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Why Does Health Expenditure Negatively Affect Economic Growth in Pakistan? An Institutional Inefficiencies Perspective

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Abstract
Health spending has been considered as one of the most critical investments in human capital and a significant source of long-run economic growth. But numerous developing economies have shown through empirical research that the relationship between health expenditure and economic performance is weak, insignificant and even negative. This paper examines the reasons why health spending impacts negatively on the economic growth of Pakistan in the years 1990- 2024 with a focus on institutional inefficiencies. Based on annual time-series data and autoregressive distributed lag (ARDL) bounds-testing method, the study approximates the short-run and long-run correlation of economic growth, health expenditure, institutional quality, education expenditure, financial development, and foreign direct investment. The findings reveal that health spending negatively impacts in the short-run and long-run economic growth with a statistically significant effect and institutional quality with a positive and significant effect. These results indicate that weak institutions hamper the effectiveness of spending on health, so that it cannot result in productivity gains and economic growth. The paper is also relevant to the health economics and institutional literature by showing that health spending in isolation does not translate to benefits of growth without effective governance, accountability and service delivery arrangements. The implications of the policy focus on institutional reforms, greater efficiency in health expenditure and a change in expenditure growth to outcome-oriented health policies.
Keywords: health expenditure; institutional quality; economic growth; governance; ARDL; Pakistan

1. Introduction
Health is a part of human capital and determinant of economic growth. A healthy population is more productive and there is less absenteeism, long working life and higher competencies to acquire and use. Therefore, the policy of government spending on health has been generally publicized as one of the growth promoting measures especially in developing economies where the disease burden and population pressures are still eminent (Bloom, Canning, and Sevilla, 2004).
Over the past decades, Pakistan has been implementing slow trends of spending

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on public health as a result of population increase, epidemiological changes and regular public health emergencies. Even with this growth, the economic growth performance of Pakistan has continued to be volatile and the gains in its health indicators have not been translated into the sustained growth acceleration. This paradox opens a significant empirical and policy query: why is greater health expenditure not associated with economic growth in Pakistan and why does it seem to be negatively associated with growth?

The traditional growth model presupposes that expenditure on health increases the labor productivity hence growth in the output (Barro, 1997; Bloom et al., 2004). Nevertheless, there is an increasing literature which proposes that the growth impact of health expenditure is extremely conditional on the quality of institutions. Corruption, misallocation, ineffective procurement, and poor service delivery are some of the inefficiencies that may define public health expenditure in weak institutional environment (Filmer, Hammer, and Pritchett, 2000). In this case, higher expenditure can be an indication of the administrative growth or consumption due to the crisis, as opposed to active investment.

Institutional economics focuses on the fact that institutions influence incentives, resource allocation, and defining the effectiveness of the public policies (North, 1990). Weak institutions can thus counter or even turn the anticipated growth payoffs of health expenditure. The institutional inefficiencies may be the key factor in elucidating the negative health-growth relationship as Pakistan is characterized by continued governance problems, as indicated by low scores on government effectiveness, control of corruption and quality of regulation. This research paper will solve this problem by assessing the effect of health spending on the economic growth in Pakistan regarding the institutional inefficiency angle between the years 1990 and 2024. This paper also separates the issue of health spending out of the larger human capital literature and directly examines why this spending does not yield positive returns to growth.

Research Question

What is the impact of health expenditure that is counterproductive to economic growth in Pakistan and what are the institutional inefficiencies that characterize this relationship?

Objectives

I. To test the long run and short run association between health expenditure and economic growth in Pakistan.
II. To examine how institutional quality affects the effect that health expenditure has on growth.
III. To determine whether the experience in Pakistan is in line with other developing economies.

The research work makes a contribution to the literature by redefining health-growth nexus as an institutional problem instead of a spending problem. It follows a methodological approach of the ARDL bounds-testing with the use of long time-series dataset. It presents empirical evidence that is Pakistan-specific, which needs weak institutions to deter productivity of health expenditure.

2. Literature Review

Health expenditure and economic growth is a component of the economic growth.

Health and economic growth have a well known theoretical relationship. Health enhances labor productivity through augmentation of physical capacity, decrease

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in absenteeism, as well as increasing the working life expectancy (Grossman, 1972; Barro, 1997). The empirical evidence on the developed economies tends to demonstrate that there is a positive correlation between the health spending and growth (Bloom et al., 2004; Barro & Sala-i-Martin, 2004).

But there is inconsistent evidence in the developing countries. According to Filmer et al. (2000), the administrative capacity to spend on the public health is weak and thus does not contribute to improving outcomes. Pritchett and Summers (1996) demonstrate that the mortality in the low-income countries does not decrease always when the health expenditure increases. The same effects are indicated by Baldacci et al. (2008) who point out that only at the desirable institutional conditions, social spending can lead to growth.

2.2 Quality of Institutions and Efficiency in the Health Sector

The quality of the institution plays a significant role in deciding the effectiveness of utilization of health resources. As indicated by North (1990) incentives are controlled by institutions and minimize uncertainty in service provision in the government. Empirically, Rajkumar and Swaroop (2008) show that public health expenditure leads to improvement in the outcome of countries that are governed well. In the case of corruption and poor accountability, efficiency of spending reduces drastically.

Kaufmann, Kraay, and Mastruzzi (2011) demonstrate that the most important determinants of the performance of the public sector are the government effectiveness and corruption control within the government. Rent-seeking, overpriced procurement contracts and misappropriation to urban tertiary care instead of low-cost primary services may divert the health expenditure in weak institutional environments.

2.3 Health Spending, Institutions and Developing Economies Growth

Some studies have found negative growth effects of health spending in developing nations and some have reported no significant effects. Gupta et al. (2001) discover that corruption is a negative factor that decreases the efficiency of health expenditure. Asgari et al. (2020) reveal that health expenditure in South Asia has not produced any growth effect because of the failure of governance. According to Nguyen et al. (2018), institutional quality mediates health-growth relationship.

2.4 Evidence from Pakistan

Pakistan-based research indicates that the health sector has continued to have inefficiencies. Hafeez and Rahim (2019) record the lapses in governance in delivering health services. Mehmood et al. (2023) discover that conditions of institutional quality moderate the effect of social spending on growth. According to Awan et al. (2024), weak institutions have canceled the payoffs of human capital investment in Pakistan.

All in all, it can be concluded that the literature proposes that health expenditure can only lead to growth with well-established institutional structures. This paper is based on this observation in which the institutional hypothesis on the inefficiencies on the institutional level is empirically tested on the case of Pakistan.

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3. Data and Methodology

3.1 Data Sources and Variables

Annual data on Pakistan is used in the study since 1990 to 2024. Variables include:

Economic Growth (EG): The real GDP growth rate.

Institutional Quality (IQI): Composite index of governance.

Education Expenditure (GEE): Government expenditure in education as a ratio of GDP.

Health Expenditure (CHE): The current level of health expenditure as a GDP.

Financial Development (FD): General measure of the development of the financial sector.

Foreign Direct Investment (FDI): Net inflows relative to the GDP.

Researchers use internationally renowned databases like the World Development Indicators and the governance indicators as sources of data.

3.2 Model Specification

The empirical model is specified as:

$$EG_t = f(IQI_t, GEE_t, CHE_t, FD_t, FDI_t)$$

3.3 Econometric Approach

The autoregressive distributed lag (ARDL) bounds-testing approach developed by Pesaran, Shin, and Smith (2001) is employed to examine cointegration and estimate both short-run and long-run relationships. This approach is appropriate given the mixed integration orders of the variables.

4. Empirical Results

4.1 Descriptive Statistics

The descriptive statistics give valuable preliminary information of behavior and distribution of the variables used in the analysis. The growth of the real GDP in Pakistan is quite volatile during the sample period (19902024), which is indicative of macroeconomic instability, political risks, external shocks and fiscal imbalances. Stagnation and contraction in between are prone to the periods of relatively high growth indicating structural weaknesses in the growth process.

Table 1: ***Descriptive Statistics***

Variables	Observation	Mean	Std Dev	Minimum	Maximum
GDP	35	3.9660	2.0784	-1.2741	7.8313
IQI	35	-0.1098	2.0784	-2.1159	2.0103
CHE of GDP	35	2.6329	0.2153	2.1402	2.9527
FD	35	44.4034	6.1154	28.6895	54.5264
FDI	35	0.9125	0.6539	0.3096	3.0357
GEE of GDP	35	2.2354	0.3596	1.4434	3.0223

Note. Authors own calculation

The percentage change in health expenditure indicates a moderate change with changes in time, which shows that it increased in intervals, but not continuously. These rises frequently go hand in hand with an emergency in the health sector, population changes, or a distribution of fiscal resources that implies the argument that the health expenditure in Pakistan is much more reactive than proactive. Institutional quality, in its turn, has average values that are continuously low with significant variations, which indicates enduring

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governance issues with regulatory effectiveness, corruption control, and performance of the public sector.

The level of education spending is more or less constant yet small in relation to GDP, which supports the worries of insufficiency in the level of investment in human capital in comparison to population demands. The financial development and foreign direct investment have a high level of variability including inconsistent financial development and inconsistent investor confidence. Generally, the descriptive statistics indicate that the economic environment in Pakistan can be in that of the weak institutional capacity, disproportionate distribution of the public spending, and irregular growth processes conditions, which can negatively affect the efficiency of the health spending.

4.2 Correlation Matrix

The correlation table presents some initial findings of linear relationship between the economic growth, health spending, and institutional quality. Growth in the economy has been found to have a negative relationship with health spending which implies that an increase in health spending has not been systematically related to better growth performance in Pakistan. Although correlation does not mean causality, this result is suggestive of possible health spending inefficiency and compliant with previous results found in developing economies where ineffective governance skews expenditure effectiveness (Filmer et al., 2000; Rajkumar and Swaroop, 2008).

Table 2: ***Correlation Matrix***

	GDP	IQI	CHE of GDP	FD	FDI	GEE of GDP
GDP	1					
IQI	0.20	1				
CHE of GDP	-0.176	0.680	1			
FD	-0.197	0.387	0.293	1		
FDI	0.075	0.271	0.179	0.198	1	
GEE of GDP	-0.141	-0.107	0.068	0.215	0.072	1

Note. Authors own calculation

The quality of institutions is positively related to economic growth, and this fact confirms the hypothesis that the quality of governance is related to the performance of the economy. Institutional quality has a positive relationship with expenditure on health and indicates that increase in governance can help in increasing health expenditure but not efficiency and productivity. There are also weak correlations between financial development and foreign direct investment and growth meaning that an intervention of these factors may be mediated by institutional and structural differences.

Notably, all of the correlation values are within accepted limits of multicollinearity, and it is reasonable to assume that the model variables can be considered jointly without any econometric issues. The hypothesis of institution inefficiency is therefore supported by the correlation analysis and this gives the requirement of the further application of multivariate econometric methods.

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4.3 Unit Root Tests

Before estimating the ARDL model, unit root tests were carried out in order to test the order of integration of the variables. The results of Augmented Dickey Fuller (ADF) tests show that the variables are integrated at mixed order with some of them being stationary at level I(0) and some being stationary after first differencing I(1). Significantly, all the variables are not integrated at order I(2), which meets a critical criterion of the application of the ARDL bounds-testing methodology (Pesaran et al., 2001).

Mixed integration orders also confirm the applicability of the ARDL methodology that can be used to enable consistent estimation of the short-run and long-run relationships in a small sample.

Table 3: *ADF Results*

Variables	Level	1st Difference	
GDP	-4.6078 (0.0008)	-15.0675 (0.0000)	I(0)
IQI	-3.1772 (0.0302)	-8.6866 (0.0000)	I(0)
CHE of GDP	-1.9823 (0.2928)	-4.7030 (0.0006)	I(I)
FD	-2.1814 (0.2163)	-4.6945 (0.0006)	I(I)
FDI	-1.8842 (0.0443)	-3.7961 (0.0069)	I(0)
GEE of GDP	-2.1620 (0.2231)	-8.1855 (0.0000)	I(I)

Note. Authors own calculations

4.4 ADRL Cointegration Test

ARDL bounds test was also used to study the presence of long-run equilibrium relationship between economic growth, health expenditure, institutional quality, education expenditure, financial development, and foreign direct investment. The calculated F-statistic is greater than the upper critical value at the 5 percent level and the null hypothesis of no cointegration is rejected.

Table 4: ***ARDL Short Run Results***

Variables	Coefficient	Std-Error	t-stat	Prob
C	47.4903	6.1238	7.7550	0.0000
D(IQI)	0.3686	0.4658	0.7913	0.4411
D(CHE-OF GDP)	-7.6559	2.8455	-2.6905	0.0168
D(FD)	-0.1686	0.0969	-1.7394	0.1024
D(FDI)	2.3475	0.9633	2.4368	0.0278
D(GEE-OF GDP)	1.2251	1.1682	1.0488	0.3109
ETC	-0.8839	0.1393	-7.7837	0.0000

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R-Squared	0.7996
Adjusted R-Squared	0.7041

Note. Authors own calculations

This finding supports the fact that there is a stable long-run relationship between the variables, which means that health expenditure, institutional quality, and other control variables would move in the direction of economic growth in the long run. With the existence of cointegration it is possible to interpret both long run coefficients and short run dynamics involving the use of the error correction model. Cointegration has also been suggested in the literature on social spending and economic growth of developing economies (Baldacci et al., 2008; Nguyen et al., 2018).

4.5 Long-Run ARDL Estimates

The ARDL estimates that exist in the long-run show that the effect of health expenditure on economic growth in Pakistan is statistically significant and negative. This observation indicates that in the long run, health spending growth has not resulted in productivity or accelerated growth. Rather, the source of health spending seems to be a fiscal burden, in line with the fact that inefficient distribution, corruption, and incompetence of governments hinder its productivity.

Table 5: ***Long Run Results***

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IQI	4.034	1.689	2.388	0.0305
CHE	-14.964	4.986	-3.001	0.0090
FD	0.203	0.114	1.772	0.0967
FDI	-2.062	0.939	-2.194	0.0444
GEE	-1.729	1.837	-0.941	0.3614
@TREND	-0.192	0.101	-1.893	0.0779

Note. Authors own calculations

Institutional quality, on the contrary, has a positive and statistically significant long-term impact on economic growth. This finding confirms the theory of institutional economics, which highlights the fact that good governance institutions also improve resource distribution, lower transaction costs, and sustainable growth (North, 1990; Rodrik et al., 2004). It has been found that education expenditure and financial development are not statistically significant which implies that their growth impacts are not unconditional on the spending levels.

The long-run results are consistent with other past researchers indicating that the contribution of social sector spending to growth is only possible in a setting that has good institutions and governance (Rajkumar and Swaroop, 2008; Mehmood et al., 2023).

4.7 Long-Run Dynamics and Model of Error Correction

The error correction representation of the ARDL model was used to estimate the short-run dynamics. The error correction term (ECT) coefficient is negative and

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statistically significant which proves that the relationship between the long-run equilibrium is stable. The size of the ECT shows that a large fraction of short run disequilibrium is removed in a year hence relatively quick adaptation to long run equilibrium after an economic shock.

In the short-run, the impact of health expenditure alteration remains negative and statistically significant to the economic growth. This would imply that the period of increasing health expenditures within a short term, which can be linked to responding to an emergency or emergency financing, could be coincident with a downturn in the economy. Institutional quality presents a positive short-run correlation with growth, but with a lower value than in the long-run, which indicates that there is a lag before governance reforms can be converted into economic results. The results of this study support the claims that health spending in Pakistan is more of a reactive than growth-oriented venture and that institutional capability is very important in the short and the long-term viability of health spending.

4.7 Diagnostic and Stability Tests

To make sure that the estimated ARDL model is robust, a number of diagnostic and stability tests were performed. According to standard diagnostic tests, the estimated coefficients have been reliable as there is no serial correlation, heteroskedasticity, and misspecification with functional form.

The CUSUM and CUSUM of Squares (CUSUMSQ) tests were also used to test stability of the model. The plots of both statistics are within the critical bounds of 5 percent, and this shows that the parameters are stable during the period of the sample. This proves the fact that the estimated relationships between health expenditure, institutional quality, and economic growth are not volatile, but rather not due to structural instability or regime transformation. The stability levels further increase trust in the validity of the long-run and short-run estimates and are in agreement with the results of similar ARDL based studies on the public expenditure and its growth (Pesaran et al., 2001; Baldacci et al., 2008).

4.8 Summary of Key Findings

In sum, the ARDL findings offer strong arguments that the health expenditure has had negative effect on the economic growth in Pakistan both in the short and long term whereas institutional quality has positive and growth promoting effect. The institutional inefficiencies hypothesis is supported by the fact that cointegration, which is an important error correction mechanism, and the stability of the parameters are present. These findings indicate that in the absence of a significant change in governance and institutional capacity, augmented health expenditure is scarcely expected to lead to economic growth in the long term.

6. Conclusion and Policy Recommendations

6.1 Conclusion

This paper has explored the paradoxical relations between health spending and economic growth in Pakistan in terms of institutional inefficiencies over the years 19902024. Although it has been argued using the conventional economic theory that spending on health would have an effect on labor productivity and long-term economic growth, empirical evidence shown in this study indicates that health spending has a statistically significant negative effect on both short-

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term and long-term economic growth. Conversely, the quality of institutions comes into the picture as a positive and statistically significant factor of growth, and it highlights the dominant role of the governance in the development outcome.

The ARDL bounds-testing model proves the presence of stable long-run relationship between economic growth, health expenditure, institutional quality, education expenditure, financial development, and foreign direct investment. The negative long-run coefficient of health expenditure implies that increases in the health expenditure have not been converted to productivity enhancing health outcomes in Pakistan. Rather, health spending seems to have been nothing more than inefficient fiscal expenditure that burdens the economic performance instead of serving as a growth promoting investment.

This conclusion is also supported by the short-run dynamics. Such a negative and statistically significant short-run impact of health expenditure suggests that as the economy slows down, spending on it tends to rise, which is reactive and crisis related spending. The momentum term error correction is significant and negative, which validates a fast process of adjusting into long-run equilibrium, but this movement is likely to bring the economy back to low-growth equilibrium without improving the institutions. The results when combined strongly support the hypothesis of institutional inefficiencies. Poor governance systems, which involve poor accountability, corruption, inefficient procurement systems and poor service delivery, have limited the success of health expenditure in Pakistan. Instead of raising the level of human capital and productivity, spending on health in a poor institutional environment does not translate into dividends in terms of sustainable growth. The same findings are reflective of the previous evidence in the developing economies which demonstrates that the role of public health expenditure in growth is only possible with the help of good institutional structures.

6.2 Policy Recommendations

The research results of this study are significant to the health and development policy framework of Pakistan. To begin with, policymakers cannot afford to continue with this narrow focus that has been on increasing health expenditure but rather focus on enhancing efficiency and governance of health spending. The facts indicate that more health budgets will not provide growth-enhancing effects unless institutional reforms are put in place. The reinforcement of the systems of the financial management of the population, the increase of the level of transparency, and the establishment of the mechanisms of accountability in the sphere of health should be regarded as the immediate policy priorities, however.
Second, Pakistan must replace reactive and crisis-based spending on health to preventive and primary healthcare spending. Preventive healthcare, early identification of diseases, and healthcare on a community level will have greater long-run productivity benefits and will have fewer fiscal costs in emergency and tertiary care. The diversion of resources into cost-effective primary healthcare interventions can enhance the health outcomes of the population with minimal inefficiencies.

Third, the health sector should reform institutions in order to enhance service delivery. These reforms are; hiring of healthcare workers based on merit, budgeting basing on performance, e-procurement and audit of health spending by independent audit. Enhancing monitoring and evaluation systems could be

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used to make the health expenditure to translate into real changes in the quality and access of services.

Fourth, it is also important that there are all-inclusive reforms of governance not just in health sector. Rule of law, quality of regulation and curbing corruption can be improved to increase the overall effectiveness of public expenditure and establish a conducive environment where health investment can help productivity and growth. The efficiency of the health service delivery can also be enhanced through institutional reforms which enhance coordination among the federal, provincial and local governments. Lastly, health policy ought to become part of an overall development plan that understands the interrelation of institutions, human capital, and economic growth. Health spending can contribute a lot of economic output only when it is established on a robust institutional structure that offers accountability, efficiency as well as long-term planning.

6.3 Future Research Limitations and Future Research Directions

Although this research is quite convincing in terms of evidence concerning adverse growth impact of health spending in Pakistan, it has its shortcomings. This is based on the aggregate health expenditure data, which could conceal the variations in the efficiency of subsectors and regions. Future studies might use the disaggregated health expenditure data or the outcome of health indicators, like life expectation, infant death or disease prevalence to further determine the mechanism by which institutional inefficiencies influence the health-growth relationship.

Moreover, the future research can directly test the moderating role of governance by including interaction terms of health expenditure with the institutional quality. Comparative studies within the South Asian economies might also be of good use in determination of how institutional disparities determine the returns to economic health investment.

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