Future Fertility Intentions in the Philippines: Does Women's Employment Status or Community Context Matter?

INTRODUCTION

Over the past few decades, fertility decline has brought a sizeable discussion, especially on its relationship with increased female labor force participation (Cramer, 1980; Lehrer & Nerlove, 1986; Rindfuss, Guzzo, & Morgan, 2003). Studies found that conflicts between childbearing and work lower women's fertility intentions; which, in turn, contribute to declining fertility (Darian, 1975; Quesnel-Vallee & Morgan, 2003; Rindfuss et al., 2003; Schoen, Astone, Kim, Nathanson, & Fields, 1999).

Researchers have sought to understand various factors that influence future fertility intention of women. Sociodemographic characteristics such as women's age, education, employment status, religion, and union status as well as characteristics of their partners have shown to be important factors in future fertility intentions (Bankole 1995; Rindfuss et al., 2003). There is also much evidence that parity and current childbearing status are associated with women's intentions about future fertility (Cain, 1986; Schoen et al., 1999; Stolzenberg & Waite, 1984).

One area that has not well been studied in fertility research is how future fertility intentions vary over time and how the intentions are influenced by contextual factors. Hirschman and Young (2000) using multilevel analysis examined fertility decline in the social context of Thailand, Indonesia, and the Philippines during the 1970s to 1980s. Their analyses found the importance of contextual effects on fertility decline. Yet, little is known about women's future fertility intentions in multilevel context.

In the Philippines, woman's intention for fewer children is a key element in fertility decline (DHS, 2000). As in many countries, mothers are defined as the primary caregivers for their family members and expected to make great time adjustments for childbearing and childrearing (Doan & Popkin, 1993; Teifenthaler 1997). The economic recession and debt crisis in the Philippines during the 1980's produces long-term economic hardships to the ordinary Philippines families (Sobrevega & Sanchez, 1996). Struggled with limited employment opportunities, married women, thus, become much more likely to decrease their fertility intentions after the first child, which shapes normative family size to two-child norm.

This study is to understand how women's future fertility intentions differ by employment status, by spousal characteristics, and between communities in the Philippines that underwent rapid social and economic change in the 1990s. An important component of this study, often ignored in previous studies, is an examination of the extent to which future fertility intentions are heterogeneous within communities. The majority of births in the Philippines were given by women in union (DHS, 2000). Another objective of this study is to assess the degree to which observed variations in future fertility intentions among cohabiting women can be accounted for by individual- and community-level factors.

METHODS

Data

This study utilizes data from Demographic and Health Surveys (DHS) in the Philippines of 1998 and 2003, nationally representative surveys of Filipinas aged 15-49. The surveys was designed to examine women's reproductive behaviors and health; thus, collecting detailed

information on fertility, family planning, infant, child and maternal mortality, and maternal and child health in the Philippines. Further information on DHS can be found at www.measuredhs.com. DHS also defined a community by a census tract. The current research aims to gain better understanding about the relationship between employment status and future fertility intention in community context. The analyses thus focused on currently cohabiting fecund women ages 15-49 who expressed their intentions about future childbearing. This selection yields to a total of 6,849 women from 752 communities in 1998 and 6,773 women from 819 communities in 2003.

For our purposes, there is at least one limitation to DHS data that the questionnaire did not allow for the coding of the degree of intended future fertility, as in the case of a woman who has strong future fertility intention is categorized into the same group of a woman who has slight intention.

Outcome measure

Future fertility intention variable. The main outcome variable is *intention about future childbearing* that assesses women's desire for additional children by the question: "Now I have some questions about the future. Would you like to have (a/another) child or would you prefer not to have any (more) children?" Responses are categorized into two categories: to have a (another) child (coded as 1), and to have no more/none (the omitted group and coded as 0). Future fertility intention does not seem to change in1998 and 2003. For both surveys, about thirty-nine percent of the sample desired for additional children (Table 1).

Individual-level variables

Employment status variable. Female labor force participation in relation to fertility encompasses an essential aspect of work conditions that may contribute to conflicts between employment and childbearing (Darian, 1975; Doan & Popkin, 1993). In order to distinguish non-employment from employment and further to explore whether convenient working condition plays a crucial role in women's employment, we grouped employment status into three categories: employed away from home (coded as 1), employed at home (coded as 2), and non-employed (the omitted group and coded as 0).

Childbearing status variables. Previous research shows the significant association between childbearing background and future fertility intention (Schoen et al., 1999; Stolzenberg & Waite, 1984). Three measures related to childrearing status were used in this study: (1) parity, (2) having young children under age 3, and (3) currently pregnant. The measure of *parity* categorizes *current number of surviving children* into zero, one, two, three, and four and greater as the omitted category. The dichotomous measure of *having young children under age 3* is based on birth history of women and no young child is coded as the omitted category. Last, the measure of *currently being pregnant* is also coded as dichotomy with no pregnancy as the omitted group.

Control variables. This study includes several demographic and socioeconomic measures that are particularly likely to confound the associations between women's current employment status, current childrearing status, and future fertility intentions (Bongaarts & Watkins, 1996; Pollak & Watkins, 1993; Schoen et al., 1999). Individual characteristics include *age, education attainment*, *religion*, and *union status* of women. Analyses also include spousal-level variables such as *age and education gaps* between partners, *partners' occupation*, and *fertility preference discussion with the partner* (Biddlecom, Casterline, & Perez, 1997; Williams & Sobieszczyk, 2003).

Community-level variables
A mean score for each community was averaged by all individual responses within each tract. The study sample within each tract was assigned to the computed mean score. Two sets of community factors are hypothesized to affect women's future fertility intentions: (1) *female labor force participation* (Easterlin, 1978; Stolzenberg & Waite, 1984) and (2) *community social capital* (Astone, Nathanson, Schoen, & Kim, 1999). Measures used in DHS to community social capital include community education, residential stability and dominant religious group.

Data Analyses
To address our research questions, we use multilevel modeling techniques (Bryk and Raudenbush 1992) to study the association between employment status and future fertility intentions. A two-level (level 1 = individuals, level 2 = census tract/community) random intercept logit model is utilized for a binary outcome of fertility intention. The random intercept is shared by all women in the same census tract and this model incorporates simultaneous effects of individual-level employment status and community-level variables on the likelihood of fertility intentions about future childbearing. Our approach uses this multilevel model that emphasizes individual future fertility intention varies across communities, examining whether individual characteristics and neighborhood environment independently influence the likelihood of future fertility intention. Statistical analyses were computed by STATA 9.0 and HLM 6.0 programs for random intercept multilevel models (Raudenbush et al 2004; StataCorp, 2003). Analyses are weighted adjusted for sample design.

PRELIMINARY RESULTS

Intraclass correlations
Individuals within a community often experience common community-level influence and their future fertility intentions may thus become more similar than those of individuals across communities. Intraclass correlation estimates the total unexplained variance of future fertility intention that occurs between communities and the extent to which individual future fertility intention is more similar among individuals from the same community than among individuals from different communities. Intraclass correlations for future fertility intention in both 1998 and 2003 are about 0.06 ($p<0.001$), meaning around 6 percent of variation in fertility intention occurs between communities.

Community characteristics
Table 2 shows the adjusted odds ratio and 95% confidence intervals of the random intercept multilevel model predicting future fertility intention, simultaneously taking individual and community characteristics into consideration. The community-level female labor force participation has a significant effect on women's fertility intentions in 1998 but not in 2003. In 1998, women living in a tract with the highest quartile of percentage of employed women have 31% lower odds of intended future fertility compared to women living in communities with the lowest quartile of percentage of employed women. In the presence of controls for a large number of observed characteristics of individuals, spouses, and communities, individual employment status does not predict women's future fertility intentions in 1998 and 2003.

Several measures of community social capital are significant in contradictory directions. For both 1998 and 2003, women living a tract with a high percentage of the population with incomplete primary educations or lower have 2-3 times the odds of intended future fertility, compared to women in communities with lower proportion of community members with

incomplete primary educations or lower. However, women in communities with a higher percent of Catholic residents have significantly lower odds for intended future fertility compared to women in a lower percent of Catholic residents. Individuals in the communities with 100% electricity have significantly higher odds of intended future fertility in 1998 but significantly lower odds of intended future fertility in 2003. Women in the residentially stable communities, as measured by the tract that at least 80% of residents lived in the same house 10 years ago, have significantly higher odds of intended future fertility compared to women in communities with the less residential stability in 2003 but not in 1998.

Preliminary results suggest that individual employment status does not have significant effect on future fertility intention but community factors substantially contribute their effects. These preliminary findings warrant further investigation and models extensively incorporating other community variables.

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Table 1. Percentage distribution of individual- and community-level variables, the Philippines DHS 1998 and 2003

	1998 (*N*=6,849)	**2003** (*N*=6,773)
Outcome measure		
Desire for additional children		
Yes	38.80	38.55
No	61.20	61.45
Individual covariates		
Employment status		
Employed at home	16.48	15.42
Employed away from home	37.38	37.33
Unemployed	46.14	47.25
Current childbearing status		
Number of surviving children		
0	7.52	9.40
1	19.05	20.51
2	21.00	22.30
3	17.99	16.56
4+	34.44	31.23
Has young children under age 3		
Yes	46.77	41.37
No	53.23	58.63
Currently pregnant		
Yes	10.24	9.23
No	89.76	90.77
Socioeconomic status		
Age		
15-24 years old	16.76	17.80
25-34 years old	42.67	40.49
35-49 years old	40.57	41.71
Education attainment		
Incomplete primary education and lower	14.42	13.38
Completed primary education	19.89	15.94
Incomplete and complete secondary education	37.13	41.74
Higher than secondary education	28.56	28.94
Religion		
Roman catholic	80.92	80.52
Others	19.08	19.48
Union background		
Union status		
Married	91.55	89.23
Living together	8.45	10.77
Spousal characteristics		
Age gap (compared to women)		
Younger/same	28.31	28.78
1-4 older	41.20	40.81
5-9 older	21.80	21.30
10+ older	8.69	9.12
Education gap (compared to women)		
Same	33.77	30.67
Male lower	35.59	38.78
Male higher 1-3 years	21.14	19.19
Male higher 4+ years	9.51	11.37

Table 1. (*Continued*)

	1998 (*N*=6,849)	**2003** (*N*=6,773)
Spousal characteristics		
Occupation of male's partner		
Agriculture related work	33.12	28.44
Prof. tech, mang	6.02	12.76
Others	60.87	58.81
Discussing fertility preference		
Never	19.98	19.47
1-2 times per week	39.11	50.38
Very often	40.91	30.15
	(*n*=752)	(*n*=819)
Community-level covariates		
Female labor force participation		
Percent of tract with employed women aged 15-49	51.22	51.35
Community social capital		
Proportion of tract with incomplete primary education and lower	15.56	12.09
Percent of tract with 80% residents in same house for 10 years or longer	30.59	21.98
Percent of tract with electricity	28.32	31.26
Percent of tract with Roma Catholic religious group	77.93	79.76

Table 2. Adjusted OR and 95% CI of multilevel random intercept logit models predicting having an additional child; DHS 1998 and 2003 (Filipinas aged 15-49)

	Model for 1998			Model for 2003		
	OR	95% CI	*p*-value	OR	95% CI	*p*-value
Individual covariates						
Employment status (ref= Unemployed)						
Employed away	0.92	(0.78, 1.07)	0.282	0.95	(0.81, 1.11)	0.493
Employed at home	0.96	(0.77, 1.19)	0.684	1.02	(0.83, 1.26)	0.834
Current childbearing status						
Number of surviving children (ref=4+)						
0	251.44	(151.97, 416.02)	0.000	307.36	(191.09, 494.37)	0..000
1	27.93	(21.87, 35.66)	0.000	34.23	(26.42, 44.35)	0.000
2	5.98	(4.88, 7.32)	0.000	6.08	(4.85, 7.63)	0.000
3	2.55	(2.05, 3.16)	0.000	2.20	(1.71, 2.83)	0.000
Has young children under age 3	0.71	(0.60, 0.84)	0.000	1.06	(0.90, 1.25)	0.457
Currently pregnant (ref=no)	0.27	(0.20, 0.37)	0.000	0.20	(0.15, 0.27)	0.000
Socio-demographic characteristics						
Age (ref=15-24 years old)						
25-34 years old	0.84	(0.68, 1.04)	0.112	1.01	(0.83, 1.24)	0.886
35-49 years old	0.29	(0.22, 0.38)	0.000	0.30	(0.23, 0.38)	0.000
Education attainment (ref= Incomplete primary education and lower)						
Completed primary education	0.71	(0.56, 0.90)	0.006	0.96	(0.70, 1.31)	0.782
Incomplete and complete secondary education	0.92	(0.73, 1.16)	0.491	1.07	(0.81, 1.40)	0.649
Higher than secondary education	1.01	(0.84, 1.44)	0.480	1.36	(1.02, 1.83)	0.038
Religion (ref= Roman catholic)						
Others	1.07	(0.89, 1.29)	0.483	1.12	(0.92, 1.36)	0.275
Union background						
Union status (ref=married)						
Living together	0.89	(0.67, 1.16)	0.383	0.65	(0.51, 0.82)	0.000
Spousal characteristics						
Age gap (compared to women) (ref= Younger/same, 1-9 years older)						
10+ older	0.73	(0.57, 0.94)	0.013	0.85	(0.67, 1.07)	0.171
Education gap (compared to women) (ref= same, male higher)						
Male lower	0.86	(0.74, 1.00)	0.051	0.88	(0.76, 1.03)	0.110

Table 2. Adjusted OR and 95% CI of multilevel random intercept logit models predicting having an additional child; DHS 1998 and 2003 (Filipinas aged 15-49) (*Continued*)

	Model for 1998			Model for 2003		
	OR	95% CI	*p*-value	OR	95% CI	*p*-value
(*Continued*)						
Occupation of male's partner (ref= agriculture related work)						
Prof, tech, mang	1.23	(0.85, 1.79)	0.263	1.05	(0.81, 1.36)	0.723
Others	0.88	(0.74, 1.05)	0.151	0.92	(0.77, 1.11)	0.376
Discussion fertility preference (ref=never)						
1-2 times per week	0.78	(0.63, 0.96)	0.018	1.27	(1.05, 1.55)	0.016
Very often	0.69	(0.56, 0.85)	0.001	1.08	(0.87, 1.35)	0.464
Community characteristics						
Female labor force participation						
Percent of tract with employed women aged 15-49 (ref=tract in Q1-lowest)						
Q2	0.71	(0.57, 0.89)	0.003	0.88	(0.71, 1.09)	0.250
Q3	0.66	(0.53, 0.83)	0.001	0.95	(0.77, 1.16)	0.606
Q4-highest	0.69	(0.54, 0.87)	0.002	0.96	(0.77, 1.19)	0.692
Community social capital						
Proportion of tract with incomplete primary or lower education	2.11	(1.14, 3.91)	0.017	2.91	(1.59, 5.32)	0.001
Percent of tract with 80% of community members in same house 10 years ago (ref=no)	1.09	(0.92, 1.30)	0.307	1.22	(1.01, 1.48)	0.040
Percent of tract wtih electricity (ref=no)	1.20	(1.00, 1.45)	0.056	0.80	(0.66, 0.96)	0.015
Percent of tract with Catholic group (ref=tract in Q1-lowest)						
Q2	0.79	(0.63, 0.99)	0.044	0.59	(0.48, 0.74)	0.000
Q3	0.65	(0.52, 0.82)	0.001	0.59	(0.46, 0.74)	0.000
Q4-highest	0.69	(0.55, 0.88)	0.003	0.70	(0.55, 0.90)	0.006

Random effect	Variance component	Std. Dev.	p-value	Variance component	Std. Dev.	p-value
Random intercept	0.3405	0.5835	0.000	0.2335	0.4832	0.000

Abbreviations: OR, odds ratio; CI, confidence interval.