Urbanization And Health Outcomes In India

1Dr. Surendra Kumar Gupta

Assistant Professor
Department of Economics, D D U Gorakhpur University, Gorakhpur

Abstract : Most important objective of a welfare country is to provide better and reliable health care services to its people because healthy peoples are keys of development of a nation. A nation which cannot provide healthcare services to its citizens cannot be thought to be productive environment in the economy hence government are trying to justifying the importance of investing hugely on the health sector. In India health outcomes over the years have not been very impressive, justifying the need to establish the relationship between health inputs in which percentage of urban population from total population, current health expenditure in percentage of GDP and GDP Per Capita (in Dollar) and health outcomes. This study analyses the relationship between both variables over the period of 2000 to 2020 using econometric regression analysis and found out that a negative relationship exists percentage of urban population from total population on Infant Mortality Rate and positive relationship exists on Life Expectancy. It means by the urbanization infant mortality rate will be decrease and life expectancy will increase because the residents in the urban areas tend to adopt improved health practices, due to their increased knowledge of the benefits of better health conditions, as compared to their counterparts in the rural areas and this accounts for the difference between concentration of health care services which are more in the urban areas than in the rural areas.

Keyword: Health, Urbanization, Health Expenditure

1.0 Introduction

Healthcare is the diagnosis, treatment and prevention of disease, illness, injury and other physical and mental Impairment in human beings. Healthcare is delivered by practitioners in allied health, dentistry, midwifery, medicine, nursing, and other health professions. It refers to the work done in providing primary, secondary and tertiary care as well as in public health[1]. However, World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being. Provision of health facilities is seen as a key element of a policy frame work to promote broad-based economic growth. Therefore, every country allocate huge public fund to healthcare facilities because with help in improve the health of the people of the country can achieved meaningfully economic growth and development. However, the effects of health expenditure on health care are of more important, the budget allocation on health care in India is very less. In India, for example, government expenditure on health facilities, on the basis of current health expenditure per capita in PPP, India is ranked low than developed countries. India ranked 78th out of 192 countries[2]. As well as Life Expectancy is less and infant mortality is high in comparison to developed nations. The India's rate of infant mortality (29.07 per1000 live births) is still more in the world. The India's life expectancy (69.73 in 2020) is still very low in comparison to Japan (84.21 in 2018) and America (78.5 in 2018). It therefore becomes essential to research on the factors which are obstacles in achieving better health outcomes in India.

The above background of the study shows that despite the budgetary allocation to health care spending over the years, the effects have not really been seen much better but it may not be conclusion that there are no effects of health spending on health indicators in India. This research thus aims to study the effects of healthcare spending on overall health outcomes in India.

2.0 Objective of the Study

- ➢ To establish the relationship between urban population and health outcomes in India.
- ➢ To know magnitude of Positivity or Negativity of the relationship and its significance for health outcomes.
- ➢ To suggest about increasing the percentage of healthcare spending in Future budgets so as to achieve the desired level of health outcomes.

3.0 Methodology

This study is mainly based on secondary data. Data for this study are annual time series data from 2000-2020 sourced from World Development Indicators and various publications of the World Bank, Economic Survey of India, Census of India and RBI regarding health and health expenditures. Time series Data collected for health outcomes and health inputs. Infant Mortality rate and Life Expectancy are health outcomes (Dependent Variables) and percentage of urban population from total population, current health expenditure in percentage of GDP and GDP Per Capita (in Dollar) are health inputs (Independent Variables).

4.0 Model Specification for the Study

In this study a simple health function has been formulated to know the effectiveness of health inputs. Assuming health outcome to be Y and government expenditure given as X, a simple function can be written as;

$Y = f(X)$……..(1)

Now this function can re-write in simple regression model as:

$Y_t = \beta_0 + \beta_1 X_t + \mu_t$, t = 1…n (2) , where Y_t is health outcomes, at time t

X_t is a vector of independent variables influencing health outcomes

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[1] https://www.tsnn.com/events/euro-health-care-fitness-summit

[2] https://en.wikipedia.org/wiki/List_of_countries_by_total_health_expenditure_per_capita#World_Health_Organization

β0 represents the intercept term,

β1 is a vector coefficient of the independent variables

μt is the error term

With given our specific variables, the linear relationship between health outcomes and health inputs can be stated:

$HO_t = \alpha0 + \alpha1CHEt + \alpha2GDPt + \alpha3URBANPOPt + \mu t$ ………(3)

Adopting life expectancy and infant mortality rates respectively as proxy for health outcomes, equation (2) above is re-specified as:

$LEt = \varphi0 + \varphi1CHEt + \varphi2GDPt + \varphi3URBANPOPt + \mu t$ ……..(4)

$IMRt = \digamma0 + \digamma1CHEt + \digamma2GDPt + \digamma3URBANPOPt + \mu t$ ……… (5)

Where; HO_t = health outcomes,

LE= life expectancy at birth (measured by LE at birth per 1000 live births),

IMR= infant mortality rates (measured by infant mortality rate per 1000 live births),

 CHE = Current health expenditure (current health expenditure is measured in percentage of GDP),

 GDP = GDP per capita (GDP Per Capita measured in Dollar),

URBANPOP = Urban population (measured by percentage of total population),

5.0 DATA ANALYSIS AND INTERPRETATION

5.1 Data Analysis & Discussion

Based on above model in this study we analysed the effect of the independent variables on Life expectancy and Infant mortality rates separately. This method adopted so that we can capture the effect of health inputs on health outcomes without overlapping in the model. For the clarity in effects life Expectancy and Infant Mortality Rates are chosen as proxy of Health Outcomes and are analysed separately.

The models were subjected to statistical and econometrics tests using SPSS 20 software and the results presented below.

Table 1: Descriptive statistics

Test Statistic	Variables				
	LE	IMR	CHE	GDP per Capita	URBANPOP
Mean	66.47	45.71	3.75	1228.14	31.04
Median	66.69	45.1	3.63	1357.56	30.93
S.D	2.42	12.44	.34	557.64	2.23
C.V.	3.64	27.21	9.06	45.40	7.18
Skewness	-.25	.15	.23	-0.013	.151

Table 2. Regression Result: The Effect of Health Inputs on IMR.

Variables	Coefficient	Standard error	T-value	Probability
Constant	161.124	15.213	10.591	0.0000
CHE	-.008	.002	-3.250	.005
GDP	2.567	.697	3.682	.002
URBANPOP	-3.724	.592	-6.294	.000
R-squared			.994	
Adjusted R-squared			.993	
Durbin-Watson stats.			.910	
F- Statistics			987.111	

From Table 1, descriptive statistics shows the average GDP per capita has the highest value, while Current Health Expenditure has the lowest average value. Since all variables exhibit positive range, it shows that the mean is normally distributed. The CV value of the variables are the values of variance shows that GDP per Capita and Infant Mortality rate has more variance than LE, CHE and Urban Population respectively. The value of per capita GDP has the highest value, while Life Expectancy has the smallest value. The values for Infant mortality rate, Current health expenditure and urban population variables are positively skewed. However, the distribution of CHE has the longest tail, indicating that it has more extreme large values than others except Life expectancy and GDP per capita which are negatively skewed implying less extreme values.

In Table 2 above, the result indicates that a percentage increase in Current health expenditure will lead to a 0.08% decrease in Infant mortality rate. The negative relationship between current health expenditure and Infant mortality rate in India cannot be largely attributed to the persistent increase in demand for improvements in health care services by the population. Deolalikar (2005) finds that current health expenditure does not have a significant effect on mortality rates using the Indian State panel for 1980–1999. Owusu PA, Sarkodie SA, Pedersen PA (2021), in their research find out with help of using panel Quantile Regression with bootstrapping for the 2007–2008 financial crisis in an empirical relationship between health outcome and health expenditure. They found a negative effect of health expenditure on mortality across all percentiles. Infant mortality rate declines between 0.19% - 1.45%. To attain the goal of ensuring healthy lives and wellbeing of all people (SDG 3), this study infers that health expenditure potentially reduces maternal and infant mortality across lower and middle income countries. They highlight the need for an enhanced health care expenditure, especially in developing countries to curb the levels of infant and maternal deaths. Another study's results

by Akinlo and Sulola disagree with outcome on health expenditure reducing infant mortality but the findings by Rana, Alam and Nicholas, Edward are consistent with results that the health expenditure reducing infant mortality.

The coefficient of GDP per capita implies that on the average, a unit increase in GDP per capita increases life expectancy by 2.5%. As per capita income keeps increasing, it would reflect that increase in GDP per capita of the nation can improve the access to healthcare services. Increased access to healthcare will also increase health status of the people and improve life expectancy. A policy note done by Vikas Dimble and Nidhiya Menon on " Health Policy, health outcomes and economics growth: Lesson from India" in 2017 reveal that there is strong correlation between income and health indicators. If we exclude a few African countries that have a high prevalence of HIV- the correlation between GDP/Capita and life expectancy is extremely strong. If we compare GDP per capita and IMR for India and China from 1950 till 2000- China has done a much better job of translating income growth into reductions of IMR[3].

There is a negative relationship between urban population and Infant Mortality Rate. Holding all the other explanatory variables constant, on the average, a percentage increase in urban population will lead to decrease in Infant Mortality Rate by 3.7%. The negative relationship can be largely attributed to the fact that residents in the urban areas tend to adopt improved health practices, due to their increased knowledge of the benefits of better health conditions, as compared to their counterparts in the rural areas. A study done by Ellen Van De Poel (et.al), explained about the rural-urban gap in infant mortality rates by using a new decomposition method that permits identification of the contribution of unobserved heterogeneity at the household and the community level. They found that higher infant mortality rates in rural areas mainly derive from the rural disadvantage in household characteristics; both observed and unobserved, which explain two-thirds of the gap. Among the observed characteristics, environmental factors in which a safe source of drinking water, electricity, and quality of housing materials are the most important contributors.

Table 3. Regression Result: The Effect of Health Inputs on Life Expectancy.

Variables	Coefficient	Standard error	T-value	Probability
Constant	44.104	3.916	11.262	0.0000
CHE	-.707	.180	2.308	.034
GDP	.001	.001	-3.940	.001
URBANPOP	.751	.152	4.927	.000
R-squared			.990	
Adjusted R-squared			.988	
Durbin-Watson stats.			1.070	
F- Statistics			573.750	

In Table 3 above, the result indicates that a percentage increase in Current health expenditure will lead to a 7% decrease in life expectancy. The negative relationship between public health expenditure and life expectancy in India can be largely attributed to the persistent increase in demand for improvements in health care services by the population. Many cross-country studies find little effect of public health spending on health outcomes, while level of income plays a crucial role for determining better health status. Rajkumar and Swaroop (2008) studied the impact of good governance on the effectiveness of public spending on health and education in 91 developed and developing countries using annual data for 1990, 1997 and 2003. They found that public spending becomes more effective in achieving health and education outcomes in countries with good governance, while it has virtually no impact on health and education outcomes in poorly governed countries.

The coefficient of GDP per capita implies that on the average, a unit increase in GDP per capita increases life expectancy by 0.01%. As GDP per capita keeps increasing, it would reflect that GDP per capita of the country, improve their citizen's availability and accessibility to healthcare services. Increased accessibility and availability to healthcare will also increase health status and improve life expectancy. There is also a positive relationship between urban population and life expectancy. Holding all the other explanatory variables constant, on the average, a percentage increase in urban population will lead to an increase in life expectancy by 7.5 %. The positive relationship can be largely attributed to the fact that residents in the urban areas tend to adopt improved health practices, due to their increased knowledge of the benefits of better health conditions, as compared to their counterparts in the rural areas and this accounts for the difference between concentration of health care services which are more in the urban areas than in the rural areas.

6.0 Conclusions and Recommendations

The study analysed the relationship between Current health expenditure and health outcomes in India using time series data from 2000 to 2020. The results showed that a negative relationship exist between Current health expenditure and health outcomes. The introduction of health policies and reforms introduced by central government significantly affect health outcomes in the year by year, however the effects could not be sustained or improved due to the proper implementation of the Programme and scheme as well as less budget allocation. Therefore to achieve desired levels of health outcomes, proper funding in the various sector and implementation of various schemes are the major determinants. The negative relationship between urban population and infant mortality rate and positive relationship between urban population and life expectancy implies that if the share of urban population will increase then health outcomes will be better because in urban areas health facilities and improved health practices are avail. If the government wants to improve the health condition of population of country, must be adopt the visionary concept of PURA (Providing Urban Amenities in Rural Areas) given by Late President Dr. A.P.J Abdul Kalam.

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[3] https://www.theigc.org/wp-content/uploads/2017/05/Dimble-and-Menon-2017-policy-brief-6.pdf , accessed date: 07.09.2021.

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