharan Africa, where direct pecuniary costs of attending primary school are usually low. In such settings, the decision-making process regarding a child's school enrollment is made not as a function of the resources available in the household and the allocation of these resources but in relation to the opportunity cost of the child's labor (Lloyd and Blanc 1996). In addition, women's perception of the opportunity cost of their children's enrollment may not be the same for boys and girls because they play gender-specific roles in economic and domestic activities. The gender bias may be magnified in settings marked by significant gender inequalities and rapid changes in the family context due to economic growth, modernization, and mobility (Yabiku, Agadjanian, and Sevoyan 2010).

This study examines the relationship between women's decision-making autonomy and children's schooling and how it differs by child's gender. Specifically, we estimate the effect of women's decision-making autonomy on the probability of attending school for male and female children between 6 and 14 years old. The analysis uses data from a 2009 survey of rural women and their households in a patrilineal setting in southern Mozambique. Our results show a positive effect of women's autonomy on the probability of being enrolled in primary school for daughters, but not for sons. The effect of women's autonomy is net of other characteristics that might be associated with women's status, and it does not mediate the effect of these characteristics. Based on these results, we argue that women with a higher level of decision-making autonomy may have a stronger preference for girls' schooling, and may have a greater say in making and implementing decisions regarding daughters' education. The higher value placed on girls' schooling can be a sign of women's changing ideas about the role of daughters and the way they envision their daughters' futures regarding returns for their education.

2. Conceptualization and hypotheses

The literature on women's status supports the view that women's status is a multidimensional complex that comprises multiple characteristics of women and their relations to others (Durrant and Sathar 2000, Roushdy 2004). Previous research has typically focused on the relationship between women's education and work and children's outcomes, showing that higher educational levels and employment are positively related to children's survival chances (Basu and Basu 1991, Hobcraft 1993, Cleland 2010) and their schooling (Lam and Duryea 1999, Buchmann and Hannum 2001). However, more recent research has also emphasized the importance of women's decision-making autonomy for children's outcomes (e.g., Durrant and Sathar 2000, Yabiku, Agadjanian, and Sevoyan 2010, Shroff et al. 2011). The concept of women's autonomy is usually defined in terms of women's ability to formulate, negotiate, and carry out their preferences (Smith et al. 2003, Ghuman, Lee, and

Smith 2006). As a distinct dimension of women's status, decision-making autonomy captures aspects of women's status that are not represented in the conventional measures. Thus Kabeer (1999) argues that the ability to make choices and act upon them should be viewed as separate from personal resources and outcomes when analyzing women's empowerment. According to her, this dimension encompasses behavioral processes like negotiation and bargaining, and cognitive processes of reflection and analysis. Furthermore, women's autonomy is a relational concept; it designates women's abilities to articulate choices and make decisions relative to those of men (Smith et al. 2003).

It has been also argued that women with greater autonomy within the household would have higher mobility and decision-making ability, characteristics that are positively associated with health-seeking behavior for them and their children (Caldwell 1986; Ghuman, Lee, and Smith 2006). Research on women's decision-making autonomy and children's outcomes found significant positive effects of autonomy on child nutritional status and survival (Hossain et al. 2007, Shroff et al. 2009, Brunson et al. 2009, Shroff et al. 2011). Despite the increasing amount of evidence on women's autonomy and child health-related outcomes, little research has addressed the association between women's autonomy and schooling. Yet research using various measures of women's status, such as women's share of the household income or woman being the head of the household, has found positive effects of women's status on school enrollment and attainment (Schultz 1990, Lloyd and Gage-Brandon 1994, Bruce et al. 1995). In this study we build upon this research and the literature on autonomy and child health outcomes to examine the association between women's decision-making autonomy and children's enrollment while controlling for conventional measures of women's status, such as educational level, work outside the household, and marital characteristics.

Following the conceptualization of autonomy as a marker of women's agency, we argue that women's autonomy might affect children's schooling separately from conventional attributes of women's status. In this study, while accounting for conventional characteristics such as educational level, work outside the household, and marital characteristics, we focus on the association between women's decision-making autonomy and children's enrollment net of these characteristics.

Additionally, we examine whether women's autonomy may have a different impact for enrollment of girls and boys. Previous studies have produced mixed results regarding the direction of these effects. Some studies point to a more beneficial effect of women's autonomy for girls' well-being relative to boys'. Thus, a cross-national study using data from Bangladesh, Ethiopia, Indonesia, and South Africa found that women's control over household resources reduced gender differences in children's education in Bangladesh but not in the other three countries (Quisumbing and Maluccio 2003). Fuller et al. (1995) found that in Botswana mothers were more likely to invest in their daughters than were fathers and tended to support their daughters' schooling more equitably in relation to their sons. It has been argued that empowered mothers are better able to negotiate social and domestic labor demands faced by their daughters that favor their school participation (Schultz 1990; Fuller et al. 1995). Moreover, higher autonomy levels are related to higher mobility and exposure to extra-familial influences, which could change the way mothers envision their daughters'

futures and perceived future returns from their education (Ahmed and Bould 2004; Yount 2005). Yet women's autonomy may also be associated with larger gender differences in resources allocated to children. Women with greater power to negotiate their preferences within the household may be better able to translate their preferences into outcomes, but their preferences may still be shaped by dominant community gender norms. In contexts with strong preferences for sons, or where women's social and financial well-being depends disproportionally on sons, as is typical in patrilineal settings, autonomy may have a more favorable effect for boys' outcomes (Das Gupta 1987, Eswaran 2002).

Most earlier studies of women's autonomy and sons' and daughters' school enrollment have dealt with settings with low school enrollment. In settings where primary school enrollment is low in general, gendered costs and benefits of education may be different from those where enrollment levels are rising rapidly. Our study therefore contributes to the literature by focusing on one such rising-enrollment setting.

Based on the reviewed literature and on the proposed conceptualization of female decision-making autonomy, we test the following hypotheses about the association between women's autonomy and school enrollment of co-resident children in rural southern Mozambique:

H1. Women's decision-making autonomy will have a positive association with their children's enrollment status.

H2. Women's decision-making autonomy will have an independent association with children's enrollment and will not mediate the effect of traditional measures of women's status, such as women's education, employment, and marriage characteristics.

H3. The association between women's decision-making autonomy and children's enrollment will vary by child's gender. Here two alternative hypotheses are tested:

H3a: The positive relationship between women's autonomy and children's enrollment will be stronger for daughters because women with greater decision-making autonomy may be more able to negotiate social and labor demands preventing their daughters from attending school.

H3b: The positive relationship between women's autonomy and children's enrollment will be stronger for sons because in the prevailing patrilineal and patrilocal system the real and perceived future returns of schooling are higher for boys than for girls and greater decision-making autonomy may help to realize the corresponding schooling preferences.

3. The setting

This analysis uses data from Mozambique, a country of some 26 million inhabitants located in southeast Africa. Data come from a representative survey of ever-married women of reproductive age conducted in July 2009 in rural areas of four contiguous districts (total area 5900 square miles, population of some 625 thousand at the time of survey) of Gaza province in southern Mozambique. A former Portuguese colony that became independent in 1975, Mozambique experienced civil war during the first fifteen years of independence. Since the

end of the war in 1992 the country has seen remarkable macroeconomic growth. Yet this growth has done little to alleviate the country's rural poverty (Cunguara and Hanlon 2012), and Mozambique remains one of the least developed nations in the world, with an average per capita annual income of $440, an infant mortality rate of 92 per thousand children, and adult literacy rate of 55% (Unicef 2011).

Since colonial times, Mozambicans have worked in South African mines, and this legal migration flow continues to date (CEA-EMU 1997; Crush 2001). The area of our study has particularly high levels of out-migration to South Africa. Migration within Mozambique, particularly from rural to urban areas, has also been growing rapidly (Jenkins 1993; Knauder 2000). Changing migration regimes have been at the root of transformations of family, kinship, and gender systems.

After the country's pacification and the first multi-party election in the mid-1990s, Mozambique had low educational outcomes, worsened by the lack of infrastructure, paucity of schools in the rural areas, difficulty in accessing areas outside provincial capitals, and shortage of teachers and school inputs (Fox et al. 2012). In the two following decades the country has seen progress in educational indicators such as literacy levels and enrollment rates. With the ongoing expansion of the educational system, access to basic education has increased fast, especially in the last decade. But despite vast improvements in access to primary education a sizeable share of children is left out of school, particularly girls and those in rural areas. The gender gap in indicators related to school enrollment shows the persistent, even if diminishing, disadvantage of girls. Thus, in 1999, the primary school net enrollment rate (NER)[3] was 47.4% for males and 39.8% for females. Ten years later the NER was already 93% for males and 88% for females (Unicef 2011). The gender imbalance is even greater regarding students' persistence in the school system. Primary school conclusion rates were 69% for males versus 48% for females in 2008 (Ministry of Education and Culture 2011).

4. Data and methods

4.1 Data

The sample of children analyzed in this study comes from a 2009 survey of rural women of reproductive age in four districts of Gaza province in southern Mozambique. The survey, conducted in 56 villages (14 per district), was the second wave of a longitudinal study that started with a survey in 2006. The 2006 sample consisted of 1,680 women (420 per district, 30 per village, one woman per household). The 2009 wave of data collection was carried out among women still living within the study area or who could be located elsewhere (N=1314, 78% of the 2006 sample). A refresher sample was randomly selected to replace women lost to follow-up. The total sample of the 2009 survey was 1,772 women.

The survey collected detailed demographic and socioeconomic information, including reproductive behavior, husband's migration history, household material status, and HIV-

[3]The primary school net enrollment rate (NER) is the share of children of primary school age that is enrolled in primary school expressed as a percentage.

related characteristics. The questionnaire also contained a battery of questions measuring women's decision-making power and collected information on school enrollment of all household members. The analytical sample of this study consists of the survey respondents' children between 6 and 14 years old living with their biological mothers who were in a marital relationship at the time of the survey (N=2026).

4.1.1 Dependent variable—The dependent variable is whether or not a child is enrolled in school at the time of the survey. Information on school enrollment comes from the question "Is he/she studying now?" asked about every member of the household. Measures of current school enrollment have been shown to be more informative than number of years of schooling (attainment) in sub-Saharan Africa: given frequent mobility of children between households and the lack of information on previous households of residence, current enrollment is more directly related to children's current inputs (Lloyd and Blanc 1996).

4.1.2 Independent variable—Women's autonomy is a multidimensional concept and simplifications must be made in order to generate a synthetic measure. For the purpose of this study, only aspects related to decision-making autonomy are considered. Our indicator is a modified version of the scale developed by Yabiku, Agadjanian, and Sevoyan (2010) and is constructed from questions on women's ability to engage in seven different activities, with responses following a 3-point Likert scale. For each of those activities, women were asked if they (i) would need to ask their husband's or his relatives' permission to do them, (ii) would just need to inform them, or (iii) whether even informing them would not be necessary. The seven activities were: visiting her parents or other relatives who live outside of the community; visiting a friend or neighbor who lives in the community; going to the city or a district capital to buy or sell something or to take care of some other business; spending money on family needs (such as food, school materials, clothes for children); spending money on her personal needs (such as clothes, shoes, or earrings); getting a job or engaging in commerce; and doing an HIV test. For each of the seven activities, respondents were scored 0, 1, or 2, based on the three possible answers listed above. A reliability analysis to assess whether the seven items are interrelated produced a Cronbach's alpha of 0.91, indicating high internal consistency.

To ensure a starker contrast between women with higher levels of decision-making autonomy and the rest of the sample, we chose to condense this range into a dichotomous indicator with two values—those among whom the average of the seven responses were at least one standard deviation above the mean vs. the rest. Admittedly, the use of a dichotomous variable may have resulted in a loss of some nuances in women's autonomy levels. However, an early exploratory analysis showed that the autonomy scores are not normally distributed, as individuals' scores are clustered around certain values. This uneven distribution may be partly due to the inherently varying accuracy of responses to this type of behavioral self-assessment question, which is often shaped by respondents' interpretations of the questions as well as the circumstances of interview and interviewer-respondent rapport. The chosen dichotomous specification therefore helps to reduce the potential noise

resulting from inaccurate responses, while also allowing us to focus on the role of higher autonomy levels.

Women's decision-making autonomy is related to a number of woman's, family, and community characteristics. Women with greater decision-making autonomy are not a random group, and some characteristics that are particular to this group could affect both their autonomy and their children's chances of being enrolled in school. Although we control for several observed characteristics, there could be unobserved characteristics affecting the relationship between women's autonomy and children's enrollment.

In order to address the concern about unobserved heterogeneity, we considered an instrumental variables approach to modeling child's enrollment. The main difficulty in implementing the method is to find an adequate instrument, in this case a variable closely related to autonomy but not to enrollment. A number of available variables that could predict women's autonomy without affecting the chances of a child being enrolled were tested, such as bridewealth payment, number of adults in the household, and co-residence with husband's kin. However, none of these variables predicted women's autonomy satisfactorily, and therefore none is a good instrument for the analysis. Although the instrumental variables approach could potentially improve the model, we consider the autonomy indicator as a proxy for a host of characteristics related to women's agency that are not covered by other measures of women's status or socioeconomic characteristics.

4.1.3 Control variables—The statistical model controls for women's sociodemographic characteristics and those of their marriages. In examining the effect of women's decision-making autonomy on enrollment it is important to include in the analysis factors associated with other dimensions of women's status. For example, our autonomy construct could simply mediate the relationship of various attributes of women's status with schooling. To confirm our hypotheses we therefore need to show that decision-making autonomy has a significant positive effect on enrollment, net of the women's characteristics that have been traditionally shown to affect children's schooling. Thus women's educational level is related both to children's schooling and to women's autonomy. Women with higher educational levels are more likely to value education and to support their children's schooling. At the same time, it is known that women with more education also have higher levels of autonomy. By including women's education we control for this important predictor of children's schooling and also separate it from women's decision-making autonomy. Similarly, we control for women's work outside the household. Women's autonomy level is also likely to increase with their age. Our sample consists only of women in reproductive ages, with most women being between 20 and 35 years old. Therefore, we included three age categories as dummy variables: younger than 26 years old, between 26 and 30, or 31 years or older.

We included a set of marriage characteristics to account for aspects of women's status related to their current marital relations. Bargaining power within marriage is likely to depend on the age and educational gaps between husband and wife. We included a dummy variable indicating whether or not the husband has 4 or more years more schooling than his wife. In addition, a set of dummies for the spousal age gap were included: husband is 5 to 9

years older, 10 to 14, or 15 years older or more. Husband who is less than 5 years older is the omitted category. A large proportion of women reported not knowing their husbands' age or educational level, and an additional dummy variable was created to control for the lack of this information.

Other marriage characteristics may have a significant impact on spousal relationships, women's status, and, consequently, children's schooling. We included a variable indicating if the husband has paid bridewealth partially or completely, versus no payment at all. A dummy variable for polygyny was also included, as well as an indicator of whether the woman co-resided with any adult in-laws (in most cases, husband's parents or siblings). Because male outmigration is common in the area and previous studies have shown a strong effect of husband's migration on several family outcomes (Agadjanian et al. 2011; Yabiku, Agadjanian, and Sevoyan. 2012), we control for husband's migration status. Notably, the influence of paternal migration status on children's schooling may also be related to women's status. As discussed by Yabiku, Agadjanian, and Sevoyan (2010), women whose husbands are migrants are more likely to have greater autonomy, which can be beneficial for children's outcomes.

To account for potentially confounding factors in the relationship between women's autonomy and child's enrollment, we include a set of other controls in our multivariate analysis. Our model includes the characteristics typically associated with child's educational outcomes (Knodel and Wongsith 1991; Buchman and Hannum 2001): child's age, sex, and presence of other children of school age living in the household (aged 6 to 14). Child's age[4] is an important predictor of enrollment in the study setting. Older children are more likely to be enrolled in school, which is consistent with Mozambique's high age-grade distortion rates and late enrollment. Because birth order and sex composition of siblings have been shown to be related to educational outcomes (Butcher and Case 1994; Alderman and King 1998) we disaggregate the information on presence of school age children in the household into four different dummy variables: older female sibling, older male sibling, younger female sibling, and younger male sibling. The presence of very young children in the household was found to be associated with a lower probability of attending school by older children because of the tradeoff between the enrollment of school-age children and their domestic labor in childcare (Lloyd and Blanc 1996); the presence of children younger than 5 years old in the household was therefore also included as a control.

An index of household's standard of living based on ownership of selected consumer goods (radio, bicycle, motorcycle, or automobile) and size of agricultural land were included to account for the household socioeconomic status. Distance to nearest town and presence of a clinic at the village were introduced as measures of proximity to urban areas and access to public services, respectively. In addition, a dummy variable for whether there is a school offering primary education in the village controls for variation in enrollment due to differences in access to the school system.

[4]To investigate possible differences in the effect of child's age on enrollment by mother's age we tested for interactions between child's age and mother's age in the second model. However, these interactions were not statistically significant. We do not present the results of the models with interactions, but they are available upon request.

4.2 Method

In this study we use multilevel logistic regression for binary outcomes to predict the probability of a child being currently enrolled. Because of the design of the survey sample, in which the primary unit of analysis was the woman, observations are not independent when we change the focus to children. Children are clustered within respondents' specific households, and therefore women's characteristics are repeated for children living in the same household. To account for this non-independence of observations we fitted a two-level model with random intercepts in the first level (child) and second level (woman). Three sets of models were fitted: one for all children and one for children of each sex. All models were estimated using the GLIMMIX procedure in SAS 9.3.

5. Results

Table 1 shows the bivariate association between woman's decision-making autonomy and child's enrollment status. Overall, this association seems positive. Over 12% of boys and 14% of girls between 6 and 14 years old whose mother has a relative low level of decision-making autonomy are not enrolled in school. By contrast, about 11% of boys and 9% of girls living with a mother with a higher level of decision-making autonomy are not enrolled. Moreover, the bivariate association between mother's decision-making autonomy level and children's enrollment suggests differences by child's sex. Although both boys and girls whose mothers have lower decision-making autonomy are more likely to be out of school than children of women with higher decision-making autonomy, girls seem to be considerably more affected by their mothers' lower level of autonomy.

Table 2 presents the mean values of the covariates used in the analysis by children's school enrollment status. The mean age of enrolled children is higher than the mean age of those who are not enrolled, 9.3 and 8.7 years respectively. Male children are more likely to be enrolled than females. Not surprisingly, women who are over 30 years old have most children of school age. However, there is a noticeable difference by children's enrollment status: 65% of the children enrolled in school and 73% of non-enrolled children have mothers in the oldest age group. Mothers of enrolled children are better educated, on average, than mothers of their non-enrolled peers: 28% of the children enrolled in school have mothers with no formal education, compared to 44% of non-enrolled children. At the same time, 26% of enrolled children have mothers with 5 or more years of schooling, while only 10% of non-enrolled children have mothers in the highest educational group. By comparison, there is almost no difference with respect to mother's employment outside subsistence agriculture between enrolled and non-enrolled children

The husband-wife educational gap is higher for non-enrolled children. The educational lag for mothers in relation to their partners is 4 years or more among 38% of non-enrolled children, against 26% of enrolled children. The age gap between mothers and their partners is considerably higher for non-enrolled children. For children enrolled in school, most couples have small or no differences in their educational level. The age difference between mothers and their partners is less than 10 years for 55% of them. On the other hand, only 40% of the non-enrolled children have mothers who have a small age difference with their partners. Bridewealth payment is somewhat more prevalent in families of enrolled children

than in families of their non-enrolled counterparts, 58% and 52% respectively. Forty-eight percent of children who are not in school have a migrant father, a higher share than among those who are currently enrolled, 42%. The presence of siblings in the household also differs by enrollment status. Children who are not enrolled in school are more likely to have older brothers in the household than are enrolled children, 39% and 30% respectively. The same pattern transpires in the presence of older sisters: 37% of non-enrolled children live with at least one older sister, against 31% of those enrolled. Not surprisingly, the patterns for younger siblings are mirror images of those for older siblings.

Enrolled children live in slightly better off households, compared to those who are not enrolled, with the respective household material status index scores being 2.0 and 1.8. Similarly, the average size of agricultural land is larger in enrolled children's households in comparison to the households of those who are not in school, at 1.8 hectares and 1.6 hectares respectively. Children who are enrolled live in villages that have better access to school. Average village distance to the nearest town is smaller for children enrolled, around 29 kilometers against 36 for non-enrolled children. Moreover, 47% of children who are enrolled live in a village that has a primary school, compared to only 35% of non-enrolled children. Surprisingly, however, 64% of non-enrolled children live in a village with a functioning health clinic, whereas only 58% of those who are enrolled do.

Table 3 presents the parameter estimates (log odds) and standard errors from the random intercept logistic regression models. To assess the effect of women's decision-making autonomy on children's enrollment, two different models were estimated for both the total sample and for male and female children. In each pair of models, Model 1 includes the effect of women's status characteristics and other sociodemographic predictors on child's enrollment. Model 2 adds the decision-making autonomy level to the previous model.

Consistent with the literature, Model A.1 shows a significant positive effect of women's education on the chance of their children being enrolled in school. The effect of mother's education on enrollment is statistically significant for both boys and girls, but is much stronger for the latter. However, other women's status characteristics seem to operate differently by gender of the child. A higher educational gap is associated with higher likelihood of being enrolled for sons' enrollment, while a smaller age gap between spouses seems beneficial for daughters' enrollment.

Husband's migration is also positively related with the likelihood of being enrolled for daughters but not for sons. Because we are controlling for household economic conditions, husband's migration could be affecting daughter's enrollment through its relationship to women's status. As discussed previously, partner's migration, in addition to providing the household with material resources, is associated with greater independence of women, which could lead to increased well-being of children living in the household.

The second model in each pair of models adds the women's decision-making autonomy level to test our hypotheses that it affects the likelihood of children being enrolled, regardless of other factors associated with women's status. As the results show, decision-making autonomy does not mediate the effect of other women's and marriage

characteristics: the effects of women's education, women's age, and age gap between spouses remain statistically significant even after the introduction of decision-making autonomy in the model. As expected (H1), the overall effect of women's autonomy on enrollment (Model A.2) is statistically significant. When we look at the effect of women's decision-making autonomy by gender (Models B.2 and C.2) we can see that it has a positive and significant effect on daughters' chances of being enrolled in school but has no effect on sons' enrollment. Even when controlling for the marital and individual characteristics that are also related to women's ability to make decisions regarding children, decision-making autonomy has an independent positive effect on daughters' enrollment. This supports our hypothesis about the positive effect of autonomy on daughters' schooling (H3a) and is consistent with the interpretation that higher decision-making autonomy, as a separate aspect of women's status, has an effect on daughters' enrollment that cannot be explained solely by mothers' educational level or marriage characteristics. Notably, as in the overall model, in the gender-specific models the effects of other aspects of women's status on daughters' schooling are not mediated by women's decision-making autonomy.

The effects of several other variables are also noteworthy. Older children are more likely to be enrolled, which is consistent with Mozambique's high age-grade distortion rates and late enrollment (Wils 2004). Proximity to the nearest town, which is a proxy for overall community development, is associated with greater likelihood of being enrolled for both males and females, while the presence of a health clinic in the village is related to higher chances of enrollment for females only. Not surprisingly, the existence of a primary school in the village is positively associated with enrollment for boys and girls alike.

6. Discussion

The literature on the effects of women's autonomy on child well-being has consistently found women's autonomy to have positive effects on child survival, nutrition, and health (Caldwell 1986, Shroff et al. 2011). Studies of the effect of female autonomy on child's schooling are fewer, and their results indicate that women's higher autonomy may lead to better educational outcomes for children, based on the argument that household resource allocation is biased and children are better off when women have more control over the family's resources (Lloyd and Blanc 1996). In a setting like rural Mozambique where education is free and therefore pecuniary costs of education are minimal, the decision to send a child to school may be less related to a family's ability to incur such costs and more associated with the opportunity cost of children's time and the perceived returns from children's education. Therefore the power to influence children's chances of enrollment would depend not so much on control over resources as on the ability to make independent decisions regarding family affairs, in particular regarding children.

Our results show that mothers' level of decision-making autonomy affects daughters' enrollment above and beyond the conventional measures of women's status. However, women's decision-making autonomy has no significant effect on their sons chances of enrollment. It could be expected that mothers would have gender preferences regarding children's schooling, but not necessarily in favor of their daughters. On the contrary, in a patrilineal and patrilocal setting such as southern Mozambique mothers might have a

preference for sons' schooling because daughters leave the parental household after marriage and women depend mainly on their sons at older ages. Previous studies have presented evidence in support of this argument, showing that mothers would use their greater autonomy to better implement their preference for sons (Das Gupta 1987). Nonetheless, our results indicate that sons' chances of enrollment are not affected by their mothers' greater decision-making ability, while daughters can significantly benefit from it.

This positive effect of women's autonomy on daughters' enrollment is consistent with previous studies showing that women's control over resources can improve daughters' schooling (e.g., Schultz 1990, Fuller et al. 1995, Lloyd and Blanc 1996). Our study provides evidence that the benefits of mother's decision-making autonomy for their daughters' schooling remain non-trivial even as the overall enrollment levels rise. With the data to hand, we cannot draw definitive conclusions about the pathways through which women's decision-making autonomy may affect their daughters' enrollment. We suggest, however, that decision-making autonomy, as measured in this study, refers to a broader set of daily decisions than those relating to household economy. It includes women's perception of their ability to move, work, and relate with family, friends, and neighbors. By having greater autonomy, we argue, women may be exposed to extra-familial influences affecting the way they envision their daughters' futures (Yount 2005). Moreover, it is possible that greater decision-making autonomy may enable women to negotiate demands for daughters' labor within the household to minimize the tradeoff in girls' time between school and domestic activities.

In sum, our findings suggest that women's greater ability to make decisions in this context tend to benefit their daughters' schooling and indicate the need for considering a broader set of autonomy-related characteristics when examining the effect of women's status on children's educational outcomes. As Mozambique and many other sub-Saharan countries strive both to raise the overall school enrollment rates and to close the gender enrollment gap, policymakers should take into account the potential gendered benefits of women's decision-making autonomy.

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Table 1

Percent of children enrolled according to women's decision-making autonomy level and child's sex, rural southern Mozambique 2009

		Not enrolled		Enrolled	
Women's decision-making autonomy:	N	Males	Females	Males	Females
High decision-making autonomy	1238	10.77	9.40	89.23	90.60
Low decision-making autonomy	788	12.04	14.70	87.86	85.03
Total	2026				

Source: Childbearing Dynamics in a Setting of High HIV Prevalence and Massive ART Rollout Survey, 2009.

Table 2

Mean values of children's, mothers', and household characteristics by children's enrollment status, rural southern Mozambique 2009

	Enrolled	Not enrolled
Child's characteristics		
Age	9.29	8.74
Age squared	92.18	84.60
Gender		
Female	0.49	0.51
Male	0.51	0.49
Mother's characteristics		
Age		
25 or less	0.07	0.08
26 to 30	0.28	0.19
31 or more	0.65	0.73
Education		
No education	0.28	0.44
1 to 4 years	0.46	0.46
5 years or more	0.26	0.10
Works outside subsistence agriculture	0.28	0.30
Marriage's characteristics		
Husband-wife age gap		
Less than 5 years	0.29	0.24
5 to 9 years	0.26	0.17
10 to 14 years	0.09	0.09
15 years or more	0.21	0.29
Doesn't know husband's age	0.15	0.22
Husband-wife educational gap		
3 years or less	0.65	0.47
4 years or more	0.26	0.38
Doesn't know husband's education	0.09	0.15
Bridewealth has been paid	0.58	0.52
Husband is a migrant	0.42	0.48
Siblings		
Has younger female sibling(s)	0.31	0.22
Has younger male sibling(s)	0.29	0.24
Has older female sibling(s)	0.31	0.37
Has older male sibling(s)	0.30	0.39
Sibling(s) aged less than 5 years	0.46	0.50
Household characteristics		
Household material status index (1–4)	2.02	1.77
Size of agricultural land (in hectares)	1.79	1.60

	Enrolled	Not enrolled
Village characteristics		
Distance to nearest town (in kilometers)	29.15	35.98
Primary school in the village	0.47	0.35
Clinic in the village	0.58	0.64
N	1797	229

Source: Childbearing Dynamics in a Setting of High HIV Prevalence and Massive ART Rollout Survey, 2009.

Table 3

Effect of women's decision-making autonomy level on child's enrollment, rural southern Mozambique 2009

	A. Total		B. Males		C. Females	
	Model 1 B (SE)	**Model 2 B (SE)**	**Model 1 B (SE)**	**Model 2 B (SE)**	**Model 1 B (SE)**	**Model 2 B (SE)**
Decision-making autonomy	n.a.	0.40(0.19)*	n.a.	0.21(0.27)	n.a.	0.72(0.27)**
Women's Characteristics						
Age (omitted= 25 or less)						
26 to 30	0.47(0.37)	0.45(0.37)	−0.23(0.65)	−0.24(0.65)	0.91(0.51)	0.85(0.52)
31 or more	−0.06(0.37)	−0.14(0.37)	−0.77(0.64)	−0.81(0.64)	0.24(0.5)	0.11(0.51)
Education (omitted= no education)						
1 to 4 years	0.65(0.20)**	0.70(0.20)**	0.62(0.29)*	0.65(0.30)	0.75(0.28)**	0.83(0.28)**
5 years or more	1.27(0.29)***	1.30(0.29)***	0.89(0.40)*	0.90(0.40)*	1.96(0.47)***	2.06(0.48)***
Work	−0.12(0.19)	−0.10(0.02)	−0.02(0.28)	−0.02(0.28)	−0.13(0.27)	−0.05(0.28)
Marriage's Characteristics						
Husband-wife age gap (omitted= less than 5 years)						
5 to 9 years	0.51(0.24)*	0.48(0.24)*	0.30(0.33)	0.28(0.33)	0.75(0.34)*	0.71(0.34)*
10 to 14 years	−0.02(0.29)	−0.06(0.29)	0.00(0.42)	−0.02(0.42)	0.02(0.41)	−0.02(0.41)
15 years or more	0.34(0.38)	0.33(0.38)	0.16(0.50)	0.15(0.50)	0.78(0.59)	0.79(0.58)
Does not know husband's age	−0.07(0.42)	−0.02(0.42)	−0.04(0.56)	−0.02(0.56)	−0.31(0.63)	−0.20(0.63)
Husband-wife educational gap (omitted= 3 years or less)						
4 years or more	0.46(0.26)	0.49(0.26)	0.83(0.41)*	0.85(0.41)*	0.14(0.34)	0.16(0.35)
Does not know husband's education level	−0.81(0.37)*	−0.82(0.38)*	−1.11(0.56)*	−1.12(0.56)*	−0.63(0.52)	−0.62(0.52)
Polygyny	0.17(0.21)	0.18(0.21)	0.00(0.29)	0.28(0.33)	0.26(0.29)	0.23(0.30)
Co-residence with in-laws	−0.01(0.20)	−0.02(0.20)	0.06(0.29)	−0.02(0.42)	−0.27(0.29)	−0.31(0.29)
Bridewealth paid	0.01(0.19)	0.05(0.19)	−0.14(0.27)	0.15(0.50)	0.13(0.26)	0.21(0.27)
Migrant husband	0.49(0.19)**	0.46(0.19)**	0.41(0.27)	−0.02(0.56)	0.73(0.28)**	0.67(0.28)*
Child's Characteristics						
Age	2.1(0.28)***	2.1(0.28)***	1.74(0.39)***	1.74(0.39)***	2.55(0.43)***	2.6(0.44)***
Age squared	−0.10(0.01)***	−0.10(0.01)***	−0.08(0.02)***	−0.08(0.02)***	−0.12(0.02)***	−0.12(0.02)***

	A. Total		B. Males		C. Females	
	Model 1 B (SE)	**Model 2 B (SE)**	**Model 1 B (SE)**	**Model 2 B (SE)**	**Model 1 B (SE)**	**Model 2 B (SE)**
Female	0.04(0.16)	0.04(0.16)	n.a.	n.a.	n.a.	n.a.
Siblings						
Younger female sibling	0.08(0.23)	0.08(0.23)	0.19(0.33)	0.19(0.33)	0.00(0.32)	−0.02(0.32)
Younger male sibling	−0.12(0.24)	−0.11(0.24)	0.10(0.33)	0.11(0.33)	−0.54(0.36)	−0.56(0.36)
Older female sibling	−0.40(0.19)*	−0.39(0.19)*	−0.86(0.27)**	−0.85(0.27)**	0.06(0.29)	0.04(0.29)
Older male sibling	−0.08(0.20)	−0.08(0.20)	−0.26(0.29)	−0.25(0.29)	0.14(0.29)	0.14(0.29)
Sibling aged less than 5 years	−0.11(0.18)	−0.10(0.18)	0.1(0.25)	0.1(0.25)	−0.33(0.25)	−0.30(0.25)
Household's Characteristics						
Household economic status scale	0.21(0.09)*	0.21(0.09)*	0.25(0.13)	0.25(0.13)*	0.17(0.12)	0.17(0.13)
Size of agricultural land	0.10(0.07)	0.08(0.07)	0.13(0.10)	0.12(0.10)	0.08(0.10)	0.06(0.10)
Village						
Distance to nearest town	−0.01(0.00)**	0.00(0.00)**	0.00(0.00)	0.00(0.00)	−0.01(0.00)**	−0.01(0.00)*
Primary school in the village	0.76(0.19)***	0.79(0.20)***	1.07(0.28)***	1.07(0.28)***	0.62(0.28)*	0.68(0.28)*
Clinic in the village	0.20(0.20)	0.20(0.20)	−0.09(0.29)	−0.10(0.29)	0.51(0.28)	0.58(0.28)*
N	2026	2026	1021	1021	1005	1005

Source: Childbearing Dynamics in a Setting of High HIV Prevalence and Massive ART Rollout Survey, 2009.

* p<.05;

** p<.01;

*** p<.001