

# Public Expenditure on Health and Economic Growth in Selected Indian States

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**Abstract:** *Even though, there are number of theories on the relationship between government expenditure and economic development; the two approaches, viz., the Wagnerian and Keynesian approaches have received more attention. This paper examines the casual relationship between health care expenditure and economic growth on the four states based on an annual data series from the period 1991 to 2010. The necessary information collected from various sources was analyzed. It is confirmed that the health expenditure and economic growth are co-integrated in all the four Indian states. Hence, these results revealed that there exists a unidirectional causality from health expenditure to economic growth in all four states.*

**Keywords:** Government Expenditure, Health Care expenditure, Economic Growth, Decadal health expenditure, Public Health Care Expenditure (PHCE),

## 1. Introduction

Health is a primary and more essential input for human resources development of a country. A chronically sick person, in spite of high income and education cannot enjoy life and would contribute very little to the society. The health of population and individual is inextricably bound up with development. Overcoming health related barriers to the accumulation of human capital might be an important pre condition for achieving higher income level. Therefore, the expenditure on health is not only a means to the welfare of the society but also an end to the economic development. Investment in the health of people is considered to be a development strategy. A comparison of health indicators with economic indicators at a country level shows that the countries whose inhabitants enjoy the highest life expectancy tend to be those with the highest income per person.

On the other hand, development, like health is equally an exclusive concept. Development is not only the process of increasing per capita income but also a process of improving the quality of all aspects of human life. Growth in national output will tend to increase the health expenditure. Because, irrespective of economic position of the country, it is an important role of the state to develop a good health infrastructure.

Public Economics provides the theoretical base for government intervention in the provision of health care services. Governments have assumed considerable importance in the provision of certain goods and services of which health care is of significant importance. It is argued that certain health services possess the characteristics of a merit good which generate large externalities. They are also non-rival and non excludable in nature. Uncertainty about occurrence of ill health and also health as a basic human right requires government intervention in provision of health care services free of cost or at subsidized prices (Gertler 1990).

Apart from the merit goods argument which stresses the need for public provision, the existence of two more sources

of market failures namely, inadequate consumer information and incomplete market for health care services calls for the need for government intervention in the provision of health care goods and services in an efficient manner. Equity aspect also emerges from market failures hence, requires government intervention to provide greater accessibility and use of health facilities across different groups of the population on a wider basis and also the burden of payment to be distributed progressively across different income groups. If the collected revenues are to be efficiently and equitably distributed, it is the central government which has to perform such tasks in order to achieve a universal access to health care.

An equally important aspect that goes hand in hand with the need for government financing of health care is that which categories of health care the government should finance. Public Economics also lays out the categories of health care that need to be supported by the government. It is argued that the non-patient related preventive health care should be provided by the government free of cost on account of the externality component and non-excludability characteristics of these services (Gertler 1990).

The State has been playing a major role in the provision of health for a long time. With the onset of economic reforms, the definition of the role of State has undergone a change. The neo-classical economists argue that the State should play a minimal role limited to the provision of pure public goods that have spill over benefits and the delivery of other services should be unbundled to the market forces with the State being a mere overseer and financier.

Under the changing scenario, with the role of the State being redefined, the core issues revolve around the aspects such as how government should intervene in the health care market for an efficient delivery of the health services. Institutional Economics provides the framework for such interventions which can be made on the basis of measurability and contestability of these goods and services. It is argued that the government through instruments such as regulation, contracting, subsidies, financing and production can set out to the private sector, the production of inputs and outputs for

those health services with a high and medium level of measurability and contestability. Services possessing low contestability and low measurability should be produced and provided by the government on account of the collective benefits involved in those services like public health interventions, training of specialized labour, knowledge generation about rare health conditions. This argument is supported by the neo-classical theorists like Preker, Harding and Travis.

## 2. Healthcare Expenditure in India: A State-wise Study

Net domestic product of India measured at constant prices is steadily growing over the years. Any rise in the NDP should also lead to rise in the health expenditure. India's public health expenditure as a percentage of GDP is just above 1 per cent of the GDP for public health care while the allocation to this sector stands at 2 per cent for the least developed countries (UN classification). Most of the economies such as Australia, United States, United Kingdom and so on, contribute above 6 per cent, while India being a mixed economy and having the aid of public intervention policies contributes 1.08 per cent, five times lesser allocation than the world average and far from the allocation of the lower middle income economies we belong in. Given the imperatives of spending, the low level of public expenditure has warranted private expenditure of 4.8 per cent of GDP. Thus, the poor state of public health infrastructure has forced the less privileged to seek unregulated private healthcare with significant adverse impact. Low level of public spending has particularly resulted in poor infrastructure for preventive healthcare. Percentage of public health expenditure out of total health expenditure incurred is 26.18. Most of the developed economies are spending more than 60 per cent on health out of the total public expenditure.

According to the Indian Constitution, the health sector falls under the concurrent list and thus, the provision of public healthcare in India is a responsibility shared by both the Central and State governments. Healthcare expenditures of 14 major states of India at constant prices from 1996-97 to 2007-08 shows a clear rise in the health expenditure. Though the expenditures in health have increased gradually, they have failed to rise in proportion to the needs of the increasing population. Among the states, Orissa stands at the least position in terms of Net state domestic product followed by Bihar, Haryana, Madhya Pradesh, Punjab, Rajasthan. The situation has even worsened in the years 2004-05 and 2005-06. It showed very little growth.

Meanwhile, Haryana has started and ended as the state allocating least expenditure in favour of health care facilities. And in this, it has consistently been lagging behind, to be beaten only by Orissa. An important point that emerges from the above inferences is that there is very wide variation across states, and further, these gaps have actually widened over time. And Haryana's neighboring state Punjab, with the highest per capita next only to Delhi runs close. Though it did show a little growth in the initial years, it gradually dropped by near its starting expenditures of 1996- 97. The decadal health expenditure growth of Punjab can thus be noted negligible.

The states Kerala and Gujarat move along similar paths of public health expenditure and in spite of a huge margin between Kerala and Gujarat in successful implementation both rank in consecutive positions, Kerala topping Gujarat with the aid of highly aware population and cost effective measures of health care system. Both Kerala and Gujarat suffer from the same urban- rural division problem hampering their growth. The annual rate of growth of the total health budget of these 14 states, measured in constant 1993-94 prices. It shows that increases in state government health expenditure have generally been below the rate of growth of aggregate real GDP. Only in four states did health expenditure grow at an annual rate of more than 7 per cent Andhra Pradesh, Karnataka, Punjab and West Bengal. In three states, real health expenditure actually declined in aggregate terms - Assam, Madhya Pradesh and Uttar Pradesh. Furthermore, there is evidence of deceleration over this period. In the latter half of this decade, i.e. 1998-99 to 2002-03, the rate of growth of such spending declined compared to the earlier period 1993-94 to 1997-98, in 9 states in India (except the states of Andhra Pradesh, Assam, Kerala, Maharashtra and Orissa). In this sub period there were absolute declines as well, in Gujarat, Haryana, Madhya Pradesh, Rajasthan, Tamil Nadu and Uttar Pradesh.

Another important point is that in Madhya Pradesh, the decline was particularly sharp, to almost half the level of the earlier period in constant price terms. This has obvious implications for the state of public health services in general, and is particularly worrying because these declines occurred in backward states where public health facilities were already grossly inadequate in quantity and poor in quality, and therefore required much more expenditure rather than less (Guruswamy,2008).

The aggregate spending on health services as a ratio of Gross State Domestic Product (GSDP) has been extremely low and has been declining over time. The analysis shows that aggregate spending on health services relative to GSDP showed a marginal increase from 1.2 percent in 1995-96 to 1.37 percent in 2000-01 mainly due to the pay revision in the states in 1998-99 and declined thereafter to 1.18 percent in 2004-05. In other words even as the cost of providing health services showed a disproportionate increase, the expenditures exhibited a declining trend which implies that the decline in real spending was of a greater magnitude. Therefore, the ratios of healthcare expenditure to gross domestic product increase as countries were being developed economically and industrially. Economic growth makes it possible to finance good environmental health. In addition, it contributed to improve quality of life and health status of people, via increased life expectancy, falling in infant, child, and maternal mortality rates.

## 3. Theoretical Background

Adolph Wagner, the renowned German political economist (1835-1913) believed that a functional "Cause and Effect" relationship exists between the growth of an economy and the growth of the public sector. He presented his famous 'Law of ever increasing state activity' that indicates that the social progress was the basic cause of the relative growth of state activities. On the other hand, Keynesian macro economic theories assume that public expenditure causes

national income. In “The General Theory of Employment, Interest and Money” (1936) Keynes sounds the death-knell to the classical thoughts. He totally repudiated the concept of laissez faire and argues that economic growth is possible only through the expansion of fiscal activities of the state. On the above background, the present study investigates whether the Keynesian approach or Wagnerian approach is valid on the relationship between health care expenditure and economic growth. The relationship between health care expenditure and economic growth is well studied. However, the direction of causality is still under controversy that is whether health care expenditure leads to economic growth or economic growth leads to health. So this study considering the cases of four Indian states namely Tamil Nadu, Kerala, top two in India in health performance and Orissa and Madhya Pradesh least performing states in India.

#### 4. Empirical analysis and results

In health economics literature, the direction of causality between economic growth and health expenditure is still under controversy. Whether growth leads to higher health expenditure or health expenditure causes growth is a million dollar question. Since from the seminal work of Newhouse, a large number of studies have been carried out to estimate the relationship between expenditure on health and economic growth. All these studies found a complex inter relationship that exists between health care expenditure and economic development. However, very few studies are conducted on the direction of causal relationship between health expenditure and growth.

In Indian context, large numbers of studies are carried out on health care financing at both national and regional level. However, studies are not conducted pertaining to the causal nexus between health care expenditure and economic growth with special reference to Indian states. Therefore, an attempt is made here to investigate empirically the relationship between health care expenditure and economic growth in four Indian states. In the present study, variable ‘y’ is taken as economic growth and variable ‘x’ is

considered as healthcare expenditure. Here health expenditure means only the expenditure what the states spend on public and medical health. The expenditure on family welfare programs and water & sanitation programs are excluded from health expenditure because both the programs are sponsored by the central government.

#### 5. Methodology

This paper examines the casual relationship between health care expenditure and economic growth on the four states based on an annual data series from the period 1991 to 2010. The necessary information collected from various sources were analyzed. In economic literature, the concept of integrating series was introduced by Granger (1980, 81). The rationality behind co integration techniques is that if, in the long run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. Mathematically, for  $Y_t$  and  $X_t$  (both I (i)) if there exists a constant ‘ $\alpha$ ’ such that  $X_t - \alpha Y_t = I(0)$ , then the two series are co-integrated with ‘ $\alpha$ ’ as co integrating parameter.  $X_t = \alpha Y_t$  is the long run ‘equilibrium’ relation and sometimes termed as ‘attractor’ (Granger, 1988), and any deviation from this measures the degree to which the series are out of equilibrium. A lack of co integration suggests that such variables have no long-run relationship. The precondition for the co integration technique is the series  $X_t$  and  $Y_t$  should be stationary in the same order.

Co integrating regression are estimated by adopting the test procedures such as co integrating regression Durbin- Watson (CRIW) test, Dickey-Fuller (DF) test, and Augmented Dickey Fuller (ADF) test. it requires the estimation of co integrating regression on the following equation:

$$y_t = \alpha + \beta X_t + U_t \text{ ----- (1)}$$

By using Ordinary least square method, residuals are obtained, and then Co integration Regression test is employed

**Table 1: Results Of Co integration Regression Equations**

States	Dependent variable	constant	Independent variable	R2	AdjR2	F-value	D.W statistics
Madhya Pradesh	NSDP	-1.146 (-12.972)*	1.021 (57.684)*	0.988	0.988	3327.465	0.484*
	Health exp	1.167 (17.544)*	0.968 (57.684)*	0.988	0.988	3327.465	0.482*
Orissa	NSDP	-1.696 (15.60)*	1.143 (51.169)*	0.985	0.985	2618.285	0.511*
	Health exp	1.532 (23.412)*	0.862 (51.169)*	0.985	0.985	2618.285	0.510*
Kerala	NSDP	-1.084 (11.422)*	1.052 (52.068)*	0.986	0.986	2711.118	0.339*
	Health exp	1.080 (15.503)*	0.937 (52.068)*	0.986	0.986	2711.118	0.338*
Tamilnadu	NSDP	-2.043 (15.485)*	1.014 (45.763)*	0.982	0.981	2091.809	0.475*
	Health exp	2.083 (24.521)*	0.967 (45.763)*	0.982	0.981	2091.809	0.474*

The value in parenthesis indicates t statistic values.

‘\*’ Denotes significant at one percent level.

The co integration regression equations are estimated. Results of co integrating regression are showed in the table-1. As a necessary for co integrating regression, the residuals are tested for co integration. Durbin-Watson statistic is used as an indicator for the existence of co integration between the variables studied. The Durbin-Watson statistic infers the stationary of residuals, which is nothing but the existence of co integration between the two series. For to test the stationary of the residuals obtained from co integrating equation, the test is employed. The results of test show that lagged error coefficient are less than one and statistically significant at one percent levels. Hence, it can be concluded that health expenditure and economic growth in Madhya Pradesh, Orissa, Kerala, and Tamil Nadu are co integrated. From the results, it can be seen that the health care expenditure and economic growth of four southern Indian states are co integrated.

From the above test results, it is confirmed that the health expenditure and economic growth are co integrated in all the four Indian states. Hence, these results revealed that there exists a unidirectional causality from health expenditure to economic growth in all four states.

## 6. Conclusion and Policy Implications

Good health is a decisive factor in the reduction of poverty and the promotion of sustainable economic development, particularly considering the high economic costs of preventable disease. Disease reduces the annual income of society as a whole, individual income for the rest of that individual's life and the general perspective of economic development. The above arguments revealed how health care expenditure contributes to economic growth. But it is must be known, that why economic growth of these four states does not have any influence on their own health care expenditures.

Economic growth would contribute both the demand side and supply side factors of health sector. With higher income, people will demand for best health services. Hence, generally they prefer private health care services due to its better services than public hospitals. The increase in demand for better health care leads the private health providers to supply such a good services. This shift will reduce economic growth contribution on public health care expenditure.

The other crucial factor is the leakage of resources. The considerable part of funds allocated to public health sector involves in corruption and mismanagement. Increasing inefficiency and mismanagement may not attract more expenditure in public health care.

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## Appendix

**Table 2: The Percentage Share of India's Public Health Expenditure and NSDP**

	Public Expenditure on Health (Rupees. In Lakhs)				Net State Domestic Product (NSDP)			
	Madhya Pradesh	Orissa	Kerala	Tamilnadu	Madhya Pradesh	Orissa	Kerala	Tamilnadu
1990-91	28160	14058	22199	38952	1110700	434500	516200	1242300
1991-92	31560	17178	23180	43858	1030600	489700	536500	1275500
1992-93	34634	17536	23923	50308	116200	481400	575200	1341300
1993-94	41674	19225	29845	56335	1224000	512400	634700	1458300
1994-95	46312	24424	35661	63413	3452900	1697400	2590800	5794300
1995-96	39773	20406	35590	59017	3660100	1774900	2694700	5986100
1996-97	48205	22346	38665	69087	3905700	1652400	2802600	6231600
1997-98	51789	24627	43834	78538	4110100	1890200	2863300	6782200
1998-99	74322	32329	49427	97515	4381500	1948200	3060400	7050500
1999-00	76385	35567	60534	102816	4841500	2071700	3278500	7468500
2000-01	74920	38301	59800	99857	6675000	3738600	6290900	12436900
2001-02	59930	38678	65337	100185	7152500	3966200	6605200	12390100
2002-03	67545	42476	71067	99831	6779500	3937700	7088500	12452100
2003-04	71346	42953	74128	106439	7540000	4512700	7547900	13228100
2004-05	78322	54006	81332	115909	7787400	5102000	8259000	14799400
2005-06	89152	39254	89412	135288	10497500	7100500	11550000	22158800
2006-07	103235	51222	100991	141129	11454500	7984500	12462500	25628600
2007-08	108889	63575	113631	151639	11995800	8669200	13574700	27234000
2008-09	133142	107503	136124	214337	13512400	9320700	14409400	28503500
2009-10	146168	121221	147850	286598	14842700	9395700	15712300	31336500

Source: Author's Estimations

**Table 3: Per cent change in PHCE/ NSDP**

STATE	1990-2000	2001-2010	1990-2010
Andhra Pradesh	1.339067	0.355187	0.527312
Assam	1.869672	0.481742	0.734473
Bihar	2.492187	0.703145	1.064857
Gujarat	1.142984	0.320473	0.476941
Haryana	0.95493	0.221924	0.339329
Karnataka	1.469564	0.400301	0.592584
Kerala	1.855776	0.427647	0.654573
Madhya Pradesh	1.698735	0.557776	0.809672
Maharashtra	0.955793	0.272146	0.399084
Orissa	1.75789	0.429073	0.653536
Punjab	1.308105	0.422671	0.601185
Rajasthan	1.690066	0.513029	0.749897
Tamil Nadu	1.478445	0.388209	0.586976
Uttar Pradesh	1.520466	0.994859	1.190616
West Bengal	1.459898	0.427011	0.620943

SOURCE: Author's Estimations.

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