THE EFFECT OF MOTHERS' EDUCATION ON UNDER-FIVE MORTALITY FROM DEVELOPING COUNTRIES IN SOUTH EAST ASIA

By

Hnin Thant Phyu

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF PUBLIC POLICY

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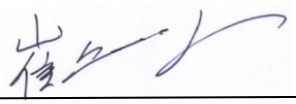
Committee in charge:

Professor Seulki CHOI, Supervisor 

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Approval as of December, 2016

ABSTRACT

This paper aims to contribute for the understanding of factors measuring mothers' educational levels on under-five children mortality from developing countries in South East Asia. Because extremely poverty remains a huge challenge in the South East Asia's developing countries. Set of factors related to socio-economic status on children survival. My study chose under-five mortality because it can influence infant and under-one mortality as well as Millennium Development Goals (MDG)'s indicator. My study of regression confirmed a strong association between mother's education and under-five child mortality and remained significant after control for other factors.

The result imply that big part of the effect of mothers' education levels (primary, secondary and tertiary) can be substituted by investing than other factors. Investment of girls' schooling is still one of the essential ways to contribute for child survival improvement in the long run because the findings of this research agree that "Mother is school". On the other hand, the study of these areas will sustain the vital two sectors from policy makers. This paper was established that mothers' education has a negative impact on children mortality mostly; policy makers in region will have to focus their efforts on enhancing investment of education sector and reducing under-five child mortality by improving the performance of female education in these regions.

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I. INTRODUCTION

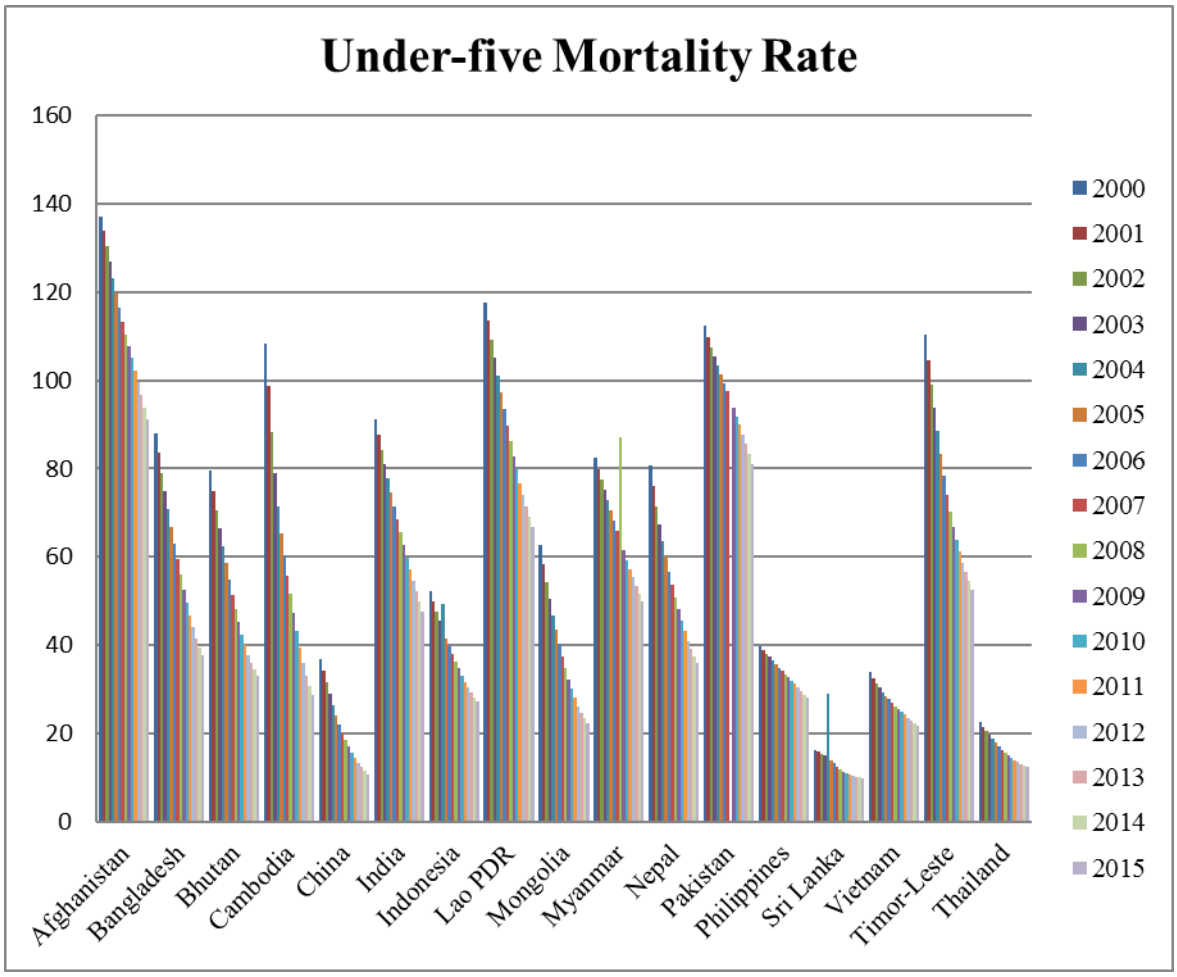
1.1. Background of the Study

Although some South East Asia countries had already developed, most of South East Asian countries were as developing countries. Moreover, extremely poverty remains a huge challenge in the South East Asia countries as Least Development Countries (LDCs). Therefore, income and demographic characteristics has widened continuously with developed countries in region. R. Fuchs, W. Lutz and E. Pamuk mentioned that different policy implications approved especially with respect to reducing child mortality in developing countries although most studies regarded education and income as interchangeable measures of socio-economic status. Because mothers' levels of schooling and learning performance can improve the children' lives as well as decrease child mortality. Although we have various kinds of indicators for child mortality, I chose under-five mortality because it can influence infant and under-one mortality as well as Millennium Development Goals (MDG)'s indicator. At the same time, survival children will be the next generation for sustainable growth. Therefore, developing countries in South East Asia should try to reduce the children mortality for the future inclusive growth.

1.2. Statement of the Problems/issues

There is need to establish evidence of the effect of mothers' education on under-five mortality in South East Asia's developing countries. Most of developing countries have several challenges and many issues such as lack of infrastructure, lack of knowledge, lack of budget and inefficiency. Moreover, absence of actual statistics, policy maker met the failed planning for growth especially education and health sectors. For inclusive growth, these two sectors are very fundamental sectors. Therefore, filling the gap is beneficial to both their governments and their citizens within region. Since there is general

issue on the child mortality, establishing evidence on whether mothers' education will contribute inclusive development efforts in the South East Asia's developing region. If it is established that mothers' education has a negative impact on children mortality, policy makers in region will have to focus their efforts on enhancing investment of education sector. If the evidence proves otherwise they will think to adjust their investment policies in the region.



1.3. Purpose of the Study

This study can support between decision makers and citizens to fulfill citizens' lives indirectly by government policy because child survival is often used broad indicators for social development. Moreover, maternal education is important for health of children

to improve of the country's growth. Mothers' routine decisions can influence child health. Therefore, the very research can promote socio-economic status by studying the effect of maternal education on child survival especially under-five mortality which is to be sustainable growth in South East Asia.

1.4. The Objectives of the study

1. To monitor the demographic variables in South East Asia developing countries on child mortality in the age of under-five years
2. To identify the relative importance of the levels of mothers' education and under-five child mortality
3. To encourage female educational levels and mothers' knowledge to possess the qualified children who be the human capital in future growth

1.5. Research questions

- What is the effect of mothers' education on the under-five mortality of developing countries in South East Asia?
- How do we reduce under-five child mortality in these regions?

1.6. Study Hypothesis

The developing countries of South East Asia are expected to be positive by the effect of mothers' education on child mortality and regardless of the prevailing policy distortions in the individual countries within the region. Nevertheless policy and institutional quality is expected to enhance the effect of mothers' education. With this argument and our research questions in mind, a hypothesis is made that ***under-five child***

mortality is associated with mothers' educational levels than other factors in South East South East Asia's developing countries.

1.7. Structure of the Paper

This paper is made up of the followings. Chapter 2 will be presented by literature review and chapter 3 will discuss theoretical framework and chapter 4 is the methodology with collecting data, specification of the conceptual models and definitions of the variables used and interpreting. Chapter 5 will add discussion with the findings and reflection. Finally, chapter 6 will include conclusions.

II. LITERATURE REVIEW

2.1. Theoretical Background

Population size and population growth of a country are thought by variables for economic growth and that, a mother's education is essential for child survival. The study of the determinants of child survival plays a vital role on both social and biological variables in developing countries. The mother's quality of care is very important during pregnancy and child birth by nutrients management. The mother is the most important health care provider of her baby. The mother's empowerment can influence a child's health. It is hypothesized that a mother's education is essential for child survival. The following literature reviews support this hypothesis.

2.2. The Impact of Population Size and Population Growth

This research examined the impact of population size and population growth on the quality of the health of mothers and their children. As indicated in a research article by Bash (2015), census has important ramifications for many aspects of society and can be an examined parameter in research involved in demographic analysis of the population. Bash further investigates some limiting factors which avert population growth and examines the differences in the results of the same period using different models. The research design, the study area, data collection methods and instruments, validation of the instruments, limitations and the procedure for data analysis were discussed.

2.3. The Effect of Maternal Education on Child Survival

Lillard, Simon, Ueyama (2007) indicated that a mother's high school education improves a mother's age at child's birth including child care use. They also discovered suggestive evidence of a much more complex set of behaviors that are causally related to maternal education and that likely affect child health.

This preliminary evidence suggests that the very study can strongly conclude the child health by maternal education. The body of empirical evidence showed that not only education can improve health but also that health can affect education.

Researchers in this field have used many methodologies; one of the methods used is the instrument variables. With this methodology, researchers have found that, in developing countries generally, education concerned with better child health. According to the researcher's result, when women get more education, child survival (Breierova and Duflo 2004; Blunch 2005) and children's height-for-age increase (Ahmad and Iqbal 2005). Many researchers generally agree that, the relationship between education and health is a main point input to several continuing public policies in all economy contexts.

2.4. The Relationship between Child Survival and a Mother's Health Based Socioeconomic Status as Variables

Usually, social science research on child mortality has engrossed on the suggestion between socioeconomic status and levels and designs of mortality in populations. Chen and Mosley (1984) proposed the learning of the determinants of child survival on both social and biological variables in developing countries. The purpose of the child survival study is to illuminate our sympathetic of the many factors involved in the family's production of healthy children in order to deliver a foundation for framing health policies and strategies. The strategic to the model is the sympathy of a set of

adjacent determinants, or intermediate variables, that directly impact the risk of morbidity and mortality. Each of the maternal factors has been exposed to use an independent influence on pregnancy results and infant survival through its effects on maternal health. An important inclusion is the performants and the quality of care during pregnancy and childbirth. The significance of this research is correlations between mortality and socio-economic characteristics for the mortality causes. For example, income and maternal education are two generally measured correlates (and inferred causal determinants) of child mortality in a developing nation population. All social and economic determinants must activate through these variables to affect child death.

2.5. Long Term Effect of Maternal Education on under-five child mortality

Child health is one of the main indicators of development of a country. Hassan (2014) contributed to understanding the long term effect of maternal education on under-five child mortality (U5MR).The relevance of this research stems from the fact that, asset in girls' schooling is still one of the important ways to contribute not only child health development but also growth in the long run. Hassan's paper examined the factors causal child health by investigating the effects of maternal education on the event of under-five mortality. This paper indicated the set of factors related to socio-economic status including the use of health care service area; reproductive behaviors of women; mothers' empowerment; and parental employment status. These were comprised in the regressions with the aim to catch the partial effect of maternal schooling on the incidence of under-five mortality.

Instead, various other variables were tried for their mediation on the outcome of maternal education on under-five mortality. These included maternal characteristics such as family prosperity index, pre-birth interval, types of floor materials, sanitation facilities,

drinking water, staying health facilities, modern contraceptive use, antenatal visit, and delivery in health conveniences. The author used the Linear Probability Model (LPM) regressions and the pooled regressions with DHS survey for Ethiopia country which indicated that the mean of the incidence of under-five child mortality decreased significantly in the period of 2000 to 2011. It similarly reduced with increasing levels of maternal education. Likewise, significantly higher mean of years of schooling was attained for surviving mothers' children.

2.6. The Relationship between Maternal Education and Child Survival based Spatial Demographic Analysis

Weeks (2001) suggested for the application of spatial analysis to demographic research as a method to integrate and superior understand the unlike transitional apparatuses of the whole demographic transitions especially the fertility transition in Egypt. The authors argued in the context of a analysis of the still reasonably sparse literature on spatial analysis in demography and then turns to the sorts of data that are required for spatial demographic analysis; the kinds of statistical methods that are accessible to researchers; and the approach in which Geographical Information System (GIS) can support to integrate each of these components for the theories testing and models building. So, demography is not only spatial but also by nature interdisciplinary. The overall transition in population size can occur when mortality drops sooner than fertility (the common pattern in the demographic transition) from which massive variations follow with respect to resource utilization and allocation. This paper hypothesis is how and why these transitions occur.

Many demographic researches, engages spatial "analysis". Research that incorporates spatial information recognizes that demographic behavior will differ by

geographic region that population characteristics and change are unlike in urban than in rural places. The spatial analysis application to demographic research is a method of integrating and enhanced understanding of the different transitional components of the overall demographic transition.

Weeks also discussed the kind of data required for spatial demographic analysis, permitting researchers to use the concepts and tools of spatial analysis to test theories increasing out of the general framework. He also summarized the research for an upgraded understanding of the Arab fertility transition through the challenging of explicitly spatial hypotheses about the timing and tempo of fertility change.

Weeks's paper achieves with an example of this type of research, sketch upon the author's study, which is expected at a better understanding of the Arab fertility transition through the testing of explicit spatial theories about the timing and tempo of fertility change. Definitely, this research relates GIS, remote sensing, and the relationship between spatial statistics and the fertility transition in rural and urban Egypt. Additionally as indicated above, the use of spatial analysis to demographic research must be updated by accepting the different transitional components of the whole demographic transitions especially the fertility transition.

III. THEORETICAL FRAMEWORK

3.1. Mosley-Chen's Conceptual Model of Mortality

The model recommends combining social science and medical science research methods in dealing with infant and child mortality factors in developing countries. The following is broadcast mechanism of the model.

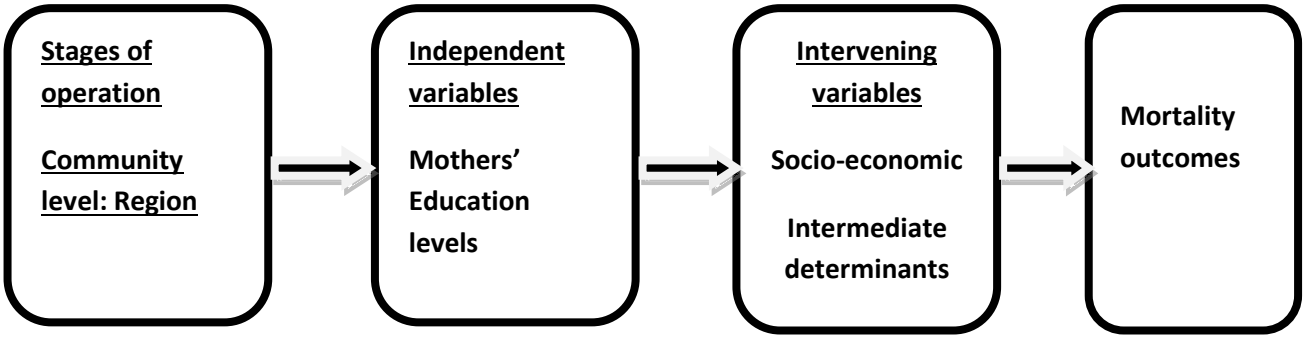


Figure 1: Conceptual Framework of Child Mortality [Source: Mosley and Chen (1984)]

3.2. Leroy Almendarez's Human Capital Theory

Leroy Almendarez (2011) purposes Human Capital Theory (HTC) which determines that investment in human capital will hint to great economic outputs but the validity of the theory is sometimes tough to demonstrate and contradictory. At one time, economic strength was mainly depended on real physical assets such as land, factories and equipment. Now a days, Beckr (1993) supports modern economists appear to concur that education and health care are the significant to improving human capital and ultimately growing the economic outputs of the nation. He argues that Human Capital Theory (HCT) is the most persuasive increasing the economic theory of western education, situation the framework of government policies since the early 1960s and it is gradually seen as a key determinant of economic performance.

Literature has indicated generally that the more educated mothers are superior for absorbing the benefits of health infrastructure and health knowledge that are universally accessible. Research has also indicated that giant part of maternal education can be replaced by advancing in other factors that can improve socio-economic status, use of health amenities, and health behaviors of women (Weeks, 2001).The extent to which maternal education affects child survival can vary across various sectors of society and within countries and also the direction of causation varies. The purpose of this study is to simplify our understanding of the many factors complicated in the family's manufacture of healthy children in order to afford a foundation for framing education policy and strategies.

Therefore, this study builds on the strengths of the studies like that Uzma Iram (2013) who focused a panel of world developing countries which are middle low income. We attempt to overcome the other studies discussed in the literature review which make general conclusions based on samples that are too broad. We believe the South East Asia's developing region is reasonably homogeneous to be studied together over some time span and make generalized conclusions. We further recognize the need to address the evidence of the effect of mothers' education on under-five child mortality in South East Asia's developing countries as done by Uzma Iram (2013).

IV. METHODOLOGY

4.1. Conceptual Framework

Although both maternal and paternal education are among the socio-economic factors that affect child mortality, mothers' education has been one of the main factors of child health indicators and child mortality in many studies specially. The following diagram (Figure 2) is drawn based on the above discussion and it shows the way mothers' education can affect under-five mortality. It shows its direct effect and indirect effect and employs through other factors.

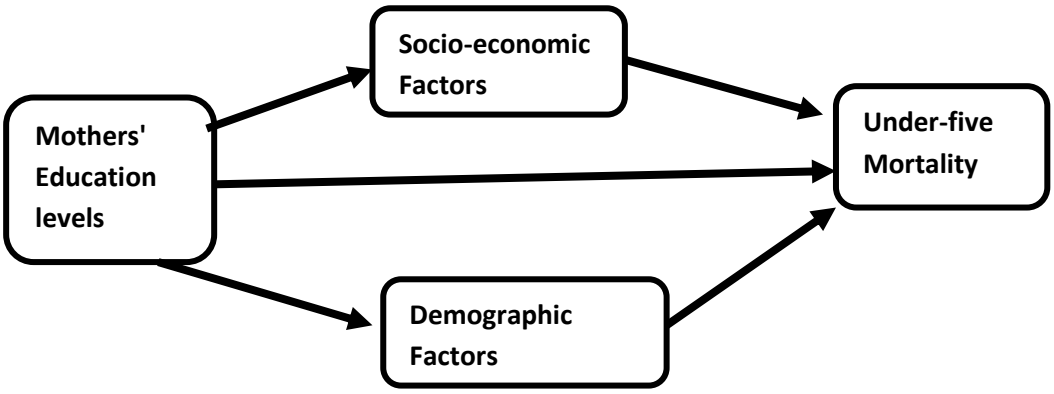


Figure 2: Conceptual Framework of Child Mortality

Given the nature and characteristic of the problem under investigation in this paper, it is prudent to use linear panel data regression methods to evaluate the effect of mothers' education on under-five child mortality in South East Asia countries. This panel data is a dataset in which the comportment of entities observed across time. These entities could be developing countries in South East Asia for this paper. Panel data permits me to control for variables I cannot see or measure like cultural factors or variables for individual heterogeneity. Furthermore, we can contain variables at different levels of analysis for multilevel modeling in panel data. We can center on two techniques

use to analyze panel data such as Fixed Effects (FE) or Random Effect (RE) estimations techniques for Error Component Model. We can use Fixed Effects (FE) whenever we only engrossed for analyzing of the impact of variables that vary over time. Moreover, FE can eliminate the effect of time-invariant characteristics thus we can measure the net effect of the predictors on the outcome variable as well as Fixed Effects (FE) models are considered to study the causes of changes within entity. Random Effect (RE), unlike the fixed effects model, agrees generalizing the inferences beyond the example used in the model. To select between fixed or random effects we can run a Hausman test where the null hypothesis is that the ideal model is Random Effect (RE) and the alternative the Fixed **Effects (FE).**

4.2. Model Specification

The baseline models specifically investigate the effect of mothers' education on under-five child mortality in South East Asia's developing countries takes the form:

$$U5MR_{it} = \beta_0 + \beta_1 \text{ Female (primary) Edu}_{it} + \varnothing X_{it} + \varepsilon_{it} \ldots\ldots\ldots(1)$$

$$U5MR_{it} = \beta_0 + \beta_1 \text{ Female (secondary) Edu}_{it} + \varnothing X_{it} + \varepsilon_{it} \ldots\ldots(2)$$

$$U5MR_{it} = \beta_0 + \beta_1 \text{ Female (tertiary) Edu}_{it} + \varnothing X_{it} + \varepsilon_{it} \ldots\ldots\ldots(3)$$

For Overall Regression,

$$U5MR_{it} = \beta_0 + \beta_1 \text{ Female (primary) Edu}_{it} + \beta_1 \text{ Female (secondary) Edu}_{it} + \beta_1 \text{ Female (tertiary) Edu}_{it} + \varnothing X_{it} + \varepsilon_{it} \ldots\ldots\ldots(4)$$

Where i=1...N and t=1...N

Under-five Mortality is dependent variable and ***independent variables*** are School enrollment, tertiary, female (%), School enrollment, secondary, female (%), School enrollment, primary, female (%), Fertility rate, total (births per woman), GDP per capita

(current US$), Improved water source (% of population with access), Pregnant women receiving prenatal care (%), Births attended by skilled health staff (% of total), Health expenditure, total (% of GDP), Improved sanitation facilities (% of population with access), Immunization, measles (% of children ages 12-23 months). The following definitions are variables for that study.

Main research of this paper is on the ***levels of school enrollment female variables***. As indicated in the hypothesis, we expect mothers' education levels to have negative impact on child mortality. The theoretical basis is that female schooling levels can affect the under-five child mortality in South East Asia's developing countries.

Table 1: Description of Variables

S/No	**Variable**	**Definition**	**Stata Label**
1	Under-five Mortality Rate	the probability per 1,000 that a baby will pass away before reaching age	U5MR
2	School enrollment, tertiary, female	The ratio of female , tertiary school enrollment	tertiary
3	School enrollment, secondary, female	The ratio of female , secondary school enrollment	secondary
4	School enrollment, primary, female	The ratio of female , primary school enrollment	primary
5	Fertility rate, total (births per woman),	The number of children that would be born to a woman between 15 to 49 years	fertilityR
6	GDP per capita (current US$)	Gross Domestic Product divided by midyear population	gdppc
7	Improved water source (% of population with access)	The percentage of the population using all kinds of drinking water source	water
8	Pregnant women receiving prenatal care (%)	The women joined at least once during pregnancy by skilled health personnel for	prenatalCare

		aims related to pregnancy.	
9	Births attended by skilled health staff (% of total)	The percentage of distributions attended by personnel trained to care for newborns.	Births hel staff
10	Health expenditure, total (% of GDP)	The summation of public and private health expenditure	HealthExp
11	Improved sanitation facilities (% of population with access)	Using improved sanitation facilities are possible to ensure hygienic separation of human excreta from human contact	sanitation
12	Immunization, measles (% of children ages 12-23 months)	Children ages 12-23 months who received immunizations before 1 year or at any time	ImmuMea ls

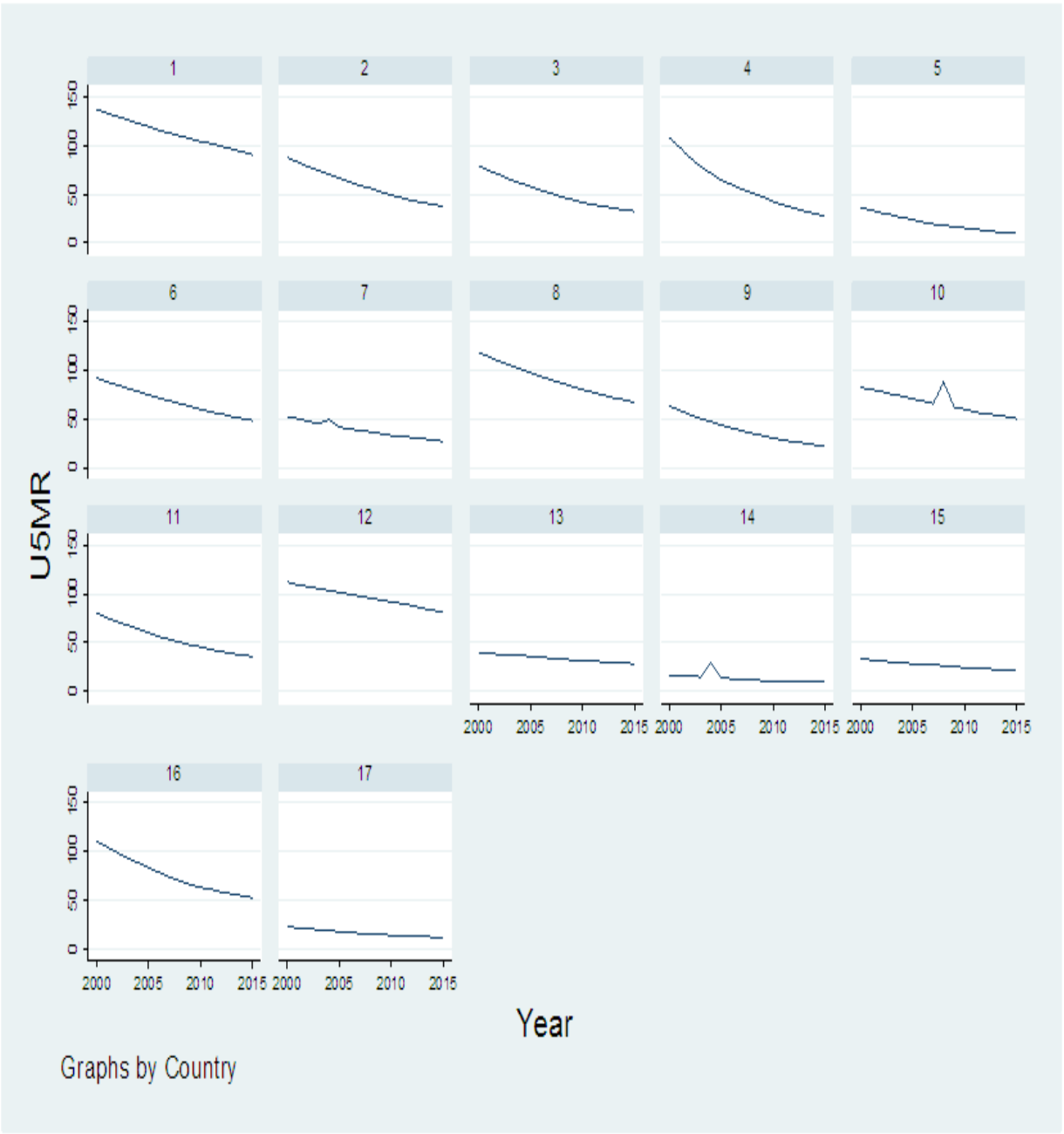
4.3. Limitations of the Study and Data Sources

Universally, mortality studies are faced with data limitations, mainly in the developing countries in South East Asia where death is viewed as a sad affair that respondents do not love to recall because it brings back sad memories. The data limitations will stance a severe challenge to this study. The study therefore uses panel data for all sample variables of South East Asia's developing countries from 2000 to 2015, sources from the World Development Indicators (World databank).

4.4. Data Analysis with Panel Data

According to analysis, we can see 14 variables and 272 observations and strongly balanced among panel variables for 17 developing countries in South East Asia from 2000 to 2015 year. Although most of countries' graphs showed negative relationship between under-five child mortality and year, there are still the highest mortality rates in the world.

Graph : Yearly Under-five Mortality (U5MR) Graph by Country from 2000 to 2015



1. Afghanistan
2. Bangladesh
3. Bhutan
4. Cambodia
5. China
6. India
7. Indonesia
8. Lao PDR
9. Mongolia
10. Myanmar
11. Nepal
12. Pakistan
13. Philippines
14. Sri Lanka
15. Vietnam
16. Timor-Leste
17. Thailand

Table 2: Summary Statistics for Analysis

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Fertility Rate	255	3.074	1.363	1.447	7.496
U5MR	272	54.30	30.68	9.800	137
GDP Per Capital	259	1,534	1,422	119.9	7,925
Improved Water	272	78.40	15.56	30.30	100
Prenatal Care	98	73.95	23.62	16.10	99.50
Birth with skilled-staff	103	59.54	31.45	11.60	99.90
Health Expenditures	253	4.286	1.753	0.368	9.419
Sanitation	272	54.37	20.05	16.30	95.10
Immunization meals	253	80.65	16.21	27	99
Tertiary Female	175	20.17	18.10	0.536	75.92
Secondary Female	178	56.23	22.99	0	102.0
Primary Female	218	101.9	18.31	0	151.3

First and foremost, my paper used the summary statistics for knowing minimum and maximum levels for variables as shown in figure.

4.4.1. Modeling under-five mortality rate on the female, *primary* school enrollment with Fixed Effects: Hausman Test

Having decided to conduct panel estimation, we look another decision of whether to estimate our model with random effects (RE) or fixed effects (FE). The general approach to determining a more appropriate model between a fixed effects model and a random effects model is to conduct the Hausman Test. We therefore conduct the Hausman test for the female, primary school enrollment – under-five mortality rate model as shown in table 3 below. For Hausman test, null hypothesis that RE is appropriate and alternative hypothesis is FE is appropriate. The test generates a small Chi-square test statistic at 20.02 and a large p-value at 0.0103. We therefore reject the null hypothesis that the difference in the coefficients generated by our model is systematic and accept the alternative. We therefore proceed to estimate a fixed effects model for the female, primary school enrollment – under-five mortality rate regression.

Table 3: Results of the Hausman test for the female, *primary* school enrollment – under-five Mortality rate regression

```
. hausman fixed random

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
     primary |  -.3198135    -.2908383       -.0289752        .0712172
  fertilityr |  -3.388727    -.5782835       -2.810444        2.990412
       water |  -1.200191    -.4254436       -.7747479        .3407239
prenatalcare |  -.1037497    -.0772619       -.0264878        .0582428
birthshels~f |  -.2142654    -.2807879        .0665225        .0632162
   healthexp |   .7869377     -.331209        1.118147        .5661843
  sanitation |    -.05376    -.2965823        .2428222        .2370414
   immumeals |  -.1321688    -.5133551        .3811863        .1177738
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       20.02
                Prob>chi2 =      0.0103
                (V b-V B is not positive definite)
```

4.4.2. Results of the regressions for the female, primary school enrollment – under-five mortality rate

As stated in our hypothesis, we expect the female, *primary* school enrollment to effect on the under-five mortality rate by decreasing child mortality. Therefore we expect a negative relationship between for the female, primary school enrollment – under-five mortality rate. In Table 4 below, we will discuss the results which are estimated by regressing of under-five mortality on mothers' education levels and some control variables with pooled OLS and Fixed Effect (FE). Moreover, our interest is to see the changes in the magnitude and significance of the coefficient for variables. Then, we can claim the changes.

Table 4: Results of the regressions for the female, *primary* school enrollment – under-five mortality rate

VARIABLES	(1) OLS	(2) FE
Primary Female	-0.476***	-0.315***
	(0.0854)	(0.117)
GDP Per Capital	-0.000999	-0.00103
	(0.000957)	(0.000859)
Fertility Rate	3.109	-1.870
	(1.908)	(4.067)
Improved Water	-0.171	-1.188***
	(0.104)	(0.379)
Prenatal Care	-0.119	-0.128
	(0.136)	(0.140)
Birth- skilled-staff	-0.198	-0.220
	(0.130)	(0.145)
Health Expenditures	-0.558	1.219
	(0.865)	(1.071)
Sanitation	-0.302***	0.0764
	(0.0982)	(0.291)
Immunization meals	-0.617***	-0.0475
	(0.133)	(0.196)
Constant	198.9***	204.2***
	(18.63)	(29.72)
Observations	74	74
R-squared	0.941	0.891

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In pooled OLS, a child from a mother with primary level of education is 0.476 percentage points less likely to die under the age of five. Then, a child from good sanitation facilities is 0.302 percentage points less likely to die under the age of five. Moreover, a child from getting immunization meals is 0.617 percentage points less likely to die under the age of five. The statistical significance levels of these are lower than 99%.

According to FE regression results, under-five mortality rate changes or increases 0.315 percentages, when the female primary school level decreases by one unit. When the improved

water source decreases by one unit, under-five mortality rate will change or increases 1.188 percentages.

The findings also indicate a strong effective and negative relationship between under-five mortality rate and them in these seventeen countries. This is also well expected and in line with theory. Moreover, our model is very good fit because the variables have significant influences on under-five mortality when the statistical significance levels of these are lower than 99%. We are happy about this model. I have no doubt about the result.

We can therefore conclude that indeed female primary school enrollment by increasing has helped in decreasing under-five mortality rate in these seventeen developing countries in South East Asia and to this effect female primary school enrollment has been very effective especially by model-1.

4.4.3. Modeling under-five mortality rate on the female, secondary school enrollment with Fixed Effects: Hausman Test

For Table 5 Hausman test, null hypothesis that RE is appropriate and alternative hypothesis is FE is appropriate. The test generates a small Chi-square test statistic at 24.29 and a large p-value at 0.0020. We therefore reject the null hypothesis that the difference in the coefficients generated by our model is systematic and accept the alternative. We therefore proceed to estimate a fixed effects model for the female, ***secondary*** school enrollment – under-five mortality rate regression.

Table 5: Results of the Hausman test for the female, *secondary* school enrollment – under-five mortality rate regression

```
. hausman fixed random

                ——— Coefficients ———
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
   secondary |  -.0456639    -.2619816        .2163177        .0782608
  fertilityr |   1.507933     .7915469        .7163861        3.264376
       water |  -.7622521    -.4385035       -.3237486        .7115231
prenatalcare |   .0450099    -.0575156        .1025254        .0910523
birthshels~f |  -.1805794    -.1328091       -.0477704        .1084893
   healthexp |  -1.461959    -.7506087       -.7113506        .7130524
  sanitation |   -.907188    -.4654804       -.4417076        .3582411
   immumeals |  -.1584245    -.3820334        .2236089        .1468217
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       24.29
                Prob>chi2 =      0.0020
                (V_b-V_B is not positive definite)
```

4.4.4. Results of the regressions for the female, secondary school enrollment – under-five mortality rate regression

As stated in our hypothesis, we expect the female, ***secondary*** school enrollment to effect on the under-five mortality rate by decreasing child mortality. Therefore we expect a negative relationship between for the female, ***secondary*** school enrollment – under-five mortality rate. The results for that are shown in Table 6 below. Moreover, our interest is to see the changes in the magnitude and significance of the coefficient for variables. Then, we can claim the changes. As expected, our findings indicate a negative impact of ***secondary*** school enrollment for female on under-five child mortality in developing countries in SOUTH EAST ASIA.

Table 6: Results of regressions for the female, *secondary* school enrollment –under-five mortality rate regression

VARIABLES	(1) OLS	(2) FE
Secondary Female	-0.542***	-0.0170
	(0.129)	(0.169)
GDP Per Capital	-0.00104	-0.000208
	(0.00134)	(0.00151)
Fertility Rate	4.096*	2.194
	(2.154)	(5.680)
Improved Water	-0.341**	-0.807
	(0.133)	(0.781)
Prenatal Care	0.0506	0.0770
	(0.177)	(0.175)
Birth- skilled-staff	-0.124	-0.193
	(0.151)	(0.189)
Health Expenditures	-0.419	-1.449
	(1.070)	(1.399)
Sanitation	-0.0558	-0.901**
	(0.122)	(0.415)
Immunization meals	-0.414**	-0.169
	(0.169)	(0.234)
Constant	146.3***	187.6***
	(17.21)	(54.76)
Observations	65	65
R-squared	0.932	0.875

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In pooled OLS, when mother with ***secondary*** level of education increases by one unit, under-five mortality rate decreases 0.542 percentages. The statistical significance level of that is lower than 99%. Then, a child from improved water facilities is 0.341 percentages points less likely to die under the age of five. Moreover, a child from getting immunization meals is 0.414 percentages points less likely to die under the age of five. The statistical significance levels of these are lower than 95%.

According to FE regression results, under-five mortality rate changes or increases 0.017 percentages, when coefficient of the female primary school level decreases by one unit. When of the sanitation facilities decrease by one unit, under-five mortality rate will change or increases 0.901 percentages. The statistical significance level of that is lower than 95%.

The findings also indicate a strong effective and negative relationship between under-five mortality rate and them in these seventeen countries. This is also well expected and in line with theory. Moreover, our model is very good fit when probability value is significant. We are happy about this model. I also have no doubt about the result.

We can therefore conclude that indeed female ***secondary*** school enrollment by increasing has helped in decreasing under-five mortality rate in these seventeen developing countries in South East Asia and to this effect female ***secondary*** school enrollment has been very effective especially by model-2.

4.4.5. Modeling under-five mortality rate on the female, tertiary school enrollment with Fixed Effects: Hausman Test

To determining a more appropriate model between a fixed effects model and a random effects model by conducting Table 7 the Hausman Test, null hypothesis that RE is appropriate and alternative hypothesis is FE is appropriate. The test generates a small Chi-square test statistic at 4.15 and a large p-value at 0.8434. We fail to reject the null hypothesis that the difference in the coefficients generated by our model is not systematic. We therefore use to estimate a Random effects model for the female, ***tertiary*** school enrollment – under-five mortality rate regression.

Table 7: Results of the Hausman test for the female, *tertiary* school enrollment – under-five mortality rate

Regression

```
. hausman fixed random

                ——— Coefficients ———
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
    tertiary |  -.6886475    -.5241703       -.1644772        .1376923
  fertilityr |   9.499454     5.462412        4.037042        3.275602
       water |  -.1417429    -.3153666        .1736236        .4519853
prenatalcare |  -.2707565    -.3596471        .0888907        .1007853
birthshels~f |   .0257424     .0464016       -.0206592        .1087059
   healthexp |   1.047483     .1791319        .8683512        .5885603
  sanitation |  -.1329261      -.04933       -.0835961        .2540522
   immumeals |  -.3373533    -.4157821        .0784288        .0979278
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        4.15
                Prob>chi2 =      0.8434
```

4.4.6. Results of the regressions for the female, tertiary school enrollment – under-five mortality rate regression

As stated in our hypothesis, we expect the female, ***tertiary*** school enrollment to effect on the under-five mortality rate by decreasing child mortality. Therefore, we expect a negative relationship between for the female, ***tertiary*** school enrollment – under-five mortality rate. The results for the female, ***tertiary*** school enrollment and under-five mortality rate regression are shown in Table 8 below. Moreover, our interest is to see the changes in the magnitude and significance of the coefficient for variables. Then, we can claim the changes. As expected, our findings indicate a negative impact of ***tertiary*** school enrollment for female on under-five child mortality in developing countries in South East Asia.

Table 8: Results of the regressions for the female, *tertiary* school enrollment –under-five mortality rate

VARIABLES	(1) OLS	(2) RE
Tertiary Female	0.114	-0.534***
	(0.136)	(0.187)
GDP Per Capital	-0.00248**	0.000185
	(0.00122)	(0.00101)
Fertility Rate	5.055**	5.678**
	(2.055)	(2.730)
Improved Water	0.0444	-0.270
	(0.156)	(0.251)
Prenatal Care	-0.493***	-0.352***
	(0.163)	(0.124)
Birth- skilled-staff	0.0751	0.0588
	(0.144)	(0.156)
Health Expenditures	-1.011	0.328
	(1.163)	(1.045)
Sanitation	-0.311**	-0.117
	(0.153)	(0.226)
Immunization meals	-0.698***	-0.420***
	(0.162)	(0.147)
Constant	147.5***	129.9***
	(17.76)	(23.31)
Observations	69	69
R-squared	0.905	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

According to pooled OLS, when GDP per capital increases by one unit, under-five mortality rate decreases 0.0025 percentages. Then, a child from fertility rate is 5.055 percentages points more likely to survive under the age of five. The statistical significance levels of these are lower than 95%. A child from getting immunization meals and prenatal care are 0.698 percentages and 0.493 percentages points less likely to die under the age of five. The statistical significance levels of these are lower than 99%. Moreover, when sanitation facilities increase by one unit, under-five mortality rate decreases 0.311 percentages. The statistical significance level of that is lower than 95%.

In RE regression results, under-five mortality rate changes or increases 0.534 percentages, when coefficient of the female ***tertiary*** school level decreases by one unit. Then, a child from fertility rate is 5.678 percentages points more likely to survive under the age of five. The statistical significance levels of these are lower than 95%. A child from getting immunization meals and prenatal care are 0.420 percentages and 0.352 percentages points less likely to die under the age of five. The statistical significance levels of these are lower than 99%. Moreover, when sanitation facilities increase by one unit, under-five mortality rate decreases 0.117 percentages. The statistical significance level of that is lower than 95%.

The findings also indicate a strong effective and negative relationship between under-five mortality rate and these variables in these seventeen countries except the fertility rate. This is also well expected and in line with theory. Moreover, our model is very good fit when probability values are significant. We are happy about this model and no doubt about the result.

We can therefore conclude that indeed female ***tertiary*** school enrollment by increasing has helped in decreasing under-five mortality rate in these seventeen developing countries in South East Asia and to this effect female ***tertiary*** school enrollment has been very effective especially by model-3.

4.4.7. Findings of the overall female school enrollment regression model

Table 9: Results of the regressions for the female school enrollment for all levels on under-five mortality rate

VARIABLES	UNDER FIVE MORTALITY
Primary Female	-0.369***
	(0.130)
Secondary Female	-0.491***
	(0.168)
Tertiary Female	0.106
	(0.143)
GDP Per Capital	-0.00105
	(0.00134)
Fertility Rate	2.526
	(2.401)
Improved Water	-0.306*
	(0.161)
Prenatal Care	0.110
	(0.213)
Birth- skilled-staff	-0.228
	(0.177)
Health Expenditures	0.0385
	(1.274)
Sanitation	-0.186
	(0.148)
Immunization meals	-0.359*
	(0.182)
Constant	183.9***
	(23.47)
Observations	50
R-squared	0.948

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

According to the above overall regression results, under-five mortality rate changes or increases 0.4 percentages and 0.5 percentages, when coefficient of the female ***primary*** and ***secondary*** school level decreases by one unit. The statistical significance levels of these are lower than 99%. A child from getting immunization meals and improved water are 0.4 percentages and 0.3 percentages points less likely to die under the age of five. The statistical significance levels of

these are lower than 90%. The findings also indicate a strong effective and negative relationship between under-five mortality rate and these variables in these seventeen countries except the female ***tertiary*** school level. Therefore, we can conclude that indeed female ***tertiary*** school enrollment by increasing has helped in decreasing under-five mortality rate in these seventeen developing countries in South East Asia and to this effect female ***tertiary*** school enrollment has been very effective especially by model-4.

V. DISCUSSION

Hence above chapters present the deliveries of the study sample by designated demographic, socio-economic and community related characteristics which could either directly and/or indirectly affect under-five child mortality. The demographic and socio-economic characteristics especially mothers' educational levels can affect child mortality where children are born and upraised are vital and necessary to be lectured first before embarking on the study of any component of population change (be it fertility, mortality). The study population will improve good and clear sympathetic of the findings.

According to the reflection from my supervisors and research project evaluation result, they evaluated my thesis that the study explores critical topic in developing countries, that is, a relationship between mother's education and it impact on mortality rate. Mobilizing empirical data, the thesis investigate a magnitude of mother's education, as an independent variable, on the mortality and finds out positive relations between the two variables, which leads to a conclusion of 'mother is school'. Overall, the study is well organized and informative for future studies.

Finally, we accept this hypothesis due to panel data analysis that **under-five child mortality is associated with mothers' educational levels than other factors in South East Asia's developing countries.**

VI. CONCLUSION

This study measures effects of mothers' education on under-five children mortality from developing countries in South East Asia. In order to prove the hypothesis, this study applied statistical analysis such as Hausman test with panel data and pooled OLS regressions by using three models. The results of my study discovered that the effects are all statistically significant.

My study confirmed a strong association between mother's education and under-five child mortality and remained significant after control for other factors. The findings of this paper supported for an independent effect of mother education levels (primary, secondary and tertiary) operating through increase health knowledge such as improved water source, sanitation facilities, immunization and etc. for under-five child mortality rate.

Therefore, the findings of this research agree that "Mother is school". Most of developing countries in South East Asia show higher under-five mortality rate by low-level female education. This study can realize mothers' educational levels can appear to possess a stronger effect on the under-five child mortality rate than other factors.

This also can prove the effect of mothers' education on the under-five mortality developing countries in South East Asia. That is why; we can reduce under-five child mortality by improving the performance of female education in these regions. Countries with higher level of education can create the inclusive growth.

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VIII. APPENDICES

Appendix : RESEARCH DATA

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Afghanistan	2000	7.496	137		30.3	36.9	12.4		23.4	27			0
Afghanistan	2001	7.395	133.8	119.899	32				23.9	37		0	0
Afghanistan	2002	7.273	130.3	192.1535	33.8			7.763073	24.5	35			45.57453
Afghanistan	2003	7.137	126.8	203.651	35.5	16.1	14.3	8.816053	25.1	39	0.5382	6.76975	71.03409
Afghanistan	2004	6.987	123.2	224.9147	37.3			8.786707	25.7	48	0.53641	6.30301	66.69146
Afghanistan	2005	6.822	119.6	257.1758	39.1			8.068104	26.3	50		9.56232	76.47606
Afghanistan	2006	6.639	116.3	280.2456	40.8	30.3	18.9	7.433972	26.9	53		15.71563	82.60361
Afghanistan	2007	6.437	113.2	380.401	42.6			6.728316	27.4	55		16.18886	79.45343
Afghanistan	2008	6.218	110.4	384.1317	44.4	36	24	8.328093	28	59		23.7574	82.68323
Afghanistan	2009	5.985	107.6	458.9558	46.2			9.418971	28.7	60	1.45779	30.12234	81.02899
Afghanistan	2010	5.746	105	569.9407	48	59.6	34.3	9.197723	29.3	62		35.14346	85.33931
Afghanistan	2011	5.506	102.3	622.3797	49.8	47.9	38.6	7.871992	29.9	64	1.89233	38.7774	85.52632
Afghanistan	2012	5.272	99.5	690.8426	51.6			8.518913	30.5	59		40.42813	91.16672
Afghanistan	2013	5.05	96.7	653.3475	53.4			8.134866	31.1	60		40.20533	90.75572
Afghanistan	2014	4.843	93.9	633.9479	55.2			8.182274	31.8	66		39.6748	91.75787
Afghanistan	2015		91.1	590.2695	55.3				31.9				
Bangladesh	2000	3.169	88	406.5317	76	33.3	11.6	2.326795	45.4	74	3.57004	48.80948	
Bangladesh	2001	3.069	83.5	403.5945	76.7	39.8	11.6	2.469951	46.5	77	4.41835	51.33613	
Bangladesh	2002	2.971	79	401.7082	77.5			2.592887	47.6	75	3.98937	52.96965	
Bangladesh	2003	2.874	74.8	434.0466	78.3	39.7	13.9	2.510038	48.6	76	4.02476	52.72315	
Bangladesh	2004	2.779	70.7	462.2749	79.1	48.7	12.8	2.615486	49.7	81	3.65759	47.45389	
Bangladesh	2005	2.687	66.8	485.8529	79.8			2.67725	50.7	88	4.24799	46.99836	100.9484
Bangladesh	2006	2.6	63	495.8538	80.6	47.7	20.1	2.79623	51.8	83	5.0531	47.39469	102.2043

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Bangladesh	2007	2.521	59.4	543.0823	81.3	51.7	18	2.798956	52.8	89	5.44163	48.11158	102.1557
Bangladesh	2008	2.449	55.9	618.0759	82			2.846534	53.8	92	6.11068	47.58797	99.53462
Bangladesh	2009	2.387	52.6	683.6144	82.7		24.4	2.909584	54.8	93	7.86052	50.41087	102.1762
Bangladesh	2010	2.332	49.6	760.3319	83.5	52.8	26.5	3.06356	55.8	88		53.08455	105.8599
Bangladesh	2011	2.286	46.7	838.5478	84.2	54.6	27.8	3.155874	56.8	89	10.8558	54.53006	115.1374
Bangladesh	2012	2.245	44	858.9334	84.8			3.081208	57.7	89	11.2082	57.04295	
Bangladesh	2013	2.209	41.6	954.3964	85.5	52.5	34.4	2.882857	58.7	89		60.65054	
Bangladesh	2014	2.175	39.5	1086.8	86.2	63.9	42.1	2.818999	59.6	89			
Bangladesh	2015		37.6	1211.702	86.9				60.6				
Bhutan	2000	3.604	79.6	778.3913	83.9	51	23.7	6.912317	31	78		26.93281	72.95403
Bhutan	2001	3.417	75	820.2029	85.3			5.91345	32.5	78		30.44153	77.01012
Bhutan	2002	3.247	70.6	897.4453	86.6			7.751605	34.1	78			80.75151
Bhutan	2003	3.095	66.4	1009.006	87.9	71.8	56.1	4.904105	35.7	88			85.37778
Bhutan	2004	2.962	62.3	1107.921	89.1			4.407502	37.4	87			90.40295
Bhutan	2005	2.844	58.5	1257.549	90.4			5.280923	39	93	3.72243	42.98261	93.37354
Bhutan	2006	2.738	54.8	1346.086	91.5			5.268688	40.5	90	3.70851	46.52425	97.02619
Bhutan	2007	2.636	51.3	1755.162	92.7	88	71.4	5.878661	42.1	95	3.82923	51.12082	100.1271
Bhutan	2008	2.534	48.1	1810.576	93.8			6.579824	43.6	99	4.70295	54.99091	103.6627
Bhutan	2009	2.431	45.1	1786.811	94.9			6.027842	45.2	94	4.73191	61.78718	107.8512
Bhutan	2010	2.331	42.3	2201.293	96	97.3	64.5	5.171762	46.8	95	5.28042	66.65628	110.6825
Bhutan	2011	2.236	39.9	2485.787	97			4.731458	48.3	95	7.08169	71.01908	111.9407
Bhutan	2012	2.152	37.8	2452.152	98	97.9	74.6	3.703846	49.4	95	7.67794	75.77341	111.8846
Bhutan	2013	2.082	36	2383.045	99.1			3.825795	49.7	94	9.23651	79.90201	105.4283
Bhutan	2014	2.027	34.4	2560.522	100			3.573015	50.1	97		87.05633	102.8738
Bhutan	2015		32.9	2532.454	100				50.4				

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Cambodia	2000	3.805	108.3	299.5622	41.6	37.7	31.8	5.865258	16.3	65	1.21238	12.11906	99.40377
Cambodia	2001	3.654	98.7	319.6925	43.9			5.702293	18	59	1.2747	13.60019	108.916
Cambodia	2002	3.521	88.3	337.8043	46.1			5.94574	19.8	52	1.4137	17.13559	122.2561
Cambodia	2003	3.406	78.8	361.0703	48.4			6.742846	21.5	65		21.39918	124.8123
Cambodia	2004	3.309	71.3	407.0849	50.6			6.432183	23.2	80	1.74635	25.62955	125.9098
Cambodia	2005	3.227	65.4	472.4489	52.9	69.3	43.8	5.84122	24.9	79	2.11774		125.5513
Cambodia	2006	3.155	60.4	537.8486	55.1			4.479353	26.6	78	3.58944	34.9946	123.9007
Cambodia	2007	3.086	55.8	629.2829	57.4			3.745832	28.4	79	4.78823	38.36982	122.888
Cambodia	2008	3.018	51.5	742.9429	59.7			5.554349	30.1	89	6.15725	41.44336	119.2784
Cambodia	2009	2.947	47.3	735.4075	61.9			6.355169	31.9	92	8.41129		118.6261
Cambodia	2010	2.875	43.1	782.6928	64.2	89.1	71	5.952805	33.6	93	10.4775		119.75
Cambodia	2011	2.804	39.3	879.1512	66.5		71.7	5.641428	35.4	93	12.08722		117.4241
Cambodia	2012	2.739	35.8	946.4767	68.8		74	6.239208	37.2	93			117.0633
Cambodia	2013	2.683	32.9	1024.609	71.1			5.932818	39	90			117.1501
Cambodia	2014	2.635	30.6	1094.577	73.4	95.3	89	5.675639	40.8	94			113.1353
Cambodia	2015		28.7	1158.69	75.5				42.4				
China	2000	1.447	36.9	954.5523	80.3	89.4	96.6	4.59691	58.8	84			
China	2001	1.455	34.3	1047.478	81.6	90.3	97.3	4.557823	60	85		58.96936	92.23757
China	2002	1.469	31.6	1141.758	82.8	90.1	96.7	4.785073	61.2	85			94.57667
China	2003	1.486	28.9	1280.603	84	88.9	95.9	4.821233	62.4	85	14.10598	60.66989	97.37257
China	2004	1.502	26.3	1498.174	85.2	89.7	97.3	4.722844	63.7	86	16.79303		
China	2005	1.513	24	1740.097	86.3	89.8	97.5	4.65847	64.9	86	18.34594		
China	2006	1.521	21.9	2082.183	87.4	89.7	97.8	4.522417	66.1	93	19.94254	68.39191	104.3278
China	2007	1.526	20.1	2673.294	88.5	90.9	98.4	4.318333	67.2	94	20.68156	72.78547	108.7398
China	2008	1.531	18.5	3441.221	89.5	91	99.1	4.589052	68.4	97	21.21465	77.36051	112.1696

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
China	2009	1.535	17	3800.475	90.5	92.2	99.3	5.075355	69.6	99	23.07051	81.7708	113.085
China	2010	1.539	15.7	4514.941	91.4	94.1	99.6	4.88634	70.8	99	24.82943	84.78526	111.5726
China	2011	1.544	14.5	5574.187	92.3	93.7	99.7	5.028864	71.9	99	26.10154	89.15199	110.0045
China	2012	1.549	13.4	6264.644	93.2	95	99.8	5.264515	73.1	99	28.74701	92.53189	109.5272
China	2013	1.555	12.3	6991.854	94	95.6	99.9	5.385704	74.2	99	32.21901	97.14311	108.6673
China	2014	1.562	11.4	7587.29	94.8			5.548228	75.4	99			
China	2015		10.7	7924.654	95.5				76.5				
India	2000	3.311	91.2	452.4136	80.6	61.8	42.5	4.263756	25.6	56	7.50087	37.09803	86.25984
India	2001	3.243	87.7	460.8262	81.5			4.49651	26.6	57	7.82897	37.53514	86.69485
India	2002	3.174	84.3	480.6214	82.5			4.401073	27.6	56	8.31584	40.01896	88.26806
India	2003	3.105	81	557.8974	83.5			4.296538	28.6	60	8.54093	44.2103	101.4804
India	2004	3.036	77.7	640.6005	84.5			4.22014	29.6	64	8.73456	45.84784	
India	2005	2.966	74.6	729.0007	85.5			4.282175	30.6	68	8.80486	48.72946	
India	2006	2.896	71.5	816.7338	86.5	74.2	45.5	4.246681	31.6	69	9.59004	49.96674	
India	2007	2.826	68.5	1050.025	87.4			4.226531	32.6	70	10.74616	53.04429	109.1898
India	2008	2.755	65.6	1022.578	88.4	75.2	52.3	4.339492	33.6	72		56.75281	111.4441
India	2009	2.687	62.7	1124.519	89.4			4.375737	34.6	78	13.20456	57.27074	110.9087
India	2010	2.622	59.9	1387.88	90.3			4.27968	35.5	82	14.96807	60.85323	110.3551
India	2011	2.563	57.2	1455.667	91.3			4.331151	36.5	84	19.98393	64.41568	110.0277
India	2012	2.51	54.5	1444.267	92.2			4.389042	37.5	83		67.373	111.7257
India	2013	2.465	52.1	1456.202	93.1			4.529118	38.5	83	23.06391	69.23034	116.9858
India	2014	2.427	49.8	1576.818	94.1			4.685088	39.5	83			
India	2015		47.7	1581.589	94.1				39.6				
Indonesia	2000	2.483	52.3	780.0921	77.9	88.3	66.9	1.978332	47.1	76	13.98206	54.19461	107.205
Indonesia	2001	2.473	49.8	748.1847	78.6			2.231982	48.1	76	12.31917	55.03672	108.4707

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Indonesia	2002	2.469	47.6	900.1308	79.3		68.4	2.268626	49.2	72	13.76227	56.82101	108.6857
Indonesia	2003	2.471	45.4	1065.657	80	91.5	66.3	2.533724	50.2	74	14.21377	59.75026	108.48
Indonesia	2004	2.475	49.3	1150.349	80.6		71.5	2.367748	51.2	76	14.68092	61.60537	108.0405
Indonesia	2005	2.481	41.4	1263.481	81.3	88.6		2.789581	52.1	77		59.81576	106.0898
Indonesia	2006	2.489	39.6	1590.178	81.9	90.38		2.905148	53.1	79	16.46396	62.84428	104.3959
Indonesia	2007	2.497	37.9	1860.623	82.6	93.3	73	3.098442	54.1	76	17.66953	70.76925	107.0185
Indonesia	2008	2.504	36.2	2167.858	83.2	92.65	74.86	2.805945	55.1	76	19.72049	69.4367	106.5083
Indonesia	2009	2.51	34.7	2262.721	83.8	94.51		2.825459	56	74	22.38878	74.47581	106.9561
Indonesia	2010	2.513	33.1	3125.22	84.5	92.7	82.2	2.740675	57	78	22.55804	76.78783	110.5284
Indonesia	2011	2.509	31.7	3647.627	85.1			2.713164	57.9	80	24.35317	79.42174	110.7131
Indonesia	2012	2.5	30.4	3700.524	85.7	95.7	83.1	2.89787	58.8	85	31.19228	81.50885	108.6116
Indonesia	2013	2.484	29.3	3631.673	86.2	95.4		2.925917	59.7	84	32.9013	81.21087	106.2349
Indonesia	2014	2.463	28.2	3499.589	86.8			2.84686	60.6	77			
Indonesia	2015		27.2	3346.487	87.4				60.8				
Lao PDR	2000	4.304	117.7	324.0197	45.5		19.4	3.411828	28	42	1.8421	28.13917	97.96541
Lao PDR	2001	4.132	113.4	326.0307	47.8	26.5	19.4	4.318787	31.1	50	2.28836	29.97322	96.07789
Lao PDR	2002	3.984	109.2	319.5325	50.1			4.040677	34.2	55	2.9886	32.53208	97.57533
Lao PDR	2003	3.857	105.1	362.6677	52.3			4.911185	37.3	42	3.55876	35.14202	99.84408
Lao PDR	2004	3.75	101.1	418.1733	54.6			4.544448	40.3	36	4.39389	36.92988	101.8905
Lao PDR	2005	3.66	97.2	476.1624	56.8	28.7	14.6	4.316684	43.4	41	6.46397	37.42932	104.1127
Lao PDR	2006	3.582	93.5	591.3648	59	35.1	20.3	4.143343	46.5	48	7.24031	37.168	106.4652
Lao PDR	2007	3.511	89.8	710.9803	61.2			4.144392	49.6	40	9.60814	37.70815	108.5663
Lao PDR	2008	3.44	86.2	900.4996	63.3			2.769966	52.6	52	11.5366	38.67725	111.8304
Lao PDR	2009	3.368	82.8	947.9555	65.4			3.770606	55.7	59	14.33987	40.06491	115.0474
Lao PDR	2010	3.293	79.7	1147.095	67.5	71	37	2.745848	58.7	64	14.16958	41.74795	117.9072

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Lao PDR	2011	3.215	76.7	1300.98	69.5			2.196618	61.7	69	14.69564	41.13912	117.4473
Lao PDR	2012	3.138	74	1445.869	71.5	54.2	41.5	2.118871	64.6	72	15.39878	44.43643	116.4216
Lao PDR	2013	3.063	71.3	1700.987	73.5			1.999604	67.6	82	16.96029	48.61317	115.6251
Lao PDR	2014	2.991	69.1	1751.397	75.5			1.865546	70.5	87	16.68907	54.57287	113.4927
Lao PDR	2015		66.7	1812.327	75.7				70.9				
Mongolia	2000	2.143	62.7	474.213	56.3	96.7	96.6	4.923018	48.2	92	38.759	72.19883	99.69438
Mongolia	2001	2.098	58.4	524.0248	57.2			5.454857	49.2	95	43.74216	78.80386	102.0782
Mongolia	2002	2.081	54.3	571.5384	58			5.81219	50.1	98	46.07117	82.61992	102.7406
Mongolia	2003	2.091	50.4	646.1192	58.8	98.2	98.6	6.179367	51	98	48.4145	88.45461	105.5271
Mongolia	2004	2.124	46.8	797.9052	59.6		99.7	5.994659	51.9	99	51.46385	92.69419	108.2311
Mongolia	2005	2.176	43.4	998.8223	60.2	98.9	99.2	5.085664	52.7	97	55.904	95.01077	97.95729
Mongolia	2006	2.245	40.3	1334.406	60.9			4.675974	53.5	99	58.58402	94.18372	100.7252
Mongolia	2007	2.324	37.4	1633.384	61.5			5.063664	54.3	98	57.41973		99.70911
Mongolia	2008	2.407	34.8	2138.377	62	99.5	99.4	5.57703	55.1	97	59.44819		102.7985
Mongolia	2009	2.487	32.3	1717.073	62.5			5.289862	55.8	94	62.69139	101.248	113.5047
Mongolia	2010	2.555	30	2650.347	62.9	99	98.8	4.696938	56.5	97	65.26063	94.84226	124.2325
Mongolia	2011	2.607	28	3772.932	63.3			4.454342	57.2	98	66.69764		120.5701
Mongolia	2012	2.641	26.2	4377.239	63.7			4.219823	57.9	99	69.47151		115.237
Mongolia	2013	2.657	24.7	4400.615	64			4.211468	58.5	97	73.24486		107.358
Mongolia	2014	2.655	23.5	4201.738	64.2	98.7	98.9	4.730342	59.1	98	75.91596	91.85097	100.6383
Mongolia	2015		22.4	3973.44	64.4				59.7				
Myanmar	2000	2.903	82.3		66.6			1.836784	61.9	84		37.12344	97.07813
Myanmar	2001	2.88	79.9		67.7	75.6	57	1.800491	63.4	73		36.18818	96.32021
Myanmar	2002	2.851	77.5		68.9			2.050402	64.9	77		37.72521	96.82687
Myanmar	2003	2.814	75.2		70		67.5	1.966308	66.4	80		38.52009	98.68343

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Myanmar	2004	2.769	72.8		71.2			1.96873	67.9	86		41.48846	98.76502
Myanmar	2005	2.714	70.5		72.3			1.830098	69.4	84		43.59526	98.37886
Myanmar	2006	2.652	68.1		73.5			1.776405	70.8	78		45.74356	97.38676
Myanmar	2007	2.585	65.8		74.6	79.8	63.9	1.684613	72.3	81	12.20094	46.24265	
Myanmar	2008	2.517	87.2		75.8			1.874623	73.8	82			98.19738
Myanmar	2009	2.449	61.4		76.9			2.045839	75.2	87		48.34838	96.27673
Myanmar	2010	2.386	59.3		78.1	83.1	70.6	1.920282	76.6	88		49.31614	96.31968
Myanmar	2011	2.33	57.2		79.2			1.868456	78	88	16.25354		
Myanmar	2012	2.28	55.3	1421.484	80.3			2.218232	79.4	84	14.90879		
Myanmar	2013	2.239	53.5	1106.992	80.4			2.1582	79.5	86			
Myanmar	2014	2.204	51.7	1203.845	80.5			2.275755	79.5	86		51.9519	98.29356
Myanmar	2015		72	1203.505	80.6				79.6				
Nepal	2000	4.03	80.6	231.433	77.1	27	11.9	5.428262	21.7	71	2.30446	29.01699	104.5941
Nepal	2001	3.877	75.9	248.8329	78.2	27.9	12.2	5.360805	23.4	71		31.74111	101.9494
Nepal	2002	3.724	71.5	246.8036	79.2			5.601118	25	71	2.1	35.89751	107.97
Nepal	2003	3.575	67.4	254.5539	80.2			5.484321	26.6	75	2.48114	37.8084	107.5831
Nepal	2004	3.43	63.5	288.6696	81.2		15.8	5.822965	28.3	73	3.31418		108.8225
Nepal	2005	3.289	60	318.7481	82.2			5.724054	29.9	74	5.59315	43.59361	110.0537
Nepal	2006	3.151	56.6	350.6085	83.2	43.7	18.7	5.69675	31.5	85	5.80818	41.79079	125.3721
Nepal	2007	3.012	53.6	396.1698	84.1			5.841113	33.1	81		42.12538	127.9769
Nepal	2008	2.873	50.7	476.5566	85.1			6.435955	34.7	79	8.57715	48.51114	127.0917
Nepal	2009	2.737	48	483.4034	86.1			6.407822	36.3	90	8.48876	48.95792	140.2408
Nepal	2010	2.606	45.4	595.4275	87			6.431306	37.9	86	11.05068	57.27984	147.0784
Nepal	2011	2.486	43.1	695.8832	88	58.3	43.4	6.729152	39.5	88	11.28677	60.66565	151.3077
Nepal	2012	2.381	40.9	685.4968	88.9			5.892638	41.1	86		65.5387	148.3331

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Nepal	2013	2.292	39	692.3363	89.8			5.686268	42.6	88	15.33597	67.44285	143.8493
Nepal	2014	2.222	37.4	701.6801	90.7	68.3	55.6	5.797226	44.2	88		68.89868	140.6295
Nepal	2015		35.8	732.2987	91.6				45.8				
Pakistan	2000	4.58	112.3	534.9158	88.5			2.787502	36.9	59			59.53671
Pakistan	2001	4.438	109.8	511.8111	88.7	43.3	23	2.607997	38.7	61			60.20979
Pakistan	2002	4.314	107.5	501.1855	88.9		23	2.763178	40.5	63			60.99193
Pakistan	2003	4.211	105.3	565.3238	89.1			2.608776	42.3	61	2.42461		65.50591
Pakistan	2004	4.129	103.2	652.0202	89.3			2.557923	44.1	67	3.00039		70.11277
Pakistan	2005	4.067	101.2	714.0368	89.5	36	31	2.913584	45.9	73	4.58698		76.26907
Pakistan	2006	4.02	99.3	876.9511	89.7			3.401686	47.6	71	4.5695	28.08961	74.75929
Pakistan	2007	3.98	97.4	953.7957	89.9	60.9	38.8	3.35354	49.4	67	5.14868	29.85401	82.59632
Pakistan	2008	3.942	95.5	1042.802	90.1	56	38	3.259085	51.2	67	5.12265	30.25652	84.03872
Pakistan	2009	3.901	93.7	1009.799	90.3			2.939144	53	57	6.32786	31.09156	86.29201
Pakistan	2010	3.855	91.8	1043.3	90.5			3.016097	54.8	69		31.10444	87.80067
Pakistan	2011	3.802	89.9	1230.815	90.7	64	43	3.00637	56.5	63	8.29895	31.36765	84.679
Pakistan	2012	3.744	87.8	1266.381	90.9	68	49	2.759727	58.3	61	9.68909	32.25236	84.80677
Pakistan	2013	3.682	85.6	1275.713	91.1	73.1	52.1	2.703924	60	63	10.24866	33.4488	83.22106
Pakistan	2014	3.617	83.3	1315.268	91.3			2.613916	61.8	63	10.67046	36.60602	85.81017
Pakistan	2015		81.1	1428.989	91.4				63.5				
Philippines	2000	3.814	39.7	1039.702	87.1	85.9	58	3.209178	63.8	78			
Philippines	2001	3.767	38.9	958.0116	87.4			2.998399	64.5	81	31.82205	78.37048	108.7947
Philippines	2002	3.71	38.1	1000.778	87.7			2.791162	65.1	82	34.16987	83.2264	107.5256
Philippines	2003	3.644	37.3	1011.287	88	87.6	59.8	3.247132	65.8	87	32.72327	85.44521	107.1438
Philippines	2004	3.569	36.5	1080.086	88.3			3.228149	66.4	92	31.86902	87.72598	106.0524
Philippines	2005	3.487	35.7	1196.54	88.6			3.913854	67.1	92	30.39994	87.59233	105.3943

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Philippines	2006	3.404	34.9	1395.213	88.9			3.951646	67.8	92	30.96467	85.84115	103.34
Philippines	2007	3.324	34.2	1678.852	89.2			3.940342	68.4	92		85.28065	103.8987
Philippines	2008	3.251	33.4	1929.133	89.5	91.1	62.2	4.047475	69.1	92	32.63028	85.61748	106.097
Philippines	2009	3.187	32.6	1836.874	89.8			4.410437	69.8	88	31.82241	87.62613	108.6419
Philippines	2010	3.133	31.9	2145.24	90.1			4.373973	70.5	80	33.14009		
Philippines	2011	3.088	31.2	2371.854	90.5	94.5	72.2	4.289926	71.1	79	34.25201		
Philippines	2012	3.048	30.4	2604.656	90.8			4.458154	71.8	85	34.548		
Philippines	2013	3.011	29.6	2786.95	91.1	95.4	72.8	4.557786	72.5	90	37.5613	92.68436	116.8559
Philippines	2014	2.977	28.8	2872.512	91.5			4.709985	73.2	88	40.27379		
Philippines	2015		28	2899.375	91.8				73.9				
Sri Lanka	2000	2.241	16.3	875.4122	79.7	94.5	96	3.774941	81.2	99			
Sri Lanka	2001	2.247	15.8	837.6991	80.8			3.807311	82.2	99			106.9034
Sri Lanka	2002	2.257	15.4	873.1472	82			3.887748	83.3	99			105.3815
Sri Lanka	2003	2.268	15.1	989.4548	83.1			3.953595	84.3	99			102.4874
Sri Lanka	2004	2.278	28.9	1074.662	84.2			4.282726	85.4	96			100.8548
Sri Lanka	2005	2.284	14	1259.808	85.4			4.060817	86.4	99			99.34669
Sri Lanka	2006	2.283	13.2	1448.761	86.5			4.062164	87.5	99			98.51393
Sri Lanka	2007	2.274	12.5	1644.816	87.6	99.4	98.6	3.758752	88.5	98			97.78232
Sri Lanka	2008	2.257	11.8	2054.489	88.8			3.444751	89.6	98			96.73159
Sri Lanka	2009	2.233	11.3	2106.787	89.9			3.369	90.6	97			94.20429
Sri Lanka	2010	2.203	10.9	2819.651	91.1			3.43257	91.7	99	20.87279	97.5406	98.43876
Sri Lanka	2011	2.17	10.6	3221.152	92.2			3.281478	92.7	99	19.1139	100.1034	97.71198
Sri Lanka	2012	2.138	10.4	3350.685	93.3			3.209661	93.8	99	21.04173	101.9464	98.89122
Sri Lanka	2013	2.108	10.2	3610.195	94.5			3.676991	94.8	99	22.93329	101.9733	99.42379
Sri Lanka	2014	2.083	10	3852.881	95.6			3.50335	95.1	99	24.70121		100.1062

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Sri Lanka	2015		9.8	3926.174	95.6				95.1				
Vietnam	2000	2.01	33.8	433.3337	77.4	68.3	69.6	4.891328	52.9	97	7.91714		105.978
Vietnam	2001	1.954	32.5	448.8823	78.9			5.173643	54.6	98	8.05329		103.0972
Vietnam	2002	1.92	31.4	477.1059	80.3	86.4	85	4.698058	56.3	96	8.42327		99.57283
Vietnam	2003	1.901	30.4	530.8618	81.7			4.83899	58	93	8.8012		96.87029
Vietnam	2004	1.894	29.4	606.9044	83.1			5.087107	59.7	97			95.3783
Vietnam	2005	1.894	28.5	699.4998	84.5			5.376663	61.4	95	13.30503		94.60799
Vietnam	2006	1.901	27.7	796.6716	85.9	90.8	87.7	5.562586	63	93	16.29974		95.94718
Vietnam	2007	1.911	26.9	919.2093	87.3			6.092357	64.7	83	18.37306		97.48325
Vietnam	2008	1.923	26.2	1164.613	88.6			5.528342	66.4	92	18.76097		
Vietnam	2009	1.935	25.5	1232.37	89.9			6.039813	68.1	97	20.02718		100.4204
Vietnam	2010	1.946	24.8	1333.584	91.3			6.360849	69.7	98	22.71635		102.3152
Vietnam	2011	1.953	24.2	1542.67	92.6	93.7	92.9	6.201632	71.4	96	24.97785		103.9378
Vietnam	2012	1.957	23.5	1754.548	93.8			6.963581	73.1	96			107.124
Vietnam	2013	1.96	22.9	1907.564	95.1			7.165509	74.7	98	23.69121		106.0645
Vietnam	2014	1.961	22.3	2052.319	96.4	95.8	93.8	7.066778	76.3	97	31.23133		108.6184
Vietnam	2015		21.7	2111.138	97.6				78				
Timor-Leste	2000	7.112	110.2	434.3797	54.3			3.264429	37.4				
Timor-Leste	2001	7.092	104.6	522.0316	55.6			3.74928	37.4				
Timor-Leste	2002	7.037	99.1	496.1798	56.9	42.5	23.7	3.888593	37.5	56	9.50749		
Timor-Leste	2003	6.965	93.7	487.395	58.2	60.5	18.4	2.483034	37.6	55			
Timor-Leste	2004	6.64875	88.4	484.0884	59.6			1.309174	37.7	55		53.63857	97.76694
Timor-Leste	2005	6.3325	83.3	501.4292	60.9			1.047409	37.8	48		52.81884	90.1137
Timor-Leste	2006	6.01625	78.5	464.8352	62.4			0.652866	38	61			
Timor-Leste	2007	5.7	74.1	551.7206	63.8			0.36832	38.3	63			

Country	Year	fertilityR	U5MR	gdppc	water	prenatal Care	Births hel staff	Health Exp	sanitation	Immu Meals	tertiary	secondary	primary
Timor-Leste	2008	5.7	70.2	673.3745	65.2			0.739219	38.5	73		50.53508	105.5909
Timor-Leste	2009	5.7	66.7	780.2611	66.7			1.018511	38.8	70	13.44906	61.15508	115.3167
Timor-Leste	2010	5.6	63.8	875.8366	68.2	84.4	29.9	0.922354	39.1	66	15.15506	67.67913	128.4188
Timor-Leste	2011	5.5	61.1	1015.716	69.7			0.757491	39.5	62		71.71386	131.7614
Timor-Leste	2012	5.3	58.7	1127.108	71.2			1.007887	39.8	73			
Timor-Leste	2013	5.2	56.5	1117.731	71.4			1.286772	40.1	70		72.80764	133.7559
Timor-Leste	2014	5.1	54.5	1131.231	71.7			1.475303	40.4	74		75.97304	136.047
Timor-Leste	2015		52.6	1134.426	71.9				40.6				
Thailand	2000	1.671	22.5	2016.041	91.9	91.8	99.3	3.791911	91.3	94	38.29742		96.4372
Thailand	2001	1.641	21.5	1896.971	92.4			3.738413	91.7	94	41.73405	62.06191	96.25363
Thailand	2002	1.616	20.5	2093.979	92.9			4.680765	92.1	94	42.23862	64.67283	97.10083
Thailand	2003	1.595	19.6	2349.385	93.3			4.764604	92.5	96	43.92173		
Thailand	2004	1.58	18.7	2643.479	93.8	94.3		4.567102	92.8	96	45.70748	69.29744	98.06905
Thailand	2005	1.568	17.8	2874.386	94.3			4.64479	93.2	96	47.15502	73.58401	96.9207
Thailand	2006	1.561	17	3351.118	94.7	97.8	97.3	4.85774	93.5	96	45.98269	74.27011	96.07091
Thailand	2007	1.557	16.3	3962.75	95.2			5.45259	93.5	96	53.34426	80.46656	96.32504
Thailand	2008	1.553	15.6	4384.783	95.6			5.66075	93.5	98	52.28525	80.98646	96.83968
Thailand	2009	1.551	15	4231.14	96	99.1	99.5	5.795263	93.4	98	53.45844	83.71282	96.46572
Thailand	2010	1.547	14.5	5111.909	96.4			5.409297	93.3	98	56.33325	86.11571	95.03139
Thailand	2011	1.542	14	5539.494	96.8			5.914257	93.3	98	58.94693	89.9431	95.5203
Thailand	2012	1.534	13.5	5915.221	97.1	98.1	99.6	6.158545	93.2	98	58.38731	89.49635	96.37569
Thailand	2013	1.524	13.1	6225.052	97.5			6.175215	93.1	99	58.85757	89.34488	96.88768
Thailand	2014	1.512	12.6	5969.94	97.8			6.529433	93	99			
Thailand	2015		12.3	5816.441	97.8				93				