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How Does Women's Empowerment Affect Fertility Preference? A Cross-Country Study of Southeast Asia

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Abstract

How women's empowerment affects fertility and fertility related decisions has been the focus demographic research and gender studies. In this study, three women's empowerment factors including women's labor force participation, women's education and household decision-making, are examined to determine if they have significant effects on fertility preference in four Southeast Asian countries: Cambodia, Indonesia, Philippines and Timor-Leste. Results from regression models show that women's empowerment has significant effects on women's fertility preference, which is measured by the ideal number of children. Education shows the most uniform effect in lowering the ideal number of children across all four countries. Female labour force participation shows mixed effects on the ideal number of children in each country. The results suggest that female labour force participation has a balancing effect on women's fertility preference: the involvement of women into the labor market raises fertility preference in the country with lowest current fertility level, and lowers it in country with highest fertility level. Household decision-making also has mixed effects on fertility preference, but overall higher level of household decision-making is associated with lower fertility preference. This study has found that women's empowerment is one of the key determinants in fertility preference in the four Southeast Asian countries studied.

Keywords: Women's empowerment, fertility preference, demographic, Southeast Asia, female labour force participation, female education, female household decision- making.

Introduction

Previous studies have suggested that fertility preference, i.e. the ideal number of children that the couple want, is closely related to actual fertility (Freedman, Hermalin et al. 1975, Bongaarts 2001), therefore it is useful to explain the social norms of childbearing and the difference in fertility behaviours. Changes in fertility behaviours may be attributed by different aspects of women's empowerment. At the individual level, women's participation in paid employment is associated with lower actual fertility and lower fertility preference (Mason 1987, Jejeebhoy 1995, Rindfuss and Brewster 1996, Kabeer 2001, Kabeer 2005). Previous studies have found

that a higher level of women's household decision- making is associated with lower fertility preference (Afifi 2007, Shoaib, Saeed et al. 2012, Upadhyay and Karasek 2012). And an increase in women's level of education has been universally found to be associated with lower fertility preference (Brewster and Rindfuss 2000, Bongaarts 2003, Larsen and Hollos 2003).

In my previous research I have identified three factors which are the components of women's empowerment in four Southeast Asian countries, Cambodia, Indonesia, Philippines and Timor-Leste; they are women's participation in the labour force, women's education and women's involvement in household decision-making (Phan 2015).

The women's labour force participation factor is dominated by four indicators which take into account the engagement of the woman in the cash economy through types of employment (if she works for herself, family members or someone else) and types of payment that she receives; her occupation; her continuity of employment throughout the year (full time or part time); and her earnings compared to her husband's earning. The education factor is dominated by two indicators, women's literacy and women's level of completed education. The household decision-making factor is dominated by three indicators: decisions related to health (issues when seeking medical help), decisions related to household spending (who controls how to spend the money) and decisions related to visiting relatives. Although some studies suggest that women's use of contraception is one of the women's empowerment factors, it did not show up as a consistently identifiable factor in my analysis using principal axis factoring.

This study examines how women's empowerment factors including female labour force participation, female household decision-making and female education affect women's fertility preference in Southeast Asia. It is expected that an increase in the scores of all three women's empowerment factors mentioned earlier is associated with lower ideal number of children.

Data and Methods

Data used in this analysis were collected through the Demographic and Health Surveys (DHS) in four countries: Cambodia, Indonesia, Philippines and Timor-Leste. The surveys have large and nationally representative samples and detailed questions on the demographic background, fertility preferences and birth histories of all eligible women aged 15-49. The samples include 6,496 women in Cambodia, 24,479 in Indonesia, 7,113 in Philippines, and 3,598 in Timor-Leste. The DHS have questions on the respondents' desire to have another child, desired length of time before having another child, and ideal number of children, ideal number of sons and daughters. It is standard in all DHS questionnaires from all countries. Fertility preference can be measured by different aspects of a woman's behaviour, such as her ideal number of children and her preference for specific sex of her children. In this study fertility preference is operationalized based on the women's ideal number of children.

The effects of women's empowerment on the ideal number of children are examined after controlling for background variables. Three types of regression including Ordinary Least Squared (OLS), Poisson and ordered logit are used since each has significant benefits: OLS regression makes it easy to interpret results which gives initial impressions on how the variables behave, Poisson regression is appropriate for thinking about the ideal number of children as if it were a count outcome dependent variable, and ordered logit regression is appropriate for ordered outcomes. In total, 6 regression models are run for each country.

Results

In addition to three women's empowerment factors, women's background characteristics are controlled for in the regression models on the ideal number of children by including a set of control variables on women's age, residence, religion, the number of children ever born (CEB),

and her husband's characteristics including education and occupation. Descriptive statistics of the study samples can be found in Table 2 in the Appendix.)

Table 1 shows a summary of the coefficients and their significance in the regression models of 4 countries. The plus or minus signs indicate the directions of the effects, while the asterisks indicate if the effect is statistically significant. (Detailed results with coefficients from three types of regression models for 4 countries can be found in the Appendix.)

Table 1: Summary of the effects of control variables on the ideal number of children (4 countries)

	Cambodia	Indonesia	Philippines	Timor
Age	- (*)[2]	+ (**)	+ (*)	+
Age^2	+ (*)[2]	- (**)	-	- (*)[1](**)[2]
Residence (Urban)	-	- (**)	- (**)	- (**)
Religion (major) Islam	+(**)	n/a n/a	+ (**)	-
CEB	+ (**)	+ (**)	+ (**)	+
Age*CEB	-	+ (**)	- (**)[2]	+ (**)
Husband's education	-	-	-	-
Husband Occupation (Agriculture)				
Husband does not work	-	- (*)	-	n/a
Husband works in non-manual jobs	-	- (**)	-	- (**)
Husband works in manual jobs	-	- (**)	- (**)	-
Labour force participation factor	+	+ (**)	+	- (*)
Education factor	- (**)	- (**)	- (**)	-
HH decision-making factor	+	- (**)[1](*)[2]	-	-

*: significant at p-value <0.05
**: significant at p-value <0.01
1: OLS regression model
2: Ordered logit regression model
n/a: Religion variable is not available in Indonesia data

Table 1 shows that most of the control variables of the women's characteristics which include age, urban residence, religion, current number of children ever born are statistically significant across all four countries. It is important to take into account the husband's characteristics while studying the ideal number of children as the decision about children is usually a joint decision of both husband and wife. Interestingly, husbands' background characteristics do not seem to be influential in fertility preference; the effect of control variables on the types of husbands' occupation are not consistent across the four countries, and husband's education shows absolutely no significant effects in any country. Some studies on fertility in developing countries such as Tanzania and Indonesia suggest that wives' education rather than husbands' education is a significant factor in the couple's fertility (Larsen and Hollos 2003, Breierova and Duflo 2004); this study also implies that husband's education is not at all significant to wives' ideal number of children, in all four countries. Nonetheless, husband's characteristic in terms of occupation shows effects on their wives' ideal number of children. Some types of husband's

jobs are shown to have effects on their wife's ideal number of children, such as agricultural jobs in Indonesia and manual jobs in Philippines.

Even though the literature has found the effect of religion to be a significant factor on fertility preference (Morgan, Stash et al. 2002, Heaton 2011), the fact that the DHS Indonesia 2012 questionnaire does not include questions on religion, thus this variable is omitted from the regression models.

The effects of urban residence on fertility preference have been consistently found in this study, as expected from the literature (Duncan 1965, Cochrane 1983, Singh and Casterline 1985, Author 2014). Regression results from this analysis of four countries suggest that urban residence is associated with a lower ideal number of children, which means that women living in urban areas favour a lower ideal number of children than women living in rural areas.

The number of children ever born also consistently shows positive effects in all countries across six regression models. Women who currently have higher numbers of children ever born would favour higher ideal numbers of children.

Results from this study suggest that labour force participation, one of the most important factors of women's empowerment, tends to be associated with higher ideal number of children in Cambodia, Indonesia and Philippines and lower ideal number of children in Timor-Leste. However, the effect is only statistically significant in Indonesia and Timor-Leste. Specifically, in Indonesia, higher scores of labor force factor, i.e. the more involved the woman in paid employment, increases the odds of favoring one number higher in the ideal number of children by 8.3%. Opposite trend is found in Timor-Leste, it decreases the odds of favoring one number higher of ideal number of children by 5.9%. Theories of demographic transitions consider female labour force participation at the beginning of the industrialization process one of the causes for actual fertility and fertility preference to decline (Mason 1987, Jejeebhoy 1995, Rindfuss and Brewster 1996, Kabeer 2001, Kabeer 2005). Yet, in Indonesia there is a positive relationship of female labour force participation and the ideal number of children. Indonesia is also the country where the current average CEB and the average ideal number of children are at the lowest compared to the other three countries (2.30 and 2.69 respectively). Similar tendencies are observed in Cambodia and Philippines, however, the coefficients are not statistically significant in these countries. The positive relationship may imply that participating in paid employment means that women can financially afford childcare and childrearing, which results in the higher ideal number of children. Childcare in Indonesia at preschool ages largely depends on nannies and extended family members but formal education for schoolchildren costs money and only elementary education is free, thus it is quite a financial commitment for Indonesian parents to bring up children. That may be the reason why women who have higher scores in labour force participation express higher ideal number of children than those who have lower scores for labour force participation

On the contrary, in Timor-Leste, where the current average CEB (3.83) and the average ideal number of children (5.41) are the highest among four countries of study. the labour force participation factor is statistically associated with a lower ideal number of children. This relationship is more in line with previous literature on the fertility transitions in countries at the beginning of the industrialization process, which suggests the incompatibility between work and family, so that children are considered costs instead of benefits are the major causes for couples to prefer lower number of children (Caldwell 1982, Mason 1987, Bradley 1995).

This leads to an interesting observation of the opposite direction of the relationship between labour force participation factor and the ideal number of children in Indonesia and Timor-Leste. The involvement of women into the labour market seems to be associated with *higher* ideal

number of children in the country with *lowest* number of children ever-born (Indonesia), and *lower* ideal number of children in the country with *highest* number of children ever-born (Timor-Leste). These results imply that female labour force participation may have a balancing effect on the ideal number of children. At country level, female labour force participation has been long cited as one of the determinants in the decline of women's fertility since the beginning of the industrialization process. More recent studies have shifted to the idea that female labour force participation also has positive effects in countries with low fertility levels, which keeps them around the replacement level and not to further decline to the very-low fertility levels. In a review of developed countries with low fertility levels, McDonald (2000) proposes that gender equality, or in his words - "gender equity", (at both family and public domains) is the key to keep fertility level at a balance level, i.e. it decreases fertility in high-fertility societies, and increases fertility in low-fertility societies to keep them from falling to very-low-fertility levels. Similarly, other studies have found a positive relationship between female labour force participation and the total fertility rates at country level in developed countries in recent years (Brewster and Rindfuss 2000, Rindfuss, Guzzo et al. 2003, Billari and Kohler 2004, Myrskylä, Kohler et al. 2009). This study shows that female labour force participation at individual level exhibits similar effects on women's fertility preference in these four developing countries in Southeast Asia. My analysis has found support for the notion that women's empowerment factors at individual level, specifically through female labour force participation, seems to balance out the ideal number of children: it is associated with lower ideal number of children in country where women have high average number of children ever born; and in opposition it is associated with higher ideal number of children in country where women have low average number of children ever born. This finding suggests that the mechanism through which gender equality keeps fertility levels at neither too high nor too low levels may be through the involvement of women into the labour force.

Education has a universal negative effect on the ideal number of children in all four countries. The effect is statistically significant in Cambodia, Indonesia, and Philippines but not in Timor-Leste, where there is a tendency that higher score in education factor is associated with lower ideal number of children though the relationship is not statistically significant. Findings from this study of four Southeast Asian countries are consistent to the large body of literature suggesting that education is associated with lower fertility and fertility preference (Cochrane 1983, Dixon-Mueller 1993, Bongaarts 2003), and also similar to results found in other developing countries such as Turkey (Gore 2010), Taiwan (Lee 2009) and Tanzania (Larsen and Hollos 2003).

The relationship between household decision-making factor and the ideal number of children is only negatively significant in Indonesia, which indicates that women with higher level of household decision-making prefer lower ideal numbers of children. Household decision-making factor measures different aspects of the women's family life, such as: who makes decisions related to her health, decisions related to spending and decisions related to visiting relatives. A similar result was found in Guinea, in a study of four Sub-Saharan countries on women's empowerment and ideal family size (Upadhyay and Karasek 2012). Out of the four countries studied, Indonesia is generally considered more conservative under the influence of Islam, especially in ideas about gender and family. This finding suggests that household decision-making is only associated with lower ideal number of children in societies where most women still have limited power in the family and only very few have better level of household decision-making power. It may not make much of a difference to the ideal number of children in societies where the majority of women already have a considerable level of autonomy in the household.

Conclusion

In conclusion, all of the three women's empowerment factors show significant effects on women's fertility preference measured by the ideal number of children. Background characteristics such as age, urban residence, religion and the current number of children ever born of the women have significant effects on her fertility preference. Interestingly, husband's characteristics such as education and occupation have no or very little effect on their wife's fertility preference.

Previous studies have found that aspects of women's empowerment play a role in the decline of women's fertility in developing countries. The results from this study suggest that women's empowerment, which includes labour force participation, education and household decision-making, have significant effects on women's ideal number of children in the four Southeast Asian countries studied.

Nevertheless, the relationship between women's empowerment and fertility preference is not a simple linear negative one. It varies depending on the context of the country. Except for education, which appears to have the most consistent negative relationship with fertility preference, two other factors - female labour force participation and household decision-making - show diverging relationships with fertility preference. Thus female labour force participation may have a balancing effect, which is associated with lower individual fertility preference in high fertility countries and higher individual fertility preference in low fertility countries. In other words, it may be a factor that keeps fertility at a balanced level. Recent trends in upward fertility which are associated with gender equality have been found in some European countries; however, there have not been any studies that look into developing countries with declining fertility levels. Future studies can investigate the effect of female labour force participation in reversing fertility decline at low and very-low fertility countries in Asia-Pacific.

Household decision-making also behaves differently to expectation; it is expected to be universally associated with lower fertility preference, yet, it is only significant in Indonesia. There may be some distinctive characteristic of Indonesia that makes it stands out, or it could be measurement issue, for example, the kind of decisions made in the household in other three countries are different to those in Indonesia, thus not as well measured. Future study could look into household decision-making as a potential research direction in the research body on women's empowerment and fertility preference.

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Appendix

Table 2: Descriptive statistics of dependent and independent variables

	Cambodia Mean(SD)/ Percent (SD)	Indonesia Mean(SD)/ Percent (SD)	Philippines Mean(SD)/ Percent (SD)	Timor- Leste Mean(SD)/ Percent (SD)
Age (years)	31.29	32.98	32.75	30.42
	(8.03)	(7.86)	(8.06)	(7.28)
Urban residence (%)	36.01	47.91	45.53	30.71
	(.48)	(.49)	(.49)	(.46)
Religion (%)				
Buddhism	97.08	NA	0.00	0.00
	(.16)			
Islam	1.78	NA	5.37	.21
	(.13)		(.22)	(.04)
Christianity	0.51	NA	86.62	99.57
	(.07)		(.34)	(.06)
Others	0.61	NA	8.09	.21
	(.07)		(.27)	(.04)
Ideal number of children	3.21	2.69	3.09	5.41
	(1.15)	(1.14)	(1.45)	(1.91)
CEB	2.54	2.30	3.01	3.83
	(1.79)	(1.54)	(2.15)	(2.46)
Husband's education (years)	7.12	9.35	9.18	8.09
	(4.18)	(4.05)	(3.89)	(4.78)
Husband's occupation (%)				
Agriculture	41.78	25.04	28.23	43.67
	(.49)	(.43)	(.45)	(.49)
Does not work	0.49	.93	1.47	0.00
	(.07)	(.09)	(.12)	
Non-manual job	31.78	35.32	26.98	47.58
	(.46)	(.47)	(.44)	(.49)
Manual job	25.91	38.65	43.29	8.38
	(.43)	(.48)	(.49)	(.27)
Factor score in Labour force	0.00	0.00	0.00	0.00
participation	(1.00)	(1.00)	(1.00)	(1.00)
Factor score in Education	0.00	0.00	0.00	0.00
	(1.00)	(1.00)	(1.00)	(1.00)
Factor score in HH decision	0.00	0.00	0.00	0.00
making	(1.00)	(1.00)	(1.00)	(1.00)
Total cases*	18,753	45,607	13,594	13,137
Target sample by design**	6,637	27,225	7,217	3,747
Missing***	141	2,746	104	149
Final eligible N	6,496	24,479	7,113	3,598

Total cases: Total number of surveyed women, aged 15-4.9*
*Target sample by design**: women aged 15-49, currently married, currently working or worked in the past 12 months, earn cash or cash and kind, sexually active and fecund.*

*Missing***: Number of cases missing data on at least one variable*

Table 3: Regression of the ideal number of children on women's empowerment factors – Cambodia 2010.

Variable	OLS	Poisson	Ordered Logit (Odds ratio)			
	M1	M2	M3	M4	M5	M6
Intercept	2.923	2.930	1.068	1.068		
Age	-.026	-.028	-.011	-.012	.941*	.938*
Age^2	.000	.000	.000	.000	1.001*	1.001**
Residence (ref.=rural)	-.058*	-.047	-.020	-.016	.884*	.902
Religion (ref.=Buddhism)						
Islam	.386**	.370**	.113*	.108*	1.860**	1.801**
Christianity	.153	.158	.047	.047	1.032	1.057
Others	.270	.267	.089	.084	1.565	1.561
CEB	.245**	.236**	.080**	.120**	1.804**	1.780**
Age*CEB	.001	.001	-.001	-.001	.999	.999
Husband's education (years)	-.005	-.001	-.002	-.000	.990	.997
Husband's occupation (ref.=agriculture)						
Husband does not work	-.219	-.232	-.068	-.072	.773	.750
Husband works in non-manual job	-.072*	-.065	-.022	-.020	.898	.906
Husband works in manual job	-.039	-.037	-.011	-.010	.926	.927
Labour force participation factor score		.021		.007		1.048
Education factor score		-.046**		-.016		.917**
HH decision making factor score		.011		.004		1.033
N	6,496	6,496	6,496	6,496	6,496	6,496
R-squared/ Pseudo R-squared	.252	.252	.029	.029	.093	.094
-2Log Likelihood			21444.516	21441.142	17331.01	17319.597

*: p-value <0.05

**: p-value <0.01

Table 4: Regression of the ideal number of children on women's empowerment factors – Indonesia - 2012.

Variables	OLS		Poisson		**Ordered Logit (Odds ratio)** M5	M6
	M1	M2	M3	M4		
Intercept	2.355	2.315	.874	.857		
Age	.022**	.021*	.005	.005	1.052**	1.048**
Age^2	-.001**	-.001**	-.000*	-.000*	.999**	.999**
Residence (ref.=rural) CEB	-.141**	-.123**	-.052**	-.045**	.792**	.815**
	.046	. 050	.051**	.051**	1.220**	1.232**
Age*CEB	.007**	.007**	.001**	.001**	1.008**	1.008**
Husband's education (years)	-.002	.003	-.001	.001	.999	1.007
Husband's occupation (ref.=agriculture)						
Husband does not work	-.167*	-.148*	-.060	-.054	.739*	.765
Husband works in non- manual job	-.073**	-.056**	-.024*	-.018	.875**	.898**
Husband works in manual job Labour force	-.139**	-.121**	-.050**	-.043**	.764**	.786**
participation factor score		.042**		.015**	1.083**	
Education factor score		-.053**		-.020**	.925**	
HH decision making factor score		-.026**		-.010	.962*	
N	24,479	24,479	24,479	24,479	24,479	24,479
R-squared/Pseudo R squared	.132	.134	.018	.019	.047	.048
-2Log Likelihood			78068.028	78040.120	60393.76	60334.90
					0	6

*: p-value <0.05
**: p-value <0.01

Table 5: Regression of the ideal number of children on women's empowerment factors – Philippines 2008

Variables	OLS	Poisson			Ordered Logit (Odds ratio)	
	M.1	M.2	M.3	M.4	M.5	M.6
Intercept	1.651	1.490	.635	.588		
Age	.037*	.042*	.011	.012	1050	1.059*
Age^2	-.000	-.000	-.000	-.000	.999	.999
Residence	-.102**	-.096**	-.036*	-.035*	.846**	.854**
Religion (ref.=Catholic)						
Protestant	.063	.056	.022	.020	1.121	1.109
Iglesia Ni Kristo	-.159	-.153	-.053	-.052	.867	.873
Aglipay	.086	.081	.027	.025	1.168	1.162
Islam	1.977**	1.948**	.485**	.477**	11.074**	10.596**
None	-.757	-.920	-.247	-.301	.284	.218
Others	.062	.063	.022	.022	1.117	1.122
CEB	.313**	.303**	.122**	.119**	2.008**	1.967**
Age*CEB	-.020	-.002	-.001**	-.001**	.991**	.991**
Husband's education (years)	-.007	.002	-.003	-.000	.987	1.000
Husband's occupation (ref.=agriculture)						
Husband does not work	-.020	-.004	-.002	-.001	.946	.967
Husband works in non- manual job	-.030	-.018	-.009	-.005	.932	.951
Husband works in manual job	-.146**	-.131**	-.043*	-.039*	.819**	.837** 1.023
Labour force participation factor score		.021		.006		
Education factor score						
HH decision making factor score		-.095**		-.028**		.872**
		.001		.001		.988
N	7,113	7,113	7,113	7,113	7,113	7,113
R-squared/ Pseudo R-squared	.267	.268	.047	.047	.088	.089
-2Log Likelihood		23927.498		23920.350	20636.774	20621.602

*: p-value <0.05

**: p-value <0.01

Table 6: Regression of the ideal number of children on women's empowerment factors – Timor-Leste 2010

Variables	OLS		Poisson		Ordered Logit (Odds ratio)	
	M1	M2	M3	M4	M5	M6
Intercept	4.416	4.137	1.544	1.492	---	---
Age	.044	.059	.001	.004	1.050	1.071
Age^2	-.002*	-.001**	-.000	-.000	.997*	.997**
Residence (ref.=rural)	-.422**	-.406**	-.082**	-.080**	.614**	.626**
Religion (ref.=Christian)						
Muslim (n=8)	-.542	-.601	-.113	-.124	.533	.502
Protestant	-.400*	-.397*	-.075	-.074	.653	.651
Hindu (n=8)	-.530	-.593	-.094	-.108	.492	.462
CEB	.162	.145	.063**	.060**	1.221*	1.195
Age*CEB	.009**	.009**	.001	.001	1.011**	1.011**
Husband's education (years)	-.007	-.004	-.001	-.001	.990	.994
Husband's occupation (ref.=agriculture)						
Husband does not work (n=0)	---	---	---	---	---	---
Husband works in non-manual job	-.312**	-.292**	-.057**	-.053**	.712**	.731**
Husband works in manual job	-.162	-.149	-.028	-.026	.817	.832
Labour force participation factor score		-.059*		-.011	.941*	
Education factor score		-.051		-.009	.928	
HH decision making factor score		-.081		-.015	.912	
N	3,598	3,598	3,598	3,598	3,598	3,598
R-squared/ Pseudo R-squared	.294	.296	.045	.046	.093	.094
-2Log Likelihood			14338.655	14332.859	12370.376	12356.913

*: p-value <0.05
**: p-value <0.01