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# Impact of Private Health Expenditure on the Economic Growth of Pakistan

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## ABSTRACT

**Aim of the Study:** This study examines the influence of private health expenditures on Pakistan's economic growth.

**Methodology:** This study took data from 1985 to 2019, utilizing an ARDL approach and various econometric methods to conclude. The model applied in this study is structured around a specific theoretical framework. The growth equation, extending the basic neoclassical growth model, follows Barro (1996) as developed by Bloom and Canning (2004) and subsequently used by other researchers.

**Findings:** Findings reveal a significant negative relationship between age dependency and current health expenditure on economic growth, while private health expenditure and population demonstrate a strong positive effect on growth. Private health expenditures promote healthy human capital which results in economic growth.

**Conclusion:** Pakistan's health sector is substantially impacted by population dynamics, and although health expenditures are generally progressive, some subcategories at provincial and regional levels show a regressive trend. The private sector plays a critical role in health service provision, influenced by either government policy or the absence thereof.

**Keywords:** Health Expenditures, Economic Growth, Age Dependency, Health Services.

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## Introduction

Health is an important sign to see the living standards of the country. Therefore, health expenditure made by the Government and the private sector is an important factor in accumulating human capital. National health protection is increasingly defenseless due to population, environmental pollution, rising urbanization, and changing citizens' lifestyles, among other factors. Good health access can certainly contribute to a country's social and economic development. Health extends beyond merely being free from illness; it encompasses the capacity for individuals to cultivate their vitality throughout their lives (Mclennan, 2022). In this regard, health is a valuable asset, holding intrinsic worth as a fundamental source of well-being, along with practical value (Dugarova & Gülasan, 2017).

In developing countries, government expenditure on the health sector is less than in developed countries (Ahmed & Shaikh, 2008). Therefore, with less availability of healthcare facilities citizens become unhealthy. Healthy employees work better and more than others and have a creative and more prepared mind. Health plays an important role in human capital like the productivity of labor. Healthy people are more effective and energetic. Pakistan's Government Health Expenditure is less than other countries (Siddiqui et al., 1995). Moreover, the intervention of the private health sector plays a very important role in developed countries as well as developing countries. Therefore, this study is unique; not only the government sector as well as the private sector also plays a significant role in the economy.

This research is based on the investigation of the link between health and economic growth of Pakistan.

### *Objectives*

1) Identifying the private health expenditure in the economic growth of Pakistan.

2) Finding the role of government in the expansion of health care.

## Literature Review

Usman (2020) explored the effects of an aging population on healthcare spending in Pakistan from 1995 to 2014, examining variables such as per capita health expenditure, life expectancy at birth, real GDP, and the aging index. The findings indicate a positive and significant relationship between both the aging index and per capita healthcare spending, with real GDP per capita and life expectancy also showing a positive correlation. The study underscores the significant impact of an aging population on healthcare expenditures, particularly with a positive, significant influence from the aging index.

Aboubacar and Xu (2017) analyzed the effect of health expenditures on economic growth in Sub-Saharan Africa using data from 1995 to 2014, focusing on GDP per capita growth, official development assistance, gross domestic saving, foreign direct investment, and per capita health expenditure. They found that official development assistance had no positive effect on the region's economic growth, while health expenditure per capita (HEPC) showed a weakly positive but significant effect, with a coefficient of 0.157.

Micheal (2014) investigated the factors driving public health expenditure in Ghana from 1970 to 2008. Key variables included public health spending, real GDP, life expectancy, and the crude birth rate. The study concluded that improvements in life expectancy would likely increase public health spending and that the crude birth rate has a strong positive relationship with health expenditure. Real GDP, life expectancy, and birth rate were identified as the primary drivers of Ghana's public health expenditure, with empirical results that are robust and stationary.

Oni (2014) examined the influence of health expenditure on Nigeria’s growth from 1970 to 2010, using variables like GDP, gross capital formation, health expenditure as a proxy for human capital, and life expectancy. Results indicate that gross capital formation positively impacts domestic output, significant at the 3% level. Health expenditure also has a positive effect on economic growth, significant at the 1% level, and income similarly contributes positively.

Omer (2013) studied how health outcomes contribute to economic growth in Pakistan, using data from 1975 to 2010 and variables such as GDP, gross fixed capital formation, employed labor force, hospital bed availability, health spending, and inflation (CPI). The study found significant relationships between health expenditure and gross fixed capital formation with economic growth, while an increase in hospital beds notably boosts growth. The employed labor force showed a significant long-term positive effect on growth, where each unit increase contributed to a 0.14 unit rise in economic growth. Inflation also had a positive, significant impact on economic growth at 0.03 percent.

Ramesh & Nishant (2004), investigate the time series analysis of private healthcare expenditures and GDP for the time covering 1961 to 2003 by using the following variables private health expenditures,

and private consumption expenditures. The study found that the long-term equilibrium relationship between income and health expenditures has a positive and significant relationship. The private health expenditure as percent of per capita income was 2.4 percent in 1960 and has risen to 5.8 percent in 2003. The study finds that significant increase in private expenditure on healthcare.

The private health sector is playing a very important role in developed countries as well as developing countries. Therefore, this study is unique; not only the government sector as well as private sector is also playing a significant role in the economy.

## Data and Methodology

To explore the link between private health expenditure and economic growth, various health variables can be assessed. Health indicators are generally divided into two categories: health input indicators and health output indicators. Health input indicators include spending on health services, as well as the availability and quality of healthcare facilities, while health output indicators cover aspects like age dependency and population growth.

### *Theoretical Framework*

In 1965, Buchanan introduced a model encouraging public authorities to increase health-related public spending irrespective of demand. This theory suggests that inefficiencies in healthcare delivery should be attributed to quality issues, such as congestion, inadequate infrastructure, and unequal resource distribution, rather than a lack of supply. The influence of public and private health investments on economic growth is embedded in endogenous growth models. Multiple models emphasize human capital's role in economic growth, with Barro (1991) and Bloom (2004) recognizing it as a fundamental growth factor. The neo-classical growth model links economic expansion to savings and population growth, with Solow noting that higher savings rates correspond with increased per capita income. According to Solow's model, population growth and savings are key drivers of per capita income across nations.

### *Methodology*

This study uses a modified neo-classical Solow production function and employs multiple regression techniques to examine the relationship between health expenditures and economic growth. The model is based on an aggregated production function.

$$Y = AK^{\alpha} L^{\beta}$$

The model expresses Real output (Y) as a function of A as the total factor of productivity, Capital stock (K), and Labor factor (L).

### *Model Specification*

The model applied in this study is structured around a specific theoretical framework. The growth equation, extending the basic neoclassical growth model, follows Barro (1996) as developed by Bloom and Canning (2004) and subsequently used by other researchers.

$Y=f(PHE,CHE,POP,AD)$

Here, the aggregate real output (YYY), representing economic growth, is proxied by Gross Domestic Product (GDP). Private health expenditure (PHE) serves as a proxy for capital stock, while Current health expenditure (CHE) represents human capital. The labor factor is represented by Population growth (POP), and the Age Dependency Rate (AD) indicates the ratio of individuals under 15 or over 64 relative to the working-age population. Based on these specifications, the model can be reformulated as follows:

$GDP = \beta o + \beta 1PHE + \beta 2CHE + \beta 3POP + \beta 4AD + \mu i$

ARDL model for GDP (Growth Rate) is given below which explains the relationship with age dependency, private health expenditure, current health expenditure, and population.

$$\Delta(GDP)_{t} = \beta_0 + \beta_1(AD)_{t-1} + \beta_2(PHE)_{t-1} + \beta_3(CHE)_{t-1} + \beta_4(PoP)_{t-1} +$$

$$\sum_{i=1}^{p1} \delta_1 \Delta (GDP)_{t-i} + \sum_{i=0}^{p2} \delta_2 \Delta (AD)_{t-i} + \sum_{i=0}^{p3} \delta_3 \Delta \beta_3(PHE)_{t-i} +$$

$$\sum_{i=0}^{p4} \delta_4 \Delta (CHE)_{t-i} + \sum_{i=0}^{p5} \delta_5 \Delta (PoP)_{t-i} + \mu_t$$

***Dependent Variable***

GDP (Gross domestic product)

***Independent Variables***

PHE = Private health expenditure

CHE = Current Health expenditures

POP = Population growth

AD = Age dependency

$\mu_i$ = Error term

Table 1: *Descriptions of Variables*

| S.No | Variables | Introduction | Measurement |
|---|---|---|---|
| 1. | GDP | GDP represents the total value of all final goods and services produced within a country's borders. | Annually (Percentage) |
| 2. | PHE | Private health expenditure refers to spending from pooled resources that operate independently of government control. | Percentage of (Current health expenditure) |
| 3. | CHE | Current health expenditures encompass healthcare goods and services utilized within each year. | Annually (Parentage of GDP) |
| 4. | POP | Population growth refers to the rise in the number of individuals within a population. | Annually (Percentage) |
| 5. | AD | The age dependency ratio is defined as the proportion of people under 15 or over 64 compared to the working-age population. | Rate |

***Data***

This study utilizes time series data from 1985 to 2019, sourced from secondary data, to assess the relationship between health spending and economic growth. Aiming to identify long-term relationships between private health expenditures and the other variables mentioned, this research employs a unit root test to verify data stationarity.

## Empirical Results

The F-statistic exceeds the critical value of upper bound, rejecting the null hypothesis and supporting the conclusion that a long-run relationship exists involving the dependent variable and independent variables. To evaluate the impact of private health expenditure to economic growth, the ARDL model is used as the estimation technique. Cointegration is tested using the bound test.

Table 2: *Long Run Results Autoregressive Distributed Lag Result*

| Variable | Coefficient | Std. Error | t-Statistics | Prob. |
|---|---|---|---|---|
| **CHE** | -2.962876 | 1.409678 | -2.101810 | 0.0574 |
| **PHE** | 0.483054 | 0.194837 | 2.479273 | 0.0290 |
| **POP** | 10.729290 | 2.989333 | 3.589192 | 0.0037 |
| **AD** | -0.580107 | 0.163345 | -3.551419 | 0.0040 |
| **C** | -10.150998 | 17.395689 | -0.583535 | 0.5703 |

Source: Author's calculations.

Study Results show that Age dependency has a negative coefficient (-0.580107) with a significant relationship in the long run with economic growth reason behind that is government and as well as private sector must pay more benefits to people who often can't pump money back to the economy. Study shows that current health expenditure is also negative (-2.962876) with a significant impact reason behind the poor allocation and utilization of government spending; it fails to show a positive relationship with economic growth. However, the main variable private health expenditure has a positive (0.483054) significant relationship with economic growth. It means that improvement in health status is due to private sector spending. Whereas current health expenditures are very little; and are utilized in such a way that does not affect economic growth. Furthermore, population growth with a coefficient (10.729290) has a positive and significant relationship with economic growth; higher population growth leads to high economic growth. Positive effects of population growth on productivity due to greater specialization suggest that a larger population brings more hands to work for production and therefore contributes significantly to economic growth.

Table 3: *Short Run Results*

| Variable | Coefficient | Std. Error | t-Statistics | Prob. |
|---|---|---|---|---|
| D(CHE) | -0.895207 | 1.141232 | -0.784422 | 0.4480 |
| D(PHE) | 0.381840 | 0.093570 | 4.080795 | 0.0015 |
| D(AD) | 2.357488 | 1.454689 | 1.620613 | 0.1311 |
| D(POP) | 7.641806 | 2.180725 | 3.504250 | 0.0043 |
| CointEq(-1) | -0.938473 | 0.280806 | -3.342073 | 0.0059 |

Source: Author's calculations.

## Conclusion and Policy Recommendations

Good health is essential for building human capital, as it enhances individuals' efficiency and ultimately supports national economic growth. This study examines the impact of private health expenditures on Pakistan's economic growth from 1985 to 2019 using the ARDL approach, employing various econometric techniques for analysis. The findings indicate that age dependency and current health expenditure have a significant negative relationship with economic growth, while private health expenditure and population exhibit a positive impact. Pakistan's health sector is strongly influenced by population factors; health spending is generally progressive, though some health-related subcategories at regional and provincial levels remain regressive. The private sector plays a crucial role in healthcare provision, influenced by government policies or their absence.

### *Policy Recommendations*

- The government should enhance the quality of the health sector by increasing its budget, recognizing that a healthier population is more energetic and productive. Health spending globally rises with national wealth.
- Training and development of healthcare workers should focus particularly on lower-level facilities.
- Basic health units should be positioned close to population centers to ensure emergency care is readily accessible.
- The private sector should be encouraged to train and produce healthcare professionals in Pakistan, with effective regulation and oversight.
- Comparative studies are needed to assess the impact of private versus public healthcare on strengthening human capital.

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**Conflict of Interest**

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