

PUBLIC INVESTMENT ON HEALTH SERVICES AND ITS DETERMINANTS IN MIZORAM: AN EMPIRICAL ANALYSIS

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796001***ABSTRACT**DOI URL: <https://doi.org/10.36713/epra3096>

The health of human capital generates both higher income and individual well-being. Improved health generates economic growth and poverty reduction in the long- run. Good health is universally acknowledge being of intrinsic value and, therefore, constitutes an integral element of development. The expenditure on health is revealed as a kind of investment in human capital. Government has almost exclusive responsibility for providing public goods that create large positive externalities. Despite differences of opinion about the role of the government in health care, it seems that there is unanimity of view that universal access and equity are dependent on the government financial support of basic health care. The access to health services has to be need and state specific, depending on the socio-economic conditions, health outcomes and administrative capacity. Attempt is made in this paper to analyze the growth of public investment on health services and its determinants in Mizoram. The study shows that there has been commendable growth of public investment on health services, both in current and constant prices. It is further observed that there is more than proportional increase of public health expenditures with respect to population, while it is almost proportional to total budget of the state, and less than proportional to GSDP.

KEYWORDS: *health services, economic growth, public investment/expenditure, determinants.***INTRODUCTION**

Health is an important constituent of human resource development and good health is real wealth of the society. It not only increases human efficiency but also decrease private and public expenditure on sickness and diseases (Becker, 1962). The global literature on health has recognized that public spending on health is essential for fighting with major diseases and meeting Millennium Development Goals (MDGs) targets. It further helps in reducing poverty deepening effect of high health (out-of-pocket) payments and overall economic development of a country (World Bank, 2004). Most of the developed countries, as a welfare state, realized this fact in advance and spent a sizeable amount of public funds in health sector as compared to the developing countries (Banerji,1967). In the absence of enough private investment on health services, there has been unequal geographical spread of health care infrastructures in Mizoram, and many habitations in remote areas are yet to be covered by health facilities like hospitals, sub-centres, etc. In addition, poor access to health services remains the main problems faced by the poor in rural and urban areas of the state. In this

situation, public investment (government spending) would be critical for the improvement of the health status of the people.

OBJECTIVES OF THE STUDY

- (i) To analyse the public expenditure on health services in Mizoram,
- (ii) To analyse the determinants of public investment on health services in Mizoram,

Hypothesis: *Public expenditure on health services increases with an increase in GSDP and population.*

SOURCES OF DATA AND METHODOLOGY

(a)Data Source: The study is based on Secondary data which are collected from different sources like Annual Financial Statement(various years), Demand for Grants, Finance Department, Government of Mizoram; Economic Survey-various issues, Department of Planning and Programme Implementation: Government of Mizoram; Statistical Abstract and Handbooks-various issues, Government of Mizoram ; Annual Report of Health and Family Welfare

(various years), Government of Mizoram; Census Reports- various years, Government of India.

(b) Analytical Tools: Data collected from various sources are analyzed by using simple statistical techniques such as averages, percentages. The Compound Annual Growth Rate (CAGR) was also calculated by estimating log-linear regressions. A Wholesale Price Index (WPI) which is obtained from the website of the Office of the Economic Adviser, Ministry of Commerce, Government of India is used to convert the data into one series with a common base year (i.e., 1981-82=100). For this, the study covers 33 years i.e. from 1981-2014.

Simple log-linear regression model is adopted to examine the determinants of public expenditures on health. This model is adopted to avoid the likely econometric problem of multicollinearity due to the limited degrees of freedom and apparently same trends shown by the explanatory variables which may manifest in high correlation. The advantage of using log-linear regression is its applicability on heterogeneous measurement units and its showing of constant elasticity. So, the regression model has been estimated on each of the selected variables to test their significance on public investment in health:

$$\log(Y) = \alpha + \beta \log X + u$$

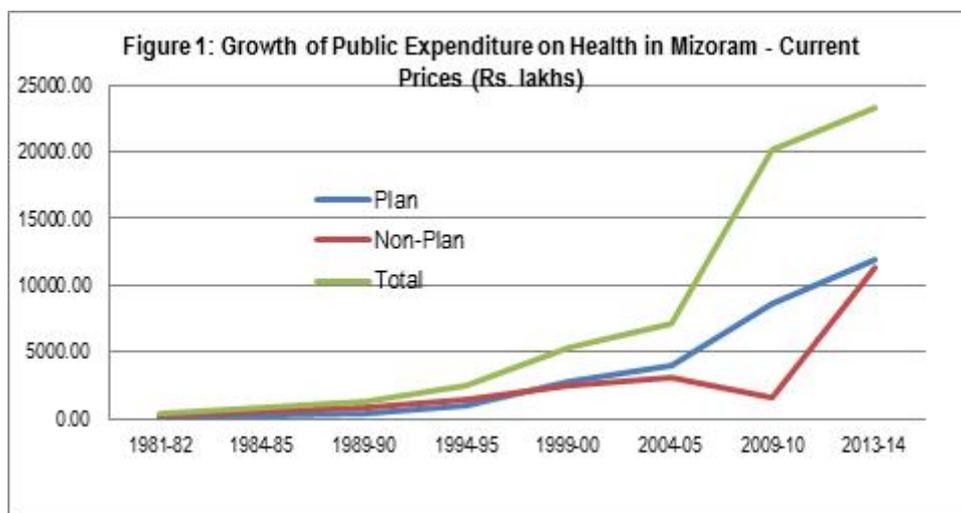
Where Y denotes the dependent variable (public expenditure/investment on health), X is the explanatory variable (determinant), u is the random disturbance term, and α and β are constant and estimated coefficients respectively. Further, β indicates the constant elasticity of public expenditure.

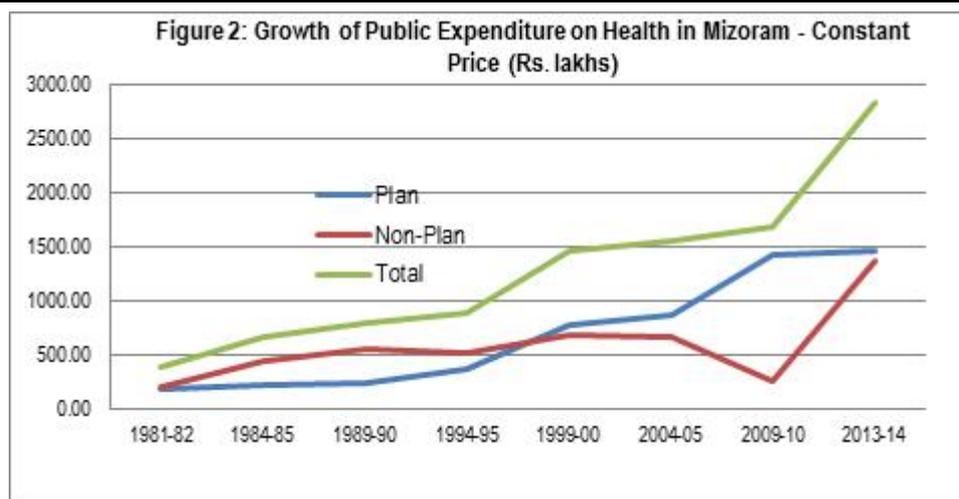
TRENDS OF PUBLIC EXPENDITURES ON HEALTH SERVICES IN MIZORAM

Mizoram, situated in the North-Eastern region of India, is a small state with a total area of 21,081 sq. km. It is bounded by Myanmar in the East and South, Bangladesh and Tripura

in the West, Assam and Manipur in the North. The state has been divided into 8 Districts, 26 Rural Development Blocks, 23 Sub-Division and 3 Autonomous District Councils. The total population of Mizoram according to 2011 census is 10,91,014 (P). In Mizoram, the State Government has shown commendable efforts towards the provision of healthcare facilities among the people. Several government medical institutions have been established in different parts of the states especially after 1987 when the Mizoram was elevated to the full fledge state. It may be noted that the modus operandi of providing health care infrastructure changes with the changes in the administrative set up of the state

The trends of public investment on health services through budgetary expenditures in Mizoram are presented in Figure 1 & 2 and Table -1. For the sake of clarity, it is also attempted to convert the expenditure on current prices into constant price (1981-82=100) using the WPI obtained from the Chief Economic Adviser, Ministry of Commerce, Government of India. It would be clearly observed from the two figures that public expenditures on health services in Mizoram have shown gradual increase year after year both at current and constant prices. It can be seen that there are three major phases in the growth trend of public investment on health services as follows: there was more or less stable growth till 1994-95, relatively higher rate of growth from 1994-95 till 2004-05, and further increase afterward. Both the plan and non-plan expenditures have experienced a consistent growth trend till 2004-05. The non-plan expenditure has shown a downward trend during 2005-09. The total public expenditure on health services has significantly jump after 2009-10 till today, most probably due to the implementation of major centrally sponsored scheme like National Rural Health Mission and National Health Mission in the state.





It is observed from Table-1 that the plan expenditure on health services at current prices have increased from Rs.181.77 lakhs in 1981-82 to Rs.391 lakhs in 1989-90 and to a high of Rs.12003.68 in 2013-14 with CAGR of 15.26 percent, while the corresponding non-plan expenditures have increased from Rs.204.08 lakhs to Rs.11288.68 with CAGR of 10.52 percent

during the same period. At the same time, plan expenditure at constant price increased to Rs.1456.33 lakhs in 2013-14 from Rs.181.77 lakhs in 1981-82 with CAGR of 8 percent, while non-plan expenditure increased from Rs.204.08 lakhs in 1981-82 to Rs.1369.58 lakhs with CAGR of 3.46 percent during the same period.

Table 1: Growth of Public Expenditure on Health Services in Mizoram

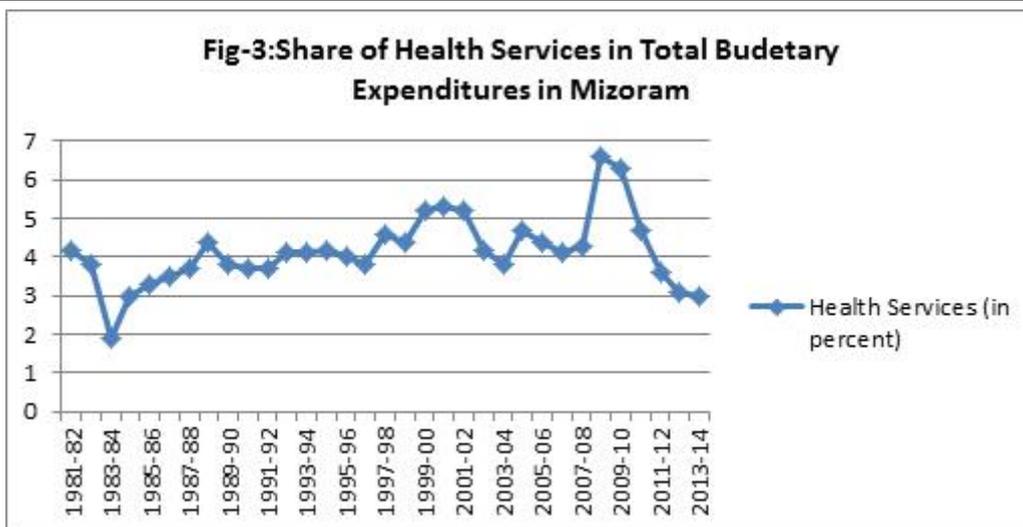
Year	Current Price (Rs. Lakh)			Constant Price (Rs. Lakh)			Budget Share (%)
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
1981-82	181.77	204.08	385.85	181.77	204.08	385.85	4.22
1984-85	262.79	532.57	795.36	218.81	443.44	662.25	2.96
1989-90	391.00	914.08	1305.08	235.97	551.65	787.62	3.80
1994-95	1014.85	1473.52	2488.37	363.72	528.10	891.82	4.20
1999-00	2781.98	2493.81	5275.79	772.66	692.62	1465.28	5.20
2004-05	4067.35	3105.87	7173.22	876.34	669.18	1545.52	4.65
2009-10	8688.91	1536.41	20225.32	1431.17	253.07	1684.23	6.31
2013-14	12003.68	11288.68	23292.36	1456.33	1369.58	2825.91	3.00
CAGR (%)	15.26	10.52	13.2	8	3.46	5.76	

Source: Demand For Grants (Various Issues), Finance Department Government of Mizoram & Economic Survey (Various Issues), Mizoram

What is clearly observed from Table 1 with respect to the growth rate (CAGR) of public expenditures on health is the spurt of plan expenditure by 2009-10 when the plan budget was more than doubled and its growth afterward, side by side with the jump of non-plan expenditure by more than double by the year 2013-14. However, the state's inability to scale up its expenditure on health services in line with the increasing total budgetary expenses should be a matter of concern. It also revealed almost stagnating share of the expenditures in terms of its percentage share in the total budget of the state government. It has decreased to 2.96 percent in 1984-85 from 4.22 percent in 1981-82, but increased to 6.31 percent in 2009-10 and decreased afterward to a low of 3 percent in 2013-14. Considering its ramification on the quality of life of the people, it is necessary that budgetary allocation

is increased according to the pace of economic development as well as budget size.

Importance given to the health services by the government can be observed from the share of health on the total budget as presented in Figure 3. The health services occupied an important position across the period under study, taking into consideration the existing number of government departments (more than 40) which were allotted separate budgets. With the exception of significant fall during 1983-84, the percentage share of health expenditure on total budget hovers around 3-6 percent throughout the period under observation.



DETERMINANTS OF HEALTH EXPENDITURES

In fact, there would be a number of factors that determine public expenditure on health services. However, due to unavailability of enough time series data for the state of Mizoram we are compelled to few determining factors. Thus, this study adopted three major factors, namely GSDP, total budget and population. GSDP may be the best indicator of economic development of the state, while the total budget size may be taken as the fiscal capacity of the state government. Study by Banerji (1967) found significant relationship of income (GSDP), population and fiscal capacity with public expenditure on health services. We adopt the estimates of log-linear regression to test the significance of these factors. Attempt is also made to analysis the sensitivity of health expenditures per person we called *per capita budgetary expenditure*, using the same model. This is worked out by dividing the total expenditure on health by projected population in Mizoram. The analysis is expected to test our

research hypothesis that “*public expenditure on health services increases with an increase in GSDP and population*”. The result is presented in Table 2.

Before making formal interpretation of the regression results, it is considered pertinent to overview the trend of per capita budgetary expenditures on health services in Mizoram. It is observed from Figure -4 that per capita public health expenditure at current prices had experienced consistent increase from till 2007-08 when it took a turn by significant jump afterward. However, per capita expenditure in real term (constant price) does not show significant increase over the years in spite of significant growth in monetary term. One of the most plausible reasons for such trend is the double digit inflation rates experienced by the country since the late 2000s following global financial meltdown side by side with the rising petroleum prices. In fact, this is not proved factors, but it is reasonable for the state is one part of the Indian federal structure.

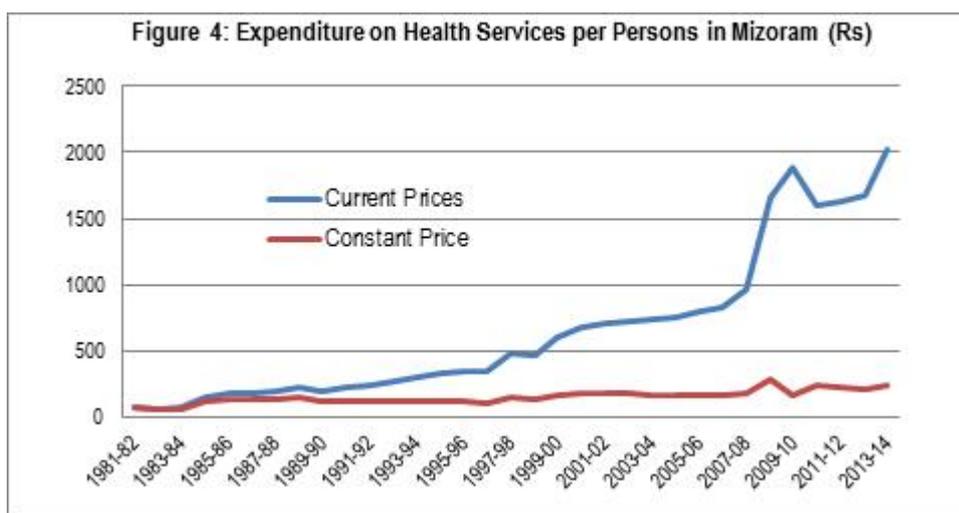


Table 2: Results of Regression of Health Expenditure on GSDP, Budget and Population

Independent Variables	Constant	Coefficient	R-Square
Total Budgetary Expenditures			
GSDP	-2.06***	0.89***	0.98
Total Budget	-3.87***	1.06***	0.97
Population	-57.94***	4.96***	0.98
Per Capita Budgetary Expenditure			
GSDP	-2.04***	0.71***	0.97
Budget	-3.51***	0.84***	0.96
Population	-46.42***	3.86***	0.97

***significant at 1 percent level

Table-2 shows the significance of all factors under consideration in determining public expenditures, both in terms of total expenditures and per capita expenditures with acceptable R-square. It is noteworthy that the estimated coefficients or elasticities are found to be significant and positive in all cases implying that the public expenditures on health services will increase with an increase in income, population and total budget size of the state. *The result is in conformity with our research hypothesis as stated above.* At the same time, the estimated constant terms are negative in all cases which imply zero (or near zero) expenditures in the absence of these factors.

In addition, the magnitude of the estimated coefficients has further interpretation. It is found to be highest for population at 4.96 and 3.86 for total and unit expenditures on health services respectively. Thus, public health expenditure in Mizoram increases with an increase in population by significantly more than proportionately, and it is most sensitive to the change population size. At the same time, total budgetary expenditures with respect to the total state's budget is almost one (1.06) that it will change more or less proportionately with the change in the total budget size. Interestingly, public expenditure on health increase less than proportionately with an increase in the state income (GSDP). The result may have an interpretation on the state's inability to scale up its health expenditures according to the increase in income and resources.

FINDINGS AND CONCLUSION

Based on our analysis, we may draw the following findings and conclusion: *Firstly*, there has been commendable growth of public investment on health services, both in current and constant prices during the last 33 years in Mizoram. The observed trend may be considered as the achievement of the state government to provide basic facilities for human resource development among the people.

Secondly, significant jump of the plan expenditures on health services and its further increase after 2009-10 is quite eminent. However, the study observed no commendable achievement on the size of public expenditures per population in real terms due to the state's budgetary inability to cope with price inflation and increasing population.

Thirdly, the estimated regression indicates the significance of population and total budget to the change in public investment (total and per capita) on health services. It is further observed that there is more than proportional increase of public health expenditures with respect to population, while it is almost proportional to total budget of the state, and less than proportional to GSDP.

Lastly, the growth of public investment on health services is somehow demand driven, if we consider the magnitude of elasticities with respect to the size of population. This trend is justifiable to some extent. However, more or less stagnating shares of health services on the size of the state total budget as well as GSDP, and almost unitary elasticities on these key factors necessitated further enquiry. This can be otherwise taken to reveal the fact of the state government's inability to give priority towards the development of these key sectors of human capital. Thus, it is necessary to scaled up their budgetary importance to ensure faster and sustained development of the state.

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