

## The Role of Health in the Economy of Pakistan

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### Abstract:

*In this study, the impact of health on economic growth was investigated. The significant issue for small countries is low economic growth. The conditions of health are low in poor countries. We have estimated that how health linked factor influence the economic production of the Pakistani economic organization. The time series is used from 1979 to 2009 employed as the secondary resource of data. GDP and health facilities are related to each other by positive relationship. If health facilities increase, GDP also increased. Life expectancy and health facilities are linked to each other by positive relationship. The increase in health facilities increased the life expectancy. If health services increase people are more genetic than GDP rises. The economic growth was estimated by using autoregressive distribution lag method (ARDL). Different variables are used such life expectancy GDP and health facilities. It was concluded by this study that better health amenities donate more in economic growth and advice that by growing the share of health expenses in fund, government should offer good health facilities.*

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**Key words:** health, economy, Pakistan

## **Introduction:**

Health is one of the most important components of economic development. The health of people is considerably effected the growth of economy. Energy is transformed by healthier people in it more productive form then result GDP increase. The growth of Pakistan is adversely affected, the reason is that clean drinking water is not available and poverty is common. With special reference to economies like Pakistan, the link between effect of health and economic growth for formulation of pro-growth policy is of great importance (Umer *et al.*, 2013).

Four channels can accelerate the economic growth such as

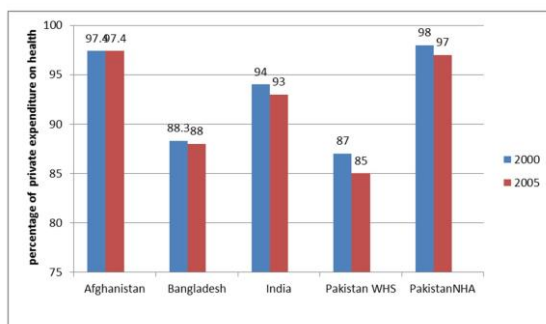
- I. By increasing productivity of labor.
- II. By increasing labor supply
- III. By increasing skills due to higher education and instruction.
- IV. By effecting savings and investment. (S. Akbar).

As healthy person can work for long time so healthy labor force of healthy person can efficiently increase the production of employment. The new technology can be handled in an efficient way by physically and mentally healthy workers. There is a link between wage levels in an economy and productivity. So when health conditions are better, the productivity of labor increases which raises the trend of wage. It was suggested by Human capital theory that the productivity can be increased by increasing the level of learning The people that are not healthy no discover more chances to get education as healthy people. Not only income levels are greatly determined by health conditions but the distribution of this investment between saving and investment is also influenced by the health outcomes (Landmann *et al.*, 2015).

Life expectation is 64 years for men and 66 for women; 50% of the adult population is illiterate. Out of 10 children, one died before 5 years age. It is estimated that there are 87000 people that are living with HIV in Pakistan. In 2004/05, 66% of the population of Pakistan had right to use to a tap or hand water pump (Izham *et al.*, 2009).

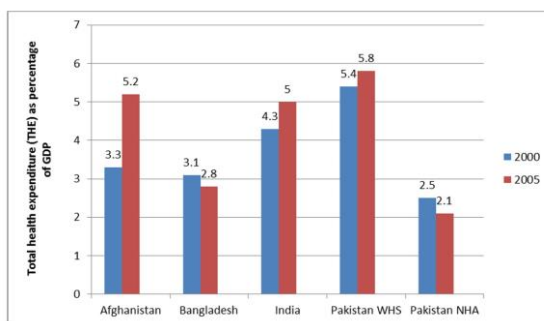
The country with high GDP per capita (Canada, Japan, Norway, United States, United Kingdom) has higher life expectancy at birth along with lower unemployment. On the other hand the countries where GDP per capita is comparatively lower e.g. Bangladesh, Egypt, India Sudan have high rate of unemployment. Despite lower GDP per capita, Sri Lanka has made a remarkable improvement in life expectancy at birth mainly due to the extensive social services.

Economic development life expectancy at birth and infant mortality rate each of which is also a common index of health. (Ajman, 2009).



Private expenditures consist of expenditures by households, firms, nonprofit organizations, and medical insurance schemes. But outside a few high-income nations, private expenditures consist predominantly of household (Rannan-Eliya, 2008). According to WHO figures, in Pakistan the percentage of total private expenditures on health is relatively high, with 98.2 percent in the year 2000 and 98.0 percent in 2005. The official NHA figure is comparable, at 99.7percent.

**Figure 2: Total Health Expenditure (THE) as Percentage of GDP**



According to figures, as a percentage of gross domestic products (GDP) in Pakistan decreased from 2.5 percent in 2000 to 2.1 percent in 2005. But according to official NHA figures, this has a share of 2.6 percent. Overall, in Pakistan is relatively low in the international comparison.

Life expectancy is the number of years a person would be expected to live, starting from birth and it measures quantity rather than value of life. Internationally it is experimental that high life expectancy is associated with high income per capita better hygienic effective birth control and other better facilities. Women's has high life expectancy as compared to man. Currently the global life expectancy for both male and female is 70 years. However, while consider it gender reasonable the life expectancy for males is 68 years and for females is 73 years –a difference of five years .The average of life expectancy has improved in Pakistan 64.6 in 2013 to 64.9 in 2014 for male and for female it has improved from 66.5 in 2013 to 66.9 in 2014. (Ahmad, 2009)

If health facilities are provided then GDP is also increase. If health services increase life expectation increases.

Health is very important factor. Health played an important role in effecting the nation state of Pakistan. The time period is used 1980 to 2009 in this study. So the mean of my mission is to examine the effect of

- GDP
- Life expectancy
- Health facilities

There are numeral of study that have predictable the impact of health on economic grow in different countries. Some of the studies are presented in this sector. Bloom *et al.* (2001) examine that by means of the help of non-linear regression, the panel data for 1960-90 e showed that how health effect the growth of economy of different counties.

For input physical capital (labor) and human capital were used as their production function (education, and health). It was resulted from founding that the economic growth was positively and significantly affected the health. It was also showed by result that by increasing the one year of population, population's life expectancy increased to 4 percent. Moreover, it was recognized by the effect that if government expenditures increased, it has positive impact on labor productivity. Rico, *et al* (2005) studied the impact of health on profitable expansion. The independent variables were used as development, labor force involvement rate, education, and standard of living, atmosphere, and healthiness services. The connection was estimated by using simple ordinary least square (OLS). It was found that there is a positive relationship between economic growth and all variables. It was showed by the result that by improving standard of health, economic growth can be raised as a result poor quality reduced. Likewise, a study by Cole and Niemeyer (2006) showed that poor health is one of the major causes of low productivity of labor that ultimately affected negatively on economic growth. Akrams *et al.* (2008) showed that human capital played an important role in continuous economic growth in Pakistan by using secondary data and co-integration techniques. They used age dependency, trade openness, life expediency, health expenditures, infant mortality rate, investment percentage of GDP, GDP of per capita and inferior school employment. This study show that GDP per

capita was the dependent variable and all others were independent variables. Their conclusion show that trade openness, health expenses secondary school enrollment, investment, life expectancy and mortality rate were positively related to economic growth. They suggest that in Pakistan, people have inferior per person income that is why they spend less on health amenities therefore, the administration must enhance the income of labor to make easy their life. Bloom *et al.* (2010) recognized that from low productivity agriculture to the high productivity industrial sector; there was an effect on economic growth of the distribution of employment earnings. They used (OLS) method. As explanatory variables, they used GDP per capita, investment, trade residual, average year of training, life expectancy and operational age residents .A positive relationship was showed between investment, trade residual, life expectancy, working age population and financial development and the negative relationship between GDP per capita, middling year of training and economic enlargement. Narayan *et al.* (2010) investigated the relationship by using panel data from 1974-2007 between health and economic growth in five Asian countries. While using the co-integration technique, investment, exports, imports, education and R&D are studied. The impact on economic growth was found to be by health, investment, exports, education, and R&D. The statistically significant effect was found to be by imports but negative and insignificant effect on growth was found by education. It was suggested by them that by improving health facilities economic growth can be improved. Peykerjou (2011) studied the relationship between health and economic growth in 15 member countries of Organization of Islamic Cooperation (OIC) for 2001-2009. The objective of this study was to examine the effects of different health indexes on the economic growth. The results showed that increase in economic growth in OIC countries was also due to increase in life expectancy. It was also observed in this study that there was a negative relationship

between fertility and economic growth in these OIC member countries. Redman and Jangraiz (2012) tested a common hypothesis that whether health accelerates economic growth in Pakistan? Growth accounting method, ordinary least squares and Johansen co-integration tests were used in this study for the time period from 1971 to 2008. Ordinary least square (OLS) showed that health, labor and R&D are the basic determinants of economic growth in Pakistan. The Long run relationship between health and economic growth were also confirmed by co-integration test. Tekabe (2012) studied the impact of school enrollments, the fertility rate (total births per woman), mortality and life expectancy rates on growth in low income countries and sub Saharan African. He found that economic growth was influenced by mortality and fertility rates He also concluded that there was no underlying relationship between per capita income and health while bidirectional relationship was found between per capita GDP and mortality rate. This study also suggested that simultaneity exists between per capita GDP and health.

The brief literature review presented in this section confirms that there is a positive link between increase in health expenditures and economic growth. Furthermore, it can be seen in the review of different studies that even though different methodologies and indicators have been used by different researchers but overall result indicate that health of citizens affect the economic growth positively.

### **Methodology:**

The study is used to analyze the role of health in the economy of Pakistan from 1980 to 2009.the main purpose of this study is to estimate the impact of health in the economy of Pakistan using the control variable health facilities.

**Table of 1 labeling the variables and source of data**

| Label | Variables         | Source of data                    |
|-------|-------------------|-----------------------------------|
| GDP   | GDP performance   | World development indicator (WDI) |
| LX    | Life expectancy   | World development indicator (WDI) |
| H.F   | Health facilities | World development indicator (WDI) |

**Methodological Framework:**

The aim is that role of health facilities is the function of gross domestic product and life expectancy.

Mathematically Model

$$GDP=f(LX, H.F)$$

$$GDP=BO+B1(LX) +B2(H.F) +Ut$$

GDP=gross domestic product

LX =Life expectancy

H.L =Health facilities

Hypothesis Model

Ho: B1=0 Life expectancy did not affect the GDP

H1: B1≠ 0 Life expectancy did effect on GDP

H0:B2=0 Health facilities did not affect the GDP

H1:B2≠0 Health facilities did effect on GDP

The unit root test is used to test the stationary of variables.

| Variables         | Result of Augmented dickey Fuller |                 |                                     |                     |
|-------------------|-----------------------------------|-----------------|-------------------------------------|---------------------|
| GDP               | 7.114071                          | 1%<br>5%<br>10% | -4.28458<br>-3.562882<br>-3.215267  | At level            |
| Life expectancy   | 4.943116                          | 1%<br>5%<br>10% | -4.356068<br>-3.595026<br>-3.233456 | At first difference |
| Health facilities | 4.733255                          | 1%<br>5%<br>10% | -4.284580<br>-3.562882<br>-3.215267 | At first difference |



**Table 1 Variable Addition Test (OLS case)**

|                               |          |         |
|-------------------------------|----------|---------|
| Lagrange Multiplier Statistic | CHSQ( 3) | 19.1202 |
| Likelihood Ratio Statistic    | CHSQ( 3) | 33.2514 |
| F Statistic                   | F(4,22)  | 8.2168  |

The exceeding result of the variable additional test verified that their exit long run relationship between GDP and health facilities F statistic F-statistic shows no co-integration because of rejection of null hypothesis The Long run relationship between health and economic growth were also confirmed by co-integration test as suggest Redman and Jangraiz (2012)

**Table: 2**

Estimated Long Run Coefficients using the ARDL approach selected based on Akaike Information Criterion (1, 2, 1) selected based on Akaike Information Criterion

Dependent variable is GDP

28 observations used for estimation from 1982 to 2009

| Regression | Co-efficient | Standard error | T Ratio [Probe] |
|------------|--------------|----------------|-----------------|
| LX         | 75.6726      | 34.5063        | 2.1930[.040]    |
| H.F        | .15258       | .058882        | 2.5913[.017]    |
| C          | -2847.4      | 2248.9         | -1.2661[.220]   |

The empirical result of long run model is obtained by normalizing the GDP show in the above table. Most of the economist shows the positive relationship between health facilities and in GDP because GDP increase health facilities are also increase. Health expenditures and real GDP are also positively related because people spending, high in health so diseases become reduced and people participation high in economics of Pakistan. Life expectancy and GDP are also positive relationship because life expectancy increase GDP is also increase. (F-Statistics) is used to establish the long run relationship between dependent and independent variables. Augmented Dickey and Fuller (ADF) test is used to check the

order of integration. The use of ARDL model should be justified on the basis of ADF test i.e. if all variables are integrated in different orders such as I(0) and I(1) only then auto regressive distributed lags model (ARDL) can be used. If the calculated value of F-Statistics is greater than the tabulated value then the null hypothesis is rejected and consequently alternative hypothesis is accepted and vice versa.

| Repressor | Coefficient | Standard Error | T-Ratio[Prob] |
|-----------|-------------|----------------|---------------|
| dLX       | -4486.3     | 1132.3         | -3.9622[.001] |
| dLX1      | 3705.6      | 1165.8         | 3.1787[.004 ] |
| dHF       | -.20816     | .10868         | -1.9153[.069] |
| dC        | -953.6980   | 807.0755       | -1.1817[.250] |
| ecm(-1)   | -.53494     | .17771         | -1.8848[.073] |

Once identifying of the long run relationship among life expectancy and health facilities therefore it is command to establish the short run dynamic we used the error correction verify the reality of a short-run relationship among foreign direct investment and export in Pakistan. Error correction model (ECM) worth shows the speediness of convergence which is close to concerning 84004. The value of the ECM shows that 53% (per cent) convergence get position in one year.

Model (ECM). From the above table elaborates the (ECM) model result that verifies.

As of lower Table, elaborates the Error correction model mode results that verify the reality of a short-run relationship among health facilities in the economy of Pakistan. The negative value of the Error correction model (ECM) -.53494 value shows the speediness of convergence, and divergence shows positive value mean the economy has left away from the learning begin point.

|                    |         |                   |              |
|--------------------|---------|-------------------|--------------|
| R-Squared          | .62169  | R-Bar-Squared     | .50820       |
| R-square           |         |                   |              |
| S.E. of Regression | 29.2449 | F-stat. F( 4, 22) | 8.2168[.000] |
| Mean of Dependent  | 21.9411 | S.D Dependent     | 41.7019      |

|                         |           |                            |           |
|-------------------------|-----------|----------------------------|-----------|
| Variable                |           | Variable                   |           |
| Residual Sum of Squares | 17105.3   | Equation Log-likelihood    | -125.4040 |
| Akaike Info. Criterion  | -132.4040 | Schwarz Bayesian Criterion | -136.9394 |
| DW-statistic            | 1.7514    |                            |           |

### Policy Suggestions:

- i. We propose that to get better the economic development can provide the health facilities. To progress the child health and nutrition effect to improve the economic growth.
- ii. A sufficient number of health care workers should be qualified and deployed, particularly at the lower level amenities.
- iii. The government should increase the contribution to the health segment in the budget.

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