
Impact of female employment on child mortality In Bangladesh.

Supervised By
Sahabuddin Ahmed Seikdear
Lecturer
Dept. of Economics



A research paper By
Nasrin Islam Chadni
ID: 121 151 026
Department of economics

Table of Contents

Abstract:.....	2
Introduction:	3
Literature Review:.....	5
Methodology.....	7
Variable description:	7
Child mortality:	7
GDP per capita income:	9
Labor force participation rate:.....	9
Female Employment:	9
Fertility rate:	9
Unit Root Test:	9
Co integration Test:.....	10
Johansen Test for Co integration:	10
Result Analysis:	0
Conclusion:.....	0
References:	0
Appendix:	1

Abstract:

In today's era for any country it is really very important to have woman participation in the labor force. In this regard if Bangladesh labor force can have the participation of both man and woman then surely it can become a developed country from being a developing country. As Bangladesh's economy is not that much solvent, participation of man and woman both can bring a change in the per capita income and also can drive it towards progress. The purpose of the research is to find out the long-run linkage among woman education including child mortality rate of Bangladesh. Information of this study is collected from different magazines, articles, newspaper, journal, report, book, research paper as it is a secondary data based research. Female participation in the workforce is making them self-conscious, confident, self-dependent as well, so purpose of this study is mainly to observe how these developments of woman are affecting the child mortality rate and it is also expected that the result of this research will favor the theory that woman employment is not affecting the decision of conceiving. I will take account of the time series data from 1990 to 2018 for the purpose of this study.

Key Words: *Child Mortality, Labor, Woman Work Participation, Time Series*

Introduction:

Even a generation ago the tradition was a woman's position should be at home including her work outside the house was seen down through the society. But nowadays the traditional look has been changed, the woman has now started to seek work outside their places though the entire economy must obey by the passion to increase the economic situation for having an autonomous income, for taking advantage of education, for pursuing an occupation, etc. But still, in rural regions, women may go to work if the pure economic requirement is there.

Female participation in the labor force has progressed manifolds across extent in Bangladesh. Corresponded to 4 % in 1974, female participation in the labor force should be developed to 35.6 % in 2016. This development is much quicker than the extension regarding male labor force participation which grew to 81.9 percent in 2016 from 80.4 percent in 1974. Interestingly, labor force participation between rural female is much higher (37.6 percent) than urban women (30.8 percent). (Khatun, 2019)

During the demographic research, this analysis of this correlation between child mortality and female work holds nearly constantly centered toward given work outside every residence. At below skills also in fewer progressed economies, working female supplementary benefits may hold pretty inadequate. This female profession signifies viewed as influencing this family over differences in consideration taken by kids. If every wife continues working, the woman remains expected to consume a more limited period upon feeding babies, clothing them, also fiddling with them. Through history, adored siblings either grandparents lived ordinarily ready to consider the attention of newborn babies while every mom implied employed; although because of material development plus modernization, the elongated people hold converted few popular. Everything certain things stewards may add to weak baby fitness.

This paper endeavors to formally display some appearances of the empowerment of women within the house in a developing nation and to study how changes in the trade power of women strength influence a couple's fecundity and the incidence of child mortality. It is considered that couples are driven to have children for protection in old age. A haggling framework is set out in which the arrangements regarding a couple's potency and its allocation of sources towards the healthcare of kids are circumscribed by the relative business powers of the mother and the father. It is demonstrated here that the charges associated with having kids are allocated

disproportionately of mothers, with mothers carrying a larger share of the load. It is shown that an expansion in female independence, by drawing in its furrow decision-making extra in line with the decisions of women, is distinguished by decline infertility. Moreover, there is a contemporaneous decrease in child mortality due to an expansion in the allocation of resources for children's well-being. It is also pointed out that the decrease in fertility and child mortality following the increase in female sovereignty are interrelated: they are both appearances of the optimal procurement of old age security from the mothers' viewpoint. Thus the empowerment of women is understood to be a possibly important factor in accelerating the demographic transformation from high to low productivity rates in developing countries.

This paper will visualize whether the child mortality relationship is related to the female employment. Surprisingly several investigations in Bangladesh discussed the significant impact of female employment at child mortality.

Literature Review:

In this part, The power of employing a significance approach to the effect of the impact of female employment on child mortality.

Authors, C Ronsmans and S Saha, “**Effects of education and other socioeconomic factors on middle-age mortality in rural Bangladesh**” (2003). The methodology is **time series** for the **Period 1982-1998**. Variables are **male education, female education, the mortality of adults, occupations**. Here the findings are socioeconomic situation becomes a powerful impact against mortality in grown-ups in Bangladesh. People also represent how significant this extended improvement of education, especially toward ladies, maybe to this continuation concerning both male and female into provincial Bangladesh.

The paper title is “**Factors Influencing Infant and Child Mortality: A Case Study of Rajshahi District, Bangladesh**” (2009). The author name is **Dr. Md. Nazrul Islam Mondal**. The methodology is **cross classifications**. **Socioeconomic, demographics, health and child mortality** are the variables. The research signifies essentially the endogenous determinants are playing a meaningful role in neonatal death, whereas into this postneonatal similarly, during this childhood phase, primarily exogenous determinants influence the chance of death much. Although significant adverse effects concerning parental knowledge, obtaining exogenous appear to become a numerous impression on the child and infant mortality irrespective of the significant period of the baby.

“**Female work participation and child health: an investigation in rural Tamil Nadu, India**” written by **M. Sivakami**. This paper is based on a field survey of 70 workings and 75 non-working female. **Working women, non-working women, socioeconomic factors, child health, work statuses** are the variables. They discover that the regression examination clearly explains that these kids of working females occur on a deprivation related to specific kids of non-working females.

“**The Causality Between Female Labour Force** “(2001) written by **Tarja K. Viitanen**. The methodology is a **granger casualty**. **Childcare, female labor force participation, the demand for childcare** is the variables. These paper findings are childcare Granger generates assistance of women with growing children, with no feedback effect. We discover a causal connection from

childcare equipment to female participation, but no feedback influences. This approves the previous proof that female participation is forced by the lack of childcare equipment. Moreover, as we do not observe any feedback impact, it emerges that the accumulation of childcare does not respond to market devices.

“Fertility, female labor force participation, and the demographic dividend”(2009) Written by **Jocelyn E. Finlay**. The variables are **Fertility, Labor force participation, household Consumption**. They use a **panel sample for 97 countries over the period 1960 to 2000**. The judgments that eliminating constitutional confinements on abortion significantly decreases fertility and approximation that, on mediocre, a birth decreases a woman’s labor equipment by approximately 2 years throughout her conceptive life.

“Female Labor Force Participation, Infant Mortality and Fertility in Malaysia “(2015) is written by authors **Audrey K.L. Siah and Grace H.Y. Lee**. **Fertility rates, female labor force participation, per capita income, women employment, female education** are variables. They practice time series data during the period 1970-2010. This investigation presents across the continuing investigation application in learning the demographic transformations under the circumstances like a developing country into Asia toward the years 1970-2010.

Methodology

This paper illustrates the impact of women education on child mortality using the time series approach of the cointegration policy. The explanation behind the study is that if we could get a consistent and significant relationship between women's employment and child mortality both during the long run and short-run in Bangladesh. It is a quantitative research paper. The primary purpose was to accumulate data from a certain source; thus, it was accumulated from the World Bank website.

After having accumulated the required data, several variables were selected to establish the statistical analysis. In the subsequent rung, several statistical tests were accompanied by seating the data within 'STATA'.

The results given by 'STATA' was interpreted and a comprehensive analysis was administered.

Variable description: To carry the study we have decided variables based on literature review. The time period under deliberation is from 1990 to 2018. Each data is collected from the World Bank publication from World Development Statistics. For regression analysis, we explain a model in which we took child mortality as the dependent variable and all other variables as an independent.

The function form of the submitted Model is:

$$CM_t = \beta_0 + \beta_1 FET_t + \beta_2 FLFP_t + \beta_3 GDP_t + \beta_4 FR_t + \epsilon_t$$

Child mortality:

Child mortality also appreciated as child death introduces to the death of children below the age of 14 and incorporates national fatality, under-5 mortality, and death of children aged 5–14. Child mortality attributes to the number of child deaths below the age of 5 per 1000 conscious births. This data from the database "health Nutrition and population statistics".

GDP per capita income:

The yearly percentage growth rate concerning GDP per capita based on continuous regional money. Grosses remain based on continuous 2010 U.S. currency. GDP per capita signifies gross household commodities distributed over the midyear community. GDP toward purchaser's values signifies this aggregate from offensive content supplemented through all resident producers in this economy also several outcome taxes including minus several subsidies no added into the significant value of the outputs. This is anticipated without obtaining a concluding for the devaluation of fabricated assets approximately reduction and degeneration of natural reserves.

Labor force participation rate:

Labor force participation rate implies a specific dimension regarding the population duration 15 moreover older that implies economically effective: each people who provide labor during the generation of goods and services throughout a particularized duration.

Female Employment:

Women in the workforce making wages or salaries are components of a modern appearance, one that originated at the same time as the extension of paid employment for males, but women have been examined by an imbalance in the workforce.

Fertility rate:

The fertility rate implies the ordinary number of children born to women while their procreative cycles. During other terms, this total quantity of children would imply born toward every rational woman if the woman lived to a particular end of her child-bearing times. We perceive a country's fertility rate through summing the single-year age-specific interests at a given period. The total fertility rate is particular several important factors while any country's community increases.

Unit Root Test:

To recognize any long-run relationship among the variables first we necessitate checking whether these variables remain stationary or non-stationary. Before progressing to any symmetrical test it is usually regarded as a comfortable way to plot the variables in a graph and explore whether we can discover any pattern or trend in those variables. This graphical test can be though as an unconventional test to examine stationary. See the appendix figure 1

Of the figure, we canister that there is a time trend in whole variables in their level information. Now we can appeal the unit root test separately for all the five variables. Here we have applied Augmented Dickey-Fuller test for unit root. In this Augmented Dickey-Fuller test we have use regress, trend and noconstatnt. We have use lag three for this test. For this test hypothesis will be-

Null hypothesis (H0): Variable is not stationary or got unit root.

Alternative hypothesis(H1): is Stationary.

The outcome of the unit root test is compiled as follows:

Table1: Augmented Dickey Fuller Test

Variables Name	Test Statistics	5% critical value
Child Mortality	2.33	3.00
GDP per capita growth	0.704	3.00
Female Labor Force Participation	0.513	3.00
Female Employment	0.395	3.00
Fertility Rate	4.234	3.00

Usually, we accept 5% critical value. While this ‘test statistic’ is more than ‘critical value’ we can reject those null hypothesis or when the ‘test statistic’ signifies less than ‘critical value’ we cannot reject the null hypothesis. While we are arguing regarding absolute test it can’t be negative. So in the regress test the ‘test statistic’ is less than ‘critical value’ implies $2.312 < 3.00$. So we cannot reject the null hypothesis. Implying that child mortality has a unit root. L1 must be negative unless the model is not valid. So we can accept this model. Same result for GDP per capita growth, Female Labor Force Participation, Female Employment. But in the fertility rate “test statistic” is bigger than “critical value” implies $4.234 > 3.00$.

Co integration Test: Inside the paper, our important objective is to check the correlation between child mortality plus GDP per capita growth, Female Labor Force Participation, Female Employment, Fertility. This implies we want to consider the long run or short run cointegrating correlation between them. Co integration means such a long-run relationship between the variables that influence to stationarity.

Johansen Test for Co integration: This method is based on multivariate cointegration analysis. The success of this method is that we can recognize multiple co integrating vectors in a figure that assemble long-run stationary relationship moreover we can consider all of the certain relationships concurrently. So this is fundamentally a VAR representation of the variables.

Without testing, we pretend that our variables are non-stationary through the level exactly when I transform them in the first difference, they will be stationary. As we know when trace statistic is larger than 5% critical value, we can reject the null hypothesis furthermore accept the alternative hypothesis.

Null hypothesis: "There is No cointegration "

Alternative hypothesis: "There is cointegration"

But when trace statistic is smaller than 5% critical value than we accept the null hypothesis. Furthermore, the effect is cointegrated.

During the variables remain cointegrated, we can run the VECM model.

The result of the VECM model is summarized as follows:

Vector Analysis Model:

Here the first model is our objective model. Child mortality is the dependent variable. Other variables are independent variables. The VECM model automatically converts the model to the first difference.

As we know this is a stationary data. The coefficient is divided by the standard error is always "Z" value.

Here, L1 and L2 are lags.

See the appendix table 2

The child mortality L1 'p' value is 0.775. It is more than 5% means it is not significant. And other variables 'p' value in the L1 is also insignificant. There are only three variables out of five variables that are significant at the level of L2.

In this model, there are two issues: Long run causality and short-run causality. But we can see that the coefficient is negative that means there is long-run causality.

The precondition of the VECM figure is that all variables should be desegregated into the identical order that signifies that if all order of the variable is non-stationary, formerly the first differenced model of all variables should be stationary. Inside our model, we determined that each variable imply co-integrated at first difference. The effect of the vector error correction model, constant (C1) is not significant and negative. There is long-run causality from every independent variable and we can conclude that GDP per capita income, Labor force participation rate, Female Employment, Fertility rate impact on child mortality in the long run.

Result Analysis:

The long-run correlation between child mortality, female labor force participation, GDP per capita growth and female fertility for one cointegrating vector for Bangladesh in the time 1990-2018 is illustrated below.

$$\mathbf{CMt = .1138 + .060FEt - .396FLFPt - .0170GDPT - 9.096FR}$$

From this model, we can see that child mortality have negative relation between female labor force participation, GDP per capita growth and fertility rate. If female labor force participation increased by 1 unit than child mortality will be decrease by .396 units. If GDP per capita growth increased by 1 unit than child mortality will be decrease by .0170units. If fertility rate increased by 1 unit than child mortality will decrease by 9.096 units. As we can see there is a positive relationship between child mortality and female employment. And only three variables are significant at the level of L2.

This model shows that there is a negative relationship between child mortality and female labor force participation, GDP per capita growth, female fertility rate. Also, child mortality has a positive relationship with female employment.

Lagrange-multiplier test

lag	chi2	df	Prob > chi2
1	28.5035	25	0.28520
2	27.1144	25	0.35019

H0: no autocorrelation at lag order

In the Lagrange multiplier test there is no autocorrelation at lag order.

Conclusion:

More comprehensive applications towards improving labor participation or female employment between women are relevant for child mortality reduction. Labor participation or female employment significantly decreases child mortality only with women educated exceeding the initial level and the subsequent level for the case of the ordinary and symmetrical division employment sequentially. Education is an important factor in improving child mortality compression and developing the labor participation of mothers. Empowering women within education and improving their opportunities to obtain it is pertinent for growing child survival.

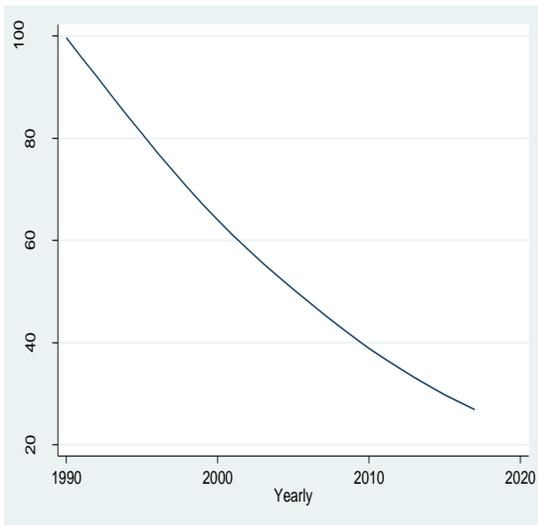
References:

- Lindsay, S. (2001). The impact of employment on mother and infant health.
- Mondal, M. N. I., Hossain, M. K., & Ali, M. K. (2009). Factors influencing infant and child mortality: A case study of Rajshahi District, Bangladesh. *Journal of Human Ecology*, 26(1), 31-39.
- Hurt, L. S., Ronsmans, C., & Saha, S. (2004). Effects of education and other socioeconomic factors on middle age mortality in rural Bangladesh. *Journal of Epidemiology & Community Health*, 58(4), 315-320.
- Mondal, M. N. I., Hossain, M. K., & Ali, M. K. (2009). Factors influencing infant and child mortality: A case study of Rajshahi District, Bangladesh. *Journal of Human Ecology*, 26(1), 31-39.
- Sivakami, M. (1997). Female work participation and child health: An investigation in rural Tamil Nadu, India.
- Mondal, M. N. I., Hossain, M. K., & Ali, M. K. (2009). Factors influencing infant and child mortality: A case study of Rajshahi District, Bangladesh. *Journal of Human Ecology*, 26(1), 31-39.
- Arends-Kuenning, M., & Amin, S. (2001). Women's capabilities and the right to education in Bangladesh. *International Journal of Politics, Culture, and Society*, 15(1), 125-142.
- Bloom, D. E., Canning, D., Fink, G., & Finlay, J. E. (2009). Fertility, female labor force participation, and the demographic dividend. *Journal of Economic growth*, 14(2), 79-101.
- Chevalier, A., & Viitanen, T. K. (2002). The causality between female labour force participation and the availability of childcare. *Applied economics letters*, 9(14), 915-918.
- Siah, A. K., & Lee, G. H. (2015). Female labour force participation, infant mortality and fertility in Malaysia. *Journal of the Asia Pacific Economy*, 20(4), 613-629.
- Eswaran, M. (2002). The empowerment of women, fertility, and child mortality: Towards a theoretical analysis. *Journal of Population Economics*, 15(3), 433-454.
- Ukwuani, F. A., & Suchindran, C. M. (2003). Implications of women's work for child nutritional status in sub-Saharan Africa: a case study of Nigeria. *Social Science & Medicine*, 56(10), 2109-2121.

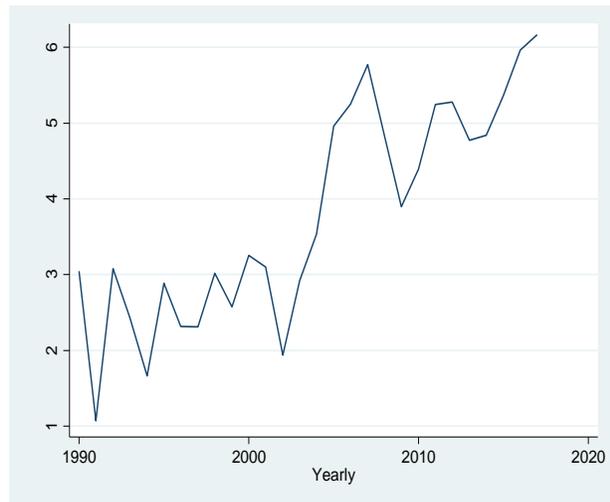
Appendix:

Unit Root Test:

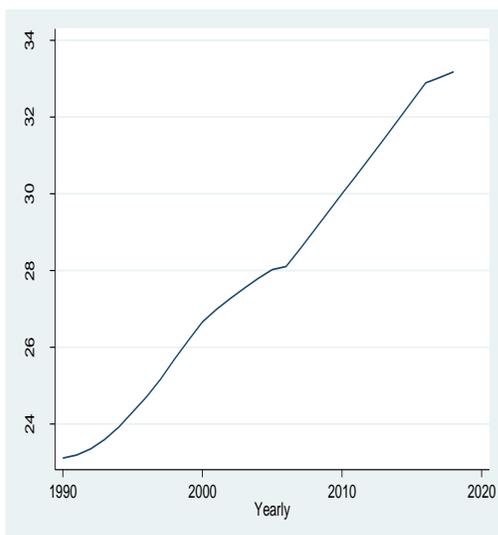
Figure 1:



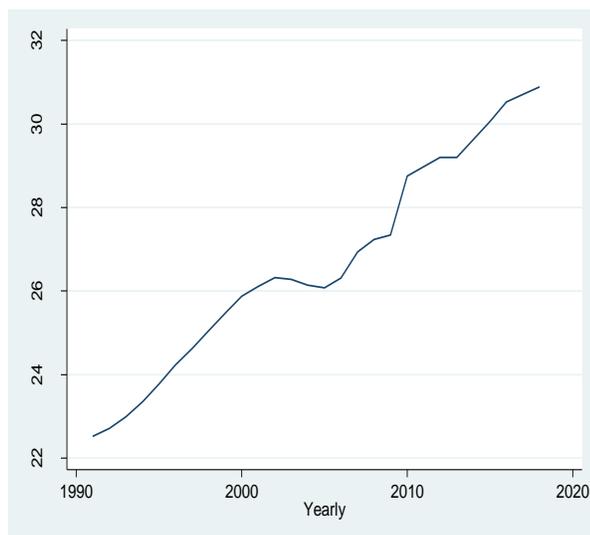
CM



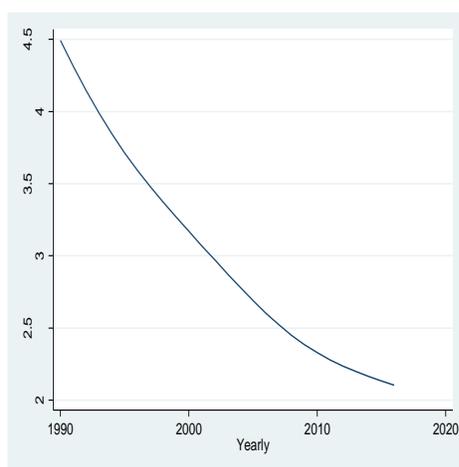
GDP



FLFP



FE



FR

Table 2:

Johansen cointegration test.

Trace Test			
Hypothesized no. of CE(s)	Eigen value	Trace statistic	5% critical value
None	0	0	68.52
At most 1	1.00	0	47.21

At most 2	1.00	0	29.68
At most 3	1.00	0	15.41
At most 4	1.00	0	3.76
At most 5	0.745	0	.

Maximum Eigenvalue test			
Hypothesized no. of CE(s)	Eigen value	Trace statistic	5% critical value
None	0	.	33.46
At most 1	1.00	.	27.07
At most 2	1.00	692.2036	20.97
At most 3	1.00	623.2913	14.07
At most 4	1.00	30.0578	3.76
At most 5	0.745	.	

Vector Error correction Model:

Table 3:

Dependent variable –Child Mortality				
Variable	Coefficient	Std. Error	Z value	Probability
Child Mortality	.1138678	.3838379	0.30	0.767
Female Labor Force Participation	-.3958529	.257646	-1.54	0.124
GDP per capita growth	-.0170139	.0200568	-0.85	0.396
Female Employment	.0600154	.0498223	1.20	0.228
Fertility Rate	-9.095865	5.9523	-1.53	0.126
Constant	0.1606019	.1004734	1.60	0.110