# Aid Effectiveness in Bangladesh: Case Study of Health and Population Sector

## Introduction

The socio economic condition of Bangladesh is characterized by widespread poverty, malnutrition and unhealthiness. The present configuration of unhealthiness has been caused by lack of access of the majority of the population to resources and development benefits. Aid effectiveness has assumed a prominent place on health policy agendas for the Government as well as the donors. Bangladesh has performed relatively well on a number of key health indicators since 1990s. The infant mortality rate fell rapidly during the 1990s, and is currently lower than in India, although Bangladesh has only half the per capita income of India (World Bank 2005). Bangladesh is not likely to meet the Millennium Development Goal 5 (World Bank 2007) although there have been rapid recent gains in access to antenatal care: half of women received some type of trained antenatal care in 2004 compared to one-third in 1999-2000 (NIPORT 2005). Despite these improvements, significant inequalities still exist, and progress in key areas has been disappointing. Bangladesh's child malnutrition and maternal mortality rates remain high among the developing countries, and access to safe motherhood care is skewed towards the better-off. The public sector plays the predominant role in financing and provision, and it is the only source of modern care affordable by the rural poor. But there is growing evidence that the vulnerable people have poor access to public health services, particularly maternal health services, even though these services are nominally free or subsidized (MOHFW 2005; Osman 2004a). However, the overall quality of health service both in the public and private sectors is low and uneven. Poor management, sub-optimal location and staffing, the lack of accountability of government staff and inadequate provision of medical supplies lead to low quality services, particularly at the Upazila and union levels (World Bank 2003e; World Bank 2005c).

Since independence in 1971, Bangladesh has made progress in reducing poverty and lifting its Human Development Indicators from extremely low levels. The 2005 Household Income and Expenditure Survey (HIES) shows that poverty declined to 40% from about 50 % in 2000 (BBS, 2007). Despite improvement in the reduction of poverty and selected health indicators, Bangladesh remains a low –income country, with weak social indicators and pockets of extreme poverty. The country is also vulnerable to natural disasters like flood,

cyclone, sidor etc. Over the last 35 year period history, Bangladesh has received USS 15 billion in aid. It ranks 38th of 76 countries under the International Development Association (IDA). But the question remains as to what is the contribution of this much volume of aid to the reduction of human poverty and improving the health status of the population.

Before assessing the aide effectiveness on the over health status of the population, it would be better if we investigate infant mortality and under five mortality levels and inequality between the poor and the rich. The analysis would also help us to the understanding of the change in health indicators because infant mortality is always associated with the socio-economic development of a country. Figure 1 shows the trend in infant and under five mortality for the 1993/94 and 2007 respectively obtained from Bangladesh Demographic and Health Surveys. Surprisingly the decline in infant and under five mortality did not accompany with decline in neonatal mortality which is about two thirds of the infant mortality and about half of the under fiver mortality remain unchanged since 1996-97 BDHS.

Between the periods 1989-1993 and 2002-2006 infant mortality declined by 40 percent from 87 deaths per 1,000 live births to 52 deaths per 1,000 live births. Similarly, during the same period under five mortality declined by 51 percent. The equivalent decline in neonatal mortality was only 29 percent. The overall health status which is measured by the life expectancy at birth had increased to 67.4 years in 2006 from the level 57.9 years in the year 1993 (Figure 2). The increased in life expectancy can be attributed to the reductions in infant and under five mortality, which were very high in the early seventies.

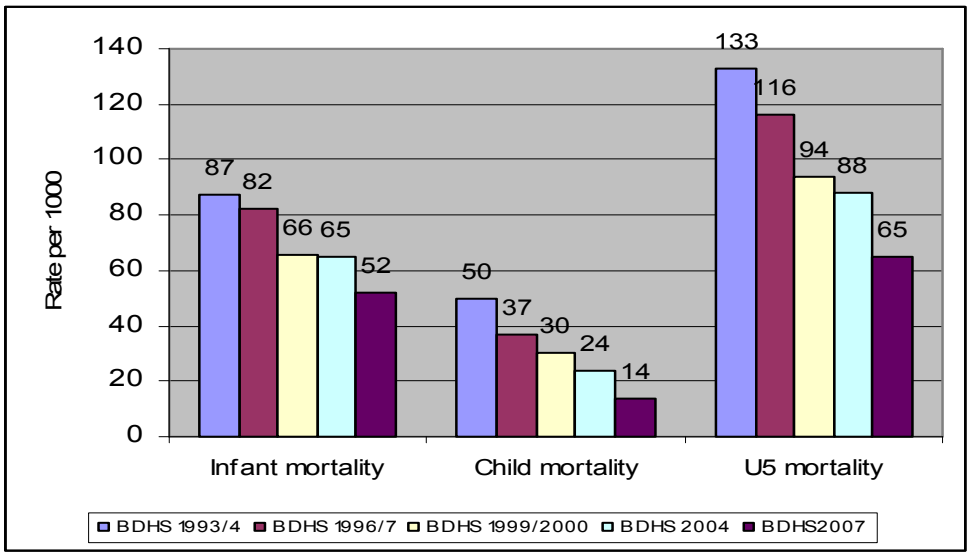
Several dependent and independent variables were considered for the study. We considered life expectancy at birth and infant mortality as the dependent variables. Infant mortality also used as independent variable. The other independent variables included were utilization of Aid, adult literacy rate, per capita gross domestic products, access to safe sanitation, access to electricity in the household, persons per physician, persons per hospital bed and immunization coverage.

## Inequity in infant, child and under-five mortality

In order to find out the aid-effectiveness on life expectancy, it is necessary to estimate the inequality in health conditions in terms of infant, child and under five-mortality between the rich and the poor. The effectiveness of aid will not be visible unless there is a reduction in mortality among the poor because roughly 40% of the population is poor. If the health care services do

not reach to the poor, the effectiveness of aid will be difficult to measure. In order to understand the extent of poor and rich gap in under five-mortality principal component analysis was carried out using the household asset variables. Information regarding the household items (i.e. television, radio, electricity, refrigerator or car) and ownership of household structure and cultivable land were assigned a weight or factor score generated through principle component analysis.

**Figure-1 Trends in Infant, Child and Under Five Mortality, 1993 to 2007**




Source: Bangladesh Demographic and Health Survey 2007

The resulting scores were distributed normally with mean zero and standard deviation one. Each household was assigned a standard score for each asset. Inequalities by income in mortality thereof are measured here using a concentration index. Concentration index is a generalization of the Gini coefficient i.e. proportion of population up to midpoint of each interval group. Infant mortality rates by different quintiles for successive four surveys are presented in Figure 2 for the five-year period preceding the surveys. Comparisons of infant mortality estimates over time show continued declines with a faster decline during the period 2004-07. Over the last two decades infant mortality has declined by about 38 percent. The poorest-richest ratio of infant mortality was 1.3 in 1993-4 and since then it is widened between the poorest and richest ratio increased to 1.6 from 1.3.

**Table: 1 Infant mortality rates by Economic Status**

| | BDHS 1993-4 | BDHS 1996-7 | BDHS 1999-2000 | BDHS 2004 | BDHS 2007 |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Poorest | 94.3 | 91.8 | 85.2 | 81.8 | 62.7 |
| Poorer | 104.1 | 92.3 | 74.4 | 53.3 | 65.3 |
| Middle | 90.3 | 93.0 | 69.4 | 78.7 | 57.6 |
| Richer | 81.9 | 92.1 | 61.2 | 53.7 | 49.2 |
| Richest | 71.7 | 58.4 | 53.9 | 50.2 | 38.8 |
| Total | 88.6 | 86.3 | 68.5 | 65.2 | 54.5 |
| Poor-rich ratio | 1.3 | 1.6 | 1.6 | 1.6 | 1.6 |
| Concentration index (CI) | -0.0604 | -0.0564 | -0.0887 | -0.0703 | -0.088 |
| St. Error (CI) | 0.0208 | 0.0474 | 0.0195 | 0.0338 | .001 |
| t-test(CI) | -2.91 | -1.19 | -4.55 | -2.08 | -2.66 |

Similarly, the poorest-richest ratio of under-five mortality has also increased from 1.5 in 1993-4 to 1.8 in 2004 suggesting the poor and rich gap has increased (Table 2 **).**This is also supported by the values of Concentration Index (CI). The CI for under-five mortality was –0.0594 in 1993-94 and -.1060 in 2004 respectively. The negative value of concentration indices indicates mortality favor the poor and its corresponding t-value reveal that there are significant inequalities among the rich and poor groups.

**Table 2: Under five mortality rates by wealth index**

| | BDHS 1993-4 | BDHS 1996-7 | BDHS 1999-2000 | BDHS 2004 | BDHS 2007 |
|---|---|---|---|---|---|
| Poorest | 133.7 | 111.6 | 112.5 | 104.1 | 70.1 |
| Poorer | 132.9 | 123.0 | 91.0 | 73.8 | 72.9 |
| Middle | 134.6 | 135.8 | 95.8 | 96.8 | 71.7 |
| Richer | 125.0 | 118.9 | 70.5 | 64.6 | 70.8 |
| Richest | 91.4 | 76.9 | 64.0 | 58.2 | 48.3 |
| Total | 123.5 | 114.3 | 86.9 | 80.3 | 66.3 |
| Poor-rich ratio | 1.5 | 1.5 | 1.8 | 1.8 | 1.5 |
| Concentration index (CI) | -0.0594 | -0.0454 | -0.1093 | -0.1060 | -0.0483 |
| St. Error (CI) | 0.0348 | 0.0544 | 0.0272 | 0.0364 | 0.0017 |
| t-test(CI) | -1.71 | -0.83 | -4.01 | -2.91 | -1.17 |

Figure 2 shows the concentration curve on infant mortality. The diagonal line indicates the line of equality. Curve above the diagonal indicates that infant mortality favors the poor. The farther the curve is above the equality, the more concentration in infant mortality amongst the poor. All curves in different surveys clearly indicate the infant mortality concentrated among the poor

Similarly, Figure 3 also shows that inequality in under-five mortality between poor and rich has been increasing over time. Detailed analyses all the BDHSs data demonstrate that children of poorest family suffered more in mortality than the children of rich family. If the gap can be narrowed down between the poor and the non-poor, there will be more improvement in the overall health status of the population.

**Figure 2: Concentration Curve of Infant Mortality**

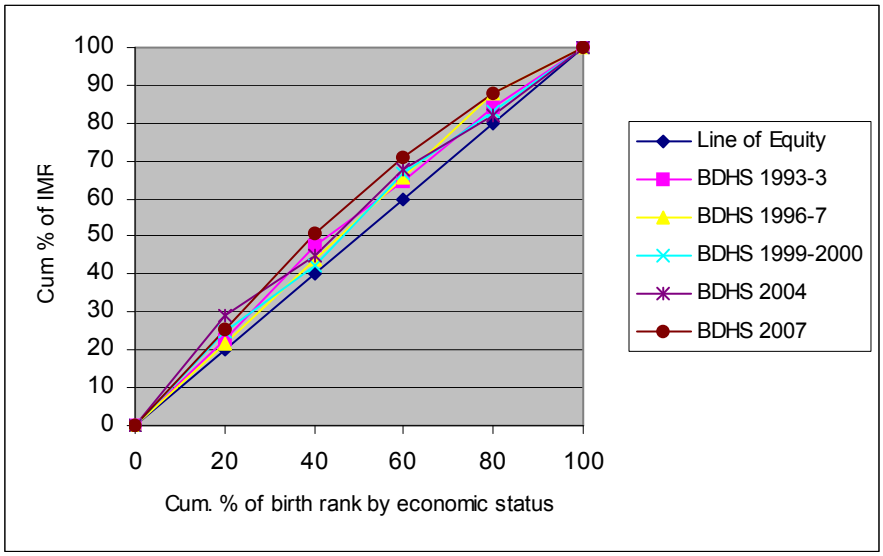
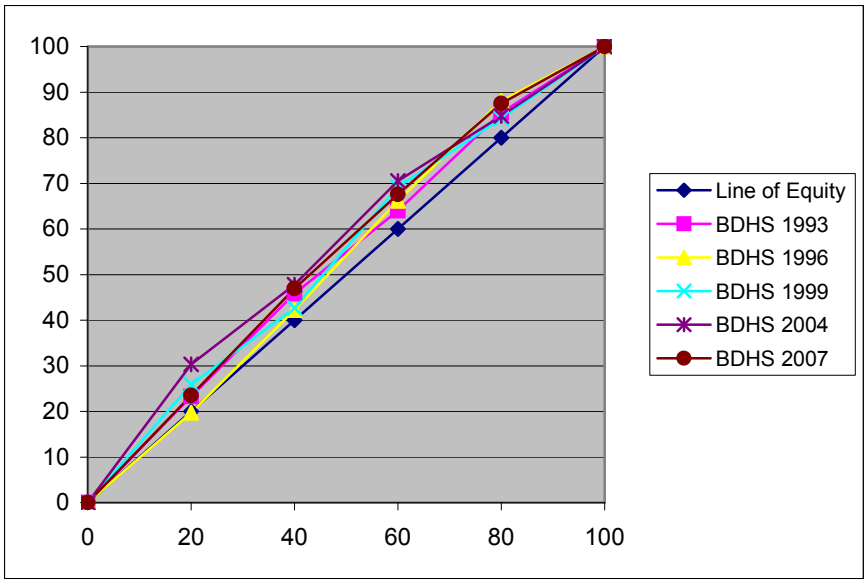



**Figure: 3 Concentration Curve of Under Five Mortality by BDHS**




The following Figure 4 provides the trends in allocation and utilization of aid between 1980 and 2004. As evident from table, total sectoral allocation increased 27 times during the

period of study. Both government's allocation and donor's allocation also increased substantially. Donors allocation increased 80 times compared 1980 level while government allocation increased only 13 times of 1980 level. However utilization was much lower in project aid than that of government aid. Figure 5 demonstrates until **1990 both project aid** and government allocation were much low and since 1990 project aid increased substantially which might have influenced on the overall health status of the population. Share of project aid is shown in Figure 5 . As the figure suggests the increased share and utilization of project aid in 1990s are also supported by the rapid decline in infant and under five mortality, increased coverage of immunization and increased in life expectancy at birth.

**Figure 4. Allocation in Health Sector by Sources (Project Aid and Government)**

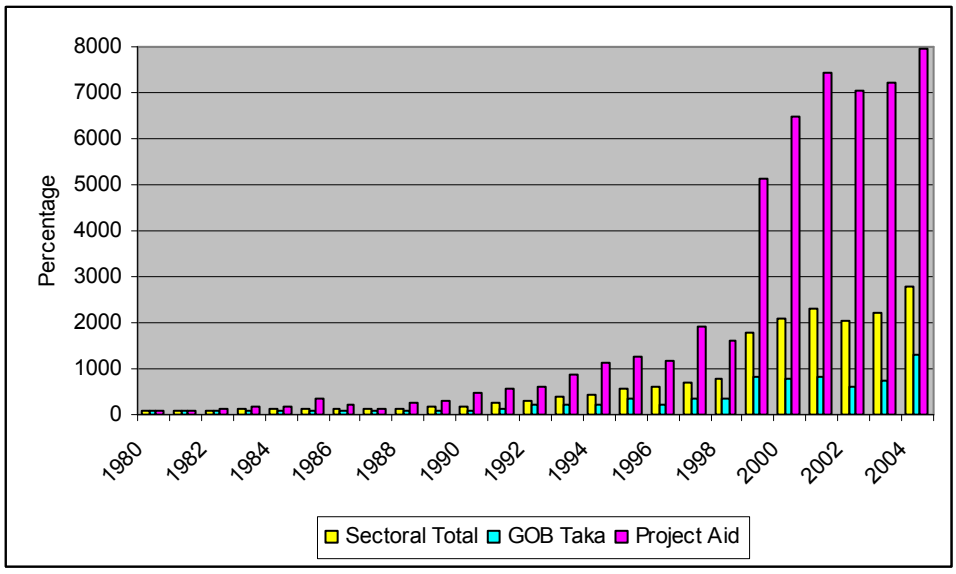
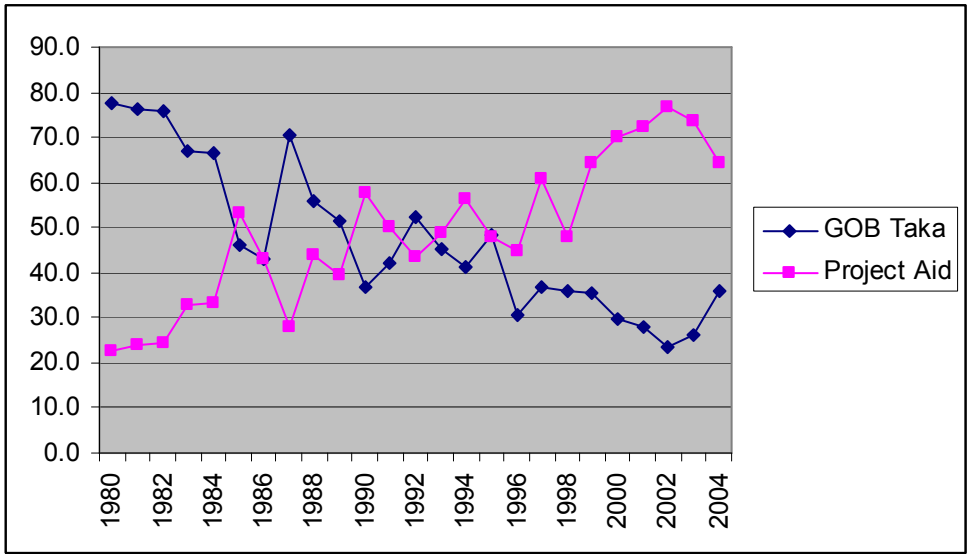


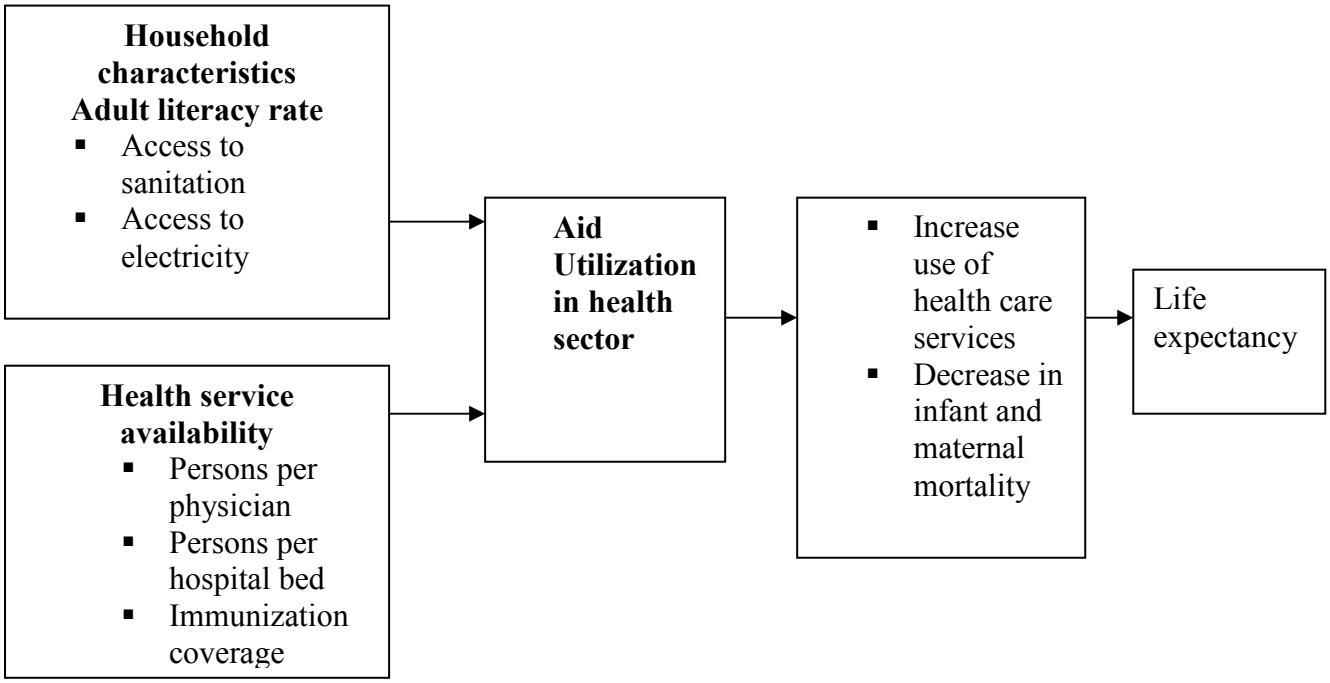

**Figure 5: Share of Project Aid and Utilization in Health Sector by Source.**



## Conceptual Framework:

The variables that are expected to influence health status of a population are shown in figure 6. The figure shows that household characteristics influence knowledge and exposure to health care services including infectious diseases and these have direct effect on prevention diseases and consequently maternal and child health of the population. Similarly availability of physicians and beds in the health facility are important correlates of the accessibility health of the population and consequently reduces morbidly and mortality and in particular infant and under five mortality. The reductions in infant and under five mortality are an indicator of overall health status of the population which is measured by the average life expectancy of the population, the dependent variable of the model.

**Figure 6: A conceptual framework showing the interrelationship between the dependent variable and the independent variables**.




## Objectives of the Study

The broad objective of this study is to investigate the effectiveness of aid in health sector. The specific objectives will be to explore most important determinants or the correlates of health status in Bangladesh.

## Hypothesis

Foreign aid helps to develop infrastructure and health facilities and consequently improves maternal and child health through various interventions. If this is done effectively

the interventions will improve the overall health status of the population and consequently life expectancy of the population. The conceptual framework suggests that the study of the impact of aid on health sector will improve maternal health and child survival if the utilization of aid is appropriately done. However, we cannot measure the health status as a separate unit; since it is influenced by many other factors. In the light of the above, we can express the health status as a function of a set of variables, which we have included in our model.

$$LE = \beta_0 + \beta_1\, aid\ utilized + \beta_2\, adult\ literacy\ rate + \beta_3\, per\ capita\ GDP + \beta_4\, electricity\ users + \beta_5 \inf ant\ mortality + \beta_6\, persons\ per\ physicians + \beta_7\, persons\ per\ hospital\ beds + \beta_8 immunization \operatorname{cov} erage + \beta_9\, access\ to\ safe\ sanitation$$

## Selection of variables for the Study and the model:

The Study used quantitative data and they were derived from the various sources such as the Bangladesh Demographic and Health Surveys (BDHSs), Sample Vital Registration Systems (SVRS), Statistical Year Book of Bangladesh , Household Income and Expenditure (HIES) all are from Bangladesh Bureau of Statistics ( BBS) and AID data from the Ministry of Finance and adult education data from BANBEIS

Several dependent and independent variables were considered for the study. We considered life expectancy at birth and infant mortality as the dependent variables. Infant mortality also used as independent variable. The other independent variables included were utilization of Aid, adult literacy rate, per capita gross domestic products, access to safe sanitation access to electricity in the households, persons per physician, persons per hospital bed and immunization coverage.

Because of the nature data we used above model because we have found that the model explains data well. To apply the test, we first generated by a first order autoregressive process which is given by

$$Y_t = \rho Y_{t-1} + \mu_t$$

Where, $\mu_t$ is the stochastic error term that follows the classical statistical assumptions i.e it has zero mean, constant variance and non- auto correlated. If $\rho = 1$, then it indicates that the stochastic variable $Y_t$ has a *unit root and* non stationary condition. The above formulation allows for only a first order autoregressive process; whereas we need a more general

formulation to capture higher order data generation process. For this purpose we used the *Augmented Dickey-Fuller*[1] regression equations for unit root testing and they can be written as

$$\Delta Y_t = \gamma_0 + \gamma_1 Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-i} + \varepsilon_t$$

$$\Delta Y_t = \gamma_0 + \gamma_1 Y_{t-1} + \gamma_2 t + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-i} + \nu_t$$

The first model is with a constant and with no trend whereas second model is with a constant and with a trend. When $\gamma_1 = 0$ in both equations, we have a non stationary time series data. The critical values along with the test statistic at 5 % level of significance are shown in the table 3. Before using the time series data it is essential to know stationery condition. The justification for testing time series data for stationarity[2] is that if a time series data is not stationary we can study its behavior only for the time period and we will not able to predict its future behavior. Therefore, the use of time series data requires stationery and non-stationery statistical tests. To perform a valid time series analysis we first need to see first whether time series data we considered is stationary or not. If the time series is stationary then it is appropriate to us because stationary[3]implying that the analysis will be valid over the years.

If time series data is not stationery then it t is not also possible to generalize and forecast time trends of the data set . In order to determine the stationery and non-stationery of the time series data we used statistical *Unit Root test*[4]. An analysis of the test statistic indicates all the variables are rejected at 5% level of significance suggesting that the variables considered in the model are non-stationery (Table 4). Again, when time series data are non stationary, we can apply usual t and F tests for testing of their significance. In such a situation the coefficients from regressions are not reliable for forecasting purposes. In order to avoid this difficulty we used first difference of the variables under study because differencing the variables for an appropriate number of times will make them stationary. The data become stationary after first differencing and "Augmented Dickey-Fuller test" was used to determine

[1] A test for a unit root that includes lagged changes of the variable as repressors.
[2] A highly persistent time series process where the current value equals last period's value, plus a weakly dependent disturbance.
[3] A time series process where the marginal and all joint distributions are invariant across time.
[4] A highly persistent time series process where the current value equals last period's value, plus a weakly dependent disturbance.

the statistical significance of the test statistic. The Augmented Dickey-Fuller test" also confirms that data are stationery (Table 4).

**Table 3: Critical values with no trend and trend at 5 % level of significance**

| Variables | Constant, No Trend | | Constant, Trend | | Decision |
|---|---|---|---|---|---|
| | Test statistic | Critical value at 5% | Test statistic | Critical value at 5% | |
| Aid Utilized | -0.059 | -3.000 | -1.646 | -3.600 | Non stationary |
| Adult Literacy | -0.794 | -3.000 | -2.052 | -3.600 | Nonstationary |
| Per-capita GDP | -0.322 | -3.000 | -1.912 | -3.600 | Nonstationary |
| Electricity Users | -0.933 | -3.000 | -1.489 | -3.600 | Nonstationary |
| Infant Mortality | -0.164 | -3.000 | -2.082 | -3.600 | Nonstationary |
| Persons per Physician | -0.868 | -3.000 | -4.185 | -3.600 | Nonstationary |
| Persons per Hospital Bed | -3.383 | -3.000 | -4.967 | -3.600 | Nonstationary |
| Life Expectancy | 1.245 | -3.000 | -1.631 | -3.600 | Nonstationary |
| Immunization Coverage | -1.278 | -3.000 | -0.874 | -3.600 | Nonstationary |
| Access to Safe Sanitation | -0.255 | -3.000 | -3.173 | -3.600 | Nonstationary |

**Table 4: First Differenced Variables of critical values with no trend and trend at 5 % level of significance**

| Variables | Constant, No Trend | | Constant, Trend | | |
|---|---|---|---|---|---|
| | Test statistic | Critical value at 5% | Test statistic | Critical value at 5% | Decision |
| Δ Aid Utilized | -2.901 | -3.000 | -1.646 | -3.600 | Stationary |
| Δ Adult Literacy | -5.450 | -3.000 | -2.052 | -3.600 | Stationary |
| Δ Per-capita GDP | -3.838 | -3.000 | -1.912 | -3.600 | Stationary |
| Δ Electricity Users | -3.833 | -3.000 | -1.489 | -3.600 | Stationary |
| Δ Infant Mortality | -5.440 | -3.000 | -2.082 | -3.600 | Stationary |
| Δ Persons per Physician | -7.667 | -3.000 | -4.158 | -3.600 | Stationary |
| Δ Persons per Hospital Bed | -7.709 | -3.000 | -4.967 | -3.600 | Stationary |
| Δ Life Expectancy | -3.893 | -3.000 | -1.631 | -3.600 | Stationary |
| Δ Immunization Coverage | -3.791 | -3.000 | -0.874 | -3.600 | Stationary |
| Δ Access to Safe Sanitation | -5.547 | -3.000 | -3.173 | -3.600 | Stationary |

Note: Δ *indicates first differenced variables.*

The Unit Root test and Augmented Dickey-Fuller test conducted above and show that time series data used for this analysis is stationery and therefore the analysis would help to predict for the future. However, we do not know whether the variables co- integrated over the time i.e., they have the tendency to move together. For example, if infant mortality decreases over time then it might have increasing effect on the life expectancy.

Statistically, two variables are said to be co integrated if they show a long term relationship between them. Co- integration[5] is another significant test which implies that if two variables are co integrated then there is a long term correlation between the variables under consideration. The test also helps to identify spurious regression problem[6] (Granger, 1986). If the variables included in a model are integrated in the same order then they may be co-integrated suggesting that results may be used for predicting long run relationships. For this we applied "Augmented Engle-Granger" test to determine co-integration among the variables. The results of co-integration test for the model are presented in table 5. Significant negative test statistic for $\breve{\gamma}$ suggests the rejection of unit root hypothesis and evidence for co-integration i e. variables are co-integrated.

**Table 5 : Results of Unit Root Test (First Differenced Variables)**

| Co-integrating Variables | Constant, No Trend | | Constant, Trend | | |
|---|---|---|---|---|---|
| | Test statistic | Critical value at 5% | Test statistic | Critical value at 5% | Decision |
| Life expectancy, aid, adult literacy, per capita domestic product, electricity, immunization, physician, hospital, sanitation | -5.426 | -3.000 | -5.295 | -3.600 | Co-integrated |

## Relationships and Interpretations of the Results

It has already been shown through different tests that the variables considered in model are integrated. The simple regression model and the associated coefficients; t-values and p-values are shown in table 6. Using the coefficients of Table 6, the regression model can be expressed as:

LE = 70.6931 + 0.0356 AID -0.1460 ADUL+0.0128 PGDP +0.0605 ELEC -0.0943 IMR – 0.0005 PHYS + 0.0003 HOPS --0.0380 IMM – 0.0340 SAFE

Among the variables considered, the variables aid utilization, per capita GDP, infant mortality, person per physician and immunization coverage are statistically significant demonstrating that life expectancy is influenced by these variables. The model also fits the

[5] Two variables are said to be co integrated if they have a long-term or equilibrium relationship between them.
[6] A problem that arises when regression analysis indicates a relationship between two or more uncorrelated time series processes simply because each has a trend is an integrated time series.

data because the statistical test of F is significant. The adjusted $R^2$ implies that about 98 % of the variation is explained by the variables considered in the model implying that variables considered in the model are all appropriate to explain the overall health status of the population.

The coefficient of aid utilization is positive indicating that aid and its effective utilization in health sector has impact on the life expectancy i.e. overall health status of the population. Similarly per capita gross domestic product is positively associated with the life expectancy suggesting that the higher is the per capita domestic product, the higher will be the socio-economic conditions of the population and the higher will be the expenditure on health at the household level, which in turn means higher survival of under five mortality. The higher survival of infants and under five children will directly contribute to the increase in the life expectancy of the population. The infant mortality has negative effect on the life expectancy indicating that decreasing the infant mortality higher life expectancy can be expected.

In any country among the deaths a vast majority of deaths occurred among the children **a**ged under five years. Therefore, decreasing under five mortality and in particular neonatal and infant deaths will have a larger contribution to the increase of life expectancy. Persons per physician are also important determinant of health status of the population. The higher is the number of physicians in a facility meaning that they now can treat more people than it was 10 years ago. Besides government medical colleges including private medical colleges are also producing MBBS graduates and consequently this will have a positive impact on the overall health status of the population. The higher availability of physicians means greater access to the people in the health care facility. The increased utilization of health facility and treatment by professional and skilled doctors mean morbidity will decline and many deaths can be saved and consequently this will have positive effect on the life expectancy of the population.

Immunization coverage saves millions children every year. Immunization coverage is also statistically significant indicating that higher is the immunization coverage the lower will be the infant mortality. The relationship with the life expectancy will not be direct and this will have confounding effect through infant mortality. We also made attempt considering the infant mortality as the dependent variable and the remaining variables are independent variables, the model results are unsatisfactory since only three variables such as aid

utilization, immunization coverage and life expectancy are the correlates of infant mortality. For this reason, findings from this model are not shown.

**Table 6: The regression coefficients, t-value and the p-value**

| Independent Variables | Coefficient | t-value | p-value |
|---|---|---|---|
| Aid Utilized | 0.0356 | 7.10 | 0.000 |
| Adult Literacy | -0.1460 | -1.78 | 0.096 |
| Per-capita GDP | 0.0128 | 2.35 | 0.033 |
| Electricity Users | 0.0605 | 0.72 | 0.480 |
| Infant Mortality | -0.0943 | -3.08 | 0.008 |
| Persons per Physician | -0.0005 | -2.49 | 0.025 |
| Persons per Hospital Bed | 0.0003 | 0.65 | 0.528 |
| Immunization Coverage | -0.0380 | -3.93 | 0.001 |
| Access to Safe Sanitation | -0.0340 | -0.66 | 0.521 |
| Constant | 70.6931 | 13.40 | 0.000 |
| F (9,15) | 134.95 | | 0.000 |
| $R^2$ | 0.9878 | | |
| Adjusted $R^2$ | 0.9805 | | |

## Discussion and Conclusion

A detailed investigation of the aid data show flow of aid increased substantially between 1980 and 2004 with significant increase in 1990s. During this period government's share in health sector also increased considerably . In 2004 government's contribution to health sector was about 35%. Demographic survey data show a significant fall in infant and under five mortality. The econometric analysis shows that utilization of aid, infant mortality, per capita domestic product and persons per physician and immunization coverage are important correlates of life expectancy, the overall health status of the population indicating aid effectiveness in the health sector. The contribution of the foreign aid plays a significant role for the capacity building, infrastructure development and interventions for improving the maternal and child survival in the health sector.

REFERENCES

Health for all in Bangladesh Lessons in Primary Health care for the Twenty-First Century by Henry B Perry UPL, Dhaka.

BBS : 2000,2001,2002,2003,2004,2005 published by Ministry of Finance, Government of the People's Republic of Bangladesh.

Bangladesh Demographic and Health Survey 2007. Dhaka: National Institute for Population Research and Training, Ministry of Health and Family Welfare, Government of Bangladesh.

BHSR (1985): Bangladesh Health Services Report. Published by the Directorate General of Health Services, Government of the People's Republic of Bangladesh: 1-85

Mitra SN, Al-Sabir A, Cross AR, Jamil K (1997): Bangladesh Demographic and Health Survey 1996-1997. National Institute of Population Research and Training [NIPORT], Dhaka, Bangladesh, xxii: 252.

MOHFW/GOB (1999): Health and population sector programme (HPSP) 1998-2003. Published by the Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh. Nabodiganta, (5): 1-8

Preliminary report on the household and income expenditure survey 2005. Dhaka: Bangladesh Bureau of Statistics.

BRAC (1991). "A Tale of Two Wings: Health and Family Planning Programmes in an *upazila* in Northern Bangladesh", Rural Study Series, No. 06, 1991.

Chaudhury N and JS Hammer, 2003, 'Ghost Doctors: Absenteeism in Bangladeshi Health Facilities', World Bank Policy Research Working Paper 3065.

FMRP (2006a). Social Sector Performance Surveys: Primary Health and Family Planning in Bangladesh: Assessing Service Delivery, OPM, Oxford and Financial Management Reform Programme, Dhaka.

IMED (Implementation, Monitoring and Evaluation Division) (2003). Health and Population Sector Programme evaluation, Ministry of Planning, GOB, Dhaka.

Shahid AM (1997). Strategies for accountability in health and family planning. *In:*Report on human resource development in health and family planning in Bangladesh: HRD strategy for change. Dhaka: MOHFW, Government of Bangladesh (Draft).

Streatfield K *et al.* (2003). HPSP (1998-2003), Bangladesh status of performance indicators: a report for the health programme support office for the annual programme review. Dhaka: ICDDR,B.

Sundewall J, Forsberg BC, Tomson G (2006). Theory and practice: a case study of coordination and ownership in the Bangladesh health SWAP. Health research policy and systems 4-5.