

**“High Hopes, Low Dropout: Gender Differences in Aspirations for Education and Marriage, and Educational Outcomes in Rural Malawi”**

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## **Abstract**

The relationship between educational aspirations and outcomes has been underexplored in sub-Saharan Africa. Drawing on 6 waves of panel data from the Malawi Schooling and Adolescent Study (MSAS) and using discrete time models, I examine gender differences in the relationship between aspirations for education and marriage, and school dropout during primary and secondary school in Southern Malawi. Results show that, net of socio-structural constraints and students' own educational experiences, aspiration for tertiary education is associated with lower dropout for boys and girls but becomes insignificant after controlling for marital aspirations. Moreover, a higher desired age for marriage is associated with lower odds of dropout only for girls. These findings demonstrate the importance of considering both educational and marital aspirations as determinants of educational outcomes, especially for girls.

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## **Introduction**

Low-income countries have made significant progress in primary school enrollment. However, as the global community pushes for investment in improving access to secondary and higher education as a pathway for economic growth in low and middle-income countries, gender inequality in primary school completion remains a serious challenge. Today, less than two-thirds of girls in low-income countries complete primary education (Wodon et al. 2018), and this gap has been most persistent in sub-Saharan Africa and South Asia (Fredrikson and Fossberg 2014). While other regions including Latin America and East Asia grapple with a reverse gender gap in school dropout, with boys more likely to experience early dropout than girls (Fredrikson and Fossberg 2014), sub-Saharan Africa and South Asia remain strongholds for girls' disadvantage in educational access and progress. Policymakers focused on eliminating gender inequality in these regions continue to focus on economic incentives and behavior change interventions to counter cultural practices that present an added disadvantage amongst girls, particularly early marriage and pregnancy (Dake et al. 2018; Lee-Rife et al. 2012; Psaki 2016). Thus, the drive to increase educational attainment goes hand in hand with the goal of delaying marriage. Both are seen as pathways to empowerment and critical to ensure safe and healthy transitions to adulthood among adolescents.

The determinants and consequences of gender inequality in education have been examined extensively. Much of the extant research has focused on parents' aspirations for, and investments in their children's education, alongside considerations of other structural, economic, and cultural factors that result in gender inequalities in educational progress favoring boys. Very few studies have analyzed the role of young people's own educational aspirations in predicting school dropout in a developing country context (Chang et al. 2016) and none that I am aware of

have examined educational aspirations and marital aspirations together. The assumption that adolescents in poor, resource-constrained environments have low aspirations (Appadurai 2004) has been countered through evidence that both boys and girls in developing countries typically hold high educational aspirations (Frye 2012; Murray 2012), and girls in particular seek to marry after completing their education (Clark et al. 2010). Literature from western contexts has shown that educational aspirations predict educational attainment (Morgan 2005) but we know very little about this relationship in contexts where transitions to adulthood often entail early school dropout and early marriage.

Using panel data from the Malawi Schooling and Adolescent Study (MSAS), I will investigate gender differences in the relationship between both educational and marital aspirations and the likelihood of school dropout in rural Malawi. This research will provide insights into 1) whether adolescents' reported aspirations translate into differences in educational outcomes, and 2) the need to consider marital aspirations as a competing domain in predicting educational outcomes. Aspirations form a key implicit mechanism in the theory of change that is hypothesized to affect age at marriage, pregnancy, and educational outcomes through conditional and unconditional monetary incentives for education (Handa et al. 2015). The design of policy interventions would benefit from evidence on whether and how aspirations predict educational outcomes.

## **Theoretical Framework**

### Aspirations and Schooling: Theoretical Perspectives

Studies from western contexts have established educational and career aspirations as predictors of educational attainment (Beal and Crockett 2010; Khattab 2015; Morgan 2005). The mechanisms through which effects are manifested differ by disciplinary orientation. For

example, the Wisconsin model of status attainment treats aspirations as a mechanism through which socioeconomic status and personal abilities affect future educational attainment, maintaining a strong focus on the role of significant others in the formation of these aspirations (Sewell and Shah 1967). This model has been criticized for its lack of focus on structural factors that may limit educational attainment, and placing greater emphasis on the role of parents in influencing the formation of aspirations (Morgan 2005; Garg et al. 2002). Conversely, economic models view aspiration formation as a product of rational choice, in which the individual forms and acts on aspirations based on a cost benefit analysis of future educational choices within an objective understanding of social and economic context (Morgan 2005). These models have been criticized for the absence of subjective factors in aspiration formation. While economic models place greater emphasis on individual agency, both models appear to assume that youth facing structural constraints would have low aspirations. However, studies in both low-income communities in developed countries (Kintrea et al. 2015), and developing countries (Frye 2012) show that disadvantaged youth hold high educational and occupational aspirations despite being aware of structural constraints.

On the other hand, cultural models, rooted in cognitive anthropology, view aspirations for the future as a central component of individual agency with individuals actively responding to their circumstances (Emirbayer and Mische 1998; Shore 1998). By grounding cultural models of the role of aspirations in an identity framework (Frye 2012), seemingly unrealistic aspirations, particularly in developing contexts, become a catalyst for taking measures in the present to strive for a future that individuals are aware may be difficult to achieve. In Malawi, for instance, girls in secondary school view “unflagging optimism” as a pathway for achieving their educational aspirations (Frye 2012). Although cultural models provide a rationale for educational aspirations

predicting educational outcomes in developing contexts, considering educational aspirations alone may be insufficient. Hart (2012) asserts that aspirations are dynamic and often connected to other aspirations. Therefore, in contexts where early marriage is normative, aspirations for attaining a certain level of education and the timing of marriage should both be considered in understanding “successful” trajectories to adulthood. These aspirations may be competing or complementary and are likely to affect educational outcomes of boys and girls differently. .

### Gender and Aspirations in Developing Countries

Most research on aspirations in developing countries has focused on parents’ aspirations for education for boys and girls (Davison 1993; Maertens 2013; Murray 2012).

Qualitative evidence, mainly from girls in sub-Saharan Africa, suggests that they aspire to complete secondary or higher levels of education (Frye 2012; Harrison and O’Sullivan 2010; Kritzinger 2002). Supporting evidence from the Young Lives study, a panel survey of children from India, Ethiopia, Peru, and Vietnam, shows that a majority of both boys and girls have career aspirations that require attaining a university education. The study also finds that these high educational aspirations are maintained through adolescence (Murray 2012), with boys holding slightly higher aspirations for university education compared to girls in India and Ethiopia (Pells 2011; Tafere 2014). These aspirations follow consistent evidence that youth in developing countries, regardless of gender, maintain high educational aspirations, thus countering the argument that poor children are incapable or unable to aspire to a brighter future (Appadurai 2004).

While both girls and boys appear to hold high aspirations for education, qualitative evidence suggests that girls who hold high educational aspirations also seem to have high marital aspirations (Frye 2012). Girls see marriage as an obstacle to realizing their educational goals and

aspire to complete their education prior to marriage (Clark et al. 2010; Johnson-Hanks 2006; Madhavan et al. 2013). Therefore, although marriage is seen as a positive event, it is also viewed as competing with education among adolescent girls in sub-Saharan Africa, thus prompting the view that both educational and marital aspirations may operate simultaneously to predict educational outcomes in this context, and that the effect may differ by gender. Although marital aspirations have received little attention in their relationship with educational attainment in quantitative work, evidence from Malawi and Kenya suggests that marital aspirations do predict the timing of sexual debut and moderate the number of sexual partners as a predictor of dropout (Clark et al. 2009; Clark and Mathur 2012).

Few studies have quantitatively examined the relationship between aspirations and educational outcomes in developing contexts. In rural China, Chang et al. (2016) used panel data to examine whether educational expectations predict dropout in junior high school, and found that students with high educational expectations were less likely to dropout than peers with low educational expectations. However, the authors did not test whether this association differed by gender. In India, Beaman et al. (2012) used a randomized natural experiment to study the influence of female political role models on girls' educational attainment, and found that the gender gap in adolescents' educational and occupational aspirations in treatment villages reduced, as did the gender gap in educational attainment. The authors consider aspirations a proxy for self-efficacy and agency, beliefs that are important for influencing future behavior that results in effort and performance for school, but do not explicitly measure girls' marital aspirations.

However, it is unclear whether educational aspirations translate into favorable educational outcomes for adolescents in the sub-Saharan Africa context. Moreover, it is unclear whether adolescents, and particularly girls, who desire a later age for marriage, are also less likely to experience dropout or other negative educational outcomes as a result of marriage. Lastly, as most research on aspirations in sub-Saharan Africa has focused on girls, the inclusion of both boys and girls would be useful in understanding both general and gender-specific aspects of aspirations and their relationship with educational outcomes.

### Study Context

Despite ranking amongst the poorest countries in the world, Malawi has demonstrated commitment to primary education by abolishing school fees at the primary level (Grades 1-8) in 1994 (Kadzamira and Rose 2003). Primary school enrollment has since seen tremendous growth, with boys and girls equally likely to have access to primary school. However, primary school completion rates remain low (Langsten 2014) and school dropout is particularly high between Grades 4 and 8. Low retention rates at the primary level are further plagued by gender inequality, as boys are more likely to complete primary education compared to girls (World Bank 2010) and therefore have higher secondary school enrollment (Forms 1-4). Boys also have higher pass rates for the national Primary School Leaving Certificate Examination (PSLE) at the end of Grade 8 (World Bank 2010) due to which they have an added advantage over girls in the competitive secondary school enrollment process. Gender inequality in school retention in Malawi is further constrained by the high prevalence of early marriage among girls, wherein nearly 46% of girls marry before the age of 18 (UNICEF 2018).



In many ways, this social and economic environment mirrors the constraints that reproduce gender inequality in developing countries, particularly those in South Asia and sub-Saharan Africa. Differences in parental aspirations, investment, and support for the education of sons and daughters, gendered school environments (Lloyd et al. 2000), and social obstacles including child marriage and early pregnancy (Grant and Hallman 2008; Lloyd and Mensch 2008; Psaki 2016), may inhibit primary school retention differently for girls than for boys, ultimately accumulating into a disadvantage for girls. General household and student characteristics, shaped by the social context of families and schooling in sub-Saharan Africa, have also been found to contribute to a likelihood of school dropout and low educational attainment. These characteristics include low parental education and wealth (Bougma et al. 2014; Lloyd and Blanc 1996), grade repetition and temporary withdrawal from school (Grant and Hallman 2008; Lewin 2009), with mixed evidence on the impact of family structure including orphan status, female headship, and sibling size (Abuya et al. 2012; Lloyd and Blanc 1996; Kravdal et al. 2013). As researchers and policymakers build a narrative for the general and gender-specific factors that increase the likelihood of school dropout and contribute to gender inequality in student retention at the primary and secondary levels, particularly in sub-Saharan Africa, our theoretical framework is incomplete without strong empirical evidence of the role of adolescent aspirations.

Given gaps in quantitative empirical evidence on gender differences in educational and marital aspirations among adolescents in sub-Saharan Africa, this study will address the following research questions:

1. Do educational aspirations predict the risk of school dropout, and does this vary by gender?

2. Do marital aspirations predict the risk of school dropout, and does this vary by gender?
3. Do educational and marital aspirations both predict school dropout independently? Does this relationship differ based on marriage and non-marriage related dropout?

## **Data, Variables, and Methodology**

### **Data**

The MSAS is a longitudinal survey of 2, 649 adolescents aged 14-17 at baseline, collected over 6 waves between 2007-2013. The survey was administered in Balaka and Machinga, two rural districts in Southeastern Malawi. Each wave was administered annually, with the exception of the last two waves, which were administered two years apart. Sampling was done using a multi stage approach starting with the identification of all primary schools in the two districts, through a list of schools provided by the Ministry of Education. From this list, 59 schools were randomly selected, with a probability of selection proportional to the size of students aged 14-16 within a particular school. From each school, the study collected two samples, an in-school sample (N=1,764), and an out-of-school sample (N=885). At each successive round, an average of 90% of respondents were successfully re-interviewed for the in-school sample (author calculations).

Data collected in the adolescent survey included complete education histories for each respondent, and several measures of educational outcomes including absenteeism, dropout, achievement, and attainment. The survey also contained comprehensive questions on household resources and structure, parental education and support for school, and students' educational aspirations. In addition, questions on marriage processes, sexual experiences, contraceptive behavior, and childbirth, were also asked, thus offering a holistic view of processes related to different aspects of the transition to adulthood in the Malawian context.

## Variables

### *School Dropout*

The primary outcome variable is school dropout, coded 1 for respondents who report no longer attending school at each wave, and 0 for respondents who remained in school at each wave prior to dropout. This study models the risk of dropout within the study period for adolescents who were in school at baseline. Respondents who were no longer attending school but had completed secondary school were treated as censored. It should be noted that modeling dropout as a permanent event is challenging in an environment where students may leave school for one or multiple years, and return at a later time. I therefore treat leaving school prior to baseline as temporary withdrawal when specifying the model.

For the competing risk models, the outcome variable is a three-category time varying measure of dropout either due to marriage or for some other reason. Respondents were first coded on marital status: 0 at each wave if they had never been married, 1 if they were currently married. The event of marriage was considered “competing” with education when first marriage occurred within the same wave as first dropout. The final competing risk outcome variable was then coded 0 for continued enrollment in school at all waves, 1 for dropout due to a reason other than marriage, and 2 for dropout due to marriage.

Previous studies have used data mainly from Demographic and Health Surveys (DHS) or other retrospective data, making it difficult to reliably determine the sequence of dropout and competing events such as marriage due to the absence of a measure for age at school dropout (Lloyd and Mensch 2008). This is particularly relevant among girls for whom the timing of these events is important when analyzing school and marriage transitions in regions with a high prevalence of early marriage. Although the relationship between marriage and dropout, even

when they occur within the same year may not be strictly causal, given that students may dropout in anticipation of marriage, or may marry due to poor performance and subsequent dropout in school, matching the timing of these events using panel data allowed for an opportunity to analyze marriage and school transitions as potential directly competing events, better than previous studies that use cross-sectional data.

### *Independent Variables*

The main independent variables of interest are educational and marital aspirations at baseline, treated as time-constant variables. I used two variables: desired age at marriage and desired educational attainment prior to marriage. For desired age at marriage, respondents provided a numeric response to the question, “At what age would you like to get married?” For the 16% of respondents who did not desire to be married at baseline (Wave 1, 2007), or had missing responses, I checked subsequent waves that asked this question and included respondents who reported a desire for marriage at Waves 2 or 3. Approximately 3% of respondents did not report a desire for marriage in subsequent survey rounds and were excluded from analysis. Tests of differences in model covariates (not shown here) showed that respondents who did not want to get married were more likely to have repeated a grade twice or more prior to baseline than the remaining sample.

Desired educational attainment was coded into five categories in response to the question, “How far in school would you like to go before you get married?” : some primary (1), completed primary (2), some secondary (3), completed secondary (4), tertiary (5). Less than 7% of respondents reported a desire for completing some secondary education or less. Therefore, for the purpose of this analysis, educational aspirations were collapsed into a dichotomous variable: complete secondary or less, and tertiary. Similar to the marital aspirations variable, for

respondents who did not report educational aspirations at baseline, but did provide a valid response at Waves 2 and 3, the first response was considered their baseline educational aspiration.

Although desired educational attainment was stated in relation to the desire for marriage, 96% of unmarried respondents reported a desire for marriage, implying that marriage is normative. In addition, as indicated earlier, educational goals, particularly for girls, are formulated in relation to marriage (Frye 2012), making their explicit connection to marriage in the survey question representative of the social context in which these aspirations were formed.

#### *Control Variables*

Models control for household and individual attributes at baseline, which were treated as time constant with the exception of age and household economic status. Household based controls include family resources, including a categorical measure of mothers' educational attainment (did not attend school, some primary, completed primary or higher), household economic status calculated through a household asset ownership index, and household size. The asset ownership index was constructed by first conducting principal components analysis on 16 binary household asset variables, including ownership of a mattress, sofa, tables, chairs, lamp, television, radio, cell phone, mosquito net, motorbike, bicycle, car, tin roof, electricity, boat, and books (Filmer and Pritchett 1999). Index scores were calculated based on the first principal component from Wave 1, and standardized to that distribution for subsequent waves to allow for mobility (Grant 2017), to create a time-varying measure of household economic status with four quartiles of wealth (lowest, low, high, and highest). Household size is the number of people in the household in which the respondent resided while going to school, at baseline.

Individual attributes include age, sex, religion (Catholic, Protestant, Muslim, Other), and test scores on survey-administered Math and reading assessments at baseline that were categorized as high or low performance based on scores at or above, and below the 75<sup>th</sup> percentile, to control for a baseline measure of ability. In addition, I include grade at baseline, grade repetition, on-time enrollment in Standard 1, and temporary interruption to schooling prior to baseline to account for differential educational experiences. Since nearly 92% of the baseline sample had repeated at least one grade prior to baseline, grade repetition was treated as a dichotomous measure of having repeated a grade either zero or one time, or two or more times. Age at enrollment was treated as a dichotomous measure of on-time (6 years or less) or delayed enrollment (7 or higher) in Standard 1. Similarly, temporary interruptions to schooling prior to baseline were defined as a dichotomous measure of having missed at least one entire year of school or not.

### Sample and Methodology

I used all 6 waves of the in-school sample, but restricted my sample by including only respondents who reported a desire for marriage at baseline, for a total of 1,703 respondents. For discrete time analysis, data were transformed into person-wave format, to include one observation for each wave until respondents experienced the event or were censored, for a total of 7,512 person-waves. After excluding person-waves with values missing due to attrition (5.6%) and missing on model covariates (6.2%), I was left with a final analytical sample of 6,624 person-waves. Data structure for competing risk models to analyze the likelihood of dropout either due to marriage or other reasons was also organized by person-waves, and included 6,624 person-waves after excluding person-waves with missing values on all covariates.

To analyze school dropout, first I used a discrete-time logistic model to estimate the odds of school dropout at each wave, conditional on not having experienced the event in prior waves (Allison 1982). I also included an interaction term for sex and each aspiration type, to analyze whether the relationship varies by sex of respondent. Second, I employed multinomial logistic regression to analyze discrete-time competing risk models to estimate the odds of school dropout due to marriage or some other reason at each wave, relative to continued enrollment. I also included interaction terms for sex and aspiration type in addition to the general competing risk model, to analyze differences by sex. All analyses included Huber-White standard errors to reduce bias from multiple observations per respondent present in the data. Using survival analysis techniques instead of standard logistic regression models allows model estimates to capture variation in the timing of dropout across the study period, and the incorporation of time-varying covariates, which are both important aspects of modeling transition events.

### Sensitivity Analysis

As sensitivity analyses (not shown here) for missing cases of dropout, which result from attrition, I first predicted odds of experiencing attrition at each wave based on all model covariates at baseline. Older respondents were more likely to experience attrition at Wave 2, Muslim respondents (relative to Protestant respondents) at Waves 3 and 6, boys at Wave 6, and those with high Math scores at Wave 3. Therefore, no single characteristic predicted attrition at all waves. Given that attrition averaged 10% across survey rounds, attrition bias was expected to have limited impact on the odds of experiencing dropout. However, I tested two extreme assumptions for missing values of dropout as sensitivity analyses for the effect of attrition bias: that the missing dropout cases were either censored or represented dropout. The latter assumption is important as, in most cases, it signifies that dropout may have occurred earlier and

more frequently in the study period. That is, respondents who were more likely to experience attrition at each wave were assumed to have dropped out of school. Neither assumption substantively changed results for models represented in Table 2.

## **Results**

This section begins with a description of the sample (see Table 1 and Figure1), stratified by sex. Figure 1 shows Kaplan-Meier curves, which demonstrate that the probability of remaining in school is lower for girls than for boys, and this gap widens over time.

[TABLE 1 ABOUT HERE]

Table 1 shows that nearly one-third of girls in the sample aspire to reach tertiary level education at baseline, compared to 36.7% of boys, whereas boys desire a higher age for first marriage (26.7) compared to girls (24.8). Students' past educational experiences at baseline show that grade repetition is nearly universal, delayed enrollment is normative, and temporary withdrawal from school is more common among boys than girls. .

[FIGURE 1 ABOUT HERE]

Table 2 shows the results of models analyzing the relationship between educational and marital aspirations, and the likelihood of dropout. Models 1, 2, and 3 present the main effects for educational aspirations, marital aspirations, and both types of aspirations, respectively, controlling for covariates. Model 4 examines whether the relationship between aspirations and dropout depends on sex through the inclusion of the interaction terms.

[TABLE 2 ABOUT HERE]

Results from Model 3 show that students who hold aspirations for tertiary education at baseline, compared to those who hold aspirations only for secondary education or lower, are not significantly different in their likelihood to dropout, whereas each additional year of desired age



for marriage at baseline is associated with a 2% lower likelihood of dropout during the study period ( $P = .002$ ). Models 1 and 2 show that, examined separately, aspirations for tertiary education are associated with a 16% lower likelihood of dropout ( $P = .025$ ), whereas marital aspirations exhibit a stronger association with dropout. When both are included (Model 3), the effect of educational aspirations is no longer significant but marital aspirations continue to have significance. The interaction effect in Model 4 demonstrates that the relationship between educational aspirations and the likelihood of dropout does not depend on sex. When examined through marginal effects, however, Figure 2 shows that girls who hold aspirations for secondary and tertiary school have a significantly higher probability of dropout compared to boys who hold similar aspirations. This implies that gender differences in the probability of dropout do exist within educational aspiration categories. Model 4 also shows that girls who desire a higher age for first marriage at baseline are nearly 3% less likely to dropout, relative to boys who desire a higher age for marriage, and the main effect of marital aspirations no longer holds in the model. This means that the relationship between marital aspirations and dropout is significant only for girls. Figure 3 displays the marginal effects of gender differences in the probability of dropout based on desired age at first marriage and shows that the gender gap becomes insignificant beyond girls' desire for marriage after age 35.

[FIGURE 2 AND 3 ABOUT HERE]

Student and household controls largely behave as expected in these models. Based on results from the full model (Model 3), as respondents get older, they become more likely to dropout, girls are nearly 2.4 times more likely to dropout compared to boys, and students who identify as Catholic and Muslim are more likely to experience dropout relative to students who identify as Protestant. In terms of educational experiences prior to baseline, grade repetition and

delayed enrollment are not associated with dropout, but having experienced temporary withdrawal from school prior to baseline is associated with a greater likelihood of dropout within the study period. In addition, belonging to the highest and second highest household wealth categories, relative to the poorest households, is associated with a lower likelihood of dropout, as is belonging to a large household.

Based on literature showing the association of other household and student characteristics and educational outcomes in sub-Saharan Africa, models (not shown here) were also tested to include ethnicity, orphan status, sex of household head at baseline, and the number of same mother siblings and older siblings, but none of these were significantly associated with dropout, and did not improve model fit<sup>1</sup>. These variables were therefore excluded in favor of a parsimonious model. Models were also tested with a time varying measure of grade, but resulted in multicollinearity when included with a time varying measure of age.

Table 3 shows the results of a multinomial logistic regression model predicting the relationship between educational and marital aspirations, and the likelihood of dropout either due to marriage or from other causes, relative to remaining enrolled in school within the study period. Of the baseline respondents for this model (N=1,703), 26.3% were censored, 45.4% experienced dropout from other causes, and 28.2% experienced marriage related dropout, i.e. dropout in the same wave as first marriage.

[TABLE 3 ABOUT HERE]

Model 1 shows that, as expected, girls are nearly 9.85 times more likely than boys to dropout due to marriage, and only 1.19 times more likely to dropout due to other causes. Similar

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<sup>1</sup> Models including sex of household head, number of same mother siblings, and older siblings were also tested with the exclusion of household size as a covariate. This model showed that with each additional same mother sibling, the likelihood of experiencing school dropout was significantly lower.

to the discrete time model, having higher educational aspirations is not associated with the likelihood of dropping out due to marriage or other causes, whereas holding a higher desired age for marriage at baseline is associated with a 5% lower likelihood of dropout ( $P = .001$ ) due to marriage. When analyzed separately from marital aspirations (model not shown here), educational aspirations are associated with a 16% lower likelihood of dropout from other causes ( $P = .054$ ). Examining these relationships by sex, Model 2 includes interaction terms, which show that the association of educational aspirations and dropout from other causes does not vary significantly by sex, but girls who desire a higher age at marriage are 6% less likely to dropout due to marriage compared to boys ( $P = .052$ ).

Furthermore, some differences in controls do emerge when dropout is analyzed by marriage and non-marriage related causes, relative to censored respondents. Model 1 shows that students who identify as Muslim are more likely to dropout due to marriage compared to students who identify as Protestant, whereas both Catholics and Muslims are more likely to dropout from other causes. Temporary withdrawal from school is associated with a higher likelihood of dropping out due to other causes. Additionally, students with high reading scores at baseline have a much lower likelihood of dropout due to marriage, and this relationship is weaker in magnitude and significance for dropout from other causes. Lastly, belonging to the second highest household wealth quartile is associated with lower likelihood for dropout due to marriage but not other causes.

## **Discussion and Conclusion**

In rural Malawi, most adolescent boys and girls aspire to complete secondary education and some aim to extend their education to the tertiary level. In addition, they aspire, on average, to marry around their mid-twenties, after the completion of their aspired level of education.

Aspirations for education and marriage in this context mirror adolescent aspirations in other developing countries (Frye: 2012; Murray 2012). Similar to findings from rural China and most Western literature, this study shows that educational aspirations are associated with lower odds of dropping out. This implies that even in contexts where adolescents face significant constraints to attaining their educational goals, educational aspirations play a role in predicting the likelihood of school dropout at the primary and secondary levels. However, the gendered process through which aspirations influence educational outcomes warrants further investigation in this context. Moreover, the effect of educational aspirations disappears once marital aspirations are included in the model. A higher desired age for marriage predicts lower odds of school dropout, but only among girls, suggesting that in contexts where early marriage is prevalent, marital aspirations moderate educational aspirations when predicting educational outcomes. It is therefore critical that when analyzing or changing aspirations, we acknowledge the importance of multiple (Hart 2012), potentially competing aspirational domains.

More importantly, the study finds that, when analyzed jointly, having a higher desired age for marriage, relative to educational aspirations, is significantly likely to predict lower dropout due to marriage. This implies that a later desired age for marriage among girls may serve as a deterrent to marriage-specific school dropout. The causal mechanisms that link the relationship between marital aspirations and marriage-specific dropout are uncertain, but the findings provide an important insight to policy efforts aimed at reducing child marriage through incentives for education, and reducing marriage related dropout (Field and Ambrus 2008; Nguyen and Wodon 2014; Psaki 2016). Moreover, since educational and marital aspirations do not predict a lower likelihood of dropout from non-marriage related causes, understanding how

the relationship between aspirations varies with cause-specific dropout may help establish the theoretical scope for their influence on educational outcomes in this context.

As mentioned earlier, qualitative evidence from Malawi suggests that adolescent girls are aware of the obstacles they face in attaining their educational goals and use high aspirations for education and marriage as a motivational mechanism for changing or maintaining present behavior to influence future educational outcomes (Frye 2012). Findings from this study suggest that Frye's (2012) cultural identity framework may be a more relevant theoretical framework than the Wisconsin or rational choice models in explaining the relationship between aspirations and school dropout in Malawi. However, the process of aspiration formation in this context requires further research to understand how traditional theoretical frameworks for aspiration-attainment models can be modified.

Most controls in the models confirm the importance of the familial and educational experiences of adolescents in this socio-demographic context. Notably, the study contributes to mixed evidence on the relationship between household size and educational outcomes by showing that belonging to a larger household at baseline is associated with a lower risk of future dropout. Recent work has tempered the idea that large households are unfavorable for educational progress, by showing that the relationship may depend on support available from a larger network of kin, and from older siblings who may be better able to support younger siblings (Madhavan et al. 2017; Kravdal et al. 2013). Future research should incorporate the role of non-household members in influencing educational aspirations and outcomes.

This study has several limitations. First, it is difficult to assert that the relationship between aspirations and dropout is causal. However, aspirations and controls for individual attributes and related household characteristics are causally ordered, with aspirations preceding

dropout, thus reducing endogeneity in their relationship. Second, students who survive to Standards 4-8, may, in part, have survived to those levels of schooling because they held higher aspirations than students who dropped out in earlier grades, so it is difficult to derive a population estimate of the relationship between aspirations and dropout for a cohort of adolescents aged 14-17. However, the data do capture experiences of the majority of the study population, leaving out mainly the highest (those who progress in school without delays) and lowest achieving youth (those who dropped out earlier). Third, dropping out of school in the same year as experiencing a first marriage is not enough to assume that dropout occurred solely because of marriage, but both the timing of dropout and first marriage, i.e. within the same wave, together with the high prevalence of early marriage in the region and the near negligible practice of continuing education after marriage makes the assumption reasonable for modeling purposes, in the absence of evidence from students and parents as to the singular or multiple causes of dropout. Fourth, given that educational aspirations in this study are measured in relation to the desired timing of marriage, it may be useful to measure these aspirations independently in future studies, and also include occupational aspirations to understand how these aspirations might interact, both with each other, and with future educational outcomes. Future studies should also explore the relationship between aspirations and educational attainment, including the theoretical assumptions required to interpret this relationship in the context of sub-Saharan Africa.

Despite these limitations, the findings are valuable for global development policy objectives for equity in access to secondary and higher levels of education, where sub-Saharan Africa lags behind significantly (Ilie and Rose 2016; World Bank 2018). For instance, cash transfer programs in sub-Saharan Africa suggest that higher aspirations, though it is unclear which aspirations, may be a distal mechanism through which an improved household economic

situation, combined with investments in education, may influence safe transitions to adulthood, including delayed pregnancy and marriage (Baird et al. 2011; Birech 2013; Handa et al. 2015). However, these programs have had mixed success with reducing early marriage. In Malawi, the Social Cash Transfer Program (SCTP) yielded improved school enrollment, but no effects on early marriage and long term grade attainment (Dake et al. 2018). Similar programs that specifically target youth empowerment on a lower scale, such as the Zomba Cash Transfer Program for never married girls and young women in Malawi, have been shown to have some success with reducing early marriage (Baird et al. 2011). Research from developing countries where early marriage is prevalent has also shown that increasing educational attainment does reduce early marriage, but the decrease is not proportionate to the increase in educational attainment (Psaki 2016). What the present study shows is the need to consider how and whether interventions that include incentives for education and delayed marriage affect both educational and marital aspirations in their impact on transitions to adulthood and educational attainment, by explicitly measuring aspirations in multiple domains. This measurement will help outline the role that both educational and marital aspirations play in the outcomes these programs seek to achieve, and will also help highlight whether the incentives provided raise aspirations, or the perceived likelihood that aspirations can be achieved.

This study is one of the first to use panel data to analyze the relationship between both educational and marital aspirations, and the likelihood of dropout at the primary and secondary school levels among boys and girls in sub-Saharan Africa. Although aspirations cannot fully compensate for poor school quality, resource constraints, or gender-specific constraints, findings from this study provide evidence that they are important in an environment where adolescents

face multiple challenges to attaining their education goals, along with gendered cultural expectations for early marriage.



## References

- Abuya, Benta A., Elijah O. Onsomu, and Dakysha Moore. "Educational challenges and diminishing family safety net faced by high-school girls in a slum residence, Nairobi, Kenya." *International Journal of Educational Development* 32, no. 1 (2012): 81-91.
- Appadurai, Arjun.. 'The Capacity to Aspire' in V. Rao and M. Walton (eds) *Culture and Public Action*, Redwood City, CA: Stanford University Press. 2004.
- Allison, Paul D. "Discrete-time methods for the analysis of event histories." *Sociological methodology* 13 (1982): 61-98.
- Baird, Sarah, Craig McIntosh, and Berk Özler. "Cash or condition? Evidence from a cash transfer experiment." *The Quarterly journal of economics* 126, no. 4 (2011): 1709-1753.
- Beal, Sarah J., and Lisa J. Crockett. "Adolescents' occupational and educational aspirations and expectations: Links to high school activities and adult educational attainment." *Developmental psychology* 46, no. 1 (2010): 258.
- Beaman, Lori, Esther Duflo, Rohini Pande, and Petia Topalova. "Female leadership raises aspirations and educational attainment for girls: A policy experiment in India." *science* 335, no. 6068 (2012): 582-586.
- Birech, Jeniffer. "Child marriage: A cultural health phenomenon." *International journal of humanities and social science* 3, no. 17 (2013): 97-103.
- Bledsoe, C., & Casterline, J. J. Johnson-Kuhn, and J. Haaga. *Critical Perspectives on Schooling and Fertility in the Developing World*. National Academy Press, Washington, DC, 1999.
- Bougma, Moussa, Laure Pasquier-Doumer, Thomas K. Legrand, Jean-François Kobiané, and Catriona Dutreuilh. "Fertility and schooling in Ouagadougou: The role of family networks." *Population* 69, no. 3 (2014): 391-418.

- Chang, Fang, Wenbin Min, Yaojiang Shi, Kaleigh Kenny, and Prashant Loyalka. "Educational expectations and dropout behavior among junior high students in rural China." *China & World Economy* 24, no. 3 (2016): 67-85.
- Clark, Shelley, and Rohini Mathur. "Dating, sex, and schooling in urban Kenya." *Studies in Family Planning* 43, no. 3 (2012): 161-174.
- Clark, Shelley, Caroline Kabiru, and Rohini Mathur. "Relationship transitions among youth in urban Kenya." *Journal of Marriage and Family* 72, no. 1 (2010): 73-88.
- Clark, Shelley, Michelle Poulin, and Hans-Peter Kohler. "Marital aspirations, sexual behaviors, and HIV/AIDS in rural Malawi." *Journal of Marriage and Family* 71, no. 2 (2009): 396-416.
- Dake, Fidelia, Luisa Natali, Gustavo Angeles, Jacobus de Hoop, Sudhanshu Handa, Amber Peterman, and Malawi Cash Transfer Evaluation Team and the Zambia Cash Transfer Evaluation Team. "Cash Transfers, Early Marriage, and Fertility in Malawi and Zambia." *Studies in family planning* 49, no. 4 (2018): 295-317.
- Davison, Jean. "School attainment and gender: Attitudes of Kenyan and Malawian parents toward educating girls." *International journal of educational development* 13, no. 4 (1993): 331-338.
- Emirbayer, Mustafa, and Ann Mische. "What is agency?." *American journal of sociology* 103, no. 4 (1998): 962-1023.
- Field, Erica, and Attila Ambrus. "Early marriage, age of menarche, and female schooling attainment in Bangladesh." *Journal of political Economy* 116, no. 5 (2008): 881-930.

- Filmer, Deon, and Lant Pritchett. "The effect of household wealth on educational attainment: evidence from 35 countries." *Population and development review* 25, no. 1 (1999): 85-120.
- Fredriksen, Birger, and Camilla Helgø Fossberg. "The case for investing in secondary education in sub-Saharan Africa (SSA): challenges and opportunities." *International Review of Education* 60, no. 2 (2014): 235-259.
- Frye, Margaret. "Bright futures in Malawi's new dawn: Educational aspirations as assertions of identity." *American Journal of Sociology* 117, no. 6 (2012): 1565-1624.
- Garg, Rashmi, Carol Kauppi, John Lewko, and Diana Urajnik. "A structural model of educational aspirations." *Journal of Career Development* 29, no. 2 (2002): 87-108.
- Grant, Monica J. "De Facto Privatization and Inequalities in Educational Opportunity in the Transition to Secondary School in Rural Malawi." *Social Forces* 96, no. 1 (2017): 65-90.
- Grant, Monica J., and Kelly K. Hallman. "Pregnancy-related school dropout and prior school performance in KwaZulu-Natal, South Africa." *Studies in family planning* 39, no. 4 (2008): 369-382.
- Handa, Sudhanshu, Amber Peterman, Carolyn Huang, Carolyn Halpern, Audrey Pettifor, and Harsha Thirumurthy. "Impact of the Kenya Cash Transfer for Orphans and Vulnerable Children on early pregnancy and marriage of adolescent girls." *Social Science & Medicine* 141 (2015): 36-45.
- Hart, Caroline Sarojini. *Aspirations, education and social justice: Applying Sen and Bourdieu*. A&C Black, 2012.

Harrison, Abigail, and Lucia F. O'Sullivan. "In the absence of marriage: long-term concurrent partnerships, pregnancy, and HIV risk dynamics among South African young adults." *AIDS and Behavior* 14, no. 5 (2010): 991-1000.

Ilie, Sonia, and Pauline Rose. "Is equal access to higher education in South Asia and sub-Saharan Africa achievable by 2030?." *Higher Education* 72, no. 4 (2016): 435-455.

Johnson-Hanks, Jennifer. *Uncertain honor: Modern motherhood in an African crisis*. University of Chicago Press, 2006.

Kadzamira, Esme, and Pauline Rose. "Can free primary education meet the needs of the poor?: evidence from Malawi." *International journal of educational development* 23, no. 5 (2003): 501-516.

Khattab, Nabil. "Students' aspirations, expectations and school achievement: what really matters?." *British Educational Research Journal* 41, no. 5 (2015): 731-748.

Kintrea, Keith, Ralf St Clair, and Muir Houston. "Shaped by place? Young people's aspirations in disadvantaged neighbourhoods." *Journal of Youth Studies* 18, no. 5 (2015): 666-684.

Kravdal, Øystein, Ivy Kodzi, and Wendy Sigle-Rushton. "Effects of the Number and Age of Siblings on Educational Transitions in Sub-Saharan Africa." *Studies in family planning* 44, no. 3 (2013): 275-297.

Kritzinger, Andrietta. "Rural youth and risk society: Future perceptions and life chances of teenage girls on South African farms." *Youth & Society* 33, no. 4 (2002): 545-572.

Langsten, Ray. "Measuring progress toward universal primary education: An examination of indicators." *Comparative Education Review* 58, no. 4 (2014): 653-677.

Lee-Rife, Susan, Anju Malhotra, Ann Warner, and Allison McGonagle Glinski. "What works to prevent child marriage: a review of the evidence." *Studies in family planning* 43, no. 4 (2012): 287-303.

Lewin, Keith M. "Access to education in sub-Saharan Africa: Patterns, problems and possibilities." *Comparative Education* 45, no. 2 (2009): 151-174.

Lloyd, Cynthia B., and Barbara S. Mensch. "Marriage and childbirth as factors in dropping out from school: an analysis of DHS data from sub-Saharan Africa." *Population Studies* 62, no. 1 (2008): 1-13.

Lloyd, Cynthia B., Barbara S. Mensch, and Wesley H. Clark. "The effects of primary school quality on school dropout among Kenyan girls and boys." *Comparative education review* 44, no. 2 (2000): 113-147.

Lloyd, Cynthia B., and Ann K. Blanc. "Children's schooling in sub-Saharan Africa: The role of fathers, mothers, and others." *Population and development review* (1996): 265-298.

Madhavan, Sangeetha, Abigail Harrison, and Christie Sennott. "Management of non-marital fertility in two South African communities." *Culture, health & sexuality* 15, no. 5 (2013): 614-628.

Madhavan, Sangeetha, Tyler W. Myroniuk, Randall Kuhn, and Mark A. Collinson. "Household structure vs. composition: Understanding gendered effects on educational progress in rural South Africa." *Demographic research* 37 (2017): 1891.

Maertens, Annemie. "Social norms and aspirations: Age of marriage and education in rural

- India." *World Development* 47 (2013): 1-15.
- Morgan, Stephen Lawrence. *On the edge of commitment: Educational attainment and race in the United States*. Stanford University Press, 2005.
- Murray, Helen. *Is school education breaking the cycle of poverty for children?: Factors shaping education inequalities in Ethiopia, India, Peru and Vietnam*. Young Lives, 2012.
- Nguyen, Minh Cong, Quentin Wodon, and Q. Wodon. "Impact of child marriage on literacy and education attainment in Africa." *UNICEF and UNESCO Statistics*. Washington, DC: The World Bank. Retrieved from <http://allinschool.org/wp-content/uploads/2015/02/OOSC-2014-QW-Child-Marriage-final.pdf> (2014).
- Psaki, Stephanie. "Addressing child marriage and adolescent pregnancy as barriers to gender parity and equality in education." *Prospects* 46, no. 1 (2016): 109-129.
- Pells, Kirrily. "Poverty and gender inequalities: evidence from Young Lives." (2011).
- Ravishankar, Vaikalathur, Safaa El-Tayeb El-Kogali, Deepa Sankar, Nobuyuki Tanaka, and Nelly Rakoto-Tiana. 2016. *Primary Education in Malawi: Expenditures, Service Delivery, and Outcomes*. World Bank Studies. Washington, DC: World Bank. doi: 10.1596/978-1-4648-0794-7. License: Creative Commons Attribution CC BY 3.0 IGO.
- Shore, Bradd. *Culture in mind: Cognition, culture, and the problem of meaning*. Oxford University Press, 1998.
- Sewell, William H., and Vimal P. Shah. "Socioeconomic status, intelligence, and the attainment of higher education." *Sociology of education* (1967): 1-23.

Tafere, Yisak. *Education aspirations and barriers to achievement for young people in Ethiopia*.  
Young Lives, 2014.

UNICEF 2018. [https://www.unicef.org/protection/malawi\\_102790.html](https://www.unicef.org/protection/malawi_102790.html)

“Wodon, Quentin; Montenegro, Claudio; Nguyen, Hoa; Onagoruwa, Adenike. 2018. *Missed Opportunities : The High Cost of Not Educating Girls. The Cost of Not Educating Girls Notes Series*. World Bank, Washington, DC. © World Bank.  
<https://openknowledge.worldbank.org/handle/10986/29956> License: CC BY 3.0 IGO.”

World Bank. *The Education System in Malawi*. World Bank Group, 2010.

Table 1. Baseline gender stratified means and proportions of all covariates, among adolescent boys and girls, aged 14-17 at baseline, Malawi (N=1,703).

|                                     | Male<br>(N=878) | Female<br>(N=825) |
|-------------------------------------|-----------------|-------------------|
| <b>Educational Aspirations</b>      |                 |                   |
| Complete secondary school or less   | 63.3%           | 69.2%             |
| Tertiary                            | 36.7%           | 30.8%             |
| <b>Marital Aspirations</b>          |                 |                   |
| Desired age for marriage (avg)      | 26.69<br>(4.53) | 24.77<br>(4.40)   |
| <b>Age (avg)</b>                    | 15.24<br>(0.90) | 15.11<br>(0.88)   |
| <b>Grade (avg)</b>                  | 6.3<br>(1.35)   | 6.6<br>(1.21)     |
| <b>Religion</b>                     |                 |                   |
| Protestant                          | 30.3%           | 30.1%             |
| Catholic                            | 21.8%           | 24.4%             |
| Muslim                              | 41.8%           | 40.1%             |
| Other                               | 6.2%            | 5.5%              |
| <b>Age of Entry</b>                 |                 |                   |
| Enrolled on time                    | 39.8%           | 50.6%             |
| Delayed enrollment                  | 60.2%           | 49.4%             |
| <b>Ever repeated grade</b>          |                 |                   |
| Repeated grade once or less         | 79.4%           | 81.5%             |
| Repeated twice or more              | 20.6%           | 18.5%             |
| <b>Temporary Dropout</b>            |                 |                   |
| No dropout before baseline          | 81.4%           | 90.8%             |
| Missed one or more years            | 18.6%           | 9.2%              |
| <b>Reading score (out of 4)</b>     |                 |                   |
| Low reading score (1-3)             | 34.6%           | 26.8%             |
| High reading score (4)              | 65.4%           | 73.2%             |
| <b>Math score (out of 12)</b>       |                 |                   |
| Low score (1-10)                    | 60.1%           | 59.8%             |
| High score (11-12)                  | 39.9%           | 40.2%             |
| <b>Mother's education</b>           |                 |                   |
| Did not attend school               | 42.8%           | 37.6%             |
| Some primary                        | 43.4%           | 44.9%             |
| Completed primary or higher         | 13.8%           | 17.5%             |
| <b>Household wealth (quartiles)</b> |                 |                   |
| Lowest                              | 26.8%           | 24.7%             |



|                             |        |        |
|-----------------------------|--------|--------|
| Low                         | 26.0%  | 24.4%  |
| High                        | 23.8%  | 22.5%  |
| Highest                     | 23.5%  | 28.4%  |
| <b>Household size (avg)</b> | 4.98   | 5.04   |
|                             | (1.92) | (2.10) |

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Table 2. Odds ratios for school dropout, relative to continued school enrollment, among adolescent boys and girls, aged 14-17 at baseline, Malawi (N = 6, 624).

|  | Model 1           | Model 2           | Model 3           | Model 4           |
|--|-------------------|-------------------|-------------------|-------------------|
| <b>Educational Aspirations (Ref: To complete secondary school or less)</b> |                   |                   |                   |                   |
| Tertiary level   | 0.84*<br>[0.07]   |                   | 0.89<br>[0.07]    | 0.84<br>[0.09]    |
| <b>Marital Aspirations</b>   |                   |                   |                   |                   |
| Desired age for marriage   |                   | 0.97***<br>[0.01] | 0.98**<br>[0.01]  | 0.99<br>[0.01]    |
| <b>Age</b>   | 1.58***<br>[0.03] | 1.56***<br>[0.03] | 1.59***<br>[0.03] | 1.59***<br>[0.03] |
| <b>Sex (Ref: Male)</b>   |                   |                   |                   |                   |
| Female   | 2.45***<br>[0.18] | 2.48***<br>[0.18] | 2.38***<br>[0.17] | 5.65***<br>[2.35] |
| <b>Grade (Ref: 4)</b>  |                   |                   |                   |                   |
| Grade 5  | 1.15<br>[0.17]    | 1.12<br>[0.16]    | 1.14<br>[0.16]    | 1.13<br>[0.16]    |
| Grade 6  | 0.96<br>[0.14]    | 0.92<br>[0.14]    | 0.94<br>[0.14]    | 0.93<br>[0.14]    |
| Grade 7  | 0.89<br>[0.14]    | 0.85<br>[0.13]    | 0.89<br>[0.14]    | 0.89<br>[0.14]    |
| Grade 8  | 0.85<br>[0.14]    | 0.78<br>[0.13]    | 0.82<br>[0.14]    | 0.82<br>[0.14]    |
| <b>Religion (ref: Protestant)</b>  |                   |                   |                   |                   |
| Catholic   | 1.18!<br>[0.12]   | 1.20!<br>[0.12]   | 1.19!<br>[0.12]   | 1.18!<br>[0.12]   |
| Muslim   | 1.50***<br>[0.14] | 1.53***<br>[0.14] | 1.52***<br>[0.14] | 1.52***<br>[0.14] |
| Other  | 1.80***<br>[0.29] | 1.82***<br>[0.29] | 1.79***<br>[0.28] | 1.80***<br>[0.29] |
| <b>Age of Entry (ref: On time enrollment)</b>                              |                   |                   |                   |                   |
| Delayed enrollment   | 0.90<br>[0.07]    | 0.93<br>[0.07]    | 0.90<br>[0.07]    | 0.90<br>[0.07]    |
| <b>Ever repeated grade (Ref: Repeated grade once or less)</b>              |                   |                   |                   |                   |
| Repeated twice or more   | 0.95<br>[0.09]    | 0.95<br>[0.09]    | 0.95<br>[0.09]    | 0.94<br>[0.09]    |
| <b>Temporary Dropout (Ref: No dropout before baseline)</b>                 |                   |                   |                   |                   |

|  |                   |                   |                   |                   |
|--|-------------------|-------------------|-------------------|-------------------|
| Missed one or more years                               | 1.27*<br>[0.13]   | 1.31**<br>[0.13]  | 1.27*<br>[0.13]   | 1.28*<br>[0.13]   |
| <b>Reading score (ref: low reading score)</b>          |                   |                   |                   |                   |
| High reading score                                     | 0.78**<br>[0.07]  | 0.77**<br>[0.07]  | 0.78**<br>[0.07]  | 0.78**<br>[0.07]  |
| <b>Math score (ref: low score)</b>                     |                   |                   |                   |                   |
| High score   | 1.06<br>[0.09]    | 1.06<br>[0.09]    | 1.06<br>[0.09]    | 1.06<br>[0.09]    |
| <b>Mother's education (Ref: Did not attend school)</b> |                   |                   |                   |                   |
| Some primary   | 0.93<br>[0.07]    | 0.94<br>[0.07]    | 0.95<br>[0.07]    | 0.95<br>[0.07]    |
| Completed primary or higher                            | 0.84<br>[0.10]    | 0.83!<br>[0.10]   | 0.87<br>[0.10]    | 0.88<br>[0.10]    |
| <b>Household wealth (Ref: Poorest)</b>                 |                   |                   |                   |                   |
| Poor   | 0.95<br>[0.10]    | 0.97<br>[0.09]    | 0.96<br>[0.10]    | 0.95<br>[0.10]    |
| Rich   | 0.76*<br>[0.08]   | 0.96<br>[0.09]    | 0.76*<br>[0.08]   | 0.76*<br>[0.08]   |
| Richest  | 0.56***<br>[0.06] | 0.67***<br>[0.07] | 0.55***<br>[0.06] | 0.55***<br>[0.06] |
| <b>Household size</b>                                  | 0.95**<br>[0.02]  | 0.95**<br>[0.02]  | 0.95**<br>[0.02]  | 0.95**<br>[0.02]  |
| <b>Interactions</b>                                    |                   |                   |                   |                   |
| Female x tertiary level                                |                   |                   |                   | 1.13<br>[0.18]    |
| Female x desired age for marriage                      |                   |                   |                   | 0.97*<br>[0.02]   |

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Huber-White standard errors in brackets, ! p<0.1 \* p<0.05, \*\* p<0.01, \*\*\* p<0.001.

Table 3. Risk ratios for school dropout from marriage and non-marriage related causes, relative to continued school enrollment, among adolescent boys and girls, aged 14-17 at baseline, Malawi (N = 6, 624).

|   | Model 1                   |                          | Model 2                   |                          |
|---|---------------------------|--------------------------|---------------------------|--------------------------|
|   | Dropout from other causes | Marriage related dropout | Dropout from other causes | Marriage related dropout |
| <b>Educational Aspirations</b><br>(Ref: To complete secondary school or less) |                           |                          |                           |                          |
| Tertiary level  | 0.86<br>[0.08]            | 0.95<br>[0.12]           | 0.83<br>[0.10]            | 0.82<br>[0.21]           |
| <b>Marital Aspirations</b>  |                           |                          |                           |                          |
| Desired age for marriage  | 0.99<br>[0.01]            | 0.95***<br>[0.01]        | 0.99<br>[0.01]            | 1.00<br>[0.03]           |
| <b>Age</b>  | 1.51***<br>[0.03]         | 1.76***<br>[0.05]        | 1.51***<br>[0.03]         | 1.76***<br>[0.05]        |
| <b>Sex (Ref: Male)</b>  |                           |                          |                           |                          |
| Female  | 1.19!<br>[0.10]           | 9.85***<br>[1.31]        | 1.51<br>[0.71]            | 51.62***<br>[46.10]      |
| <b>Grade (Ref: 4)</b>   |                           |                          |                           |                          |
| Grade 5   | 1.11<br>[0.19]            | 1.20<br>[0.28]           | 1.11<br>[0.19]            | 1.19<br>[0.28]           |
| Grade 6   | 0.88<br>[0.16]            | 1.06<br>[0.26]           | 0.88<br>[0.16]            | 1.04<br>[0.25]           |
| Grade 7   | 0.92<br>[0.17]            | 0.86<br>[0.22]           | 0.92<br>[0.17]            | 0.86<br>[0.22]           |
| Grade 8   | 0.83<br>[0.16]            | 0.81<br>[0.22]           | 0.83<br>[0.16]            | 0.80<br>[0.21]           |
| <b>Religion (ref: Protestant)</b>   |                           |                          |                           |                          |
| Catholic  | 1.36**<br>[0.16]          | 0.93<br>[0.14]           | 1.36**<br>[0.16]          | 0.93<br>[0.14]           |
| Muslim  | 1.52***<br>[0.17]         | 1.53**<br>[0.21]         | 1.52***<br>[0.17]         | 1.54**<br>[0.21]         |
| Other   | 2.14***<br>[0.38]         | 1.24<br>[0.32]           | 2.13***<br>[0.38]         | 1.25<br>[0.33]           |
| <b>Age of Entry (ref: On time enrollment)</b>                                 |                           |                          |                           |                          |
| Delayed enrollment  | 0.91<br>[0.08]            | 0.90<br>[0.11]           | 0.91<br>[0.08]            | 0.90<br>[0.11]           |
| <b>Ever repeated grade (Ref: Repeated grade once or less)</b>                 |                           |                          |                           |                          |
| Repeated twice or more  | 1.02                      | 0.81                     | 1.02                      | 0.80                     |

|  |         |         |         |         |
|--|---------|---------|---------|---------|
|  | [0.11]  | [0.12]  | [0.11]  | [0.12]  |
| <b>Temporary Dropout (Ref: No dropout before baseline)</b> |         |         |         |         |
| Missed one or more years                                   | 1.29*   | 1.23    | 1.30*   | 1.25    |
|  | [0.15]  | [0.21]  | [0.15]  | [0.21]  |
| <b>Reading score (ref: low reading score)</b>              |         |         |         |         |
| High reading score   | 0.82!   | 0.70**  | 0.82!   | 0.70*   |
|  | [0.09]  | [0.10]  | [0.09]  | [0.10]  |
| <b>Math score (ref: low score)</b>                         |         |         |         |         |
| High score   | 1.04    | 1.09    | 1.04    | 1.09    |
|  | [0.10]  | [0.14]  | [0.10]  | [0.14]  |
| <b>Mother's education (Ref: Did not attend school)</b>     |         |         |         |         |
| Some primary   | 0.93    | 0.99    | 0.94    | 0.99    |
|  | [0.09]  | [0.12]  | [0.09]  | [0.12]  |
| Completed primary or higher                                | 0.93    | 0.80    | 0.93    | 0.82    |
|  | [0.13]  | [0.15]  | [0.13]  | [0.15]  |
| <b>Household wealth (Ref: Poor)</b>                        |         |         |         |         |
| Poorest  | 0.99    | 0.91    | 0.99    | 0.90    |
|  | [0.13]  | [0.14]  | [0.13]  | [0.14]  |
| Rich   | 0.83    | 0.65*   | 0.83    | 0.65*   |
|  | [0.11]  | [0.11]  | [0.11]  | [0.11]  |
| Richest  | 0.65*** | 0.42*** | 0.65*** | 0.42*** |
|  | [0.08]  | [0.07]  | [0.08]  | [0.07]  |
| <b>Household size</b>                                      | 0.94**  | 0.95!   | 0.94**  | 0.95!   |
|  | [0.02]  | [0.03]  | [0.02]  | [0.03]  |
| <b>Interactions</b>  |         |         |         |         |
| Female x tertiary level                                    |         |         | 1.07    | 1.23    |
|  |         |         | [0.21]  | [0.36]  |
| Female x desired age for marriage                          |         |         | 0.99    | 0.94!   |
|  |         |         | [0.02]  | [0.03]  |

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Huber-White standard errors in brackets, ! p<0.1 \* p<0.05, \*\* p<0.01, \*\*\* p<0.001.

Figure 1. Gender stratified Kaplan-Meier curves showing the probability of survival in school at each wave after Wave 1, for adolescent boys and girls aged 14-17 at baseline, Malawi (N=6,624).

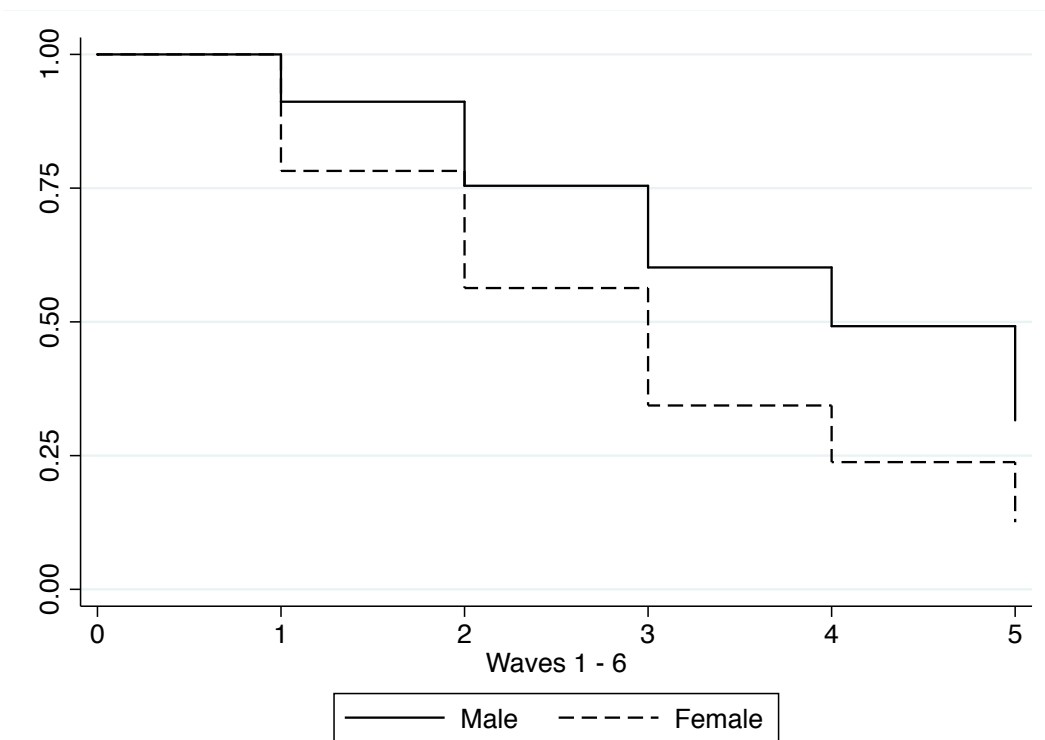


Figure 2. Gender stratified marginal effects showing point estimates and confidence intervals of the probability of school dropout for each category of educational aspirations.

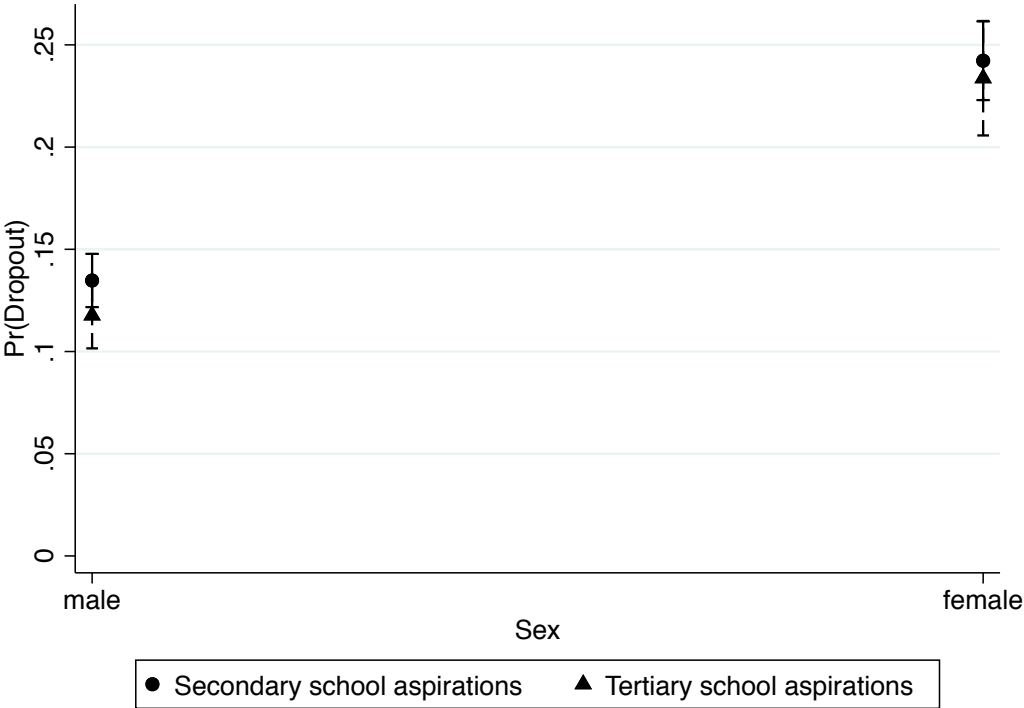


Figure 3. Gender stratified marginal effects showing point estimates and confidence intervals of the probability of school dropout at each desired age for marriage.

