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HUMAN CAPITAL AND ECONOMIC GROWTH IN INDIA

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ABSTRACT
A countries economic growth depends on many factors like Natural resources, human resources, physical capital, technological development, and social and political factors. This paper is investing the role of human capital in the economic growth of India. This study investigates the relationship between the human capital and economic growth in India from 1995 to 2014; Healthcare expenditure has been used as a proxy variable for human capital. This research paper is based on multiple linear regression models, and neo classical Solow production function. This study discovered that there is a strong positive relationship between human capital and economic growth, other variable used in the study Gross capital formation, and secondary School enrolment, also effecting the economic growth of India positively. This study found that secondary School enrolment has the greatest impact on India's GDP growth. This study concludes that to achieve long-term sustained economic growth policy makers should consider allocating the financial resources towards improving India's human capital, which can be achieved by increased health care expenditure and more funding towards education. India's population can be a mean of economic growth, not a hurdle.

INTRODUCTION
A countries economic growth depends on many factors like Natural resources, human resources, physical capital, technological development, and social and political factors. This paper is investing the role of human capital in the economic growth of India. India's economy is the 7th largest at current exchange rate and 3rd largest at PPP. India's per capita income was $1,600 in 2013, and its ranking was 145th in the world. (International Monetary Fund) India is a diverse economy which includes traditional village farming, modern agriculture, handicrafts, a wide range of modern industries, and a multitude of services. India's economy is mainly a service-based economy by producing 45.4% of GDP, where agriculture contributes 16.5% and industry 29.8%. (Central Intelligence Agency) India's current economic growth rate is 7.6% which is the 4th fastest growing economy in the world. This paper studies the different factors responsible for Indi's fastest growth and focus is towards the human capital. India is the second biggest populated country in the world and it is projected to be no one by 2030. India's economy is one of the fastest growing economies in the world but its 21.9 % population lives below the poverty line in 2013 by CIA's world fact book. Human capital is one of the important factors in the economic growth of a country. India has blessed by this resource but if policies are not helpful in using the resource those resources can be a waste. This paper intends to suggest the policy makers how India can be benefited by using its human capital efficiently. Those policies can be helpful to achieve long-term sustainable economic growth and also higher standard of living. Those policies can be helpful to reduce poverty in India. India can be the largest economy with the higher per capita income.

LITERATURE REVIEW
There are many empirical studies are in the field of human capital and economic growth. Nelson R. Argued that 'according to their model the rate of return to education is greater the more technologically progressive is the economy,' they have also suggested that society should build more human capital relative to tangible capital the more dynamic is the technology.

Agiomirgianakis (2002) examines the role of human capital in economic growth by using a large panel of data including 93 countries. There result suggested that it is possible that when the long-run dynamics are considered, education might not be a significant determinant of growth. But the analysis indicates that

education has, indeed, a significant and positive long-run effect on economic growth, the size of this effect is stronger as the level of education (primary, secondary, and tertiary) increases.

Barro (1992) also argued that there is a positive effect of human capital on physical investment; however, it has the negative effect on fertility. This paper discusses the importance of education in human capital by investigating the enrolment in secondary education in the period of study. There is some evidence that suggests the role of education in human capital.

Galor (1997) suggested that it is beneficial to subsidize the education of a selected group of individuals that will ultimately generate enough externalities to pull the society as a whole to a state of equality and prosperity. The study which is based on aggregate cross-country data that human capital as a factor of production implies that in the growth accounting regressions human capital should enter in growth rate. However, their findings failed to deliver the results. But they introduced two alternative avenues that explain the importance of human capital in economic growth by an engine for attracting physical capital and as a determinant of the magnitude of a country's slow residual.

Hanushek (2013) argued the role of human capital in economic growth of developing countries. This result shifts attention to issues of school quality, and there developing countries have been much less successful in closing the gaps with developed countries. Without improving school quality, developing countries will find it difficult to improve their long-run economic performance. He explained that to achieve long-run improved economic growth developing countries should consider enhancing both basic and advanced skills.

Yan (2003) also suggested in their study that china's rapid economic growth is a contribution of human capital. They find that the accumulation of human capital in china, as measured by the average years of schooling was quite rapid and it contributed significantly to the economic growth of china. However, the rate of growth of human capital declined in the reform period in 1978-1999 and its contribution to GDP growth was smaller compared to the pro-reform period. Argued the investment in human capital and its effect on economic growth. They have examined the effects of declining mortality on the incentive to invest in education. They analyzed higher life expectancy raises the optimal quantity of schooling because investments in education will earn a return over a longer period. Investigates the effects of human health capital on the growth rate of per capita income in Sub-Saharan African and OECD countries. They have used an expanded Solow growth model, panel data, and a dynamic panel estimator. They have found that the growth rate of per capita income is strongly and positively influenced by the stock of, and investment in, human health capital after controlling for other variables.

DATA MYTHOLOGY

This section of the paper explains the source and types of data, the technique used to describe the data, variable description used in this study. This section also addresses the model of the study.

THE DATA

It is very important to choose what variables should be included in the study, which represents the effect of human capital on the economic growth of India. This study includes GDP, Health expenditure per capita, Gross capital formation, and secondary School enrolment. This study is based on the time series data, and it is entirely secondary data which has been collected from World Bank national accounts data, and OECD National Accounts data files. The secondary data used for the study shall be estimated by the multiple regression analytical method.

VARIABLES DESCRIPTION

This study is based on multiple regression model, Where GDP (current US$) is the dependent variable and Health expenditure per capita, PPP (constant 2011 international $), Gross capital formation (current US$), School enrolment, secondary (% gross) are dependent variables. All the variables are transformed in logarithm. Below is the list of the entire variable description.

VARIABLES DEFINITION

Below is the definition of the entire variable used in the study according to the World Bank.

Variables	Variables Definition
GDP (current US$)	GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. Data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.
Health expenditure per capita, PPP (constant 2011 international $)	Total health expenditure is the sum of public and private health expenditures as a ratio of total population. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include the provision of water and sanitation. Data are in international dollars converted using 2011 purchasing power parity (PPP) rates.
Gross capital formation (current US$)	Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and work in progress.' According to the 1993 SNA
School enrolment, secondary (% gross)	Gross enrolment ratio is the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.

THE HYPOTHESIS

This study tests the null and the alternative hypothesis that is stated below:

H_1- There is no significant relationship between Human capital and economic growth in India.

H_2- There is a significant relationship between Human capital and economic growth in India.

THE MODEL

The economic growth model used in this study is based on the neo classical Solow production function. The neo-classical model was an extension to the 1946 Harrod-Domar model that included a new term: productivity growth. The standard Solow model predicts that in the long run, growth is achievable only through technological progress. According to Solow's formulation, economic growth is a function of capital accumulation, an expansion of labour force and **'exogenous'** factor, technological progress which makes physical capital and labour more productive. This is-

$$Yt = (Kt, At, Lt) \quad (1)$$

Where

Yt = Aggregate real output.
K = Capital stock
A = Efficiency factor
t = Time dimension
L = Labour

By adding human capital (H), this model can be modified like this:

$$Yt = (Kt, At, Lt, Ht) \quad (2)$$

The reduced equation for the above will be as:

$$LogYt = (LogKt, LogAt, Log\ Lt, LogHt) \quad (3)$$

Based on the above equations, the model can be re-written as:

$$LGDP = \alpha + \beta\,0LHEP + \beta\,1LGCF + \beta\,2LSES \quad (4)$$

Equation (4) shall be estimated during this study.

RESULTS

Correlation table

	LGDP	LHEP	LGCF	LSES
LGDP	1			
LHEP	0.987301	1		
LGCF	0.991679	0.969004	1	
LSES	0.981375	0.970809	0.962975	1

Above table shows the result of correlation analysis among the entire variable used in the study. The result shows as it was expected, that there is a strong positive correlation, among GDP and Health expenditure per capita (0.98), Gross capital formation (0.99), and School enrolment, secondary (0.98). That indicates that GDP of India will increase as Health expenditure per capita, Gross capital formation, School enrolment, secondary will increase.

REGRESSION STATISTICS

Multiple R	0.998444581
R Square	0.996891582
Adjusted R Square	0.996308754
Standard Error	0.037700186
Observations	20

The value of multiple R (0.99) and R Square (0.99) is very high that indicates the statistical significance of the model. It also shows that total healthcare expenditure, the gross capital formation, and Labour force explained about 99% of the variations in real Gross Domestic Product (GDP) over the periods of study in the Indian economy, while the remaining 1% difference is explained by some other determining variables outside the model. This result shows that the model used in the study is a goodness of fit of the regression.

ANOVA

	df	SS	MS	F	Significance F
Regression	**3**	7.293155949	2.431051983	1710.43767	2.90577E-20
Residual	**16**	0.022740865	0.001421304		
Total	**19**	7.315896814			

F-Statistics of this model is 1710.43 and Significance f is 2.90577E-20 which is significant at 5% level and which indicates that the dependent variables are important determinants of economic growth of Indian economy.

REGRESSION COEFFICIENTS

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	11.93618375	0.865632852	13.78896806	2.68144E-10
LHEP	0.41006701	0.091924546	4.460908755	0.000394173
LGCF	0.402100228	0.049122305	8.185695444	4.1124E-07
LSES	0.735512798	0.224786154	3.272055621	0.004793249

For the model, P-value for the entire explanatory variable is very low that also indicate the significance of this model. There is various econometric test applied in this study to prove the importance of the model. Since the entire econometric test implemented in this study show a statistically significant relationship between the dependent and independent variables from the model, so, this study reject the null hypothesis and the alternative hypothesis will be accepted which states that: There is a significant statistical relationship between human capital and economic growth in India.

CONCLUSION

This study investigates the relationship between the human capital and economic growth in India from -1995 to 2013 Healthcare expenditure has been used as a proxy variable for human capital. This research paper is based on multiple linear regression models, and neo classical Solow production function. This study discovered that there is a strong positive relationship between human capital and economic growth, other variable used in the study Gross capital formation, and secondary School enrolment, also effecting the economic growth of India positively, which was expected. This study found that secondary School enrolment has the greatest impact on India's GDP growth. This study concludes that to achieve long-term sustained economic growth policy makers should consider allocating the financial resources towards improving India's human capital, which can be achieved by increased health care expenditure and also more funding towards education. India's population can be a mean of economic growth, not a hurdle. There are some areas, in this field can be done where the future study can be done. One area of the study can be the study of human capital and economic growth in the rural and urban part of India.

REFERENCES

1. Agiomirgianakis, G. A. 2002. Human capital and economic growth revisited: A dynamic panel data study. *International Advances in Economic Research*, 8(3), 177- 187.
2. Barro, R. J. 1992. Human capital and economic growth. Federal Reserve Bank, (pp. 199-230). Kansas City.
3. Galor, O. 1997. The distribution of human capital and economic growth. *Journal of Economic Growth*, 2(1), 93- 124.
4. Hanushek, E. A. 2013. Economic Growth in Developing Countries: The Role of Human Capital. *Economics of Education Review*, 37, 204-212.
5. Yan, W. 2003. Sources of China's economic growth 1952- 1999: incorporating human capital accumulation. *China Economic Review*, 14(1), 32-52.