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Explosion of Population and Economic Development in India

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ABSTRACT

The present paper is an attempt to analyses the variables that directly influence the growth of the Indian economy. The economists are well aware of the fact that population is an important part of the wealth of a nation. We believe that the human capital, which directly depends upon the population growth, is known as the most distinctive feature of economic system. Human capital facilitates new invention, discoveries and research that play an instrumental role in the gross domestic capital formation. Gross domestic capital formation is known as an instrument of measuring the economic development of the country. The explosion of population inversely related to the exponential growth of the economic development. Most of the natural resources, which are of great economic importance, have not yet been exploited in spite of bulk of human capital in the country. Every country needs to have self-more the human capital, however, its explosion adversely affects the economic growth and living standard of the people. The causality techniques of Sims and Granger to analyze the relations between population growth and economic growth rate in India has been applied .Empirical findings of the paper provide us with very amazing results that population growth has a positive influence on economic growth. These findings corroborate the economic axiom that the economic growth of any country depends upon the capital stock and that functionally comes into existence because of the human capital of that country.

Keywords: Population Growth, Discoveries And Research, Empirical Evidence, Capital Stock

INTRODUCTION

The researchers have examined the causality between the population and economic growth rate in India. It implies that whether the economic development leads to population growth or population growth leads to economic growth. According to an axiom of economics, human capital plays an instrumental role in the development of the country which itself depends upon its growth rate of the population. There has been a lack of human capital in less developing countries (LDC, s) which facilitates the economic growth rate. We have emphasized on the human capital of the Indian economy to utilize that to develop modern techniques and find new ways to accelerate the economic growth in all the sectors. In contrast to the existing population theories in the economics, it has been observed that increasing population seems to be a boon rather then bane for the economic development of those countries, where human capital is not sufficient to use in the economy. Growth rate of population must be high enough to generate a large group of the human capital to fulfill the need of all the industries and multi-purpose projects in the country. It has been practically observed that no country can ever make progress without having desired amount of skilled workers because they increase the proficiency of the existing capital stock by using it dexterously. In the absence of desired amount of the capital, an increase in the population is automatically absorbed by the existing industries and the Multi –purpose projects in the country since the mechanical work will also be done manually. Agriculture predominant economies are always in need of labour force to accomplish the process of production at an appropriate time to meet an increasing demand of the people in the country.

Some of the Malthusian views have been backed by Ester Boserup and Rothenberg in their recent (Urban household economy 1990).The works show that an increase in the population growth enhances the pressure on land and aggravates the problem of poverty. In contrast to their views, we have observed that an increase in the population in India will help in raising the economic growth rate of the country. Malthusian views can be applied to those countries where the growth of population is greater then the annual growth rate of gross domestic product\and has diverted the country from right path of the development to fall in the vicious circle of poverty. It means that tolerable rate of growth is required to give impetus to the economic growth of the country. Tolerable growth of the population is that limit of the population growth where amount of sources is greater than the size of population. Under such circumstances the marginal increase in the population will be absorbed by the corresponding growth of the sources per annum. According to the Keynesian postulation, rate of unemployment will increase if the aggregate demand decreases in the situation of full - employment in the economy. It might not be applicable to Indian economy because of the deficiency of the human capital which facilitates the exploitation of the natural sources. Deficiency of aggregate demand is the major cause of the unemployment in the Indian economies. This is the reason the unemployment rate in India is considered negligible when we compare it with the unemployment rate of other countries in the world. As we know that in case of economic development the country has yet to go a long way; but the mild growth in population is the only factor, which keeps the unemployment rate under control. According to Malthusian adherents, population plays a negative role because it exhausts all the sources including the fallow land. It has always been seen that inhabitation is found nearby the arable land because it provides all the required things to the people for their survival. It means that irrespective of arable land, which has been covered by the people of the country, either for the construction work or for farming purpose, rest part of the total land can be used for the productive purposes. It includes research works and other works excavation work to find out minerals, precious metals like gold, silver and the most important thing for which this world is looking frantically is the petroleum, oil gases. The biggest problem with which we are suffering is the scarcity of funds and lack of sufficient amount of human capital in the country. These funds and human capital are required to deal with the difficult task of finding sources from the ragged terrain of land to have an exponential growth in the country. Both of these components directly depend upon the population growth of the country. It is proved time and again that population and economic growth rate are harmonizing factors to each others.

DATA AND METHODOLOGY

The population and economic growth data are based on time series data. We have deflated all current variables to get their real values. The Granger and Sims causality test to find the relationship between economic development and population growth. We have obtained data from the different yearly issues of National Accounts Statistics reports of India, World population prospects of 2001& 2004 and population and census of India 2005. Furthermore, we have come across difficulties during the collection of data because of the anomalies of the data regarding all observations taken in study.

Population and Economic development of India

Many dynamic and active debates have been held regarding the impact of the increasing population on the economic development of the country since the existence of the Malthusian theory. No doubt, an increase in the population in most of the countries has adversely affected the per capita output of the nation. Our empirical study related to the impact of population growth rate on economic growth has explored statistically very significant and optimistic findings in case of Indian economy. The basic infrastructural required at the rudimentary development stage of the country was unfortunately very poor as of imperialists' sovereignty of England. However in the post impendence period, the government has swiftly expanded its prerequisites of development. Specialization in the works increase the quality and productivity of the labour and this probably be procured, if the country will have a well- versed pool of human capital. The massive group of the human capital will automatically enhance the economic growth of India. Development of India and China is exclusively impinging upon the human capital. Economic growth rate of these countries, since their independence, has grown very rapidly because of large group of human capital .Though these countries have suffered because of the high growth rate of population; they are progressing at high rate only because of innovations and technology, which in turn, depend upon the human capital which is linearly related to their population. India is enjoying the status of nourishing almost 16% of the total population of the World and going to be the third largest economy of the world .Population is not the sole factor for slowdown in the economic growth of the country, but factors like political instability, corruption, inefficient managerial system, misallocation of resources, etc. are more responsible for it. As the Chinese proverb reflects that "Roads and railways lines are considered as the fate lines of the nation", the government of India succeeded to disseminate the network of roads. Government needs to start some plans and projects to build railway track and Air routes through which tourist can be attracted within the country that will enhance the Foreign Cash Reserves. There is a need to improve the health related facilities in the country. Explosion of the population has been one of the obstacle in the way of to provide quality medical facilities in the hospital. Empirical findings show improving trend in the area of health. Though population results in human capital, it also adversely affects the growth of the nation.

Relation between wage Employment and growth of population

The postulation of minimum wage will be effective in the non- monopolized industrial structure. The prominent research work also corroborates the authenticity that it certainly elevates the level of employment in the economy. Relationship between the demand for labour and prevailing wage rate is always found positive. It should be clear in mind that wage rate falls only when supply of labour in the labour market is in excess of demand for labour. These types of the circumstances exist in the economy when population grows in proportion to the ex- post growth of gross domestic product. There are number of possibilities of the division of labour which results in a specialization in the mode of production if the country has a large chunk of population. Consequently it raises the productivity of labour and gross domestic product of the country. The Research work, invention of new technology and specialization in various fields depend upon the pool of human capital which emanates from the population of the country. It is an appropriate time for all the countries to examine the relationship between human capital and the economic growth. All the developed countries in the world have reached at their optimum level of the development by using their huge size of the human capital. It means that every country which is at their rudimentary stage of development require a large size of human capital to use it as a productive sources in different activities of the economies. The rate of population growth and overall economic development directly affect the wage structure of the country. Population growth increases the labour force, and therefore, will push wage down. Standard Classical and Pigeon model reflect the trade-off between the wage rate and the demand for labour. This will increase employment and the living standard of the society. In less developed countries (LDC, s) like India, which is a labour abundant country, low rate of wage raises the employment. According to classical economist, minimum wage plays an instrumental role to inflate the industrial base in many newly growing economies of the world. During the19th century, minimum wage played a major role in industrial revolution of England and America. In the mid of 18th and 19th centuries, plebeian society was ready to work at any minimum wage rate because they had intent to throw the bourgeois and nobles out of power . This instinct of the bourgeois and depressed class indirectly led to the dissemination of industrial base in their countries. In India, though environment in terms of its terrain is not so much friendly for establishing strong industrial base yet low wage has to do a lot in the process of economic development. Therefore, Indian economy can expand its small scale and cottage industries if it will have more population to use at low wage rate. The empirical evidence on this matter shows a positive effect of minimum wage. There is very clear and positive relationship between population and economic growth in Indian economy Empirical Study of Indian economy regarding the minimum wage and employment has shown the positive results. But this theoretical explanation is not fully fit to the milieu of Indian economy. Due to the low rate of population growth in India, rate of unemployment is comparatively tolerable in relation to other less developing countries.

As per the postulation of classical economists, flexibility in wage rate will automatically adjust the employment rate in the country. Total labour force in the country originates from the total masses of the country. If the rate of growth of the population of any country is low then the supply of labour will fall short of demand for labour. Consequently, wage rate to hire more services of all type of labour will shoot up. Higher wage rate discourages the entrepreneur to have an extra demand for more labour .This will mushroom other problems of frictional unemployment in the country, and simultaneously, reduce the total amount of production in the country. Reduction in the total production, which is the consequent of miniature size of population, will increase the general price level in the country. Pigeon stipulation of flexible wage rate ratified only for those countries which has a sufficient size of masses and those country as such like India where population is not very high and lying below ex-ante rate of growth of population. The pigeon model does not leave any impact on overall functioning of the economy because at low wage also demand for labour does not increase because of the lack of sufficient pool of entrepreneur. Technically, this model is found convincing for those countries where population growth and the large number of entrepreneurs are available in sufficient size to make contribution in the process of production. Otherwise, wage rate will not affect the economic mechanism of the economy at all. Less wage rate may play a major role in spreading the industrial base in the country if the large pool of the labour force is available for making contribution in the process of production. The kernel of this discussion is that wage rate plays a key role in consolidating the industrial base if optimal population is available in the country.

Population and food problem in India

It is always discussed that with an increase in the population many other problems shoot which wreak havoc with the plans in the countries. Shortage of food grain in the whole world was the hot topic in the recent past. Population growth was the main issue to discuss in political as well as in economic pool all over the world. All the discussion conclude against the population growth that because of its high growth rate the survival of the whole world is in peril because of the scarcity of the food in the all countries of the world.

This is generally not applicable to India because it is already dependent on the neighboring countries for fulfilling the need of the people for food grain. According to the National accounts statistics annual report of India, only 12.8%of the total land is arable and rest of the land comes under forest cover.(national account statistics bureau-2008)

This is the main reason it has to depend upon the neighboring countries for satisfying the need of the people. The food grain may be the problem that this country has to bear forever because of its rugged and mountainous terrain but other cash and commercial crops like all the variety of citreous, apple pitches and almond can be produced on this hilly terrain to offset the loss of the food grain.

Population and amenities in India

According to the works of some prominent economists like Murphy, Backer, and Glaser, the increase in population will prove itself boon for the nation if it enhances the size of the human capital. The human capital expands the network of all amenities of the countries like network of roads, Telecommunication facilities, railways, civil aviation, and automation of agriculture, dissemination of industrial base, medicines, education etc. Initially, an increase in the population might lower the productivity because of more pressure on land in agriculture predominated economies and that also effect the per capita output adversely. This kind of situation is experienced when large chunk of the population is illiterate and completely ignorant of the sources, which are necessary for their survival.

We can overcome this type of malady by providing people with the best available system of the education in the country. Most of the countries in the world are formulating policies to control the growing rate of population. But they have ignored the positive aspects of the population like creation of human capital.

To find the connectivity between population and economic growth we are applying Granger and Sims test of casualty to find the relationship between human capital and economic development. We have taken the total labor force at the place of human capital to ascertain the dependency of the economic growth on the population growth in India.

The study employed co-integration and Granger causality methods and reported that there is a long-run and linear relationship between the two variables. The study used annual time series data generally over the period of 2014 to 2022.

Empirical evidence of the casualty between population and economic growth:
All the economist in the world are in confusion as to whether economic growth leads to population growth or vice versa. Among the empirical studies which render help in such situations, most popular once are those given by Granger (1969) and Sims (1972). The Granger test involves fitting the following two equations.

$$Y_t = \alpha + \sum_{i=1}^{K_1} b_i Y_{t-i} + \sum_{i=1}^{K_2} c_i P_{t-i} \qquad \text{.......(1)}$$

$$P_t = \beta + \sum_{i=1}^{K_2} d_i Y_{t-i} + \sum_{i=1}^{K_1} r_i Y_{t-i} \qquad \text{.........(2)}$$

Where α, β, ci, di, bi,ri parameters to be estimated and Y and P are the variables between which the direction of causality is under testing. According to the test, direction causation from P to Y is implied that the coefficient ri's as a group in equation 2 and the coefficients ci's as a group in equation 1are found significant. The conclusion would be positive.

(i.e. Y causes P) if the findings on significance are the opposite, but this finding shows something different so Y is not causing growth in population, but rather impending growth of it. The significance of a group of coefficient tested through the F-test (Gujarati, 19788)

Population is a policy variable which effects both economic growth and human capital. In this model human capital is assumed to be fixed, it is difficult to separate influence of population on real income and natural resources, and therefore, influence of population on income has to be statistically assessed.

The causation tests have been applied to examine the causality direction between human capital (Hk and Y) and national income provided by GNP at constant price in India. We reported the estimated equation.

Hkt1 = f (3past Hk1t, Yt and 3 past by Yt)
Hkt1 = f (Hkt-1, Hkt-2, Hkt-3, Yt, Yt-1, Yt-2, Yt-3)
Hkt1 = f (10.70 + 0.110 Hkt-1 +238 Hkt-2-0.194 Hkt-3+152 Yt+0.238 Yt-1+0.376 Yt- 2+0.441 Yt-3)
(0.90) (0.99) (1.41) (0.12) (0.78) (1.20) (1.22) (3.17)
R= 0.925, R1 =0.856, R2=0.80, D.W =1.

Regression Results of causality Test between Population and Economic growth in India

Table 1.1

Equation No.	Sample period	Dependent variable	Independent variable	ESS (explained sum of Squares)	RSS (Residual sum of Squares)
1	2014 -2022	Yt	3past values of Hk and 3 past Gnpt	176500300 (4)	5469736 (5)
2	2018--2022	Yt			
3 past values of Hkt	32683000 (3)	768000 (11)			

Yt= income Hk=human capital, Gnp= gross national product, t= time
Population and GNP (2014-2022)

Table 1.2

Equation No	F. Values	Degrees of freedom		Results
		Numerator	Denominator	
1	7.73	3	10	Population causes GNP
2	9.27	3	10	Population causes GNP

F-statistics in causality test

Granger and Sim test show that the causality between Population growth and GNP is uni- directional (See Table 1.2). In all the reported empirical results, F-values have found to be significant at 1% level, and thus, strongly indicate that Population growth rate causes economic growth rate in India.

From the above tables (1.1 & 1.2), it is clear that one way causality appears between population growth and economic growth. It can be said that the variation in aggregate economic activities are caused by the change in the rate of growth of population. The statistical evidence also indicates reverse causation from real economic growth to population growth. Even when we take Gross Domestic Product (GDP) of agriculture and industrial GDP separately, variation in population growth causes change in real economic activities. In the above table (1.2), all the f-values are found to be statistically significant and they indicate the existence of feedback mechanism. Therefore, for the Indian economy it can safely be said that satisfactory growth in population causes variations in overall economic growth. Even when variation in real GDP and GDP in agriculture and GDP in industrial sector are regressed against total population, statistical evidence clearly indicates that all f-statistics computed are statistically significant at 1% to 5% level of significance.

We cannot always foist the low economic growth on high rate of growth of population. Low growth of population, on one hand, effected the investment in the country adversely because of the lack of sufficient number of entrepreneur in the country, and on other hand, it will dishearten the entrepreneur by having a low demand for their product. It becomes hard for them to survive for long in the environment where supply of the product is not observed even to the minimum level. When the demand for the product does not raise to expected level of entrepreneur then their margin falls down sharply which reduces the magnitude of imputed profit and autonomous investment in the economy as well. Low level of investment reduces the capital formation thereby bringing down the national income of a country. Per capita income, in the modern economics, is considered as an instrument to measure the living standard and economic development of the country. The study has shown that the population growth rate in India is not enough to meet the growing requirement of the economy and therefore it affects the welfare of the society unfavorably. Ex-ante Population growth is required to generate other sources which are equally responsible for the development of the countries. It is true that population growth is solely not enough for the development of the country; but it is exclusively responsible to generate other sources, which are considered complementary to it. Robins (2oo1) maintained that some of the following non- economic factors such as political stability, managerial skill, international relationship, optimum utilization of resources, and direct involvement of the public in the development plan, skilled labour force, policies of the government towards the development and expansion of agriculture as well as industrial sector, export-import policies, size of the industrial base, migration of the people from agriculture sector to tertiary sector, literacy rate, and price stability have deep influence on the overall development of a country.

In the privatized and liberalized era beginning mid 1990, the developing countries cannot be self reliant of all factors in their developments. Therefore, the mode of attracting Foreign Direct Investments (FDI) to be explored, provided other factors are taken due consideration. Availability of market can only be the attraction for the foreign investors to invest and this will depend upon the size of population. FDI plays an important role in the development of less developing countries. The countries like India, China are the suitable instance where foreign direct investment is playing a very important role of economic development. Less developing countries are in dire need of help from the developed countries and foreign financial institution to mobilized fund in their countries to finance the long-gestation project in all sectors of the economy. World Bank is always extending financial help towards mega projects, which are considered necessary for the development of these countries. The major problem that is faced by these countries is the shortage of human capital because without it, the fund from international arena cannot be used to its maximum at right time and residual amount is returned because of its non-utilization. If a country has a sizable population, all the international funds can be utilized at the given time. H.T Kelly (2001) maintained that human capital is an instrumental source of the development of the countries.

Neo-classical, Shaw and McKinnon approaches conveyed a positive signal regarding relationship between economic development and the sufficient pool of human capital. Large pools of human capital create a positive environment for the division of labour and obtain specialization in different fields of the economy. Specialization in any work increases the efficiency of the worker, which in turn, increases the total productivity of the labour and saves time by producing more commodities in short period of time.

CONCLUSION

The theoretical and mathematical findings together demonstrate two way causality between population and economic growth in India. In essence, human capital which is a derivative factor of population plays a pivotal role in the overall growth of a country. Any country in the rudimentary stage of the development needs profuse size of human capital in all spheres of its economy. Human capital directly relates to the size of the population. Without sizeable amount of it, no country can achieve higher living standard and comparative growth of the economy. New invention in technology, research in nuclear fields and dynamic leadership of the country ultimately depend upon the size of the population. Gross domestic capital formation of a country involves advancement in science and technology and it cannot be envisaged without having huge quantity of human capital. India comes in the spectrum of those countries, which are yet to start a strategic planned program to expedite the rate of economic growth. High rate of growth will only be possible if we encourage autonomous investment. Entrepreneurs take initiative towards the autonomous and planned investment, which is required for all the on-going development plans. Two way causality between two variables alarming India to mitigate the growth population before it becomes harmful to the economic growth India

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