



## HEALTH, WELLNESS, AND MAKE IN HARYANA: AN EMPIRICAL STUDY

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### ABSTRACT

**G**ood health has been universally recognized as the pre-requisite for quality of life, and thus, occupied a significant place in the process of inclusive growth of an economy. A simple channel through which health affects economic growth is by improving living conditions. Verifiable data have recorded that, improvement in wellness is strongly correlated to the growth of productivity and income. Therefore, investment in health and other related areas impacting people is not a matter of choice. Good Health care facilities and services are essential for creating healthy citizens and society that can effectively contribute to social and economic development. Haryana is committed to provide quality health services and raise the health status of its people. National rural health mission has been introduced in Haryana with a view to bring about improvement in the Health status of people specially those who live in rural areas of the country. Haryana compares favourably with the rest of India in terms of health indicators and over time, the indicators have improved sharply compared to other states. So an effort has been made in this paper to study the relationship between the health sector development, and real economic growth, in terms of health indicators, namely, crude birth rate, crude death rate, infant mortality rate and per capita government expenditure on health for the sample period spanning from 2000 to 2013. Multivariate regression model estimation technique is used for analysing this relationship and we found that the health sector development propelled by reduction in crude birth, crude death and infant mortality rates through efficient government spending on health, has the power to go a long way in achieving the noble initiative of 'Make in Haryana'.

**KEY WORDS:** Health, Wellness, Economic Growth, Make in Haryana

### 1. INTRODUCTION

People are the real wealth of a nation, and they should be at the centre of development. So, the basic goal of development should be to create an enabling environment in which people can enjoy long, healthy and creative lives (UNDP-HDR, 1990). And, it is the efficient availability, and effective utilization of healthcare services

that can enable them to live healthier, happier, and lead more productive lives. There is a conformity among health scientists, economists, planners and policy makers, backed by research findings, that good physical and mental health enhances people's ability to make informed decisions, sustain a livelihood, adopt new technologies, be better

parents, cope with shocks, be active participants in civic matters, and be responsible citizens, and effective custodians of the natural environment. At the macro level, health has many development benefits including more rapid growth and poverty reduction, reduced fertility and mortality, increased life expectancy, improved productivity, improved resilience to economic shocks, and greater civic participation (Amirie and Gerdtham, 2013; Gupta and Mitra, 2004; Bloom et al., 2004; Jamison et al., 2003). Therefore, the paramount role of health in contributing to the sustainable socio-economic development of a nation cannot be overemphasized.

Health is a basic human need. Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity to lead a socially and economically productive life (WHO, 1978). Health is increasingly being recognised as a critical human capital component which contributes significantly towards the development of a nation. Healthier people can work more productively, and more productivity means more contribution to economic growth (Schultz, 1961; Arrow, 1962; Mushkin, 1962; Romer, 1986; Zon and Muysken, 2003). Health is the most important asset of human being. It permits us to fully develop our capabilities. If this asset erodes or it is not properly developed, it can cause physical and emotional weakening, causing obstacles in the lives of people. Thus, health is the backbone of human resource (Mishra and Mishra, 2015). Health is one of the vital indicators reflecting quality of human life. With increased urbanization, industrialization and the changing environment, health related issues and problems are being emphasized and have become a great concern for the contemporary world. Health is multi-factorial. There are numerous factors that influence health like hereditary factors, environmental factors, lifestyle, adequate housing, basic sanitation and socio-economic conditions including income, education, availability and quality of health infrastructure and per capita health expenditure (Park K, 1994).

The health status of people is related to the economic development of a country for three main reasons. *First*, as an indicator of economic development, it shows the capability and success or failure of a country to provide for the most basic needs of the people (food, clothing, shelter and sufficient sanitary conditions). The correlation between such crude indicators as child mortality and life expectancy on the one hand, and per capita income on the other, is very strong and well documented in economic literature. *Secondly*, health as a form of human capital is an input for the further development of country.

There is plenty of evidence to support that health plays an important role in school enrolment and school performance of children, and in labour supply and productivity of adults and in earnings. The relationship between development and health is well accepted: increasing the economic wealth of a country is associated with improved health outcomes (Preston, 1975; Smith, 1999). Therefore, improvements in health or better health would promote learning, reduce absence, improve stamina and would contribute to improve the economic status of the poor. *Thirdly*, the high infant and child mortality rates are among the most important factors related to high fertility rates, which in turn play a crucial role in development.

Health increases the human capital inherent in the labour force, which in turn increases labour productivity and thus, transitional growth towards a higher equilibrium level of output (Mankiw, Romer, and Weil, 1992). Health increases the innovative capacity of the economy, and the new knowledge on new technologies, products and processes promotes growth (Lucas, 1988; Romer, 1990; Aghion and Howitt, 1998). There is also growing empirical evidence suggesting that there is a positive impact of improved health outcomes on the economic growth (Bloom et al, 2004; Li and Huang, 2009; Wang, 2011; Rajeshkumar and Nalraj, 2014; Mishra and Mishra, 2015).

It is thus, cleared that health, wellness and economic development are inseparable. Good health improves human well-being and contributes to real economic growth of an economy through its positive impact on productivity growth. It has been found from country specific studies that low nutritional intake and subsequently poor health has its linkages with low levels of income. Therefore, it is imperative for the policy makers that good healthcare facilities be provided for creating healthy citizens and society that can effectively contribute to inclusive growth of the economy. Thus, investment in health and other related areas impacting people is not a matter of choice. It should be thought of as a compulsion.

It is with this backdrop, the primary objective of this paper is to make an empirical study of the relationship between health and economic growth of Haryana.

## 2. HEALTH SCENARIO IN HARYANA

Haryana is committed to provide quality health services and raise the health status of its people. National Rural Health Mission has been introduced in Haryana with a view to bring about improvement in the health status of people especially of those who live in rural areas of the country. The state of Haryana is steadily progressing

towards attaining the goals and objectives shared under NRHM, National Population Policy and Millennium Development Goals. Haryana compares favourably with the rest of India in terms of health indicators and over time, indicators have improved sharply compared to other states. The per capita government expenditure on health in Haryana has been showing a rising trend over last few years. It has increased from Rs.166.83 in 2000 to Rs.734.00 in 2013. This has contributed significantly to the health and wellness of people in the state. Thus, the crude birth rate, crude death rate, and infant mortality rate are declining in Haryana over years. It is observed that the crude birth rate declined from 26.9 in 2000 to 21.3 in 2013. There has also been a decline in crude death rate from 7.5 in 2000 to 6.3 in 2013. Similarly, infant mortality rate also declined in Haryana from 67.0 in 2000 to 41.0 in 2013. These achievements are also due to the good health infrastructure facilities available in the state in terms of 57 hospitals, 2630 sub-centres, 485 primary health centres, 112 community health centres, 7 trauma centres, 37 rural and urban dispensaries, 90 urban RCH centres, 473 delivery huts, 4973 female health workers at sub-centres & PHCs, 1682 male health workers at, 398 female health assistants at PHCs, 503 male health assistants at PHCs, 392 well-trained doctors, 1416 pharmacists & other supporting staff, and 1698 nursing staff at PHCs & CHCs in Haryana (Economic Survey of Haryana, 2014-15). For reducing the deaths in newborns and bringing it down to 30 by 2015, Janani Shishu Suraksha Karyakram (JSSK), Facility Base

Newborn care (FBNC), Home Based Post Natal Care (HBPN) programs have been initiated by Haryana government.

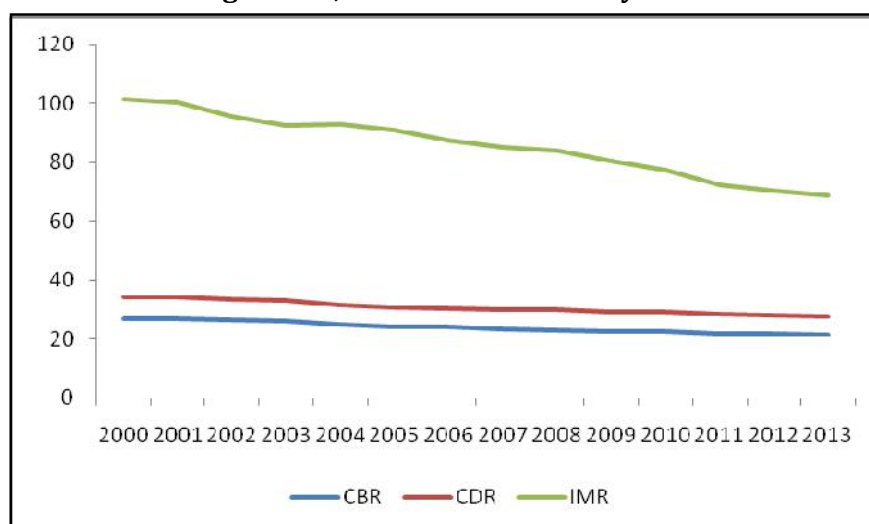
### 3. MATERIALS AND METHODS

In order to study the empirical relationship between health and real economic growth of Haryana, we have taken the sample period from 2000 to 2013. We have tried to interpret health and wellness in terms of reduced Crude Birth and Death Rates, reduced Infant Mortality Rates, and increased per capita government expenditure on health. And, we have measured the real economic growth of the state in terms of per capita net state domestic product at 2004-05 prices. All the relevant time-series data have been collected from various publications by Haryana including the Economic Survey of Haryana (various issues), Booklet on Haryana Economy, (various issues), Statistical Abstract of Haryana (various issues), Rural Health Statistics in India (various issues) and SRS Bulletin (various issues). We have taken the help of time-series plots and the multivariate regression model estimation to comply to the objective of the study. **4.**

### RESULTS AND INTERPRETATION

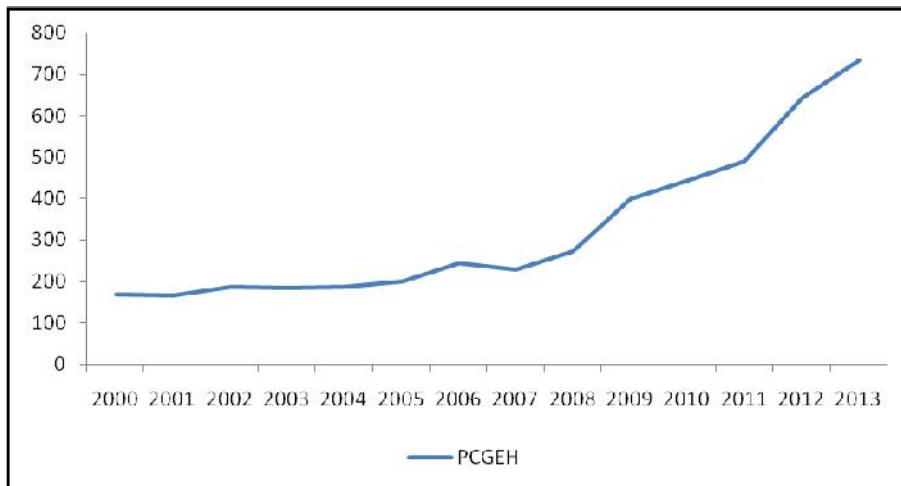
At the outset, we plotted the time-series variables of the study on graphs to see their trend pattern in Haryana. Fig.1 exhibits the Crude Birth Rate (CBR), Crude Death Rate (CDR) and Infant Mortality Rate (IMR). All these three indicators of health are showing a declining trend over years which reveal improvement in health and wellness in the state.

**Fig.1: CBR, CDR and IMR in Haryana**



Source: Own Plot

**Fig.2: Per Capita Govt. Expenditure on Health in Haryana**

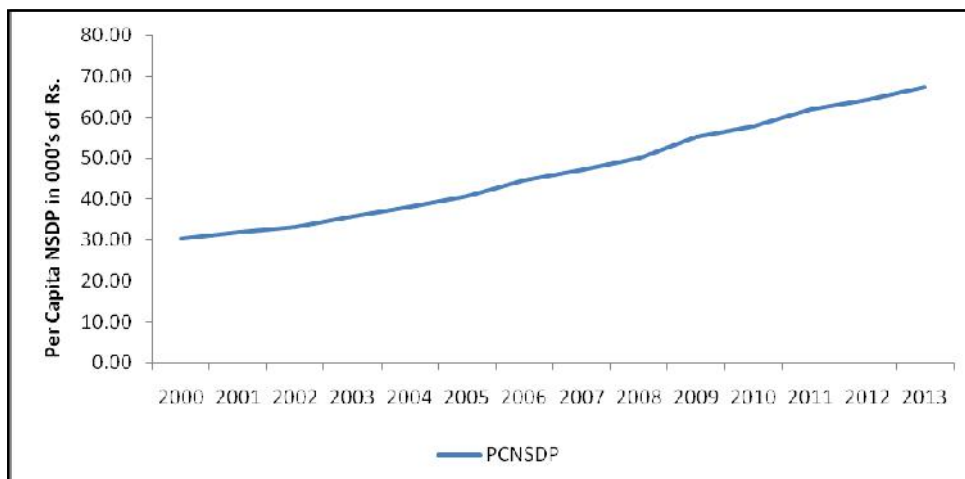


Source: Own Plot

Fig.2 plots the per capita government expenditure on health in the state. It shows an increasing trend which is the reflection of the greater concern to health sector by in the state. Fig.3 plots the per capita net

state domestic product in the state over the period of observation. It also shows an increasing trend over time. This is the reflection of increase in standard of living and productivity of inhabitants of the state.

**Fig.3: Per Capita Net State Domestic Product in Haryana**



Source: Own Plot

The above figures give an impression that the improvement in health and per capita income in Haryana might have some relationship among themselves. It is with

this presumption in mind, we have estimated the multivariate regression model:

$$PCNSDP_t = \alpha_0 + \alpha_1 CBR_t + \alpha_2 CDR_t + \alpha_3 IMR_t + \alpha_4 PCGEH_t + \epsilon_t$$

**Table-1: Results of Multivariate Regression Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	138023.1	6406.116	21.54551	0.0000
CBR	-3398.621	425.7459	-7.982745	0.0000
CDR	-2625.507	1232.000	2.131094	0.0619
IMR	-566.8611	138.0604	-4.105892	0.0027
PCGEH	11.61323	4.020419	2.888562	0.0179
R-squared	0.996841	Mean dependent variation		46885.02
Adjusted R-squared	0.995437	S.D. dependent variation		12627.58
S.E. of regression	853.0204	Akaike info criterion		16.60790
Sum squared residual	6548794.	Schwarz criterion		16.83613
Log likelihood	-111.2553	F-statistic		709.9546
Durbin-Watson stat	1.690640	Prob(F-statistic)		0.000000

Source: Own Estimation

The results of this regression model are presented in Table-1. It is revealed that all the coefficients are significant in explaining the real economic growth of the state. It is seen that the coefficients of CBR, CDR and IMR are negative. It means there is inverse relationship between these indicators of health and real economic growth in Haryana. Precisely, decline in CBR, CDR and IMR are related to increase in per capita state income. On the other hand, we see that the coefficient of per capita government expenditure on health (PCGEH) is having a positive coefficient. It indicates a direct relationship between health sector development, wellness of masses and real economic growth of the state. Furthermore, R-square value is 0.99 which is close to 1. It means the relationship between health sector development and economic growth of Haryana is very strong over the sample period. The value of adjusted R-square is also 0.995. It means about 99.5 percent variance in the Per capita Net State Domestic Product at 2004-05 prices in Haryana is explained by CBR, CDR, IMR and per capita government expenditure on health. On the basis of this analysis, it can be said that health sector can be considered as an engine of the Make in Haryana initiative.

## 5. CONCLUSION

Health care sector plays a significant role not only in improving quality of life of people, but also in expanding their socio-economic opportunities. Health care sector contributes to expanding economic opportunities through job creation, training and capacity building and shaping public policy. All these through their multiplier effects contribute to productivity growth in agriculture, manufacturing and services, thereby stimulating the pace

of the real economic growth. Empirical evidences conclude that good health has a positive, sizable and statistically significant effect on aggregate output. Healthier workers are more productive and earn high wages. Poor health affects both the ability to save and the impetus to save. Insofar as increased saving lead to increased investment, workers will access to more capital and their income will rise which will lead to higher economic growth. Wellness is an important part of social development which can contribute to the initiative "Make in Haryana". So this study keeps much relevance for Haryana. Our study found a statistically significant relationship between health sector development and real economic growth in Haryana. Specifically, we found opposite relationship between the indicators of health sector development and real economic growth of the state. Precisely, decline in crude birth rate, crude death rate, and infant mortality rate is associated with the increase in real per capita state income. It is also found that the per capita government spending on health sector development has a positive relation with the increase in real per capita income. These findings clearly indicate the good impact of the health care infrastructure available in the state, and the policy effectiveness of the health care schemes implemented by the government of Haryana. However, for greater socio-economic impacts, the policy makers have to focus on the development of health care system in rural regions of the state where private sector is relatively shy. The government has to look for easy and quick accessibility and also the affordability of the healthcare system in the state. In particular, the public sector should focus on the provision of healthcare to socially and economically marginalized sections of the

society. This would certainly go a long way in achieving inclusive growth of the state.

## REFERENCES

1. Aghion, P. and P. Howitt. (1992). *Endogenous Growth Theory*, MIT Press
2. Amiri, A. and Gerdtham, Ulf-G. (2013): *Impact of maternal and Child Health on Economics Growth: New Evidence Based Granger Causality and DEA Analysis*, Study Commissioned by the Partnership for Maternal, Newborn and Child Health (PMNCH).
3. Arrow, Kenneth J. (1962): *Economic Welfare and the Allocation of Resources for Invention*. In *The Rate and Direction of Inventive Activity: Economic and Social Factors*, edited by Richard Nelson. Princeton, N.J.: Princeton Univ. Press (for NBER)
4. Bloom, D. E., Canning, D., and Sevilla, J. (2004). *The Effect of Health on Economic Growth: A Production Function Approach*. *World Development*, 32(1), 1-13
5. Gupta, I. and Arup Mitra, (2004): *Economic Growth, Health and Poverty: An Exploratory Study for India*, *Development Policy Review*, Volume 22, No.2, pp.193-206.
6. Jamison, D. T., E. A. Jamison, and J. D. Sachs. (2003): *Assessing the Determinants of Growth When Health Is Explicitly Included in the Measure of Economic Welfare*. Paper presented at the 4th World Congress of the International Health Economics Association, San Francisco, June-2003
7. Li, H., & Huang, L. (2009): *Health Education and Economic Growth in China: Empirical Findings and Implications*, *China Economic Review*, 20, 374-387.
8. Mankiw, N.G., Romer, D., and Weil, D. N. (1992): *A Contribution to the Empirics of Economic Growth*, *Quarterly Journal of Economics*, pp.407-437
9. Mishra, P.K., and Mishra, S.K., (2015): *The Triangulation Dynamics between Education, Health and Economic Growth in India*, *The Journal of Commerce*, Vol.7, No.2, pp.69-89
10. Mushkin, S.J. (1962): *Health as Investment*, *Journal of Political Economy*, Vol. 70(5).
11. Park, K. (1994). *Text Book of Preventive and Social Medicine*, India: Bhanot, Jawalpur, M/S Banarasidas
12. Preston, Samuel H. (1975). *The Changing Relation between Mortality and Level of Economic Development*, *Population Studies*, 29, pp. 231-48
13. Lucas, Robert E. Jr. (1988). *On the Mechanics of Economic Development*, *Journal of Monetary Economics*, XXII, pp. 3-42
14. Rajeshkumar, N, and Nalraj, P.(2014): *Public Expenditure on Health and Economic Growth in Selected Indian States*, *International Journal of Science and Research*, Vol.3, No.3, pp. 468-672
15. Romer, P (1990), *Endogenous Technical Change*, *Journal of Political Economy*, 98, pp. 71-102
16. Romer, Paul M.(1986): *Increasing Returns and Long—Run Growth*, *Journal of Political Economy*, 94(5): 1002—1037.
17. Schultz, T. W. (1961): *Investment in Human Capital*, *American Economic Review*, 51, 1-17
18. Smith, James P. (1999): *Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status*, *Journal of Economic Perspective*, 13, pp. 145-166
19. UNDP (1990): *Human Development Report*, Oxford University Press, New York, 1990
20. Wang Y.C, McPherson K, Marsh T, Gortmaker S.L, Brown M. (2011): *Health and economic burden of the projected obesity trends in the USA and the UK*. *Lancet Obesity Series Paper 2*, 378:815–825
21. Zon, A. H. van and J. Muysken, (2003): *Health as a principal determinant of economic growth*, working paper, MERIT-Infonomics Research Memorandum.