FERTILITY & EMPOWERMENT NETWORK WORKING PAPER SERIES

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December, 2013

009-2013-ICRW-FE

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RECOMMENDED CITATION

Jessica D. Gipson and Michelle J. Hindin. (2013). *Intergenerational relationships between women's fertility, aspirations for their children's education, and school completion in the Philippines.* International Center for Research on Women Fertility & Empowerment Working Paper Series. 009-2013-ICRW-FE. Pages 1-33.

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The Fertility & Empowerment (F&E) Network is a group of academic and applied researchers committed to reinvigorating the connection between gender, fertility decline and development through both theoretical and applied research. The F&E Network is housed at the International Center for Research on Women and funded by The William and Flora Hewlett Foundation. The F&E Network aims to advance a research agenda on issues intersecting these three themes that is of interest to researchers and policymakers alike, and to support the professional development of experienced and emerging scholars with an interest in gender and population.

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ACKNOWLEDGEMENTS

ICRW and the Fertility & Empowerment Network gratefully acknowledge funding and support from The William and Flora Hewlett Foundation.

The Fertility & Empowerment Network wishes to thank Consultative Group members Alaka Basu, Sunita Kishor, Karen Mason, Tom Merrick, Susan Newcomer, and Herb Smith for their conceptual and technical expert guidance on network efforts. In addition, the network greatly benefitted from the support of Ann Biddlecom, Jay Gribble, and Amy Tsui toward developing an actionable research agenda.

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ABSTRACT

Women's education is associated with positive economic, social, and health outcomes among women and their families, as well as greater opportunities and decision-making power for women within and outside of the household. Improvements in absolute and relative levels of female education are often precipitated and accompanied by broader societal changes that facilitate economic and societal roles for women beyond reproduction. An extensive literature examines the pathways between women's education and social change, namely fertility decline, yet there is minimal exploration of the impact of these social changes on individual women and their families. We use intergenerational data from a rich longitudinal cohort study in the Philippines to examine the factors associated with mothers' aspirations for their children's education, and to predict their child's subsequent educational attainment. Findings from the study indicate that mothers' education, household wealth, and a locally-developed measure of women's status (being well-kept) were positively associated with higher educational aspirations for their children regardless of sex, yet other effects on educational aspirations were gender-specific. A threshold effect was found for fertility, such that after controlling for other background factors, only those mothers with the highest fertility (7 or more) were less likely to desire their children to attend college or higher. In the models predicting children's educational attainment, the effects of these variables persisted and the effect of fertility became more pronounced. Even after controlling for all other background characteristics, however, mothers' aspirations independently and significantly predicted their children's educational attainment. The intergenerational influences of high fertility, women's status, and mothers' educational aspirations on children's educational attainment highlight the importance of examining how the increased roles and opportunities for Filipino women beyond childbearing may not only positively benefit these women themselves, but also future generations.

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INTRODUCTION

Women's education is associated with positive economic, social, and health outcomes among women and their families, as well as with providing greater opportunities and decision-making power for women within and outside of the household (Boyle, Racine, Georgiades, Snelling, Hong, Omariba, Hurley, and Rao-Melacini 2006; Gakidou, Cowling, Lozano, and Murray 2010; Lynch 2003; World Bank 2012).

Improvements in absolute and relative levels of female education are often precipitated and accompanied by broader societal changes that facilitate economic and societal roles for women beyond reproduction. Investment in girls' and women's education may reflect numerous influences and processes at the individual, family, and societal levels, including wealth or socioeconomic status, family investment in a daughter's social development, sufficient mobility to attend school, and exposure to new 'worldviews' (Jejeebhoy S 1995; Warner A, Malhotra A, and McGonagle A 2012). Central to this investment, as noted by Cleland (2002) and Ryder (2010), is the socio-psychological change at the societal level that enables girls and women to decide for themselves the extent to which, if at all, they will be dedicated to childbearing and childrearing activities and "on the availability of opportunities for [them] to fill non-familial roles and earn prestige from them (Ryder 2010) (p 613)."

Improvements in women's education have also substantially altered the opportunities and lives of individual women and their families (Malhotra A and Riley N 2009). With smaller families and less time spent on reproduction and childrearing, women may avail, or may create new or different opportunities for themselves and for their children. Malhotra (2009) and others (Mason KO 1997; McNay 2005) describe the implications of fertility decline and rapid demographic changes for women and gender equality, namely the creation of new ideals and aspirations, as well as an enriched environment in which their children can achieve these new ideals. Women's aspirations for their children reflect their own life experiences and empowerment, as well as the belief in the potential for their children, particularly their daughters, to go beyond traditional expectations (Duflo E 2011; Kabeer 1999; Malhotra A, Schuler SR, and Boender C 2002).

Using a unique, longitudinal and intergenerational dataset, we explore the relationships between women's education, fertility, and educational aspirations for their children. We first examine the influences of mother's and father's socio-demographic characteristics and women's status and

empowerment measures on mother's educational aspirations for their children, then determine the extent to which these factors and these aspirations predict the children's actual educational attainment.

The Philippines

The setting for this study is Metro Cebu, located on the island of Cebu in the Central Visayas region of the Philippines. With a population of 1.4 million in 2007, Metro Cebu is the second largest metropolitan area of the Philippines. The Philippines has undergone profound social and demographic changes over the past few decades including rapid urbanization and economic growth, a greater reliance on mobile and internet technology, and greater employment and educational opportunities, especially in metropolitan areas such as Cebu (National Statistics Office: Philippines and ICF Macro 2009). These, among other influences, are also facilitating changes in family formation and childbearing patterns, including a desire for smaller families and reduced fertility, increased nucleation of families, and greater acceptance and practice of non-marital fertility and cohabitation (Kabamalan 2004; Medina 2001; Xenos and Kabamalan 2007).

Education in the Philippines

The education system in the Philippines consists of primary school (1st -6th grades) and secondary school (1st year – 4th year). Educational attainment has increased over the past several decades in the Philippines, with nearly universal literacy rates among youth ages 15-24 (97% for males; 98% for females) (UNICEF). The Philippines has the highest median enrollment rates in South/Southeast Asia; however, there are marked differences in enrollment and literacy rates by household income and region (MEASURE DHS and USAID 2013).

The Philippines is the only country (apart from the Maldives) in South/Southeast Asia in which median enrollment rates are higher for females as compared to males (MEASURE DHS and USAID 2013). In 1993, median education levels were nearly equivalent for males and females (5.6 and 5.7 years, respectively), yet by 2008, the gap had widened to a median of 6.4 years for males, and 7.4 years for females. Much of this gap is attributable to differential enrollment in secondary school where girls are outpacing boys, likely due to the need for boys, particularly those from low-income families, to contribute to the household income (Philippines National Statistics Office 2003). In a recent, sub-regional Multiple Indicator Cluster Survey (MICS) conducted in 24 cities and provinces in the Philippines, the Gender Parity Index, or ratio of girls to boys indicated slightly higher

attendance for girls as compared to boys in primary school (1.06) and an even greater advantage for girls in secondary school (1.27) (National Statistics Office: Philippines and UNICEF 2007).

Regional data from Bicol and Cebu corroborate these national findings, indicating that girls are more likely to be enrolled in school (DeGraff, Bilsborrow, and Herrin 1996; Hindin MJ 2005) and that parents may perceive greater benefits from educating girls because of higher expected returns or greater expected financial support from daughters than from sons (DeGraff, Bilsborrow, and Herrin 1996). In-depth assessments of the gendered patterning of educational enrollment suggest that parents in rural areas may be more likely to bequeath land holdings to sons and invest in the schooling of daughters, with the "apparent objective [of ensuring that] sons and daughters would have equal overall lifetime wealth (Estudillo, Quisumbing, and Otsuka 2001)." Alba (2001) suggests that women may use education to compensate for gender wage differentials and for the lower wages in female-dominated occupations and industries.

Fertility in the Philippines

The Philippines has experienced a decline in fertility over the past 40 years, from a total fertility rate of 6.0 in 1973 to 3.3 in 2008; however, the pace of the decline has leveled off over the past 10-15 years (National Statistics Office: Philippines and ICF Macro 2009). A more nuanced picture emerges when comparing fertility rates between urban and rural areas (2008 TFR: 2.8 versus 3.8, respectively) and between the highest and lowest wealth quintiles (1.9 versus 5.2, respectively), and reflects stark attitudinal and geographic differences in the desire for children and in the ability and willingness of local governments to meet the contraceptive needs of Filipinos (Guttmacher Institute and Likhaan Center for Women's Health Inc. May 2010; National Statistics Office: Philippines and ICF Macro 2009). Contraceptive use lags behind other, neighboring nations, with 51% of currently married women reporting use of contraception (a large proportion consisting of traditional method use), and 22% of women reporting an unmet need for family planning (National Statistics Office: Philippines and ICF Macro 2009).

Women's status and empowerment in the Philippines

In nearly all of the gender equity indicators measured by the UNDP, including life expectancy and adult literacy, the levels for Philippine women exceed those of Philippine men (United Nations Development Program 2006). Philippine women have historically had a higher degree of power

and greater autonomy than women in the rest of Asia and elsewhere in the developing world (Mason KO 1997). In the public sphere, Filipina women are increasingly engaged in economic and professional opportunities, with women occupying 58% of all administrative and managerial positions (Medina 2001; Orbeta Jr. 2002). These social changes have been bolstered by the Philippine women's movement, whose efforts have focused on promoting gender equality in the areas of development, children and family, violence against women, and women's health and reproductive rights.

The roles and associated power of women in the private spheres of the household and intimate relationships are more nuanced. Women's roles and their associated decision-making power may be more limited within the realm of reproduction, with women being inclined to adhere to traditional notions of propriety and submissiveness (Medina 2001; Nadal KL 2009). In-depth work on reproductive decision-making among Filipino couples by Williams, et al (2000)and Biddlecom et al (1997) depict a range of decision-making styles among couples, but found that overall, men's concerns about family planning had a significant impact on women's use of contraception, accounting for 20% of all unmet need for contraception as reported by wives (Casterline JB, Perez AE, and Biddlecom AE 1997). Moreover, despite the improvements in the educational and economic opportunities available to Filipina women, divorce remains illegal and often results in women having fewer rights and recourse, as compared to men (United Nations Committee on the Elimination of Discrimination against Women (CEDAW) 2006).

Filipina women are often thought to wield substantial control of household financial decisions due to their various housekeeping and childbearing responsibilities, as well as the common practice of a husband turning over his earnings to his wife, who typically controls the spending and allocation decisions (Illo JF 1989). Other studies suggest, however, that while women may keep the household money, husbands may have a greater say in deciding where the money goes (Bautista C and Dungo N 1987) and wives often attribute decision-making to their husbands even if she actually makes the decision (Sevilla J 1995). In a more recent study of cohabiting and married Filipino couples in Metro Cebu male partners were significantly more likely to report joint decision-making on household decisions as compared to female partners (Preciado MA and Gipson JD 2013).

Several recent investigations from the Philippines and specifically from Cebu, the setting for the present study, examined the influence of women's status and household decision-making on health

and social outcomes. In these studies, joint marital/parental household decision-making was associated with a decreased risk of violence for women (Hindin and Adair 2002), fewer reports of violence among children (Fehringer and Hindin 2009), and higher educational attainment among daughters (Hindin MJ 2005). In another study examining the relationship between parental relationships and their children's sexual initiation, joint parental decision-making was associated with delayed first sex among boys, whereas the mother's higher status was associated with delayed sexual initiation among their daughters (Upadhyay UD and Hindin MJ 2007). Yet another study found that women's household decision-making autonomy (i.e., having final say on decisions) was associated with longer birth spacing (Upadhyay UD and Hindin MJ 2005). While most studies find a protective effect of joint household decision-making, two additional studies indicate that domination of household decision-making by either partner and women's higher relationship power were associated with higher levels of intimate partner violence (Hindin and Adair 2002; Lucea, Hindin, Kub, and Campbell 2012).

RESEARCH QUESTIONS AND HYPOTHESES

Amidst these broad social changes in women's roles, fertility trends, and educational opportunities, we examine the ways in which women's socio-demographic characteristics and fertility are related to their aspirations for their children and to what extent these aspirations predict actual educational attainment of their sons and daughters.

We use a unique, longitudinal dataset comprised of mothers and their young adult children, to explore the factors associated with mother's educational aspirations for their children, as measured in 1994, when the children were 10-11 years old. We will then use educational data through 2009 to explore the determinants of school dropout among these same children (as young adults), and to see to what extent that mother's aspirations influence actual educational attainment. We hypothesize that:

1. Maternal fertility will be inversely related to aspirations for their children's educational attainment, and that this inverse association will be stronger for girls.
2. Women with lower fertility will be better able to ensure that their children meet these educational aspirations; that is, children of lower fertility mothers will be more likely to meet or to exceed their mother's educational aspirations as compared to women of higher fertility mothers.

Mother's educational aspirations for their children will independently and significantly predict children's subsequent educational attainment, above and beyond the effects of background characteristics and other measures of women's status and empowerment.

DATA AND METHODS

Cebu Longitudinal Health and Nutrition Study

This study uses data collected through the Cebu Longitudinal Health and Nutrition Study (CLHNS) in partnership with the Office of Population Studies (OPS), University of San Carlos, Cebu Philippines. The CLHNS is an ongoing longitudinal study of a cohort of mothers and their children born in 1983-84, selected from a random sample of 33 communities (barangays) in Metro Cebu. The CLHNS has followed these women and their children over the last 28+ years, up to the most recent survey in 2009 (Adair LS and Popkin BM 2001; Feranil AB, Gultiano SA, and Adair LS 2008).

In total, 2,214 women were interviewed in the 1994 CLHNS survey, for whom 2,186 also had data collected from the index child. We further narrowed the sample to include married or cohabiting mothers of non-twin children and omitted observations for which there were missing responses for key variables. The resulting analytical file contains data from married mothers with complete data on the characteristics of the households, fathers, mothers and non-twin children (N=1,728).

Dependent Variables

We conduct two sets of analyses: 1) a logistic regression predicting mothers' educational aspirations for their children, as stated in the 1994 survey, and 2) a Cox proportional hazards model predicting children's educational attainment by the 2009 survey.

For the first analysis, the outcome is the mother's report of her educational aspirations for her child, as reported by the mother in the 1994 CLHNS survey. Response choices for the educational aspirations question included: some elementary/elementary graduate, high school graduate, college graduate, and more than college. Based on the distribution of mothers' responses, a dichotomous outcome variable was created (high school or less versus college or higher) for inclusion in the multivariate models.

The second set of analyses use the 1994 measures of parental socio-demographic, household characteristics, and mother's educational aspirations to predict children's subsequent educational

attainment and school dropout by 2009. We use all available educational data from the index children through the 2009 CLHNS survey to determine the highest grade achieved.[1]

Independent Variables

Mother's and father's socio-demographic characteristics

The number of living children, as reported by the mother in 1994, is one of the main independent variables in this study. Responses ranged from 1 to 14, with a mean of 5.03. We categorized this variable in to 1-2 children, 3-4, 5-6 and 7 or more children, with 3-4 children serving as the reference group. Characteristics of the mother and father included in this study are age, education, and religiosity. Mother's age and education were categorized in the multivariate models according to age cohorts and elementary (57%) versus higher than elementary education (43%). Similar to the national population of the Philippines, this sample is predominantly Catholic (95%). Due to the lack of variation in religion and results of previous analyses of CLHNS data indicating an important influence of religiosity (Hindin and Adair 2002), we included a measure of religiosity from church attendance data collected from mothers and fathers. Response choices included never, occasionally, once a month, once a week, and more than once a week. Based on the frequency distribution, this variable was dichotomized into never/occasionally/once a month and once a week or more. Father's age and education are presented relative to the mother's characteristics, as noted below. Similar to the measures for mothers, father's religiosity is included as a dichotomous variable based on church attendance.

Household characteristics

Urban or rural residence is a dichotomous variable with urban as the reference group. Household wealth was based on the number of selected items in the household (black and white television, color television, VCR, refrigerator, electric fan, bicycle, living room/furniture set, air conditioner, iron, bed, bed with a mattress, and whether or not the house had an electrical connection) (12 items; Cronbach's $\alpha = 0.81$; mean=4.0). For this analysis, wealth is used as a categorical predictor: low (0-2 items), medium (3-5 items) and high (6 or more items).

[1] In the 2009 survey, 7% of index children reported attendance in a technical or vocational school either before or after completion of high school. Those who completed secondary school before attending vocational school were coded as completing secondary school (grade 11), whereas those who entered vocational school prior to graduation from secondary school were coded as completing primary school (grade 6). Seven children never attended school due to disabilities and were excluded from the analysis.

Women's status and empowerment

Women's status and empowerment were included in models via four constructs. We included questions from the 1994 survey on the mother's reports of household decision-making on 10 items: buying the wife shoes, buying children's clothes, the children's schooling, taking the children to the doctor, buying gifts for relatives, making major household purchases, buying or selling land, hiring household help, deciding if the wife works outside the home, and deciding if the wife travels outside of Cebu. For each item, women were asked: (1) Who would she consult with in making the decision on that matter?; (2) Whose decision will prevail in that matter? Based on previous analyses of the CLHNS data indicating a positive relationship between joint household decision-making and health and social outcomes, we focused on joint decision-making as a measure of women's status within the household (Hindin and Adair 2002; Hindin MJ 2005). First, new variables were created to determine the number of decisions which were made jointly by both spouses. Second, an index was created that sums the number of decisions (0-10) made jointly by both spouses. This index was included as a continuous variable.

The second construct, the 'well-kept' scale, was developed as part of a qualitative study investigating contextually-relevant measures of women's status. During the 1994 mother's survey, interviewers were asked to discreetly observe the woman and her immediate household environment to determine if they thought the woman, her household and her children were 'well-kept'. In another analysis among this sample of women, this measure was shown to be salient and predictive of birth intervals (Upadhyay UD and Hindin MJ 2005). For this analysis, the three items were summed and represented in the model as a continuous variable.

The third variable was constructed based on a question in the mother's survey: "If your husband is working, does he give you the money he earns?" Responses were coded to a dichotomous variable based on women's reports that their husbands turned over all of their money to them (74%) versus turning over part of the money (25%) or not working (1%).

Finally, based on previous findings from the Philippines indicating that spousal age and/or educational difference is related to women's empowerment and household decision-making (Mason KO and Smith HL 2003), we constructed this variable based on the reported ages and educational attainment of the husband and wife.

Sex of index child

Lastly, the sex of the index child is included in the regression analyses and was also used to develop the stratified regression models.

Modeling

After first assessing the distribution and frequencies of the independent and dependent variables, we conducted bivariate analyses to test the association of the independent variables with the outcome of educational aspirations and risk of school dropout. Variables that were significant in the bivariate models and/or that were determined to be of theoretical importance to the analysis were included in the multivariate models.

For the logistic regression analyses predicting mothers' educational aspirations for their children, we first conducted a combined, multivariate analysis, and then conducted gender-stratified analyses. In the final models predicting educational attainment, we include the mother's educational aspirations to assess their independent effect on educational attainment after controlling for all of the other independent variables. For the Cox modeling, we use school completion as the censoring event and time is measured in calendar year. We test the effect of sex of the index child by including a term for sex and also conducting gender-stratified Cox proportional hazards models. All models account for clustering at the community (barangay) level.

RESULTS

Table 1 displays the characteristics of the overall sample and according to mothers' educational aspirations for their children. The vast majority of the mothers stated a desire for their children to attend college or higher (71%). These mothers were also wealthier, more religious, more educated, and more likely to live in urban areas. They also had fewer children, on average, scored higher on the 'well-kept' scale, and had husbands who were more religious and with higher education.

Table 1: Distribution of variables and percentage of mother's education aspirations for their children

Characteristics	Total no.	Educational Aspirations for Child			
		Elem (n=61)	HS (n=446)	College (n=1155)	More than college (n=66)
Total Sample	1,728	3.5	25.8	66.8	3.8
Mother's educational aspirations (dichotomized)		29%		71%	
Mother's Characteristics					
Number of Living Children, mean (SD, range)	5.0 (2.3, 1-14)	6.5	5.6**	4.8***	4.8***
Age, mean years (SD, range)	37.9 (5.9, 26-58)	38.7	38.0	37.8	38.5
Education, mean years completed (SD, range)***	7.3 (3.8, 0-17)	4.0	5.3*	8.2***	8.6***
Religiosity: Attends ≥ weekly	60%	25%	46%**	67%***	76%***
Father's Characteristics					
Age, mean years (SD, range)	40.5 (6.8, 22-68)	41.8	40.7	40.4	40.8
Education, mean years completed (SD, range)	7.7 (3.9, 0-19)	4.0	5.7**	8.6***	9.3***
Religiosity: Attends ≥ weekly	45%	21%	31%	51%***	56%***
Household Characteristics					
Urban Residence	72%	48%	59%	77%***	86%***
Household Wealth, mean items (SD, range)	4.0 (3.0, 0-12)	1.2	2.5**	4.7***	4.9***
Mother's Status and Empowerment					
# of Joint Household Decisions (SD, range)	4.5 (2.5, 0-10)	4.5	4.5	4.5	4.2
Mother and household are 'well-kept,' mean score (SD, range)	0.9 (1.2, 0-3)	0.2	0.5	1.1***	1.1***
Father gives all earnings to mother	74%	79%	77%	73%	58%*
Age difference (mother – father)	-2.6 (4.4, -34-12)	-3.1	-2.7	-2.6	-2.3
Educational difference (mother – father)	-0.4 (3.3, -13-11)	-0.03	-0.4	-0.4	-0.7
Index Child					
Male	51%	62%	46%	53%	53%
Educational attainment by 2009 (male)	10.0	5.7	8.3***	10.8***	10.6***
Educational attainment by 2009 (female)	10.7	6.8	9.6***	11.3***	12.6***

Bonferroni tests with elementary as reference group: ***p≤0.001; ** p≤ 0.01; * p ≤ 0.05; †p≤ 0.10 .

Women who desired their child to achieve the highest levels of education (beyond college) were also more likely to have a husband who handed over none, or only part of his income, as compared to all of his income. Also indicated in Table 1 is the average educational attainment of the index

children by 2009 for both males and females. Boys completed an average of 10 years, whereas girls completed an average of 10.7 years. For both boys and girls, the levels of completed education were significantly different according to their mothers' stated educational aspirations; however, it was only for girls that educational levels increased across all four categories of educational aspirations.

Maternal Aspirations for Children Completing College or More

Table 2 displays the bivariate and multivariate models of the factors associated with mothers' reports of wanting their child to complete college or higher. The bivariate models indicate significant effects within each block of variables. The multivariate models adjusts for mother's and father's demographic characteristics, household characteristics, and the women's status and empowerment variables.

In the combined, multivariate model, we find significant effects of parity on educational aspirations only among the highest parity group (7+ children). These mothers were 35% less likely to report wanting their child to attend college or higher, as compared to mothers with 3-4 children and after controlling for other covariates (OR=0.65; CI: 0.44-0.96). Older mothers (45+ years), urban mothers, and mothers who attended church at least once a week were more likely to have higher educational aspirations for their children, as compared to mothers aged <35 years, mothers living in rural area, and who attended church less frequently (OR=1.54; CI: 1.01-2.36 for age; OR=1.35; CI: 1.00-1.81 for residence; OR=1.49; CI: 1.14-1.95 for church attendance).

Strong effects were also found for mother's education and household wealth in the full multivariate model. Mothers who had secondary schooling or higher were more than four times as likely (OR: 4.11; CI: 3.06-5.51), and mothers in the highest wealth category were over three times as likely to want their child to go to college (OR: 3.12; CI: 2.15-4.54), as compared to mothers with no/elementary education and who were in the lowest wealth tertile.

Table 2: Unadjusted and adjusted odds of mother's report of wanting child to complete college or higher (1994)

	Bivariate Models		Multivariate Model Both sexes (n=1728)		Gender-stratified Model Boys (n=885)		Gender-stratified Model Girls (n=843)	
	Unadjusted	95% CI	Adjusted	95% CI	Adjusted	95% CI	Adjusted	95% CI
Mother's Sociodemographic Characteristics								
Parity: 3-4 children (ref)	1.00	--	1.00	--	1.00	--	1.00	--
1-2 children	1.49†	0.93-2.39	1.21	0.69-2.12	1.23	0.50-3.02	1.16	0.59-2.29
5-6 children	0.64***	0.50-0.83	0.95	0.71-1.28	0.75	0.51-1.09	1.17	0.73-1.86
7+ children	0.38***	0.28-0.50	0.65*	0.44-0.96	0.62†	0.38-1.02	0.68	0.41-1.13
Age: <35 years (ref)	1.00	--	1.00	--	1.00	--	1.00	--
35-44 years	0.92	0.73-1.17	0.99	0.77-1.27	0.91	0.63-1.31	1.13	0.77-1.66
45+ years	0.92	0.64-1.31	1.54*	1.01-2.36	1.92*	1.01-3.64	1.28	0.68-2.43
Education: ≤ Elementary (ref)	1.00	--	1.00	--	1.00	--	1.00	--
>Elementary	6.10***	4.76-7.82	4.11***	3.06-5.51	3.40***	2.40-4.81	5.17***	3.29-8.13
Religiosity: Attends < weekly (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Attends ≥ weekly	2.74***	2.13-3.53	1.49**	1.14-1.95	1.26	0.84-1.91	1.68**	1.16-2.42
Father's Sociodemographic Characteristics								
Religiosity: Attends < weekly (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Attends ≥ weekly	2.42***	1.85-3.16	1.15	0.87-1.53	1.52*	1.03-2.25	0.95	0.60-1.51
Household Characteristics								
Residence: Rural (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Urban	2.58***	1.76-3.79	1.35*	1.00-1.81	1.58*	1.05-2.38	1.18	0.81-1.71
HH wealth: Low (0-2 items) (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Medium: 3-5 items	2.24***	1.77-2.84	1.54***	1.20-1.97	1.54*	1.05-2.25	1.53*	1.01-2.33
High 6-12 items	8.47***	5.99-11.96	3.12***	2.15-4.54	2.76***	1.58-4.82	3.57***	2.18-5.83
Mother's Status and Empowerment								
Number of joint household decisions	1.00	0.95-1.06	1.05 †	0.99-1.11	1.06	0.98-1.15	1.04	0.96-1.12
Well-kept scale	1.66***	1.53-1.81	1.20**	1.06-1.35	1.32†	1.07-1.62	1.11†	0.98-1.26
Father gives all earnings to mother	0.75†	0.55-1.04	0.83	0.60-1.14	0.90	0.58-1.38	0.79	0.54-1.16
Age difference: Father≤5 years older (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Father >5 years older	0.91	0.72-1.16	0.90	0.68-1.18	0.98	0.64-1.47	0.77	0.52-1.14
Mother is same age or older	1.01	0.81-1.27	0.94	0.73-1.20	0.74*	0.55-1.00	1.13	0.78-1.64
Educational difference:								

Mother/father have equal education	1.00	--	1.00	--	1.00	--	1.00	--
(+/- 1 year; ref)	1.18	0.91-1.53	1.24	0.93-1.64	1.33	0.85-2.06	1.18	0.78-1.78
Father has ≥2 years	1.12	0.88-1.43	0.72*	0.54-0.97	0.82	0.53-1.28	0.63*	0.41-0.97
Mother has ≥2 years								
Sex of Index Child								
Male (reference)			1.00	--				
Female			0.87	0.67-1.12				

***p≤0.001; ** p≤ 0.01; * p ≤ 0.05; †p≤ 0.10 .

[a] Log-likelihood test p=0.51 indicating no significant difference in nested versus full model, conducted on models without adjusting for clustering at barangay level.

Two of the women's status measures remained independently associated with mothers' educational aspirations after controlling for other covariates – the well-kept scale and educational difference between mothers and fathers. For each additional aspect of the mother's surroundings that were considered to be well-kept (household, children, the woman herself), mothers were 20% more likely to report higher educational aspirations for their children (OR=1.20; CI: 1.06-1.35). The second measure – the difference in education between the mothers and fathers – had the opposite effect on mother's educational aspirations. Mothers exceeding their partners' education by at least two years were less likely to report that they wanted their children to attend college or higher (OR=0.72; CI: 0.54-0.97), as compared to couples with more equitable education (within one year). (The effects of joint decision-making were only marginally significant.) Lastly, as shown in the final row, aspirations did not differ by sex of the index child.

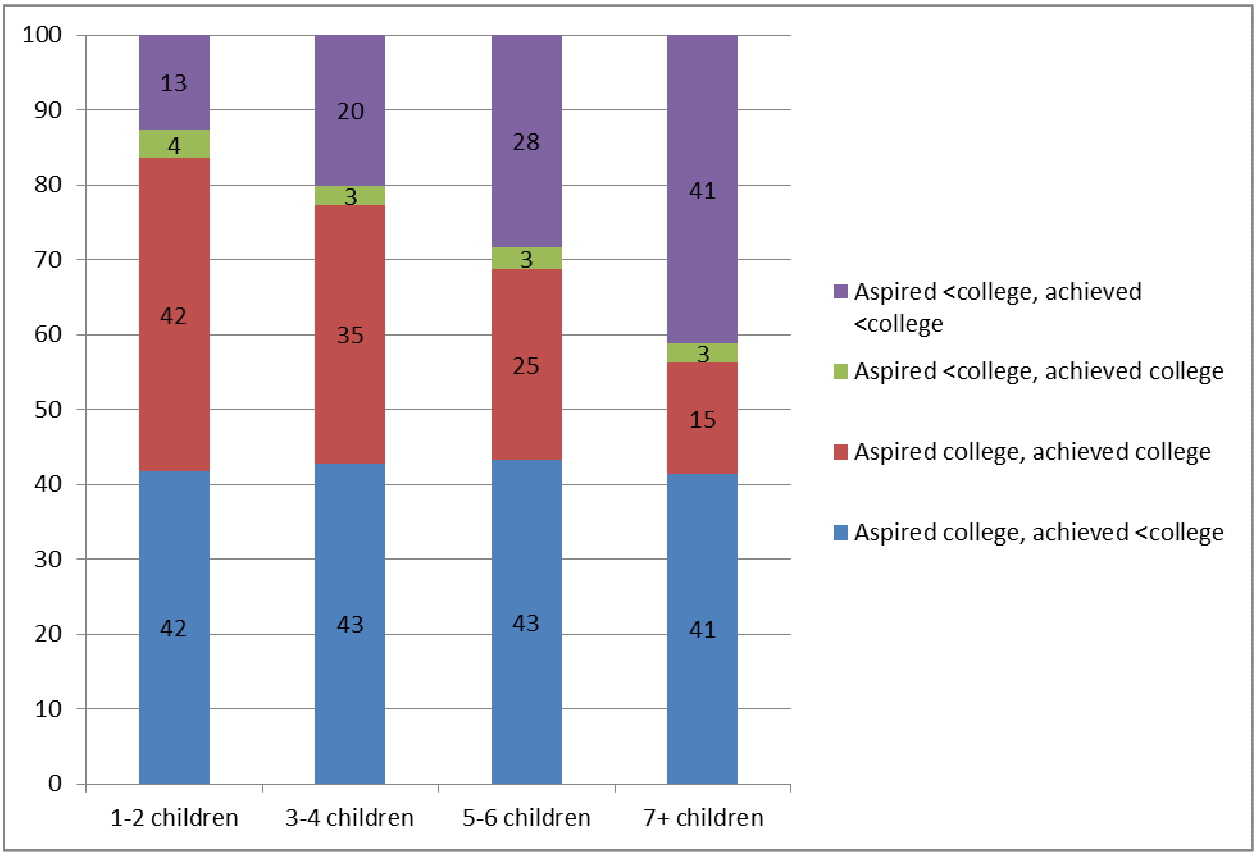
Sex-stratified models were then conducted to examine the potentially disparate effects of background characteristics on educational aspirations for boys and for girls. These models are shown in the last columns of Table 2. The gender-stratified models are consistent with the combined model for many of the variables; however, for some variables gender-specific effects emerge only in the disaggregated models. For example, mother's religiosity is positively associated with higher aspirations for girls only (OR: 1.68; CI: 1.16-2.42), whereas father's religiosity is positively associated with higher aspirations for boys only (OR: 1.52; 1.03-2.25). The effects of high fertility (7+ children), mother's older age, urban residence, and the mother's older age relative to the father are solely predictive for boys, whereas mother's higher educational attainment relative to the father is only predictive for girls.

Maternal Aspirations and School Completion

In the next step of the analysis, Cox proportional hazards models were conducted to predict the time to school completion (termination or dropout) by 2009. The median duration of schooling for sons was 9.99 years, whereas for daughters it was 10.72 years ($p \leq 0.001$). Moreover, the median duration of schooling was 8.66 years for children whose mothers aspired for them to achieve up to college or less, whereas it was 11.05 years for children whose mothers aspired for them to achieve at least a college education (data not shown). Figure 1 depicts the unadjusted comparisons of mothers' educational aspirations and the index child's educational attainment by 2009 according to the number of living children. Across fertility levels, there is a similar proportion (41-43%) of mother-child dyads where mothers aspired for their child to go to college, yet their child dropped

out of school. However, mother-child dyads in which the mother had fewer children had a significantly higher proportion of children meeting their mothers' aspirations of college attainment (42%), as compared to mother-child dyads in which the mother had more children (15% for mothers with 7+ children) (χ^2 test p-value ≤ 0.001).

Figure 1: Mothers' Educational Aspirations for their Children and Child's Educational Attainment, by Mother's Number of Living Children in 1994



In the bivariate and multivariate hazards models predicting school termination by 2009 (Table 3), the effects of predictor variables are fairly consistent across the models, with the exception of the attenuation of father's religiosity and urban residence once added to the multivariate models. Our two, key variables – mother's parity and mother's education – show persistent effects in the multivariate models. Parity, however, demonstrates a threshold effect, such that only children from the largest families (7 or more children) were significantly more likely to drop out of school (HR= 1.28; CI: 1.13-1.45), as compared to children from families of 3-4 children.

Table 3: Bivariate and multivariate hazard models predicting child's school completion by 2009, by parent's sociodemographics, household characteristics, women's status, and mother's educational aspirations in 1994 (n = 1,728)

	Bivariate Models		Multivariate Model Both sexes (n=1728)		Gender-Stratified Model Boys (n=885)		Gender-Stratified Model Girls (n=843)	
	Unadjusted	95% CI	Adjusted	95% CI	Adjusted	95% CI	Adjusted	95% CI
Mother's Sociodemographic Characteristics								
Parity: 3-4 children (ref)	1.00	--	1.00	--	1.00	--	1.00	
1-2 children	0.87*	0.78-0.98	0.92	0.79-1.06	0.79*	0.63-0.99	1.12	0.95-1.33
5-6 children	1.19***	1.08-1.32	1.06	0.93-1.20	1.04	0.88-1.23	1.07	0.93-1.22
7+ children	1.52***	1.37-1.69	1.28***	1.13-1.45	1.28**	1.06-1.53	1.28***	1.11-1.47
Age: <35 years (ref)	1.00	--	1.00	--	1.00	--	1.00	--
35-44 years	0.92*	0.85-0.99	0.90*	0.82-0.98	0.89	0.76-1.04	0.88*	0.79-0.97
45+ years	0.98	0.89-1.08	0.87*	0.77-0.98	0.90	0.75-1.09	0.84†	0.70-1.01
Education: ≤ Elementary (ref)	1.00	--	1.00	--	1.00	--	1.00	--
>Elementary	0.64***	0.60-0.69	0.84***	0.77-0.91	0.80***	0.72-0.88	0.86**	0.76-0.97
Religiosity: Attends < weekly (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Attends ≥ weekly	0.72***	0.67-0.78	0.88**	0.80-0.97	0.82**	0.71-0.94	0.95	0.82-1.09
Father's Sociodemographic Characteristics								
Religiosity: Attends < weekly (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Attends ≥ weekly	0.77***	0.70-0.84	1.02	0.90-1.14	1.00	0.88-1.14	1.05	0.89-1.24
Household Characteristics								
Residence: Rural (ref)	1.00	--	1.00	--	1.00	--	1.00	
Urban	0.77***	0.69-0.87	1.09	0.98-1.21	1.10	0.92-1.31	1.06	0.95-1.19
HH wealth: Low (0-2 items) (ref)	1.00	--	1.00	--	1.00	--	1.00	--
Medium: 3-5 items	0.72***	0.64-0.80	0.84**	0.75-0.95	0.86†	0.72-1.02	0.75***	0.66-0.85
High 6-12 items	0.47***	0.43-0.51	0.69***	0.59-0.81	0.67***	0.56-0.82	0.54***	0.48-0.61
Mother's Status and Empowerment								
Number of joint household decisions	0.99	0.98-1.01						
Well-kept scale	0.84***	0.82-0.87	0.96**	0.93-0.99	0.96†	0.92-1.00	0.94**	0.91-0.98
Father gives all earnings to mother	1.09†	0.99-1.21	1.06	0.95-1.17	1.08	0.95-1.24	1.04	0.94-1.15
Age difference: Father≤5 years older (ref)	1.00	--						
	1.05	0.95-1.17						
Father >5 years older	1.02	0.91-1.15						

Mother is same age or older								
Educational difference:								
Mother/father have equal education	1.00	--	1.00	--	1.00	--	1.00	--
(+/- 1 year; ref)	0.90**	0.83-0.98	0.85**	0.77-0.94	0.83*	0.71-0.96	0.86**	0.77-0.95
Father has ≥2 years	0.95	0.86-1.05	1.02	0.93-1.12	1.09	0.95-1.25	0.95	0.83-1.09
Mother has ≥2 years								
Mother's aspires for child to attain ≥ college	0.56***	0.50-0.62	0.78***	0.68-0.90	0.69***	0.60-0.79	0.74***	0.64-0.87
Interaction: wealth X mother's aspirations			0.98†	0.95-1.00				
Sex of Index Child								
Male (reference)	1.00	--	1.00	--				
Female	0.85***	0.78-0.92	0.80**	0.74-0.85				

***p≤0.001; ** p≤ 0.01; * p ≤ 0.05; †p≤ 0.10 .

Children whose mothers had secondary or higher education were significantly less likely to terminate school by 2009, as compared to children whose mothers had less education (HR: 0.84; CI: 0.77-0.91). These effects are persistent and strong, even after controlling for parental and household characteristics, women's status variables, index child sex, and mother's educational aspirations.

Other socio-demographic variables demonstrated consistent, protective effects on children's schooling, including older age of mothers (HR=0.90; CI: 0.82-0.98 for women 35-44 and HR=0.87; CI: 0.77-0.98 for women 45+ years, as compared to women <35 years) and higher household wealth (HR: 0.84; CI: 0.75-0.95 and HR: 0.69, CI: 0.59-0.81, respectively). Additionally, the hazards of school termination were lower for children of mothers who attended church more frequently (at least weekly versus less often; HR: 0.88; CI: 0.80-0.97).

Of the women's status and empowerment variables, three were significant ($p<0.01$) in the bivariate models and persisted in the multivariate model after controlling for parental and household characteristics and others measures of women's status and empowerment. Children whose mothers scored higher on the 'well-kept' scale had significantly lower hazards of terminating school by 2009 (HR=0.96; CI: 0.93-0.99) Additionally, children whose fathers' education exceeded their mothers' by at least two years had significantly lower hazards of terminating school by 2009 (HR=0.85; CI: 0.77-0.94), as compared to children whose parents had equivalent educational levels (+/- 1 year).

Mother's educational aspirations had a significant and independent effect on the risk of child school dropout (HR:0.78; 95% CI: 0.68-0.90). Moreover, there was a marginally positive interactive effect ($p\leq0.10$) of wealth with mother's educational aspirations, such that children from wealthier households and whose mothers aspired for them to attend at least college had lower hazards of school termination by 2009.

Lastly, a strong gender effect was found, with females having significantly lower hazards of school termination by 2009, as compared to males (HR: 0.80; CI:0.74-0.85). Based on this strong and significant gender effect on school dropout, as well as previous findings from this study setting indicating differential effects of gender on social and health outcomes (Gipson, Gultiano, Avila, and Hindin 2012; Hindin MJ 2005), we conducted gender-stratified analyses. (These results are displayed in the final columns of Table 3.)

Similar to the effects in the combined model, children from families of seven or more children had significantly higher hazards of school termination for both males and females (HR: 1.28; CI: 1.06-1.53 and HR:1.28; CI: 1.11-1.47, respectively); there is a protective effect of a smaller family size (1-2 children) for boys only (HR: 0.79; CI:0.63-0.99). Mother's education and household wealth have consistent and significant effects on school termination in the gender-stratified models. The models also indicated that some effects differed for boys and girls, such that older maternal age was significant and protective for girls only (HR=0.88; CI: 0.79-0.97 for mothers aged 35-44 years versus <35 years), and mother's religiosity was protective for boys only (HR: 0.82; CI: 0.71-0.94).

Among the women's status and empowerment variables, the effects were relatively consistent for both boys and girls, though for some variables, the strength of effects differed for boys and girls. Children of "well-kept" mothers had lower hazards of school termination; however, this effect was more pronounced for girls (HR=0.94; CI: 0.91-0.98). Father's higher education relative to the mother was associated with lower hazards of school termination for both sons and daughters (HR=0.83; CI: 0.71-0.96 and HR=0.86; CI: 0.77-0.95, respectively), as compared to children whose parents had more equivalent educational levels (≤1 year difference). Lastly, mother's educational aspirations had a strong, significant and independent effect on the hazards of school termination for both males and females, after controlling for parental and household characteristics (HR: 0.69; 95% CI: 0.60-0.79 for sons; HR: 0.74; 95% CI: 0.64-0.87 for daughters).

DISCUSSION AND CONCLUSIONS

Findings from this study point to several key factors that influence mother's educational aspirations for their children and their children's subsequent educational attainment.

Our first hypothesis, that maternal fertility will be inversely related to aspirations for their children's educational attainment was only found for women with seven or more children. This effect remained, however, even after controlling for measures of socioeconomic status (i.e., household wealth and paternal education), indicating that, at least for this group of women, fertility had an independent effect on stated educational aspirations. The second part of this hypothesis - that this inverse association will be stronger for girls – was not found. The multivariate models indicated similar influences on educational aspirations for boys and girls, with no significant gender difference.

There was a strong gender effect, however, in educational attainment with girls having significantly lower hazards of school termination by 2009, as compared to boys. Although education among males has historically been higher, or on par with female education, national-level data indicate higher literacy rates among females and shifts in younger cohorts such that females now have educational advantages over males (National Statistical Coordination Board March 1, 2010; National Statistics Office (NSO) [Philippines] and ICF Macro 2009). Findings from DeGraff, et al (1996) and the 2002 Young Adult Fertility and Sexuality Study (YAFS) from the Philippines indicate that boys, particularly from lower income households, are at particularly greater risk to engage in market work to contribute to the household income (Berja and Ogena 2004).

Our second main hypothesis was that children born to women with lower fertility would be more likely to meet or to exceed their mother's educational aspirations, as compared to women of higher fertility mothers. Although there were significant differences in educational attainment across family size strata (1-2 , 3-4, 5-6, versus 7 children) (data not shown) and significant differences in the achievement of mothers' higher educational aspirations according to fertility levels, the multivariate hazards models indicated that the risk of school dropout was significantly higher only among children from the largest families (7+). These effects were consistent for boys and girls and persisted in the multivariate models controlling for all other socio-demographic, household, and women's status variables. Although lower educational aspirations were found among mothers who had more children, the independent effect of mothers' aspirations after controlling for wealth and fertility indicate that the need to identify other factors that may enable mothers to support their child's academic achievement beyond wealth or the woman's own educational status. This finding suggests that further investigation of mothers' aspirations for their children is warranted, and should be explored as both a marker of women's status, as well as a possible predictor of children's outcomes.

Mother's education had a persistent and independent influence on educational aspirations of mothers, as well as the actual educational attainment among their children. Given the improvements and continued gains in education among Filipina women over the past decades, these findings are promising, as they indicate that these investments in women's education are resulting in long-term and intergenerational benefits. On average, daughters had 3.4 more years of education than the mothers, representing a substantial gain for female education in the span of a

generation. A second point to mention is that although we did not find gendered effects of mothers' aspirations, the boys in this sample had lower median levels of educational attainment as compared to girls, a finding consistent with national data. Findings from this and other studies from this setting (e.g.,(Hindin MJ 2005) indicate that both mothers' and fathers' educational attainment affected aspirations and educational attainment of their children, thus highlighting the need for continued focus on the family-level (intergenerational transmission of wealth and educational status) and structural factors (e.g., the necessity of working rather than attending school) that decrease boys' chances of continuing in school.

A central finding of this paper is that, even after controlling for other socio-demographic, household, and women's status measures, mothers' educational aspirations were strongly predictive of subsequent educational attainment. Numerous studies indicate strong linkages between women's status, child well-being, and child health (e.g., (Hobcraft J 1993; Malhotra A, Schuler SR, and Boender C 2002; Upadhyay UD and Hindin MJ 2007), yet relatively few studies have explored mothers' aspirations for their children as a marker of women's status. As noted by Malhotra, et al (2002) and others, women's aspirations for their children are a reflection of women's own life experiences, as well as their beliefs of what could be achieved in the future. Studies that have examined mother's attitudes and aspirations regarding their children's schooling have found they are predictive of subsequent educational achievement (Stash and Hannum 2001; Zhang, Kao, and Hannum 2007). In this analysis, after controlling for all other variables, mothers' educational aspirations accounted for, on average, 1.7 additional years of schooling among males and 0.9 years among females (data not shown).

The strength of mother's aspirations in predicting their children's educational attainment is also interesting since, apart from mother's education and the 'well-kept' scale, other measures of women's status (e.g., joint decision-making) were not found to be significant in predicting educational aspirations or educational attainment. These findings are similar to those of Waite, et al. (1986) which found a significant and positive effect of mother's own schooling on aspirations for children's schooling in Malaysia, but did not find an effect of other measures of women's status (i.e., work before marriage and age at first birth). Our findings also differ somewhat from an earlier analysis of educational outcomes among CLHNS children; in this study parents' joint decision-making was predictive of educational attainment among children when looking at earlier educational outcomes (Hindin MJ 2005).

The persistence of mother's religiosity as a predictor of educational aspirations for daughters in the combined educational attainment analysis indicates that this is an important influence on mother's lives, and indirectly, on children's lives. Work by Barber and others (Barber, Pearce, Chaudhury, and Gurung 2002) points to the important influence of women's voluntary participation in groups on fertility and contraceptive use. In addition to exposure to different people and worldviews that may influence behavior, participation in groups (such as that through church) may provide particular psychosocial supports for individuals and couples in achieving their desires, either for themselves of for their families. Given the powerful influence of religion in the Philippines, this is an area that deserves further exploration and concerted efforts to understand and explain the mechanisms behind women's church participation and these outcomes.

A few caveats should be mentioned in the interpretation and application of these findings. First, it is possible that there may be selection bias since we only examined intact families at the time of the 1994 survey; however, non-intact families represented <10% of the sample. Second, an analysis of CLHNS data from 1994-2001 by Schmeer (2009) indicated that changes in residential sibsize affected children's educational progress. These effects, however, were not uniform and found that whereas the addition of younger siblings negatively affected children's educational progress, the loss or addition of older siblings to the household positively affected educational progress. We looked at the possibility of additional siblings affecting educational attainment among our sample by including the reported family size of mothers who participated in the 2005 survey (n=1542), but found no significant effect. Third, based on past studies indicating that women's employment can be an important facet of women's status and a determinant of her educational expectations for her children (e.g., (Waite, Rindfuss, and Detray 1986), we sought to include this variable; however, due to substantial participation in the workforce (95% have ever worked and 91% of women worked before marriage). , there was no significant effect in either bivariate or multivariate models.[2]

Overall, this paper provides significant insight into the factors associated with mothers' educational aspirations, as well as subsequent educational attainment among young adults in Cebu, Philippines. The intergenerational influences of high fertility, women's status, and mothers' educational aspirations on children's educational attainment highlight the importance of examining how the

[2] There was no association between mother's workforce participation before marriage and fertility (p=0.769); however, there were significant differences between mother's ever working and fertility (p=0.015), with mothers with lower fertility in 1994 (1-2 children) being less likely to ever work (85%), as compared to mothers with 5-6 or 7+ children (98% and 95%, respectively).

increased roles and opportunities for Filipino women beyond childbearing may not only positively benefit these women themselves, but also future generations.

AUTHOR ACKNOWLEDGEMENTS

The authors are grateful to the International Center for Research on Women (ICRW) and the Fertility and Empowerment Network for financial support, as well as conceptual and editorial inputs. We would also like to acknowledge the research assistance of Archana More Sharma and Donna Ansara. J. Gipson would also like to acknowledge financial support from the Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD) of the National Institutes of Health under Award Number 1K01HD067677. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

REFERENCES

Adair LS and Popkin BM. 2001. "The Cebu Longitudinal Health and Nutrition Survey: History and Major Contributions of the Project. ." *Philippine Quarterly of Culture and Society* 29:5-37.

Alba, Michael M. 2001. "Exploring the Existence and Measuring the Components of the Gender Wage Differential in the Philippines Using Design-Based Estimates."

Barber, J. S., L. D. Pearce, I. Chaudhury, and S. Gurung. 2002. "Voluntary associations and fertility limitation." *Social Forces* 80:1369-1401.

Bautista C and Dungo N. 1987. "The Differential Impact of Farm Technology on Men and Women: A Case Study of Two Philippine Villages." in *Women Farmers and Rural Change*, edited by Heyzer N. Kuala Lumpur: Asia Pacific Development Centre.

Berja, C.L. and N.B. Ogena. 2004. "Profile of the Filipino Youth." Pp. 14-26 in *Youth Sex and Risk Behaviors in the Philippines*, edited by C. M. Raymundo and G. T. Cruz. Quezon City: University of the Philippines Population Institute.

Biddlecom AE, Casterline JB, and Perez AE. 1997. "Spouses' Views of Contraception in the Philippines." *International Family Planning Perspectives* 23:108-115.

Boyle, M. H., Y. Racine, K. Georgiades, D. Snelling, S. J. Hong, W. Omariba, P. Hurley, and P. Rao-Melacini. 2006. "The influence of economic development level, household wealth and maternal education on child health in the developing world." *Social Science & Medicine* 63:2242-2254.

Casterline JB, Perez AE, and Biddlecom AE. 1997. "Factors underlying unmet need for family planning in the Philippines." *Studies in Family Planning* 28:173-191.

Cleland J. 2002. "Education and future fertility trends, with special reference to mid-transitional countries." Pp. 187-202 in *Population Bulletin of the United Nations: Completing the Fertility Transition*, vol. Special Issue Nos. 48/49: United Nations.

DeGraff, D. S., R. E. Bilsborrow, and A. N. Herrin. 1996. "Children's education in the Phillipines: Does high fertility matter?" *Population Research and Policy Review* 15:219-247.

Duflo E. 2011. "Women's empowerment and economic development." in *NBER Working Paper 17702*. Cambridge, MA: Massachusetts Institute of Technology.

Estudillo, J., A. Quisumbing, and K. Otsuka. 2001. "Gender Differences in Land Inheritance and Schooling Investments in the Rural Philippines." *Land Economics* 77:130–143.

Fehringer, J. A. and M. J. Hindin. 2009. "Like Parent, Like Child: Intergenerational Transmission of Partner Violence in Cebu, the Philippines." *Journal of Adolescent Health* 44:363-371.

Feranil AB, Gultiano SA, and Adair LS. 2008. "The Cebu Longitudinal Health and Nutrition Survey: Two Decades Later." *Asia-Pacific Population Journal* 23:39-54.

Gakidou, E., K. Cowling, R. Lozano, and C. J. L. Murray. 2010. "Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: a systematic analysis." *Lancet* 376:959-974.

Gipson, J. D., S. A. Gultiano, J. L. Avila, and M. J. Hindin. 2012. "Old ideals and new realities: the changing context of young people's partnerships in Cebu, Philippines." *Culture Health & Sexuality* 14:613-627.

Guttmacher Institute and Likhaan Center for Women's Health Inc. May 2010. "Facts on Barriers to Contraceptive Use In the Philippines."

Hindin, M. J. and L. S. Adair. 2002. "Who's at risk? Factors associated with intimate partner violence in the Philippines." *Social Science & Medicine* 55:1385-1399.

Hindin MJ. 2005. "Family dynamics, gender differences and educational attainment in Filipino adolescents." *Journal of Adolescence* 28:299-316.

Hobcraft J. 1993. "Women's education, child welfare and child survival: a review of the evidence." *Health Transition Review* 3:159-173.

Illo JF. 1989. "Who Heads the Household? Women in Households in the Philippines." Pp. 244-66 in *The Filipino Woman in Focus: A Book of Readings*, edited by Torres AT. Bangkok: UNESCO.

Jejeebhoy S. 1995. *Women's education, autonomy, and reproductive behaviour: Experience from developing countries*. Oxford: Clarendon Press.

Kabamalan, M. 2004. "New path to marriage: The significance of increasing cohabitation in the Philippines." *Philippine Population Review* 3:111-129.

Kabeer, N. 1999. "Resources, agency, achievements: Reflections on the measurement of women's empowerment." *Development and Change* 30:435-464.

Lucea, M. B., M. J. Hindin, J. Kub, and J. C. Campbell. 2012. "HIV Risk, Partner Violence, and Relationship Power Among Filipino Young Women: Testing a Structural Model." *Health Care for Women International* 33:302-320.

Lynch, S. M. 2003. "Cohort and life-course patterns in the relationship between education and health: A hierarchical approach." *Demography* 40:309-331.

Malhotra A and Riley N. 2009. "Fertility Declines in Developing Countries: Do They Empower Women? ." in *Population Association of America*. Detroit, MI.

Malhotra A, Schuler SR, and Boender C. 2002. "Measuring women's empowerment as a variable in international development." in *World Bank Workshop on Poverty and Gender: New Perspectives*. Washington DC: World Bank.

Mason KO. 1997. "How family position influences married women's autonomy and power in five Asian countries." East-West Center Working Papers.

Mason KO and Smith HL. 2003. "Women's Empowerment and Social Context: Results from Five Asian Countries." The World Bank,University of Pennsylvania

McNay, K. 2005. "The implications of the demographic transition for women, girls and gender equality: a review of developing country evidence." *Progress in Development Studies* 5:115-134.

MEASURE DHS and USAID. 2013. "StatCompiler: Educational level of the household population (median) in South and Southeast Asia."

Medina, B.T.G. 2001. *The Filipino family*. Quezon City: University of Philippines Press.

Nadal KL. 2009. *Filipino American Psychology: A Handbook of Theory, Research, and Clinical Practice*. Bloomington, IN: AuthorHouse.

National Statistical Coordination Board. March 1, 2010. "NSCB Fact Sheet." vol. 2012.

National Statistics Office (NSO) [Philippines] and ICF Macro. 2009. "Philippines National Demographic and Health Survey 2008." National Statistics Office and ICF Macro, Calverton, Maryland.

National Statistics Office: Philippines and ICF Macro. 2009. "Philippines National Demographic and Health Survey 2008." Manila, Philippines and Calverton, MD.

National Statistics Office: Philippines and UNICEF. 2007. "CPC-6 Indicators Report."

Orbeta Jr., Aniceto C. 2002. "Globalization and Employment: The Impact of Trade on Employment Level and Structure in the Philippines." Philippine Institute for Development Studies, Makati City, Philippines.

Philippines National Statistics Office. 2003. "Percentage of population 6-24 years old by level currently attending, by age group and region, Philippines."

Preciado MA and Gipson JD. 2013. "Getting the Full Picture of Contraceptive Knowledge in the Philippines: Using Multilevel Modeling to Capture Individual, Partner, and Couple-Level Effects."

Ryder, N. 2010. "Norman Ryder on the Sociology of Fertility Reduction." *Population and Development Review* 36:607-620.

Schmeer, K. K. 2009. "Changing Sibship Size and Educational Progress During Childhood: Evidence From the Philippines." *Journal of Marriage and Family* 71:787-801.

Sevilla J. 1995. "The Filipino Woman and the Family." in *The Filipino Woman in Focus: A Book of Readings*, edited by Torres A. Quezon City: University of the Philippines Press.

Stash, S. and E. Hannum. 2001. "Who goes to school? Educational stratification by gender, caste, and ethnicity in Nepal." *Comparative Education Review* 45:354-378.

UNICEF. "At a glance: Philippines." vol. 2013.

United Nations Committee on the Elimination of Discrimination against Women (CEDAW). 2006. "Concluding comments of the Committee on the Elimination of Discrimination against Women: Philippines ".

United Nations Development Program. 2006. "Human Development Report 2006: Country Fact Sheets, Philippines."

Upadhyay UD and Hindin MJ. 2005. "Do higher status and more autonomous women have longer birth intervals? Results from Cebu, Philippines." *Social Science and Medicine* 60:2641-2655.

—. 2007. "The influence of parents' marital relationship and women's status on children's age at first sex in Cebu, Philippines." *Studies in Family Planning* 38:173-186.

Waite, L. J., R. R. Rindfuss, and D. Detray. 1986. "Mothers Expectations for Childrens Schooling in Malaysia." *Journal of Marriage and the Family* 48:527-535.

Warner A, Malhotra A, and McGonagle A. 2012. "Girls' Education, Empowerment, and Transitions to Adulthood: The Case for a Shared Agenda." International Center for Research on Women (ICRW).

Williams L, Sobieszczyk T, and Perez A. 2000. "Couples' views about planning fertility in the Philippines." *Rural Sociology* 65:484-514.

World Bank. 2012. "World Development Report: Gender Equality and Development."

Xenos, P and M Kabamalan. 2007. "Emerging forms of union formation in the Philippines." *Asian Population Studies* 3:263-286.

Zhang, Y. P., G. Kao, and E. Hannum. 2007. "Do mothers in rural China practice gender equality in educational aspirations for their children?" *Comparative Education Review* 51:131-157.