Desired Fertility and Educational Aspirations: Adolescent Goals in a Context of Rapid Social Change

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Abstract: Adolescent preferences for life course outcomes predict future behavior, but also reflect current assessments of what outcomes are possible and desirable. In particular, adolescent goals for work, family, and work-family balance can be an indicator of gender norms and institutional structures. This paper analyzes the relationship between desired educational attainment and desired family size in rural Jalisco Province, Mexico, a context where rapid educational expansion and fertility decline have dramatically altered the scope of possible life outcomes, especially for girls, but where family roles remain strongly gendered. Preliminary results controlling for individual and family characteristics show that higher educational aspirations are associated with lower desired family size, but only for girls. For boys, more egalitarian gender attitudes predict lower desired family size. The completed paper will refine measures of family structure and context; test for additional moderators; and consider possible mutual dependence between these measures.

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Introduction

Adolescent preferences for marriage, childbearing, education, migration, and work predict later outcomes (Eccles, Vida, and Barber 2004; Schoon 2001; Sewell, Haller, and Portes 1969; Schneider and Stevenson 1999; Barber 2001; Clark et al. 2009; Quesnel-Vallée and Morgan 2003; Sassler and Schoen 1999; Willoughby 2012). These preferences, and the relationship between preferences in different domains, also reflect adolescents' interpretations of the kinds of outcomes that are possible and desirable (Gerson 2010; Howard et al. 2011). In particular, adolescent goals for work, family, and work-family balance have been used as an indicator of gender norms and institutional structures (Schoon 2001; Eccles et al. 2004). If desires for more education and more intensive careers are associated with reduced desires for marriage and childbearing, this negative relationship suggests that achievement outside the family is perceived as conflicting with family roles. In contrast, no association or a positive association between goals in the public and private spheres would suggest little perceived conflict between domains. These associations likely vary over time and reflect changes in cultural and societal norms; within contexts, they also likely vary across socioeconomic status, and between men and women.

In this paper, we analyze the relationship between desired educational attainment and desired family size in rural areas of Jalisco Province, Mexico, a context where rapid educational expansion and rapid fertility decline have dramatically altered the scope of possible life outcomes, especially for girls, but where family roles remain strongly gendered. We draw on data from the Family Migration and Early Life Outcomes (FAMELO) study, a household-based survey of 2238 households, to analyze education and fertility desires in a sample of 1065 boys and girls age 11-17. We use descriptive and multivariate analyses to assess the correlation between educational and fertility goals; examine variation in this association according to family economic status and family structure; and compare associations for boys and girls. Preliminary results controlling for individual and family characteristics show that higher educational aspirations are associated with lower desired family size, but only for girls. For boys, in contrast, more egalitarian gender attitudes predict lower desired family size. The completed paper will refine measures of family structure and family context; test for additional moderators of the relationship between educational aspirations and desired family size; and consider possible mutual dependence between these measures.

Adolescent preferences for education and family formation

Adolescent preferences for the future – both aspirations (what adolescents want to or hope will happen) and expectations (what adolescents believe will happen given current conditions and possible constraints) predict future outcomes. They are also important outcomes in and of themselves. Preferences shed light on what kinds of lives young people think are appropriate, desirable, and achievable. Variation in preferences, in turn, can be an indicator of social change or a marker of differences in ideals or available resources.

In this paper, we focus on preferences in two domains, education and childbearing. Specifically, we measure adolescent aspirations for future educational attainment and desired family size. Education is a measure of achievement outside of the family. Educational attainment can be a means toward jobs with higher status and higher pay, and it also carries value and status on its own, independent of employment outcomes. Adolescents with higher educational aspirations are more likely to go on to post-secondary education. Still, in many settings, educational aspirations are systematically higher than achievement: in particular, many more young people would *like* to

complete university or obtain professional training than go on to do so (Kao and Thompson 2003). High educational aspirations may be a signal of ambition and orientation toward professional status even net of educational achievement (Frye 2012).

Desired family size is a core marker of goals within the family domain. People who desire large families are also more likely to hold other beliefs indicating orientation toward familism, such the importance of family over professional achievement and the value of extended family ties, as well as beliefs about gender-differentiated roles within the family (Hayford and Morgan 2008; Thornton et al. 2012). Desired family size is a strong, but imperfect, predictor of later fertility behavior (Hayford 2009; Quesnel-Vallée and Morgan 2003; Pritchett 1994).

We analyze the relationship between aspirations in these two domains and consider the degree to which they may be in conflict. A vast body of evidence shows that *outcomes* in these two domains are negatively correlated, at least for women. Women with higher levels of education almost universally have lower fertility (Axinn and Barber 2001; Martin 1995), although some evidence suggests that this relationship may be reversing at higher parities in low fertility contexts Kravdal 1992; Testa 2014). Findings for men are less consistent. In some contexts – settings where education is associated with higher or more stable earnings and where men with stable earnings are seen as more attractive partners– men who are more highly educated have more children (e.g., Kravdal and Rindfuss 2008). In other contexts, however, education is negatively correlated with fertility for men as well.

Regardless of the relationship between educational *attainment* and fertility *behavior*, we might expect a negative relationship between *preferences* in these two domains. If having a large family requires starting childbearing at a young age – or if people who want large families prefer to start childbearing at a young age – there may be a conflict between wanting post-secondary education and wanting a large family. These negative associations may be particularly strong for girls. In most contexts, women continue to have disproportionate responsibility for childcare. Thus, having a large family is more demanding on women's time than on men's time, and education or other achievements outside the family may be perceived to be more in conflict with childbearing for women than for men. In addition to possible practical conflicts between educational and family size aspirations, cultural schemas of education and family pose achievements in these domains as incompatible for women (e.g., Blair-Loy 2003; Frye 2017). In contrast, ambitious educational goals and desired family size may be weakly correlated or even positively correlated for boys if education is seen as a precursor to high-earning jobs that facilitate taking a breadwinner role for larger families or part of a "package deal" of successful adulthood (cf. Townshend 2002). We test for gender differences in the relationship between education and fertility goals.

The degree of conflict between educational aspirations and desired family size depends on the nature of gendered expectations for work and family and in particular the salience of the male breadwinner-female caregiver model of the family. The salience of this model varies over time and across contexts. It also varies *within* contexts depending on adolescent and family characteristics such as socioeconomic status, religiosity, family structure, and the gendered division of labor. We control for a set of relevant characteristics in this extended abstract. The full paper will include additional measures of family context and will more test for additional moderators of the relationship between education and fertility goals.

Adolescent preference in multiple domains are likely to be jointly determined and mutually dependent. In this extended abstract, we focus on one aspect of this complex relationship: we analyze the degree to which educational aspirations predict fertility aspirations in a regression framework. We choose to examine educational aspirations as the predictor because, for adolescents, educational aspirations are relatively short-term and require actions taken in the near future, while fertility aspirations represent preferences over a longer time horizon. However, we recognize that this model does not reflect the true nature of causal processes linking preferences in different domains. The completed paper will consider other approaches to modeling as well, such as analyzing joint distributions of educational and fertility aspirations and considering the predictive power of fertility aspirations on educational aspirations.

Setting

The current study takes place in rural areas of Jalisco, a high out-migration state in central Mexico. The primary international migration destination from Jalisco is the United States, although there is some internal migration from rural to urban settings.

Broadly speaking, Mexico has had relatively high educational expansion in the last few decades. Primary school enrollment is at nearly 100% and there is a large portion of children in pre-primary education programs (Magaziner and Monroy 2016). Despite high levels of education expansion recently, less than half of youth in Mexico complete high school (OECD 2017). Further, many educational expansion initiatives are fairly recent, with upper secondary education becoming compulsory only in 2012 (and universal coverage targeted by the year 2022). Additionally, although education has expanded, gendered family roles appear to be particularly influential, as Mexico has a relatively low female labor force participation rate at 44.1% of women 15 and older (World Bank 2017).

In conjunction with educational expansion and increased access to health care including contraception, the total fertility rate (TFR) in Mexico has been steadily declining since the early 1970s. While the TFR in 1970 was 6.83 births per woman, the current TFR in Mexico is 2.18 births per woman (World Bank 2016). Further, contraceptive use has increased in the last half century (World Bank 2015), allowing women greater control over the timing and number of births in their families. Lastly, similar to worldwide trends, the age at first marriage has increased over time, where the average age at first marriage is 30 for males and 27 for females (INEGI 2013).

Data and methods

Data and sample

We use data from the Family Migration and Early Life Outcomes (FAMELO) project, a multi-national household-based survey carried out in Mexico, Mozambique, and Nepal. This paper uses only data from Mexico, which were collected in rural areas of Jalisco province. FAMELO is a two-stage household-based survey. Communities were first selected for inclusion in this study; within each community, households with at least one child age 5-17 and an adult relative who had primary responsibility for caring for the child were eligible for inclusion. In eligible households, either one or two children were randomly selected. (The number of children per household was also randomly determined.) Both the child(ren) and the adult caregiver were interviewed. A total of 2268 households, including 3249 children and 2268 adult caregivers,

were interviewed in Mexico. We use children as the unit of analysis for this paper; measures of household characteristics are taken from the adult interview.

Only children age 11-17 (n=1,206) were asked about aspirations for the future. We dropped 55 children with missing data on predictor or outcome variables. In addition, 86 children with non-numeric desired family size (see *Measures* section) were excluded from analysis. The final analytic sample includes 1,065 children from 874 households.

Dependent variable

For our analysis, we use children's fertility aspirations as the main outcome. This variable is a continuous measure in which children were asked how many children they would like to have in the future. Although the original question in the survey allowed for non-numeric responses (e.g., up to God, depends on partner), few children chose those options. We therefore limited analysis to numeric responses. We top coded responses at six children based on the initial distribution of responses.

Independent variables

The main independent variable in this study is children's educational aspirations. Educational aspirations are originally measured in 21 categories, ranging from "no school at all" to "doctorate degree." Due to the frequency distribution of these categories, educational aspirations were recoded from this fine-grained measure into three broader categories: some post-secondary or lower, post-secondary degree, and post-graduate or higher. The majority of the sample indicated they aspired to a post-secondary degree (67.6%), with 25.4% desiring some post-secondary education or lower and 7% desiring a post-graduate education or higher.

Differences between boys and girls are a key focus of this analysis; all models control for gender, and we estimate additional models separately for boys and girls in order to assess differences.

We also include a number of additional control variables at the individual and household level. In this extended abstract, we include a basic set of measures of children's beliefs and experiences that may influence both educational and fertility aspirations. The completed paper will refine the set of controls included. Age is a continuous variable with a range from 11 through 17 years old. As a proxy for children's religiosity, we include a binary variable measuring parent's weekly religious attendance, where "1" indicates weekly or higher religious attendance and "0" indicates less than weekly religious attendance. We directly measure children's views about the gendered nature of family roles using a scaled measure created from questions regarding family roles. Respondents were given six statements regarding gendered family roles and were asked to indicate on a scale of 1-5 whether they "strongly agree" to "strongly disagree" with the statement. Examples of these statements include, "It is best if the husband makes decisions for the household and the wife follows his decisions" and "It is never acceptable for a husband to beat his wife, even if she provokes him." Variables were recoded as necessary so that a higher number indicated more egalitarian views. An additive scale was created (alpha=0.63) and included in the models.

Parental education is included in the model, using the education of the primary caregiver; this variable is a categorical variable with four categories, including primary school or less, any lower-secondary school, any upper-secondary school, and any post-secondary school. We also created a measure of household socioeconomic status based on the results of a principal

components analysis. This measure was created using 14 binary variables that measured household possessions (e.g., radio, television, bike, motor, fridge, etc.) and materials of the dwelling, floor, and roof (Filmer and Pritchett 2001.) The variable included in the model is a score predicted using the first component on the final principal components analysis. Lastly, a binary variable that measures whether the household has a current labor migrant (0=no, 1=yes) was also included. A labor migrant was defined in the survey as a member of the household who was currently away for work.

Analysis

We first present descriptive results on the distribution of educational aspirations in order to understand how these goals are related to other child and family characteristics. We then estimate Poisson regressions to understand the relationship between educational aspirations and desired family size, accounting for these factors.

We use Poisson regression because the dependent variable is a count variable (Coxe et al. 2009). We present two models, a baseline model accounting for only child age and sex and a full model with all controls. We then estimate these models separately for boys and girls in order to assess gender differences in associations.

Preliminary results

We first turn our attention to basic descriptive statistics in order to examine the distribution of educational aspirations and how they are related to child and family characteristics (Table 1). Overall, educational aspirations are high in the sample, but they are higher for boys than for girls. Among boys, about 60% desired a post-secondary degree and about 7% desired a post-graduate degree; for girls, these figures were 75% and 7% respectively. Older children also had higher educational aspirations than younger children, although the increase is not linear with age. The primary outcome variable, desired family size, does appear to be correlated with educational aspirations: adolescents who want small families (fewer than two children) are more likely to want a post-graduate degree, while those who want larger families (4 or more children) are less likely to want a post-graduate degree.

Children in households with more religious attendance have slightly lower educational aspirations, while those with more educated parents have higher aspirations. Children living in a household with a current labor migrant are also more likely to want a post-graduate degree.

Next, we describe the results of the Poisson regressions predicting adolescent fertility aspirations with the full sample (see Table 2). The reference category for the main predictor (educational aspirations) is the category “post-secondary degree” because it is the category with the highest frequency. Higher levels of education are correlated with lower fertility aspirations, although this association is only marginally statistically significant ($p<.10$). Specifically, those who desire a post-graduate education or higher have lower desired family size than those who desire a post-secondary degree. This association is only slightly attenuated when controlling for child and household characteristics. Further, girls have lower fertility aspirations than boys. Child’s age is not significantly associated with desired family size. In the full sample, other child and household characteristics do not predict desired family size.

Because family size may be differentially associated with educational aspirations and other characteristics for boys and for girls, we disaggregated the models in Table 2 by gender. Results are shown in Table 3 (girls) and Table 4 (boys). Overall, results are very similar to those with the

full sample, with two notable exceptions. First, higher educational aspirations are negatively associated with fertility aspirations for girls ($p<.10$), but the coefficient is much smaller and not statistically significant for boys. Second, more egalitarian gender attitudes are associated with lower fertility aspirations for boys, but there is no association for girls.

Discussion and next steps

Overall, we can draw a few preliminary conclusions from our results thus far. First, girls have lower fertility aspirations than boys. Second, educational aspirations are negatively associated with desired family size, but this association is largely driven by the association for girls; there is no significant association between education and fertility goals for boys. Third, more egalitarian views on gendered family roles are negatively associated with fertility for boys; this effect does not hold for girls.

There are important implications from these results. Girls have lower desired family size than boys and higher desired education. The negative association between these goals for girls suggests that at least some adolescents see potential conflict between educational achievement and parenting. For boys, in contrast, the lack of association between desired education and desired family size implies that education and parenting are complementary or at least not conflicting goals. Boys who have more egalitarian gender beliefs – for example, that wives should share decision-making power with husbands – have lower desired family size. It is possible that these boys expect to be more closely engaged in parenting and want fewer children in order to allow for this engagement.

We will continue to develop this extended abstract as a presentation for PAA. We will incorporate more refined measures of family structure (e.g., presence of one/both parents in the household) and household migration (e.g., past migration of adult family members and/or focal children), and we will consider adding measures of time use as an indicator of gendered experiences in childhood. In addition, we will explore additional modeling strategies to more appropriately represent the mutual dependence of fertility and educational aspirations.

References

Axinn, W. G., & Barber, J. S. (2001). Mass education and fertility transition. *American Sociological Review, 66*(4), 481-505.

Blair-Loy, Mary. (2003). *Competing Devotions: Career and Family among Women Executives.* Harvard University Press.

Coxe, Stefany, Stephen G. West, and Leona S. Aiken. 2009. "The Analysis of Count Data: A Gentle Introduction to Poisson Regression and Its Alternatives." *Journal of Personality Assessment* 91(2):121-136.

DeRose, L. F., & Ezeh, A. C. (2005). Men's influence on the onset and progress of fertility decline in Ghana, 1988–98. *Population Studies, 59*(2), 197-210.

INEGI. 2013. "Población, Hogares y Vivienda/Nupcialidad/Matrimonios/Edad media al matrimonio/Sexo y entidad federativa, 2009-2013." Retrieved from http://cuentame.inegi.org.mx/poblacion/myd.aspx?tema=P.

Filmer, Deon and Lant H. Pritchett. 2001. "Estimating Wealth Effects Without Expenditure Data – or Tears: An Application to Educational Enrollments in States of India." *Demography* 38(1):115-132.

Frye, M. (2012). Bright futures in Malawi's new dawn: Educational aspirations as assertions of identity. *American Journal of Sociology, 117*(6), 1565-1624.

Frye, M. (2017). Cultural meanings and the aggregation of actions: the case of sex and schooling in Malawi. *American Sociological Review, 82*(5), 945-976.

Kao, G., & Thompson, J. S. (2003). Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology, 29*(1), 417-442.

Kravdal, Ø. (1992). The emergence of a positive relation between education and third birth rates in Norway with supportive evidence from the United States. *Population Studies, 46*(3), 459-475.

Kravdal, Ø. & Rindfuss, R. R. (2008). Changing relationships between education and fertility: A study of women and men born 1940 to 1964. *American Sociological Review, 73*(5), 854-873.

Magaziner, J. & Monroy, C. (2016). "Education in Mexico." *World Education News & Reviews*.

Martin, T. C. (1995). Women's education and fertility: Results from 26 Demographic and Health Surveys. *Studies in Family Planning, 26*(4), 187-202.

OECD. (2017). "Mexico: Social and Welfare Issues."

Pritchett, L. H. (1994). Desired fertility and the impact of population policies. *Population and Development Review, 20*(1), 1-55.

Quesnel-Vallée, A., & Morgan, S. P. (2003). Missing the target? Correspondence of fertility intentions and behavior in the US. *Population Research and Policy Review, 22*(5-6), 497-525.

Testa, M. R. (2014). On the positive correlation between education and fertility intentions in Europe: Individual-and country-level evidence. *Advances in Life Course Research*, *21*, 28-42.

Townsend, N. W. (2002). The Package Deal: Marriage. *Work and Fatherhood in Men's Lives*. Temple University Press. Thornton, A., Binstock, G., Yount, K. M., Abbasi-Shavazi, M. J., Ghimire, D., & Xie, Y. (2012). International fertility change: New data and insights from the developmental idealism framework. *Demography*, *49*(2), 677-698.

World Bank. 2015. "Contraceptive Prevalence, Any Methods (% of Women Ages 15-49)." Retrieved from https://data.worldbank.org/indicator/SP.DYN.CONU.ZS?locations=MX.

World Bank. 2016. "Fertility Rate, Total (Births per Woman)." Retrieved from https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?locations=MX.

World Bank. 2017. "Labor Force Participation Rate, Female (% of Female Population Ages 15+)." Retrieved from https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?locations=MX.

Table 1. Distribution of Educational Aspirations

	Child Educational Aspirations			
	Some post-secondary and lower	Post-secondary degree	Post-graduate and higher	Row total (N)
Sex				
Boys	32.8%	60.0%	7.2%	533
Girls	17.6%	75.2%	7.0%	532
Age				
11	30.0%	63.3%	6.7%	150
12	25.0%	71.5%	3.5%	172
13	22.4%	67.8%	9.9%	152
14	29.1%	67.3%	3.6%	165
15	27.2%	63.6%	9.2%	184
16	23.9%	69.7%	6.3%	142
17	16.0%	72.0%	12.0%	100
Desired family size				
<2	25.3%	62.6%	12.1%	91
2	19.6%	71.5%	8.9%	474
3	21.2%	74.6%	4.2%	307
4+	23.3%	72.0%	4.7%	193
Religious attendance				
<Once a week	26.4%	63.4%	9.7%	382
Weekly or more	24.7%	69.7%	5.6%	683
Parent Education				
Primary school or less	37.3%	58.4%	4.3%	394
Any lower-secondary school	22.2%	71.1%	6.8%	501
Any upper-secondary school	7.4%	83.0%	9.6%	94
Any post-secondary school	6.6%	73.7%	19.7%	76
Household migration status				
No current migrant	29.1%	71.8%	6.8%	1026
Any current migrant	23.1%	64.1%	12.8%	39

Note: n=1,065. Sample includes boys and girls ages 11-17 with non-missing data on predictors and outcomes, and numeric responses for desired family size.

Table 2. Poisson Regression Predicting Desired Family Size

	Coeff. (SE)	Coeff. (SE)
Educational aspirations (vs. post-secondary degree)		
Some post-secondary or lower	-0.004	-0.013
	(0.045)	(0.047)
Post-graduate or higher	-0.150+	-0.140+
	(0.080)	(0.082)
Female	-0.086*	-0.073+
	(0.039)	(0.040)
Age	0.009	0.011
	(0.010)	(0.010)
Weekly religious attendance		0.062
		(0.041)
Family Roles Scale		
Parent education (vs. primary school or lower)		
Any lower-secondary		0.033
		(0.043)
Any upper-secondary		0.034
		(0.074)
Post-secondary and higher		0.035
		(0.083)
Household has current labor migrant		-0.017
		(0.100)
Household SES		-0.006
		(0.013)

Note: Standard errors in parentheses. Sample (n=1,065) includes boys and girls ages 11-17 with non-missing data on predictors and outcomes, and numeric responses for desired family size. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 3. Poisson Regression Predicting Desired Family Size for Girls

	Coeff. (SE)	Coeff. (SE)
Educational Aspirations (vs. post-secondary degree)		
Some post-secondary or lower	0.014	0.016
	(0.072)	(0.076)
Post-graduate or higher	-0.21+	-0.20+
	(0.12)	(0.12)
Age	0.0036	0.0015
	(0.015)	(0.015)
Weekly religious attendance		0.082
		(0.060)
Family Roles Scale		0.0073
		(0.050)
Parent Education (vs. primary school or lower)		
Any lower-secondary		0.026
		(0.061)
Any upper-secondary		-0.041
		(0.11)
Post-secondary and higher		0.031
		(0.12)
Household has current labor migrant		0.014
		(0.16)
Household SES		-0.0016
		(0.018)

Note: Standard errors in parentheses. Sample (n=532) includes girls ages 11-17 with non-missing data on predictors and outcomes, and numeric responses for desired family size. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 4. Poisson Regression Predicting Desired Family Size for Boys

	Coeff. (SE)	Coeff. (SE)
Educational Aspirations (vs. post-secondary degree)		
Some post-secondary or lower	-0.012	-0.025
	(0.057)	(0.061)
Post-graduate or higher	-0.095	-0.099
	(0.110)	(0.110)
Age	0.014	0.019
	(0.014)	(0.014)
Weekly religious attendance		0.040
		(0.057)
Parent Education (vs. primary school or lower)		
Any lower-secondary		0.043
		(0.060)
Any upper-secondary		0.110
		(0.100)
Post-secondary and higher		0.044
		(0.120)
Family Roles Scale		-0.093*
		(0.042)
Household has current labor migrant		-0.049
		(0.140)
Household SES		-0.013
		(0.018)

*Note: Standard errors in parentheses. Sample (n=533) includes boys ages 11-17 with non-missing data on predictors and outcomes, and numeric responses for desired family size.*** p<0.001, ** p<0.01, * p<0.05, + p<0.1