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Millennium development goals and structural stability of child mortality in Bangladesh

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Abstract

The objective of this paper is to examine the stability of the under-five mortality child mortality hypothesis for Bangladesh over the period 1981 to 2013. However, due to Growth of female literacy rate and per capita gross national income does help reduce child mortality in the Bangladesh, and shows the stable relationship between them can change over time. Over the last decades across states a can be attributed to achieve the Millennium Development Goals for target reducing the under-5 mortality by two-thirds of Bangladesh. Using the time-series data, 1981-2013 period, and applying unit root test and Chow test. Using the Chow test, the paper finds that the child mortality function does not maintain stability between pre and post-MDG period. The finding of the study has strong implication in appropriate policy responses need to recognize that a given level of growth is consistent with different rates of child mortality reduction to achieve basic demographic goals in Bangladesh.

Keywords: Child Mortality, Millennium development goal, Structural Stability
JEL Classifications: J11, I18, C62

I. Introduction

Bangladesh is one of the signatories among 189 countries in declaration of the Millennium Development Goals (MDG) by United Nations (UN). The UN General Assembly in 2000 declared the eight development goals which are recognized as MDG. Bangladesh is committed to achieve the goals by 2015 and working accordingly (United Nations, 2000). Some of the highest under-five mortality rates in Asia and the Pacific are in the South and South-West Asian sub-regions. Bangladesh, Bhutan, India, Nepal and Pakistan account for 37 per cent of the entire population of Asia and the Pacific and have an average under-five mortality rate of between 76 and 103 deaths per 1,000 live births. Bangladesh, Bhutan and Nepal have, nevertheless, made important progress in the last decade towards achieving Goal 4, having achieved levels which are half of their 1990 baseline benchmarks for under-five mortality (UNICEF, 2005a).

One of the eight targets is to reduce under-5 mortality by two-thirds by the year 2015, relative to its level in 1990. This requires an annual rate of decline of about 4.3 per cent per annum. Near five million children across the Asia-Pacific region still die every year before reaching the age of five, which represents half of all under-five deaths in the world (ESCAP, UNDP and ADB, 2005; UNICEF, 2005a). However, achievement of Goal 4 remains elusive for many countries in the region. There are wide variations in status and progress with regard to Goal 4 across the Asia-Pacific region. The pace of child mortality reduction in East Asia and the Pacific is slowing (World Bank, 2006b).

Tandon (2005) found most of the Asian developing member countries were not 'on track' to achieve the required 4.3 percent reduction per year. Based on an estimated income elasticity of 0.7 for child mortality from cross-country data, he concluded that per capita income growth of 6% would be needed to achieve 'on track' 4.3% reduction in child mortality. For 'off-track' countries, the required growth rate would be higher than 6% per capita. Simulations based on the multivariate model estimated result shows that changes in mean consumption per capita, adult female schooling, and suggest that the under-five mortality in Bangladesh could decline substantially – by more than 50% – over the period through 2015 (World Bank, 2005).

Kapoor (2009) has found out that the increase in female literacy and labor force participation considerably reduces child mortality at the district level. Mustafa and Odimegwu (2008) have found that social and economic empowerment of women should be encouraged to achieve the MDG on child mortality. Caldwell et al. (2000), Debpuur et al. (2005), Mondal et al. (2009), Hosseinpoor et al. (2005), Madise and Diamond (1995) have found a significant relationship between various socioeconomic factors, demographic factors and infant-child mortality by analyzing various countries' survey and census data. They found that gross domestic product, female education, and other factors explained practically all variations in child mortality across countries.

A very recent study conducted by Kundu et al. (2013) has examined able to condition upon a number of socio-economic and demographic variables, under-five child mortality determining by the asymmetric effects of female literacy rate, per capita gross national income and millennium development goal as a dummy variable. They found a single cointegrating equation showing a long-run stable relationship between the child mortality and the explanatory variables in the model. And also found that achieved MDG's has a significant impact on the reduced under-five child mortality in Bangladesh, convergence of the short-run dynamics towards the long-run equilibrium, but sustainable level of child mortality is expected to be an important prerequisite for ensure future generation of Bangladesh.

Given these stylized facts and despite the limitations in our analysis, it seems important to determine the exogenous effect of socio-economic and demographic policies on under-five child mortality in Bangladesh. Therefore, empirically, it is interesting to examine whether there is any structural change in the child mortality function between the pre-MDG and the post-MDG period. This is important for prediction and econometric inference in formulating demographic policy. Testing for parameter stability of the child mortality function is only a few by applying the newly developed econometric techniques.

Regressing child mortality, however, on female literacy and gross national income involving time series data, such stable relationship may not be maintained implying that the values of the parameters of the model do not remain the same through the entire time period. This instability i.e., structural instability may result from external forces, structural shocks, seasonality, stochastic parameter variation or due to the internal policy changes by the domestic government by Rios and Carvalho (1997). Bangladesh has undergone an economic reform process over the last decades. MDG is one of the major agenda in such reform process, which led to diverse pattern socio-economic and demographic. The test find that there is a structural break in the considered time series data on child mortality, female literacy and per capita gross national income in the year 2000. Therefore the data have been divided into two sub sample periods from 1981-2000 and 2001-2013.

The specific objective of this paper is to estimate and to test the stability of under-five child mortality function by using the Chow Test (1960) approach. The remainder of this paper is organized as follows. Section II discusses the impact of economic growth on child mortality in Bangladesh. Section III describes the econometric methodology used for the present study as well as the data. Section IV outlines the analytical framework. Section V examines and discusses the analysis of results to the time series properties of the variables. Finally, summary and conclusions are presented in Section VI.

II. The Impact of Economic Growth on Child Mortality in Bangladesh

Bangladesh has achieved remarkable progresses in reducing under-five mortality rate in the last decades. The under five mortality decreased significantly from 133 to 94 per 1000 live births between 1989 and 1999. The reduction in under-five mortality rate from 2000 to 2003, compared to the earlier period, was not satisfactory. During 2003-2006 the under-five mortality rate reduced from 88 to 65 at a momentous rate of 4.3 percent per year. Given this situation, the under-five mortality rate will have to reduce at the rate of only 2.6 percent per year to attain the MDG target level, which is 50 per 1000 live births, in 2015. Therefore, Bangladesh is on track towards meeting the under-five mortality MDG target (BDHS 2007).

Among these, Goal: 4 “Reduce Child Mortality” that comprise the following indicators to be achieved by the stipulated timeframe of UN declaration, in case of reducing child mortality the statistical base year would be as 1990 and the respective countries have to achieve the target of two-third reducing by 2015, also shown *Appendix-A.1:* summarizes the MDG target and indicators, benchmark and the latest information on the achievement of health related MDGs in Bangladesh.

The share of female literacy rate as total literacy rate has dramatically increased 17% in 1981 to 64% in 2013 (BBS 2013). Like many developing countries achieved her target of MDG’s in Bangladesh. Thus a growing economy it is crucial how increased female literacy and gross national income affects child mortality under the changing economic policy regimes. Using data from Bangladesh Health and Demographic Survey (BDHS, 2000), have decided that urban-rural residence, education of father and mother, preceding birth interval, family size, toilet facility, delivery place and antenatal care are the major determinants of child mortality in Bangladesh.

The empirical results suggest that factors explaining the under-five mortality in Bangladesh have been a very successful family planning program even in the absence of strong economic growth and improving socioeconomic conditions (UNDP, 2005). In that case Bangladesh has to achieve minimum 4% of MDG target per year. Real annual GDP per capita growth of 4% (or annual growth of household consumption expenditure per capita of 2.7%) would be associated with a reduction in under-five mortality of 8 deaths per 1,000 live births. Together, the four interventions are associated with a reduction of 52 deaths per 1,000 live births in the under-five mortality rate – bringing that rate below the MDG level (46 deaths per 1,000 live births).

III. Econometric Model and Data

III.1 Empirical Methodology

We have used child mortality model specified by *Chandan Mukherjee et. al.,*(1998) to estimate under-five child mortality function for Bangladesh.

In general, the empirical estimation of under-five child mortality model is *the long-run*:

$$CM_t = \alpha_0 FLR_t^{\beta_1} PGNI_t^{\beta_2} e^{\mu_t} \qquad (1)$$

To test empirically, ordinary least square (OLS) regression is applied to log-linear form for estimation in the following way:

$$\ln CM_t = \alpha_0 + \beta_1 \ln FLR_t + \beta_2 \ln PGNI_t + \mu_t \qquad (2)$$

Where, *CM* denotes the under-five child mortality, *FLR* is the female literacy rate, *PGNI* is the per capita gross national income, base year 2000 U.S. $ per annually, of Bangladeshi residents respectively. Besides, t is time period and μ_t is the stochastic disturbance term, which is surrogate or proxy for all omitted variables that may affect the child mortality function. It also shows the intrinsic randomness of demographic behavior.

In this model α_0 is the autonomous child mortality death (positive child mortality at zero female literacy rate and per capita income for survival), which is expected to be positive, *β_1 and β_2 is* marginal propensity to female literacy rate and per capita income.

The behavioral assumptions require that $\alpha_0 > 0$, *β_1 and $\beta_2 < 0$* respectively and that the μ_t sequence is stationary, so that any deviations from long-run child mortality equilibrium are temporary in nature.

$$\mu_t = \ln CM - \alpha_0 - \beta_1 \ln FLR_t - \beta_2 \ln PGNI_t \qquad (3)$$

that is stationary.

We have argued that $CM_t, FLR_t \,\&\, PGNI_t$ are most likely integrated of order one, so that their changes are stationary. If these variables are each I (1), then it is typically true that the error μ_t will also be I(1). However, stationarity in μ_t would establish (3) as a plausible long-run relationship, with the short-run dynamics incorporated in μ_t, usually referred to as the *equilibrium error*.

III.2 Data

The paper used the data of the three indicators, under-five Child Mortality (CM), Female Literacy Rate (FLR), and per capita Gross National Income (PGNI), per annual 2000 U.S. $, of Bangladesh for the past three decades starting from year 1981 to 2013. The paper is based on the annual data collected from the Inter-agency Group for Child Mortality Estimation (UN IGME) updates its child mortality estimates annually after reviewing newly available data and assessing data quality. This report contains the latest UN IGME estimates of child mortality at the country, regional and global levels. Country-specific estimates and the data used to derive them are available at http://www.childmortality.org.

The paper used rest of the data Female Literacy Rate (FLR) and per capita Gross National Income(PGNI), per annual 2000 U.S. $, of Bangladesh are collected from the Bangladesh Bureau of Statistics (BBS) and World Bank Development Indicator (WDI) by 2013. In addition, the simulations undertaken in this report are based on empirical analysis of secondary data, which typically relies on many assumptions about data quality and measurement, inferences of causality between variables, and potential biases of statistical and econometric estimates.

IV. Analytical Framework

IV.1 Unit Root Test: Augmented Dickey-Fuller (ADF) Test

The Augmented Dickey-Fuller (ADF) Test (Dickey and Fuller 1981) can also be generalized to allow for higher-order autoregressive dynamics, in case that an AR(1) process is inadequate to render ε_t white noise. The ADF test for a unit autoregressive root tests the null hypothesis H_0: $\delta = 0$, against the alternative H_1: $\delta < 0$ in the following regression:

$$\Delta . Y_t = \alpha_0 + \delta Y_{t-1} + \theta_i \sum_{i=1}^{m} \Delta . Y_{t-1} + \varepsilon_t \tag{4}$$

Where $\Delta Y_t = Y_t - Y_{t-1}$ is the first difference operator, and Y is the variable under consideration, is chosen by Schwarz criterion and ε_t is a white noise error term, m is the number of lags in the dependent variable. The optimal lag length, *m*, can be chosen using data dependent methods that have desirable statistical properties when applied to unit root tests.

If Y_t is stationary around a deterministic linear time trend, then the trend't' i.e., the number of observation must be added as an explanatory variable. Alternatively (4) can be written as

$$\Delta . Y_t = \alpha_0 + \beta_0 t + \delta Y_{t-1} + \theta_i \sum_{i=1}^{m} \Delta . Y_{t-1} + \varepsilon_t \tag{5}$$

In the equation (5) Y_t is a random walk with drift around a stochastic trend. Here β_0 is an unknown coefficient and the ADF statistic is the OLS t-statistic testing $\delta = 0$ in (5).

IV.2 Structural stability Test: The Chow Test

The Chow (1960) test to examine the structural stability of a regression model and sometime the structural change may be due to – internal or external forces or, policy changes. Like as due to Millennium Development goals reduce by two thirds the mortality rate among children under-five.

Since we have data, we can obtain an OLS regression of under-five child mortality (CM) on female literacy rate (FLR) and per capita gross national income (PGNI) in Bangladesh over the period 1981-2013. We divided the sample period 1981-2000 and 2001-2013, and showed on the basis of the chow test that there was a different in the regression of child mortality on female literacy rate and per capita gross national income between the two time periods: 1981-2000, Pre–MDG period and 2001-2013, the Post–MDG period. Now we have three possible regressions:

Time period 1981-2000: $CM_t = \psi_1 + \psi_2 FLR_t + \psi_3 GNI_t + \mu_{1t}$; $n_1=20$ (6)

Time period 2001-2013: $CM_t = \gamma_1 + \gamma_2 FLR_t + \gamma_3 GNI_t + \mu_{2t}$; $n_2=13$ (7)

Time period 1981-2013: $CM_t = \varphi_1 + \varphi_2 FLR_t + \varphi_3 GNI_t + \mu_t$; $n=n_1+n_2=33$ (8)

Regression (6) and (7) assume that the regressions in the two time periods are different; that is, the intercept and the slope coefficients are different.

Regression (8) assume that the intercept as well as the slope coefficient remains the same over the entire period; that is, there is no structural change, then $\psi_1 = \gamma_1 = \varphi_1$ and $\psi_2 = \gamma_2 = \varphi_2$.

The chow test assumes that, $\mu_{1t} \approx N(0,\sigma^2)$ and $\mu_{2t} \approx N(0,\sigma^2)$, that is, the error terms in the sub period regressions are normally distributed with the same variance σ^2 (homoscedastic). And two errors terms, μ_{1t} and μ_{2t}, are independently distributed.

Under the assumption that the error terms in the sub sample period regressions are normally distributed with homoscedastic variance. Now we compare the unrestricted and restricted least-squares regression by F test. The chow test is based on the *F-test* as follows:

$$F = \frac{(RSSS_R - RSS_{UR})/k}{(RSS_{UR})/(n_1 + n_2 - 2k)} \approx F_{[k,(n_1+n_2-2k)]}$$

Where, k is the number of estimated parameters, RSS is residual sum of squares and n represent the number of observations.

V. Empirical Results[1]

V.1 Unit Root Test

The standard practice is to begin the empirical analysis by examining the time-series properties of the data. It starts with the test of stationarity of variables of the model (2), using unit root test procedures. The standard ADF (Augmented Dickey-Fuller) test has been used to perform the unit root test to the *lnCM, lnFLR and lnPGNI* series separately of the model and examine their *order of integration.*

[1] After operating analysis in software *E-Views 5.1* version, we got the result significant and observing the obtained result we can illustrate that the macroeconomic variables in Bangladesh.

The ADF test used here includes a constant and constant with a linear trend in the test regression since it has more general specification. The test has employed automatic lag length selection using a Schwarz Information Criterion (SIC) and a maximum lag length of 8. SIC is considered to be more appropriate because of small numbers of observations in the study (33 observations). *Table-2* reports the test statistics for the model without and with a time trend and intercept in level and in first differences respectively.

Table-2: ADF Statistics for Testing for Unit Roots for Period 1981 to 2013

Variables	Levels, I(0)		First Differences, I(1)	
	t-ADF	*P-Value*	*t-ADF*	*P-Value*
Intercept				
lnCM	-0.257313	0.9161	-4.579096	0.0019
lnFLR	-3.154283	0.0377	-3.767717	0.0109
lnPGNI	9.868232	0.9473	-5.262376	0.0486
Intercept and Trend				
lnCM	-3.676736	0.0513	-4.429145	0.0115
lnFLR	-2.874674	0.1893	-3.837952	0.0358
lnPGNI	2.083484	0.4514	-5.250932	0.0028

Notes: Author's calculation. (i) ADF statistics at I(0) indicate acceptation, I(1) indicate rejection of the unit root hypothesis at the 1%, 5% and 10% respectively level of significance. (ii) *p-value* sign indicate lag length chosen by Schwarz Information Criteria (SIC), but MAXLAG =8.

The estimated statistic for all the variables *at level* does not exceed ADF test statistics. It shows that the null hypothesis of unit root cannot be rejected at 5 per cent level of significance for all variables at level. The results show that the unit root hypothesis is rejected at the first differences for all variables. This result from unit root tests provide strong evidence of non-stationarity *at levels* and stationarity *at first difference* for all variables, these series are integration to degree one, *I (1)*. The residuals are also found stationary using a Schwarz Information Criterion (SIC) and a maximum lag length of 8 and 33 observations. The result provide the basis for the test of long-run relationship among all variables, that is *p-value* statistically highly significant at 1%, 5% and 10% level, are stationary.

V.2 The Chow Test

V.2.1 Estimation of the Regression Model

The regression results for dependent variable of lnCM shown in Table-3, we found a negative significant relationship between lnFLR and lnCM growth, implying that the estimated coefficient -0.564 implies that lnFLR - lnCM ratio by one percentage increase lnFLR leads to lnCM reduced by 0.564 percent per annum, and similarly one percentage increase of lnGNI leads to lnCM reduced by 0.427 percent per annum.

The first regression model covers the data for the Pre-MDG period of 1981-2000. The regression result is as follows:

Table-3: Regression Results for Pre-MDG Period: 1981-2000
Dependent Variable: LNCM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFLR	-0.564	0.049	-11.344	0.000
LNPGNI	-0.427	0.026	-16.235	0.000
C	12.408	0.097	127.917	0.000
R-squared	0.917	Mean dependent var		4.918
Adjusted R-squared	0.903	S.D. dependent var		0.251
S.E. of regression	0.011	Akaike info criterion		-5.882
Sum squared resid	0.002	Schwarz criterion		-5.732
Log likelihood	61.821	F-statistic		4216.500
Durbin-Watson stat	1.585	Prob(F-statistic)		0.000

The model, therefore, is a statistically significant at any level, as reflected in the higher within-R^2 and adjusted-R^2 statistic and estimated of explanatory variable show significantly produces better results indicating 0.917 and 0.903. From the Durbin Watson (D-W) tables, we found that for the number of observations is 19 and the number of explanatory variables are 2, lower bound d_L= 1.074 and upper bound d_U = 1.536 at 5% level of significance. Since the computed *d* of 1.585, it falls in the *no autocorrelation, positive or negative*, because it lies between lower and upper limit, $d_U \leq d \leq 4 - d_U$.

The second regression model covers the data for the Post-MDG period of 2001-2013. The regression result is as follows:

Table-4: Regression Results for Post-MDG Period: 2001-2013
Dependent Variable: LNCM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFLR	-0.791	0.143	-5.531	0.004
LNPGNI	-0.565	0.169	-3.340	0.007
C	10.690	1.011	10.567	0.000
R-squared	0.946	Mean dependent var		4.054
Adjusted R-squared	0.934	S.D. dependent var		0.275
S.E. of regression	0.034	Akaike info criterion		-3.700
Sum squared resid	0.011	Schwarz criterion		-3.569
Log likelihood	27.050	F-statistic		377.618
Durbin-Watson stat	1.712	Prob(F-statistic)		0.000

Similarly, we found a negative significant relationship between the model, because F and p-values for the relationships, lnFLR and lnGNI with lnCM, are statistically significant and include enabled a better fit of the model, shown in Table-4, as reflected in the higher within-R^2 and adjusted-R^2 statistic and estimated of explanatory variable show statistically significant produces better results indicating 0.946 and 0.934. And we found that for the number of observations is 12 and the number of explanatory variables are 2, lower bound d_L= 0.812 and upper bound d_U = 1.579 at 5% level of significance, from the Durbin Watson (D-W) tables. Since the computed *d* of 1.712, it falls in the *no autocorrelation, positive or negative*, because it lies between lower and upper limit, $d_U \leq d \leq 4 - d_U$.

The whole regression model covers the data for the full sample period of 1981-2013. The regression result is as follows:

Table-5: Regression Results for Full Period: 1981-2013
Dependent Variable: LNCM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNFLR	-0.750	0.025	-29.704	0.000
LNPGNI	-0.531	0.021	-25.114	0.000
C	10.626	0.069	153.471	0.000
R-squared	0.954	Mean dependent var		4.577
Adjusted R-squared	0.939	S.D. dependent var		0.499
S.E. of regression	0.039	Akaike info criterion		-4.581
Sum squared resid	0.025	Schwarz criterion		-4.445
Log likelihood	78.591	F-statistic		7251.84
Durbin-Watson stat	1.383	Prob(F-statistic)		0.000

The regression results for dependent variable of lnCM shown in Table-5, we found a negative significant relationship between lnFLR and lnCM growth, implying that the estimated coefficient -0.750 implies that lnFLR - lnCM ratio by one percentage increase lnFLR leads to lnCM reduced by 0.750 percent per annum, and similarly one percentage increase of lnGNI leads to lnCM reduced by 0.531 percent per annum.

The model, therefore, is a significant at any level, because because p-value of F-statistic for the relationships, lnFLR and lnGNI with lnCM, are statistically significant and include enabled a better fit of the model, as reflected in the higher within-R^2 and adjusted-R^2 statistic and estimated of explanatory variable show significantly produces better results indicating 0.954 and 0.939, and they are statistically significant at the usual levels of confidence on socio-economic growth in Bangladesh.

From the Durbin Watson (D-W) tables, we found that for the number of observations (n-1) is 32 and the number of explanatory variables are 2, lower bound d_L= 1.309 and upper bound d_U = 1.574 at 5% level of significance. Since the computed *d* of 1.383, it falls in the *indecisive zone*, there is inconclusive evidence regarding the presence or absence of positive first order serial correlation. It lies between lower and upper limit, $d_L \leq d \leq d_U$, one cannot conclude that first order serial correlation does or does not exist.

V.2.2 Mechanics of the Chow Test

Under the assumption the chow test is based on the *F-test* as follows:

$$F = \frac{(0.025 - 0.013)/3}{(0.013)/27} = 8.33$$

The computed value of the F-statistic is 8.33, which is significant at 5% level with 3 and 27 degrees of freedom. From the *F-table*, we find that at 1% critical value is 4.64 and 5% critical value is 2.98. Therefore, the computed F-value is greater than the critical value, we reject the hypothesis of parameter stability and conclude that the regressions (6) and (7) are different, in which case the pooled regressions (8) of dubious value.

Therefore, we can reject the null hypothesis that the parameters of the function for both the regimes are stable, i.e., structural change. Thus we can conclude on the basis of the Chow test that the child mortality function parameters are not stable over the entire sample period. That is, structural changes have taken place on the model parameters from pre-MDG to post-MDG period. It has also found that the change has taken place both in the intercept and slope of the model.

VI. Summary and Conclusion

Growth of female literacy rate and per capita gross national income does help reduce child mortality. The effect of reduce child mortality in Bangladesh is fairly large and robust. Yet growth alone will not deliver mortality reduction at the rate necessary to reach the MDG target. In Bangladesh, the decline in infant mortality forms a major challenge in attaining the MDG on child survival (i.e. under-five child mortality) as it accounts for a significant. Six countries including Bangladesh received the UN MDG award in New York's Astoria hotel for its remarkable achievements in attaining the Millennium Development Goals particularly in reducing child mortality (September 19, 2010, New York).

Using the time-series data, 1981-2013 period, and applying unit root test and Chow test. Using the Chow test, the paper finds that the child mortality function does not maintain stability full sample period. That is, structural changes have taken place on the model parameters from pre-MDG to post-MDG period. It has also found that the change has taken place both in the intercept and slope of the model. However, due to policy changes, such stable relationship can change over time. The finding of the study has strong implication in appropriate policy responses need to recognize that a given level of growth is consistent with different rates of child mortality reduction to achieve basic demographic goals in Bangladesh. Children are considered as the future of a nation. So, the health of a nation depends on the health of its children (Sen, 1998). According to Bhalotra, S. (2007b), appropriate policy responses need to recognize that a given level of growth is consistent with different rates of mortality reduction, indicating the importance of other factors such as time-varying unobservable that most likely reflect improvements in public health and significantly to mortality decline, and to the convergence of mortality rates in Bangladesh.

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Appendix

Table- A.1: The MDG Targets and Indicators

Global goal, target and indicator			**Bangladesh target, benchmark and current situation**		
Goal	Target	Indicator	Target (Year)	Bench-mark (Year)	Achievement (Reference)
Goal 4: Reduce child mortality	Target 5: Reduce by two thirds the mortality rate among children under-five	<5 year mortality rate/ 1,000 live births	48.0 (2015)	144.0 (1990)	67.00 (MICS 2009) 53.84 (SVRS 2008) 65.00 (BDHS 2007)
		Infant mortality rate/ 1,000 live birth	31.3 (2015)	94.0 (1990)	45.00 (MICS 2009) 41.26 (SVRS 2008) 52.00 (BDHS 2007)
		1 year old children immunized against measles (%)		52.0 (1991)	82.8 (BECES 2009) 83.1 (BDHS 2007)

Source: Authors' compilation, based on BDHS 2007 (Bangladesh Demographic and Health Survey 2007) by Bangladesh Bureau of Statistics.