

## Does Good Health Have Direct Relation with Economic Growth?

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### ABSTRACT

Health is a basic unit of productivity, whereas developing countries mostly depend on physical capital and preferred the healthy individuals to achieve an optimum output. A direct relation has been found between health and economic growth while somehow this relation is still controversial. The stock of human capital has a significant influence on the economic growth of any country. The primary goal of this study was to breaking down the connection between health and economic growth. Various studies have been conducted and illustrated the essential connection between health and economic growth. Good health can enhance the prosperity and development of an individual and country. A healthy stake holder with a longer lifespan ahead of them have higher motivations to invest in education and training, as they can produce the connected benefits for long time. People having a health physic are more energetic generate more production effectively whilst having long term working capability. The study presents that the health contributes in many economical productive outcomes e.g., generates incomes, wages, worked hours, employee's contribution.

**KEYWORDS:** Health, income, employment, economic growth

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### 1.1. INTRODUCTION

Illness influences economic outcomes through various channels. The least complex channel, as is the impact of illness on the profitability of laborers, in this manner diminishing their minor profitability and the quantity of hours worked regarding efficiency (Weil, 2008). Multiple OLS regression equally was used to verify the relationship between health expenditure and economic growth in Nigeria. The results showed that labour force productivity, total health expenditure and gross capital formation are important determinants of economic growth in Nigeria while life expectancy rate has negative impact on growth for the period covered by the study (Oni, 2014). Weaknesses conditions can influence the efficiency of specialists through the quantity of years spent on the work advertise (by making retirement more charming (Chirikos, 1993).

A positive relationship between health and economic growth has been broadly recorded. In smaller scale and large-scale evidence, there is rich proof that a wide collection of health pointers is decidedly connected with a wide range of measurements of economic growth. It is likely that connection keeps running in the two directions. To start with, higher pay people put more in human capital, including health: as their wage develops, they put resources into better eating style, better social insurance and enhanced sanitation. If worker is healthier, fewer powerless to illness, and more wariness and more lively, at that point he or she will likely be more beneficial and order higher income (Hugh, 1998).

Keeping in mind the end goal to know the significance of health portion, it is expected to examine its degree. In this way, feasible involvement of health section to an economy can be investigated in a superior health segment is in charge of giving the advertising and productivity of items and the administrations essential for securing, helping, and protecting health. This section covers various regions. The economic significance of the human services industry comes to a long ways past the immediate offers of included esteem and work. Such a medicinal services segment adds to better health condition of its public. That is the reason; the medicinal services division is additionally the wellspring of quality for the economy's efficiency and in this way makes additionally included esteem (Yaman, 2013). The key of human rights and main factor of economic and social improvement is health. The health of women's is need to more attention than men but health planner frequently been overlooked. Health Promotion, characterized as "the way toward empowering people to expand control over, and to enhance, their health", can happen at an assortment of levels including people, families, networks, associations and governments/strategy producers.

To verify the impact of expenditure on education and health on economic growth sample of 49 African countries from 1996 to 2010 was used. The result shows that the expenditures on education and health have a negative impact on economic growth (Eggoh *et al.*, 2015; Hilaire & Gilles, 2015). It is realized that to empower the health improvement, changes of ways of life, information unaccompanied is unsatisfactory. Information

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must be joined by suitable abilities and maintenance. Furthermore, the utilization of various channels and techniques, for example, relational systems joined with mass Indian causes and little gathering exercises are vital (Organization, 2005). Despite the fact the basic point of human capital, quality of labor significantly contributes the economic growth, empirical studies investigations recognize work quality barely with education. Works with good health are physically and rationally more enthusiastic and powerful. They are more profitable and win higher wages. They are additionally less inclined to be missing from work on account of ailment (or sickness in their family). Disease and inability diminish time-based compensations significantly, with the impact particularly solid in creating nations, where higher extents of the work constrain is occupied with difficult work than in modern nations (Strauss & Thomas, 1998).

Health, as future, has showed up in numerous cross-country development relapses, and specialists by and large find that it has a noteworthy beneficial outcome on the rate of economic growth. Health may be not only a consequence but also a cause of high income. This can work through a number of mechanisms (Bloom and Canning 2000, 2001). Vector error correction model (VECM) as the econometric model with annual time series data from 1988 to 2013 was used to examine the contribution of public health investments to the economic growth of Cameroon. The results of the estimations showed that public health investments contribute to the economic growth of Cameroon only in the long-run. This implies that public health investments boost economic growth in the long-run through efficient allocation of resources. Recommendation of the study that: first, the government should increase its health investment to 10 or 15% of its GDP as recommended by the African Union and WHO respectively; second, to enhance the provision of health care services by the private sector and third, to ameliorate the quality of health care services rendered by granting competitive awards to health units that render quality health care services (Mandiefe & Tieguhong, 2015). Human capital is a very important factor in boosting economic development. Indeed, the theoretical underpinnings of Barro are still very relevant in contemporary empirical human capital literature in Africa (Ssozi & Asongu, 2015).

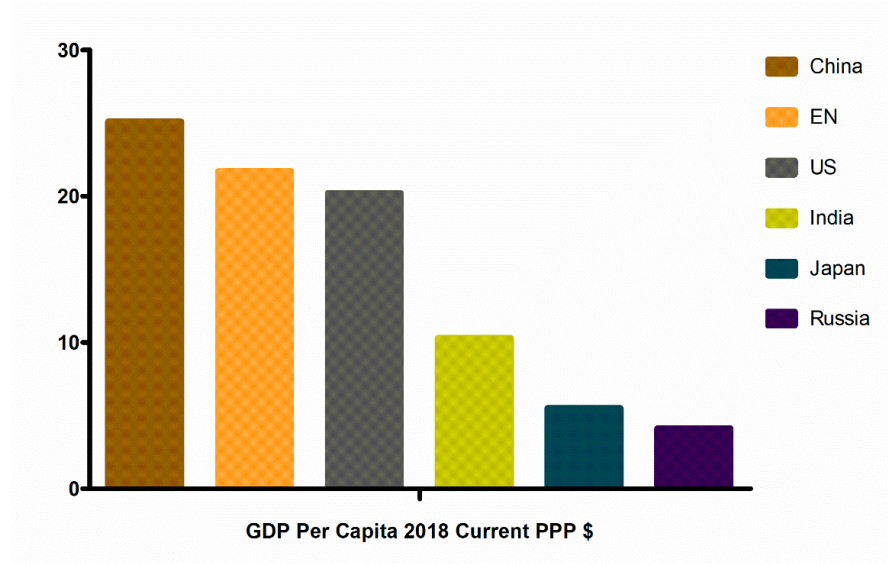
In this paper we draw on economic theory and the concept that health can also influence economic growth through its incentive effect on education investment. People who are more advantageous live more, and are urged to put more in training as the time skyline over which comes back to instruction can be delighted in as higher gifted wages is broadened. For this situation, the adjustment in human capital stock (instruction) will be affected by the wellbeing stock. This idea is very much investigated in the theoretical literature, however there are few cross country experimental examinations testing this theory. In this paper we demonstrate that experimental specifications that overlook the aberrant effect of wellbeing on economic growth think little of the positive effect wellbeing has on economic growth. The point of this paper is to depict the causal influence of wellbeing on economic growth. The assumption that wellbeing has both an immediate and roundabout effect on economic growth is tried utilizing an arrangement of conditions.

## **1.2. Research Background**

Endogenous growth models highlight the significance of human capital on economic growth and development (Romer, 1990). Health is an essential factor of economic development; a healthy population means higher productivity, thus higher income per head (World Health Organization, 2005). The significance of human capital to economic growth cannot be over emphasized (Riley 2012; Lucas, 1988; Mankiw, 1992) because it serves as a substance to economic growth. The contribution of health expenditure on economic growth proceeds from the health controlled growth theory (Mushkin, 1962). It considers health to be capital; therefore investments on health can lead to an increase in labor productivity, thus increase in incomes and subsequent increase in the wellbeing of the population. Human capital positively affects the sectoral growth (Sehresh et al., 2018). The imbalances in such factors as teaching, occupational and pay can decide one's capacity to acquire such essential needs as reasonable sustenance, housing and dress and that these variables thus, can add to a person's wellbeing status and health performance (Ontario Ministry of Health, 1987). An investigation of agriculturists in Indonesia exhibits that homestead benefits are invariant to whether the leader of the family unit or mate report themselves as being sick amid the earlier week in spite of the fact that, as we will see, that does not really infer the ailment did not influence the person's profitability (Pitt & Rosenzweig, 1986).

Health care industry directly affects the employment which influences the economic growth. Such a health care sector adds to better wellbeing condition of its populace. That is the reason; the health care segment is additionally the wellspring of quality for the economy's efficiency and hence makes additionally included esteem (Brauninger & Stobbe, 2012). The way that an inward connection amongst wellbeing and wage suggests that normal wellbeing is adversely connected with salary imbalance has come to be referred to in the writing as a factual ancient rarity. The utilization is intended to recognize it from components in which salary imbalance directly affects singular wellbeing, however it is disastrous in recommending that there is no genuine connection between pay disparity and wellbeing, and that redistributive approach can't enhance normal populace wellbeing. This is a long way from the case; if salary causes wellbeing, and if there are consistent losses, redistribution from rich to poor will enhance normal populace wellbeing (Hugh Gravelle, 1998).

Despite the fact that these contentions are clearly right now and again, and nobody truly challenges that evil wellbeing is regularly an explanation behind early retirement from the workforce, they have been unequivocally opposed by numerous free thinkers, especially in (Britain Sally MacIntyre, 1997). Researchers have additionally made the contention that the connection mirrors the activity of some third factor, especially training and gives the preference discount rates (Michael Grossman 1972, 1975, and 2000). The individuals who are eager or have poor discretion are likely both to neglect to make speculations to ensure their wellbeing and to neglect to secure the training and aptitudes that create higher income (Victor Fuchs, 1993). GDP per capita 2018 current PPP \$ was showed in **Figure 1**.



**Figure 1:** GDP Per Capita 2018 Current PPP \$

*Source:* World Development Indicators CD-ROM, World Bank (2018)

### 1.3. Conceptual Frame Work of Human Capital and Economic Growth

Economic growth alludes to the consistent procedure by which the capacity of productivity of the economy is expanded after some time to realize rising levels of national income and output (Todaro, 2000). It is estimated by the expansion in total national output (GDP) in real terms. According to neo-classical economic theory, economic growth relies upon three factors: capital stock, health, labor stock, and efficiency, the last depending thus on innovative advance and, in neo-classical theory, was thought to be an exogenously given factor which presented in **Figure 2**.



**Figure 2:** Health, Education and Economic Growth

All the more as of late, scientists have attempted to supplant the suspicion of exogenous mechanical advance by a clarification of exactly what is driving efficiency. Mechanical advance in this way arrived at be viewed as an 'endogenous' process that could be driven specifically by interests in human capital, to a great

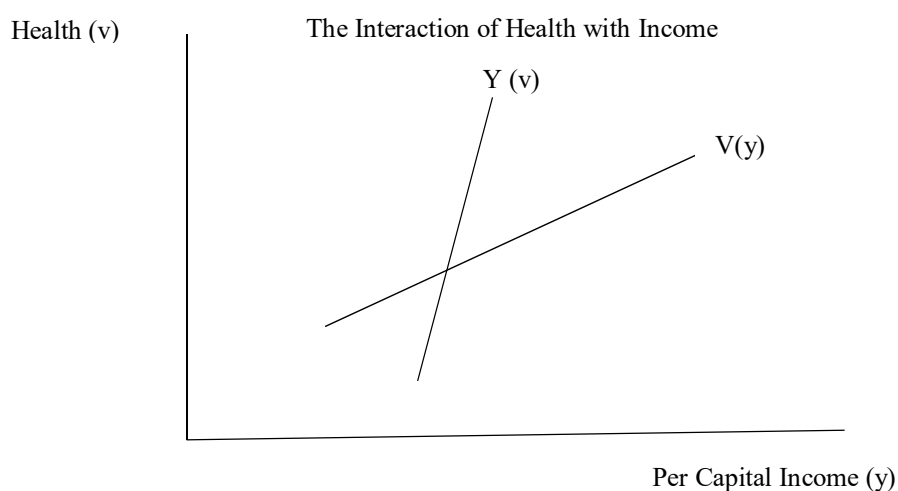
extent comprehended as gifted work. According to neo-set up money related speculation, financial improvement depends upon three factors: the supply of capital, the heap of work, and proficiency, the keep going depending in this way on imaginative progress and, in neo-customary theory, was believed to be an exogenously given factor. All the more starting late, experts have tried to supplant the assumption of exogenous mechanical progress by an elucidation of precisely what is driving effectiveness. Creative progress thusly touched base at be seen as an 'endogenous' process that could be driven particularly by interests in human capital, all things considered, grasped as skilled work (Rogot et al., 1992).

According to initial theory of human capital development, growth in physical capital and labor are ordinarily estimated, clarifies a generally little piece of the growth of wage in many countries. Furthermore, investment in human capital raise a worker efficiency (both in advertise and non-advertise actions). In this manner, people have an impetus to put resources into themselves through instruction, preparing and wellbeing so as to build their future profit. In any case, these speculations likewise have costs related with the direct expenses on showcase products and the open door expenses of the time that must be occupied from contending employments. Health is one of major component of human capital but specially focus on education (Becker, 1964).

#### 1.4. Interaction of Health and Income

The real commitment to our comprehension of health as a basic part of human capital was given by (Grossman, 1972) who was the first to develop a model of the interest for health applying human capital theory. Grossman recognizes health as utilization decent and health as a capital decent. As a utilization decent, health enters straightforwardly into the utility capacity of the person, as individuals appreciate being solid. As a capital decent, health lessens the quantity of days spent sick, and subsequently expands the quantity of days accessible for both market and non-advertise exercises. In this manner, the invention of health influences a person's utility not just on account of the joy of feeling healthy yet in addition since it expands the quantity of sound days accessible for work (and in this way wage) and recreation. Wellbeing isn't just requested yet additionally created by the person. People acquire an underlying load of wellbeing that devalues with time, yet they can contribute to keep up and increment this stock. Human services are one of these variables. The interest in human services is thusly an inferred interest for wellbeing. The creation of wellbeing additionally requires the utilization of time by the individual far from the showcase and non-advertise exercises.

The different bits of confirmation exhibited above build up that, in a measurable sense, wage and wellbeing are emphatically related. The correct idea of the correlation shifts with the setting (cross segment, time arrangement, nation versus person), be that as it may, it is obviously solid. As is regular in economics, the genuine discussion is over what basic connections underlie this observed information. As a starting point, one can think of health and income being determined simultaneously. **Figure 3** presents a simplified framework, in which  $y$  represents per capita income and  $v$  (for vitality) represents health.



**Figure 3:** Per Capita Income and Health Framework

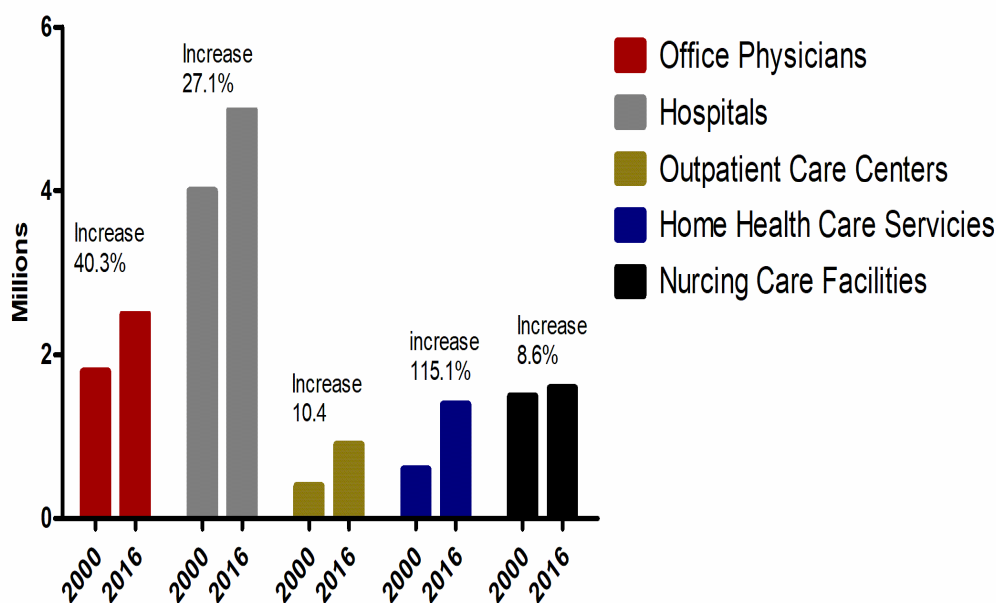
The effect of higher income in improving health is represented by the  $v(y)$  curve. The effect of better health in raising income is represented by the  $y(v)$  curve. Equilibrium health and income are given by the intersection of the two curves. In this abstract form, the model can be thought of as applying equally well to either individuals or countries. In this simple model, a positive correlation between health and income (looking across

countries or individuals or over time) can be induced by three forces: 1) Variation in the  $y(v)$  curve, holding the  $v(y)$  curve fixed. This would be due to factors other than health that affect income. Examples in cross-country data could be availability of natural resources, differences in institutions or productive technology, etc. Among individuals, shifts in the  $y(v)$  curve could be caused by variation in non-health aspects of human capital. Such variation would trace out the  $v(y)$  curve, and so in order to match the observed positive correlation between  $v$  and  $y$  in the data, it would have to be the case that the  $v(y)$  curve was upward sloping. In other words, it would have to be the case that raising income improved health. 2) Variation in the  $v(y)$  curve, holding the  $y(v)$  curve fixed. This would be due to factors other than income that affected health, such as variation in the disease environment across countries or variation in idiosyncratic health outcomes across individuals. Such variation would trace out the  $y(v)$  curve, and so for the observed data to fall on an upward sloping line it would have to be the case that the  $y(v)$  curve had a non-zero slope (when viewed in a rotated fashion). In other words, it would have to be the case that improving health actually did raise income correlated shifts in both curves. This would be the case if some factor shifted both health and income. Looking over time, a natural candidate to produce such correlated shifts is technology, which allows for higher output (given a set of factor inputs) and also for better health, holding income constant. Looking across countries, one might think that differences in institutional quality would produce correlated shifts of the two curves.

Finally, looking among individuals, a natural candidate for producing such correlated shifts would be education, which raises wages and also imparts knowledge that improves health at any given wage level. Correlated shifts in the  $v(y)$  and  $y(v)$  curves would produce an upward sloping relationship between  $y$  and  $v$  even if both of these curves had zero slope (in other words, even if there were no causal link from health to income or vice versa). The empirically observed pattern of health and growth in any particular setting will depend on the slopes of these curves, the relative variances of shocks to them, and the covariance of such shocks. As in any model where the two curves describing structural effects slope in the same direction, there will be multiplier effects in this simple setup. For example, some exogenous change that affects the level of income, holding health constant, will shift the  $y(v)$  curve to the right, raising income directly, but also improving health and resulting in a second round of health-induced increases in income. There will be similar multiplier effects to exogenous shocks to health. These multiplier effects will be larger; the larger are the responses of income to health and health to income. Similarly, it is not hard to introduce nonlinearities in one or both of these relationships that could produce multiple equilibrium. To a large extent, debates about the importance of health in economic growth can be boiled down to claims about the slopes of, as well as the relative variances and correlations of shocks to, the  $y(v)$  and  $v(y)$  curves. Implicitly, he views the variance of the  $y(v)$  curve to be small, and so the observed data on  $y$  and  $v$  will trace out the  $y(v)$  curve and thus we learn from the data that the  $y(v)$  curve is steeply sloped health has a big effect on income. By contrast, Acemoglu and Johnson (2013) interpret their results (discussed below) as showing that the  $y(v)$  curve is flat, and so the correlation between health and income observed in the data results from a combination of correlated shocks to the two and causality running from income to health. (Pritchett and Summers 1996) use an instrumental variables approach to argue for a positive effect of income on health that is, that the  $v(y)$  curve is not flat. Looking at the within-country conversation of health and income, (Cutler et al. 2006) argue that relatively little is due to causation running from income to health in other words, that the  $v(y)$  curve is relatively flat. Rather, they view the two most important sources of the observed correlation to be causation from health to income (in particular, the effect of disability on wages) and the effect of education in producing correlated shocks to both curves.

### **1.5. General Overview of Health Sector and Distribution of Its Employees**

A great part of the health economic matters writing does not acknowledge the presence of any causal impact running from pay to health, with the exception of conceivably through the buy of social insurance, contending that the connection between them is driven to some extent by a causality running from wellbeing to salary, and partially by third factors, for example, training, or rates of time inclination (Kawachi & Kennedy, 2003). The health care services sector is important driver of employment growth in the United States. Somewhere in the range of 2000 and 2016, in general private sector employment raised by 9.8%, although health care employment developed by 42.0%. This affected human services a lot of all-out private sector employment increase from 9.8% in 2000 to 12.6% in 2016 (Bureau of Labor Statistics, 2017). 4.6 million health care employments produced between 2000 and 2016, 1.1 million were in hospitals, 728,800 in home health care services, 726,600 were in physicians' offices, 431,100 were in outpatient care centers, and 130,500 were in nursing care facilities are showed in **Figure 4**.



**Figure 4:** Employment Levels in Select Health Care Industries, 2000-2016

The organisation for economic co-operation and development (OECD) is an international economic organisation of 34 countries. It provides a portfolio to discuss and share views about economic growth. Different authors studied on some selected countries of OECD to measure the efficiency in health care sector. Two inputs (health expenditures per capita, average year of schooling) and two outputs (life expectancy, disability average life expectancy) concluded that the overall mean efficiency was 92.3 which was lower than original DEA mean efficiency (97.1). Spearman rank correlation was used to check the internal and external quality of results. The countries that spent more on health care sector achieve more efficient results. The countries that have higher income disparity and long average hospital stay were less effective. Organisation should be aware of the quantification and quality of parametric and non-parametric methods in likening efficiency in health care sector (Varabyova & Schreyagg, 2013). Inefficiencies have been high to a greatest extent on conservative and as a mean it estimates countries had increased results by 40% using same resources. GDP per head, education attainment, tobacco consumption and obesity were extremely and significant correlated to output scores. Wealthier and more cultivated environment has meaningful activity on health scores. Obesity and smoking had bad effects on health outcomes (Afonso & Aubyn, 2005). Input variables (School expectancy, GDP per capita, total workforce) and output variables (life expectancy at birth, infant mortality) and the Mean efficiency of OECD were 0.961. it indicated that member country tardily moves away from the frontier and effectiveness was decreased (Spinks & Hollingsworth, 2009).

To attain the greatest economic growth, employment and a higher standard of living in OECD countries, its necessity to be financially stable and thus it will lead towards the advancement of the world. Ultimately beneficiaries of this development in economic growth will be the whole global world. Only GDP per capita and health expenditure per capita had momentous relationship with the technical efficiency of health system. Number of physician and health expenditure had valuable relationship smoking and hospital beds per thousand people had counter relationship. Pay attention on education level, better utilisation of health resources and proper management of health care system (Ravangard et al., 2014). Direct employment, income and sales by economic sector and health services relative shares are presented in **Figure 5**.

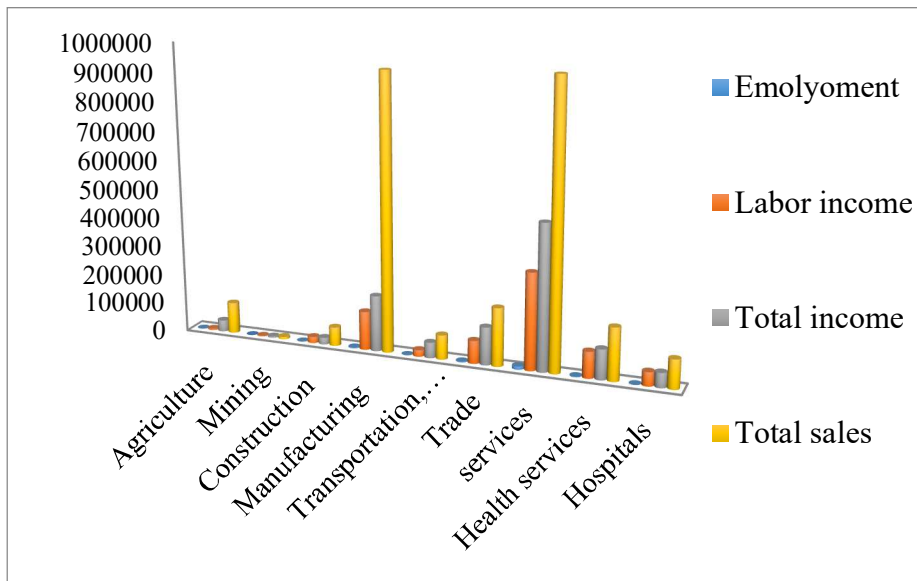


Figure 5: Direct Employment, Income and Sales by Economic Sector and Health

Services Relative Shares Compared to the State and U.S., 2008

### 1.6. MATERIALS AND METHODS

#### 1.6.1. Channels Mechanisms of Health and Economy

Human capital issues for financial results and since health is a critical segment of human capital, health additionally matters for economic results. In the meantime, economic results matter for wellbeing. Health is controlled by hereditary, monetary, social, social and natural components. Be that as it may, the wellbeing of a populace may likewise, consequently, impact the economic framework (Halder, 2008). Health could add to economic consequences (at both the individual and the nation level) in high-pay nations essentially through four channels: higher profitability, higher work supply, higher abilities because of more prominent instruction and preparing, and more reserve funds accessible for interest in physical and scholarly capital is presented in Figure 6.

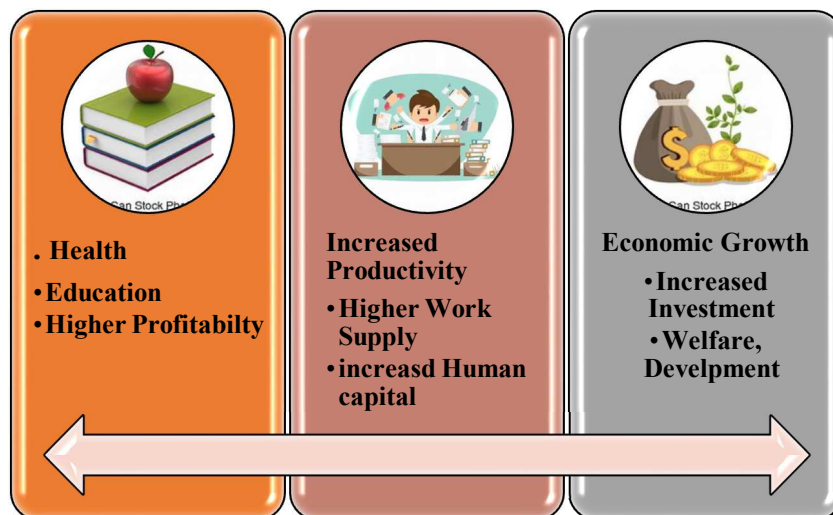


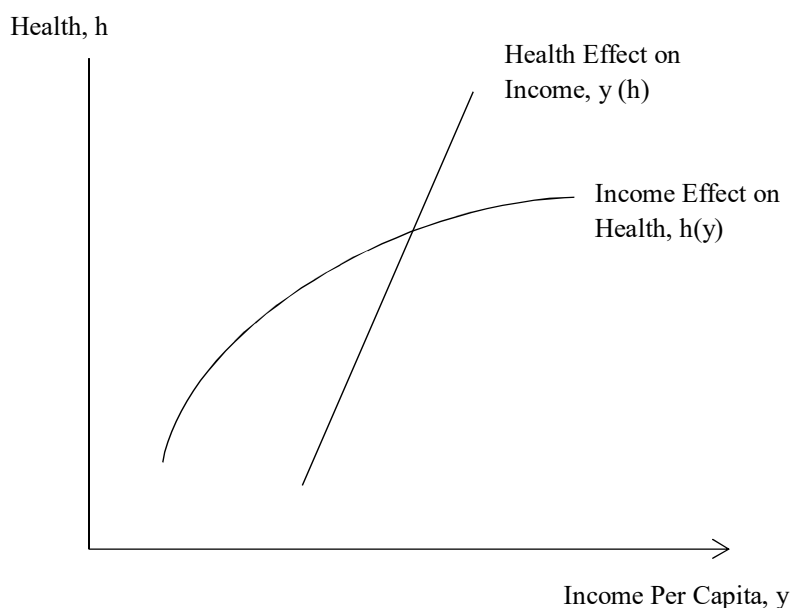
Figure 6: Hhigher Profitability, Higher Work Supply, Enhance Economic Growth

#### 1.6.2. Productivity of Labor

Per hour productivity of healthy worker is more than expectation. On the other hand, physical and mental actions directly increase the efficiency. Technology, machinery or equipment is use more efficiently by a worker who is physically and mentally active. A healthy worker could likewise be relied upon to be more adaptable and versatile to changes (e.g. changes in work undertakings, in the association of work) (Smith 1967). The interaction of health and income on Robert William Fogel modelling showed in Figure 7. Human capital



investment on health may improve labor productivity by taking good body nutrition indicator that may facilitate in increasing life expectancy at birth for a population. Health care may prevent and cure diseases to increase quality of life. In contrast, malnutrition may affect in less healthy, no energy and low worker ability. The increment in income for a nation is influenced by good health condition of a population.



**Figure 7: Interaction between Health and Income**  
Robert William Fogel Model: where income causes health and health causes income (Weil, 2006).

Population in a country with better food may generate higher gross domestic product (GDP). Conversely, country with higher income may generate better nutrition. This relationship is shown in upward sloping curve  $y(h)$  which is the effect of health on income. The  $h(y)$  curve is the effect of income on health in upward sloping curve shows that people with higher income afford to pay more on health care products as prevent disease is better than last minute cure for better quality of life (Wolff, E.N, 2000).

### 1.6.3. Supply of Labor

Theoretically it is not clear that whether health affect the labor supply or not. Bad health increase the number of days a worker devotes illness that badly affect the work capacity. Be that as it may, health additionally impacts the choice to supply work through its effect on wages, inclinations and expected life skyline. The impact of wellbeing on work supply through every one of these middle components isn't generally self-evident. Be that as it may, wellbeing additionally impacts the choice to supply work through its effect on wages, inclinations and expected life skyline. The impact of wellbeing on work supply through every one of these middle components isn't generally self-evident. From one viewpoint, if compensation is connected to efficiency, and more advantageous specialists are more beneficial, health upgrades are relied upon to expand wages and in this way the motivators to build work supply (Barro, 1996).

### 1.6.4. Schooling

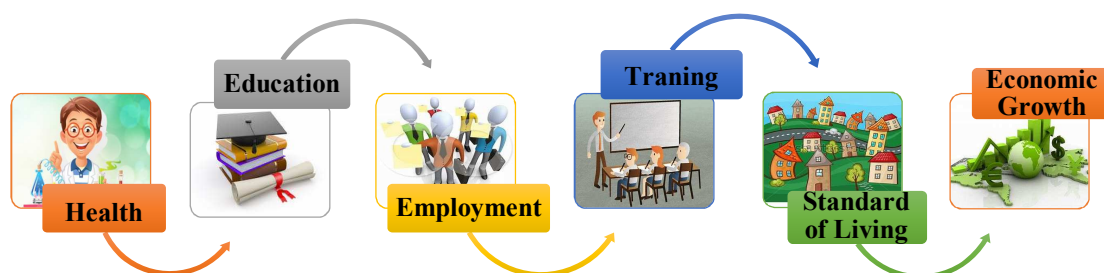
As reported by theory of human capital, educated worker affect the productivity and get more earnings. Healthy children regularly go to school and attain high education which indirectly contributes to forthcoming output. Furthermore, batter life expectancy directly linked with goof health, a healthy person would have higher incentives to invest in education and training Becker (1964).

### 1.6.5. Capitals and investment

The condition of the strength of an individual or a populace is probably going to effect upon the level of salary as well as the conveyance of this wage amongst savings and utilization and the ability to attempt investment. Healthy people are probably going to have a more extensive time skyline and their reserve funds proportion may thus be higher than the investment savings proportion of people in weakness. This ought to likewise bring about a higher tendency to put resources into physical or scholarly capital. In entirety, there are various channels that may causally interface health and economic results on the individual and on the total (large scale) level. The most widely recognized denominator of these channels is that wellbeing can be viewed as a



basic piece of human capital (Mincer J, 1974). Inputs of health and output of health are illustrated in **Figure 8**.



**Figure 8:** Health inputs and Health Output

There are many factors which affects the health of individuals, which are training, healthiness, prosperity, inheritance, circumstances, standard of living, extra economic factors (access and utilization of employment, investment foundation, schooling, and output) and the more broad financial, social and environmental conditions. A few of these determinants of wellbeing can be impacted by open strategies. Public policies can affect a few of these determinants of health. In surveying the commitment that health can make to development, it is imperative to remember the positive input from salary to health. There are two manners by which wage can impact health: through an immediate impact on the material conditions that positively affect natural survival and wellbeing, and through an impact on social investment, the chance to control life conditions, and the sentiment of security. Over a specific limit of material hardship, the salary might be more vital due to its connection with these social and mental variables, especially in social orders where social investment depends vigorously on a singular wage (Marmot, 2002).

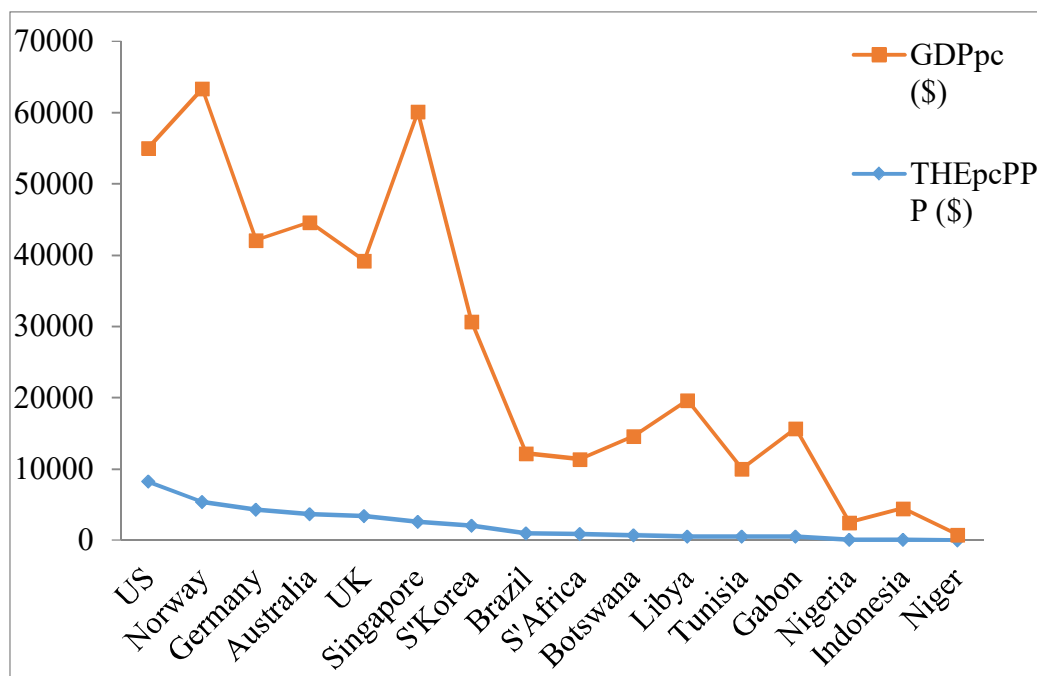
## 1.7. Role of Health in Income and Wages

### 1.7.1. Investment in health

A fundamental goal for the improvement of health care is to keep what is favourable about the present health care system while concentrating on the regions that need betterment. Doing amendments in the quality of care and decreasing medical faults are antecedence. Many authors have worked in different prospect of view to find out the solutions for the good quality of health and Identified effective technology and systems that demand to supply safer, advance quality care. Main root cause of inefficiency in hospitals in a developing country is not only just resource compaction but large space in planning and application by the central managerial authorities as well as regional hospital establishment. The causal factor that play a central role in enhancing efficiency scores also point out that most of the inefficiencies can be managed either with prolong planning or by speedy interaction by the hospital establishment itself. Various technologies have been used to meliorate Efficiency of health care in Asian countries. Different studies have been conducted by many authors to show weather health play a positive or negative affects the income and earnings. Initially caught demand model of health to elaborate interrelation among work time, wages and health. In this manner, numerous examinations (for the most part utilizing American information) concentrated on the interlink ages between work, wages and health (Meza & Lins, 2002). Basic conditions for wage assurance and work supply showed that great health positively affected profit (compensation times weeks worked) (Dash et al., 2010). Rehash the way that there is little confirmation on the effect of health on compensation, especially for created nations (Lynch & Ozcan, 1994).

Health plays a pivot in the development and prosperity in economic status in developing countries. To improve health status and decreasing risk factor of disease, promoting health education at social level are considered as the compulsory for betterment of human welfare. Lacking to achieve these goals due to improper use of health recourses and poor monitoring systems. These reforms are possible by implementing good policies in health system, enhancing efficiency, overcoming extra expenses so that it helps to dig out hidden factors which can be over welled to achieve the goals of efficiency in healthcare. Different authors had worked on different sectors of health but still many queries are there to work further on health sector. Following authors mentioned below have worked on different countries to measure the efficiency of healthcare system (Bernet, 2008). To inquire the relationship between efficiency of the health system and medical resources in a Thailand country, Trans log production function as well as three derivable demands for factor input questions were

collectively estimated by applying regression system method. A counter relationship among pharmacists and marginal product of physicians, marginal product of nurses is large and constructive. The efficiency of Marginal product of beds have also much better results but less than the marginal products of nurses. In order to get better results, the federal government should transfer authority to local administrative organizations regarding basic public health (Suraratdecha & Okunade, 2006). Health's positive effect on GDP is strongest among poor countries. Improving HD must precede or accompany rising EG for a country to reach sustained growth. Health expenditure as a proportion of GDP in selected countries is presented in **Figure 9**.



**Figure 9:** Health Expenditure as a Proportion of GDP in Selected Countries

Statistical methods need parametric management that have more computational charges and highly coalesced input output variables utilized in statistical analysis which were non parametric. Two general approaches in analysing variability in production over time, the statistical approach and index number approach. DEA system was used to compare efficiency between production unit and region (Kam yu, 2008).

The health care sector has played an effective role in the economic world. Many authors have worked on measuring efficiency health is a metabolic and functional efficiency of an organism. Inhuman being is the power of individuals or nations to adhere and self-manage when across social, mental or challenges come. Capability of research of operations had been addressed to measure the efficiency of hospitals in Saudi Arab by (Bahurmoz, 2014). The study was conducted in the primary health care centres in Jeddah in the time period of 1995-1996. Both variables were taken as input variables (general Practitioner, nurses, administrators, others) as well as output variables (outpatient visits, pregnant visits, others, total vaccination).

### 1.8. CONCLUSIONS

The study focused on a question that does health have a positive and significant effect on economic growth. Several studies document a solid relationship between income and health. Health and income are unequivocally related. A health service speaks to one of the biggest managers in the region and furthermore fills in as one of the biggest supporters of wage. Health sector directly affects the indigenous economy, making extra occupations and pay in different parts. Investment in health system will lead to better results in health; on the one hand a higher economic growth affects the health status and better health claims increase revenue, on the other. The rising worth of health in economic growth is revealed in its increasing in the global economic output of goods and services.

Theoretical literature suggests that increasing life span will affect an individual's decisions over investment in education. Education is costly in terms of time out of the workforce, but has the return of higher wages. With a positive discount rate, these wages must be higher and/or must be earned over a period of time greater than the time spent in education. Thus if the time horizon over which the higher skilled wage can be earned is longer,

then the marginal benefit of education increases. Investments in health framework will prompt better outcomes in health; from one perspective a higher economic growth influences the health status and better health claims increase income, on the other. The positive and significant effect of education on economic growth indicates that this channel from health to growth is complete.

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