

Does India's Population Growth Has A Positive Effect on Economic Growth?

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Overpopulation is a growing problem throughout the world at this stage in time.

Currently, the world population has crossed over the six billion mark and is on an exponential path upwards. Yet, what does this do to the status of nations' economies? Economists are torn between two theories; one that states population increase and growth help a nation's economy by stimulating economic growth and development and another that bases its theory on Robert Malthus' findings. Malthus states that population increase is detrimental to a nation's economy due to a variety of problems caused by the growth. For example, overpopulation and population growth places a tremendous amount of pressure on natural resources, which result in a chain reaction of problems as the nation grows. On the macroeconomic level, it is more believable to argue that population does undermine a nation's economy because an increase in the number of people leads to an increase of the number of mouths to feed. The increase in demand for food leads to a decrease in natural resources, which are needed for a nation to survive. Other negative effects of population growth and, specifically, overpopulation include poverty caused by low income per capita, famine, and disease. India is a prime example of Thomas Malthus' theory of population growth and its effect on the economy. India is a country plagued by poverty primarily caused by overpopulation. Inhabited by over nine hundred billion people, India has a population of three hundred million under the poverty line. A majority of the poor population is unemployed, starving, and is being forced to beg on the streets to make ends meet. Yet, the government isn't showing any apparent signs of reform to decrease poverty among their citizens, through welfare programs or fiscal spending. In theory, more people may mean a country can produce and consume more goods and services, leading to economic growth. But this can only occur when employment opportunities grow at least as fast as the labor force and when people have access to the necessary education and training. This is a race that the Indian government is losing. Rapid population growth complicates the task of providing and maintaining the infrastructure, education and health care needed by modern economies.

Economists advocating the positive side to population growth, say that the growth creates new problems that in the short run constitute to a number of problems, including famine, poverty and even unemployment. Yet, they also state that in the long run, it leads to new developments, through advancement in technology, that leave countries better off than if the problems never occurred. On one hand, theoretical elements suggest that more population retard the growth output per worker. The overwhelming element in the theory is Malthusian diminishing returns to labor, as the stock of capital does not increase in the same proportion as does labor.

On the positive side, one can see a chain reaction of events caused by population growth. According to the neo-classical growth model, population is beneficial to an economy due to the fact that population growth is correlated to technological advancement. Rising population promotes the need for some sort of technological change in order to meet the rising demands for certain goods and services. With the increased populace, economies are blessed with a large labor force, making it cheaper as well, due to its immense availability. An increase in labor availability and a low cost for labor results in a huge rise in employment as businesses are more inclined to the cheap labor. Low labor costs results in a shift of money usage from wages into advancement through technology. According to this model, the technological advancement that accompanies the growth of population and the expansion of population, allows for even more population to survive due to the rise in overall outputs by the business and the nation as a whole. Thus, it generates demands for goods and results in overall economic growth. The rising population provides a supply of labor and contributes to the increase in output of goods. As shown in Graph 1, technological advancements allow for a rise in output from Q to Q' . The rise in total output meets the demands of consumers and the demands as the population keeps rising. Thus, the increase in output generally raises the per capita income of a nation.

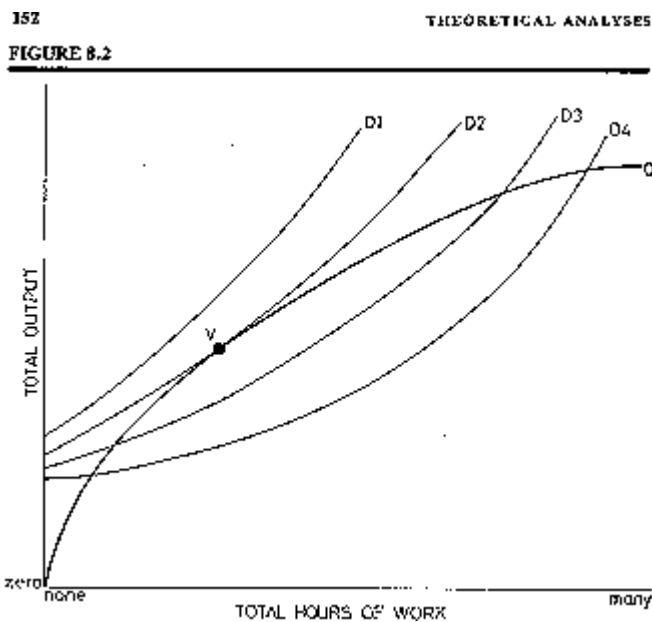
According to Julian Simon, a prestigious economist at the University of Maryland, the long run benefits of population growth that links to economic development of poor countries are

on the positive balance, contrary to conventional wisdom. He figured that an increase in the numbers of consumers and an increase of income, expand the demand for raw materials as well as finished products. Naturally this would lead to a shortage in goods and services caused by the high demand for products and services, forcing up prices for the natural resources. The increased prices will trigger a search for new ways to satisfy the increasing demands in order to meet expectations. Sooner or later new sources and innovative substitutes will be found. The new discoveries lead to cheaper natural resources than existed before the increase in population and the demand for goods and services begin. In turn, it leaves a nation better off than if the shortages had never appeared, meaning the nation has gone through a process of economic growth and development.

Normally, through conventional wisdom, economists might argue that population growth and overpopulation hinders the growth output per worker. The important factor to this theory is Malthusian diminishing returns to labor, as the stock of capital, including land, does not increase in the same proportion as does labor. Another important factor, that contradicts Simon's theory, is the dependency effect, which suggests that saving is more difficult for households when there are more children and that higher fertility causes social investment funds to be diverted away from high-productivity uses. These factors seem to suggest that high fertility, and, more importantly, increasing population growth create a negative effect on output per worker, and on the broader aspect, it creates negative economic growth.

Yet, empirical data does not support this a priori reasoning. Contemporary evidence provided by a number of economists indicates there is a correlation between population growth and economic growth and development. Although most of these economists found inconsistent evidence to prove this theory, they did, generally, obtain the same data. Their reports concluded that population growth does have a positive effect on less-developed countries (LDC's). Although some said the positive effects were very minimal and weak, the economists were still able to use a simulation model for LDC's and report that economic growth did occur.

Economists, Easterlin, Kuznets, Conlisk and Huddle, and Thirlwall all arrayed LDC's by their recent population growth rates and their economic growth rates, to examine for relationships between the two. Easterlin assessed that "[his data] is clear...that there is little evidence of any significant, negative association between the income and population growth rates. Kuznets compiled data on 21 countries in Asia and Africa, including India. In the samples he took, Kuznets reported no significant negative correlation between population growth and the growth per capita. Conlisk and Huddle regressed the output growth rate on the savings rate and the rate of population growth of 25 LDC's, and announced that an increment of population has, *ceteris paribus*, a positive effect on per capita income. These empirical studies do not necessarily show that fast population growth in less-developed countries increases capita per income, although most findings reported positive effects. But they do imply that one should not assert that population growth decreases per capita economic growth in less-developed countries.



To prove this theory, put forth by population economists, a model is constructed that includes elements of the standard LDC models but it also embodies other elements: demand effects on investment, work vs. leisure choice, and variations in work activity as a function of differences in needs and standards of living and economics of scale. It also embodies shifts in labor,

depreciation, and land building. The model solves the theory by utility maximization, or finding the highest leisure-output indifference curve that touches the production function ($Q = \{L, T, K\}$). Looking at Graph 2, one can see that production function, based on hours of work and total

output (Q), can reach maximum utility through maximizing employment (L), land (T) and capital (K). Using a variety of parameters, the simulation indicates that positive population growth produces considerable better economic performance in the long run, because maximum utility is achieved with a high output, based on labor and land.

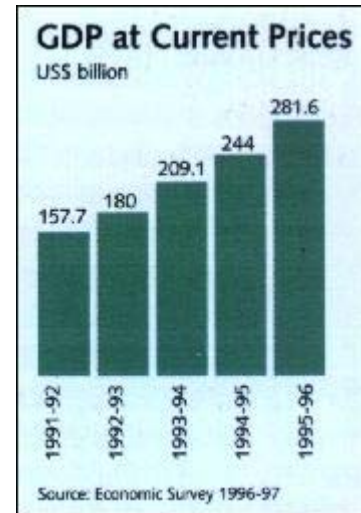
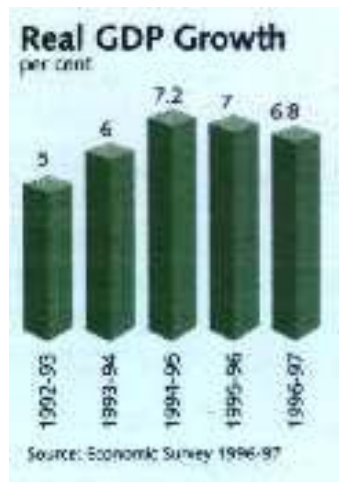
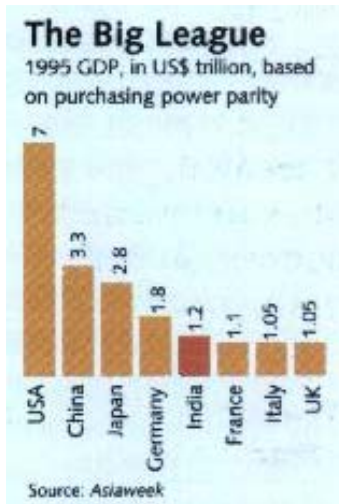
Other economists seem to think otherwise, and oppose the theory that population growth has a positive effect on economic growth. Basic theory surrounding population growth in less-developed countries states that the growth of a populace may eventually lead to overpopulation, due to the simple factors of food, education, health, housing, and employment. Earth and its resources are finite. Human ingenuity and efforts have limits to fulfill the needs of the increasing numbers. The more heads there are in a nation means there are more mouths to feed. This begins Malthus' theory of diminishing returns when it comes to resources and food. Malthus states: either people practice continence, restrain sexual impulses, or they breed themselves into starvation. Population is said to be negative once productivity and output are less than demand. Population growth, no matter how high or low it may be, results in a rise in a nation's populace. The rise in population will increase the demand for goods and services, such as food, water, and a variety of other resources needed for survival. The demand indifference curve shows us a primary problem with population growth. If supply (based on quantity and price) ends up lower than the demand for the supply of the good, the resulting effect would be that of a shortage of goods. In the long run, the resulting shortage of goods and services available to the rising population leads to starvation. Yet, starvation isn't achieved solely because of the shortage in goods. Since demands are high for resources and the resources are depleted due to the population increase, the prices of the goods are raised, causing a shift to the left in the supply curve. The rising price, in return, reduces the demand for certain goods, unless the good is a necessity for survival, causing a shift in the demand curve to the left. The decrease in demand is due to the insufficient income per capita, meaning consumers cannot afford to purchase many necessary goods in the market. Due to the fact that the goods are now

unaffordable the consumers won't be able to purchase the necessary food required to survive, resulting in starvation, famine and even disease.

Another problem associated with population growth, which might lead to a decrease in economic growth, is the problem of environmental degradation and resource scarcity. Earth is comprised of 75% water, the rest is comprised of land, with a majority of it used for agriculture. According to Malthus, population growth of a nation is detrimental to economic growth, primarily due to the factor of finite resources in an economy. With a rise in the number of people, a nation can expect a decline in the natural resources and in the end a lowering of the production of goods. In a closed and stagnant economy with fixed natural resources, no capital accumulation and no technological change, population growth and size determines the standard of living as well as the state of natural resources.

To some economists, rapid population growth can be associated with downward pressure on wages and worsening distribution of income, if not actual negative effects on the income per capita. This is mainly due to the spreading of capital over larger number of workers or due to the difficulties in raising the quantity and quality of investments in education and health. If it is true that continuous rapid population growth is detrimental to the growth of per capita incomes, while past population growth is beneficial to the economy once fertility decline sets in, then the ultimate impact of population growth on the environment depends on the impact made by economic growth. Past population growth seemed to be at a slower rate than what it is now, and because of that factor economic growth thrived in the past, where as now, it seems that the rapid population growth is detrimental to an economy due to its strains on resources, cause for famine, disease, poverty and even unemployment. This is why most Malthusian economists urge governments to step up and curb the rapid population growth in order to sustain economic growth.

Who is right, in asserting the positive or negative relations between population growth and economic growth? In the case of India, one of the world's most prosperous developing



nations, one can try to place India in the positive economic growth theory, or the negative economic growth theory (Malthus' theory).

India is considered a developing country, although it is one of the most affluent developing countries in the world due to recent economic growth. Government reforms over the past six years brought about an unprecedented strong economic performance. It grew at a rate of over 5 percent in 1992-93 and 6 percent in 1993-94, and 7 percent in 1997. While the GDP growth rates increase, India's ranking over other nation's GDP keeps climbing, to number 6, behind countries like the US, Japan, China, Germany and other wealthy developed nations. (See Figures 1, 2 and 3) Yet at a time of economic growth, India seems to be going through an enormous population growth. Currently India has a population of over 900 million and just about to reach the 1 billion mark. Although it may seem that India is overpopulated, statistics show that the population growth rates have fallen over the years and reduced the rate of growth.

Table 2.1:Gross National Product,Net National Product,Per Capita Income 1988-98

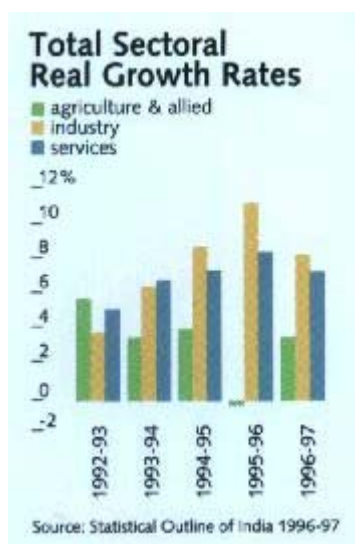
Year to	Gross national product at factor cost (Rs bn)		Gross Domestic product at mkt price (Rs bn)	Net national product at factor cost (Rs bn)		Per capita net product (Rs)	
	At current prices	At 1980-81 prices		At current prices	At 1980-81 prices	At current prices	At 1980-81 prices

1988-89	3482.1	1852.3	3957.8	3092.9	1657.5	3842.1	2059.0
1989-90	4029.3	1980.8	4568.2	3572.9	1773.2	4346.5	2157.1
1990-91	4702.7	2084.8	5355.3	4180.7	1864.5	4983.0	2222.2
1991-92	5426.9	2096.2	6168.0	4796.1	1861.9	5602.9	2175.1
1992-93	6189.7	2204.6	7059.2	5460.2	1956.0	6261.7	2243.1
1993-94	7205.3	2340.9	8107.5	6389.8	2075.5	7195.7	2337.2
1994-95	8549.4	2523.2	9634.9	7596.0	2235.8	8402.6	2473.2
1995-96	9928.0	2709.9	11189.6	8812.2	2399.6	9578.4	2608.2
1996-97	11353.7	2918.8	12769.7	10081.9	2584.7	10771.2	2761.4
1997-98 (E)	12602.6	3070.0	14150.0	11291.7	2718.5	11934.5	2871.9

Still, overpopulation is a problem in India and has been addressed by many organizations: UNFPA, and the Population Summit, and more. According United Nations, India's population has gone from 348 million in 1950 to 850 million in 1990 to 950 million in 1998. According to this data India's population is increasing at an average rate of 2% a year, and is gradually slowing down. The problems addressed by the United Nations, that accompany high populations, are poverty and famine. In a population of 900 million almost 300 million are under the poverty line, plagued by malnutrition, illiteracy, and social inequalities.

	<i>Unit</i>	<i>1971</i>	<i>1981</i>	<i>CAGR</i>	<i>1991</i>	<i>CAGR</i>
Population	(m)	548.0	683.0	2.2	950.0	2.2
Density	(per km ²)	177.0	230.0	2.7	273.0	1.7
Persons per household	(no)	5.5	5.6	0.2	5.5	(0.1)
Districts	(no)	360.0	412.0	1.4	466.0	1.2

Towns	(no)	2,590.0	3,378.0	2.7	3,768.0	1.1
Villages (inhabited)	(000s)	576.0	579.0	0.1	627.0	0.8
Rural population	(m)	439.0	524.0	1.8	629.0	1.8
Urban population	(m)	109.0	159.0	3.8	218.0	3.2
Male population	(m)	284.0	353.0	2.2	439.0	2.2
Female population	(m)	264.0	330.0	2.3	407.0	2.1
Females per 1000 males	(no)	930.0	934.0	-	927.0	(0.1)
Workers	(m)	181.0	242.0	2.9	306.0	2.4
Male	(m)	145.0	179.0	2.1	219.0	2.0
Female	(m)	36.0	63.0	5.8	87.0	3.3
Birth rate	(per 1000)	41.2	37.2	-	32.5	-
Death rate	(per 1000)	19.0	15.0	-	11.4	-
Expectation of life at birth	(yrs)	45.6	50.5	1.0	58.2	1.4
Male	(yrs)	46.4	50.9	0.9	57.7	1.3
Female	(yrs)	44.7	50.0	1.1	58.7	1.6
Literacy rate	(%)	34.5	43.6	-	52.2	-
Male	(%)	46.0	56.4	-	64.1	-
Female	(%)	22.0	29.8	-	39.3	-



India seems to still sustain economic growth and stability, through growth in a variety of sectors, agriculture, industrial and the financial structure. Looking at Figure 4 one can see that India is still attaining its high rates of economic growth despite the rise in population. This is due to the low unemployment rates that attach itself to India's economy. India has an increasing rate of employment that averages about 1.2% annually. Like its Asian neighbors, India has a

large skilled work force, which, unlike other Asian nations, is protected by politically powerful unions. India also has an abundance of white-collar workers to further advance

the industrial and agricultural sector. According to Table 2.1 the agricultural industry, which 70% of the population depend on, is rapidly growing. Some economists say that because of India's abundance of natural resources, it could feed the whole world for the next 100 years with the increasing rate of population growth.

Year to	1970-71	1980-81	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
<i>Foodgrains</i>	108.4	129.6	176.4	168.4	179.5	184.3	191.5	180.4	199.3	194.1
Karif	68.9	77.7	99.4	91.6	101.5	100.4	101.1	95.1	104.4	103.7
Rabi	39.5	51.9	77.0	76.8	78.0	83.9	90.4	85.3	94.9	90.4
<i>Cereals</i>	96.6	19.0	162.1	156.4	166.6	170.9	177.5	168.1	184.9	-
Karif	65.0	73.9	94.0	87.2	95.8	95.0	96.4	90.5	98.9	-
Rabi	31.6	45.1	68.1	69.2	70.8	75.9	81.1	77.6	86.0	-
<i>Pulses</i>	11.8	10.6	14.3	12.0	12.8	13.3	14.1	12.3	14.4	13.1
Karif	3.9	3.8	5.4	4.4	5.6	5.4	4.7	4.6	5.5	-
Rabi	7.9	6.8	8.9	7.6	7.2	7.9	9.4	7.7	8.9	-
<i>Rice</i>	42.2	53.6	74.3	74.7	72.9	80.3	81.8	77.0	81.3	83.5
Karif	39.5	50.1	66.3	66.4	65.3	70.7	72.6	67.9	71.4	-
Rabi	2.7	3.5	8.0	8.3	7.6	9.6	9.2	9.1	9.9	-
Wheat	23.8	36.3	55.1	55.7	57.2	59.8	65.8	62.1	69.3	66.4
<i>Jowar</i>	8.1	10.4	11.7	8.1	12.8	11.4	9.0	9.3	11.1	8.9
Karif	5.8	7.5	8.3	5.7	9.4	7.3	5.9	5.6	7.0	-
Rabi	2.3	2.9	3.4	2.4	3.4	4.1	3.1	3.7	4.1	-
Maize	7.5	7.0	9.0	8.1	10.0	9.6	8.9	9.5	10.6	10.3

Industry has also grown enormously thanks to a large, skilled work force, even though salaries remain relatively low. In Bangalore, the high-technology capital, a computer programmer, with skills matching those of his peer in the United States, receives one-third the salary. Paradoxically, the government has heavily subsidized higher education while neglecting primary education. This accounts for the proportionally large number of professionals like doctors, lawyers and engineers.

One may ask again, is India benefiting from their massive population and rising population growth? Yes, India's economy, no doubt, is achieving positive balance of results from their population growth. Although one cannot say that India's population has a 100% positive effect on economic growth, but one may say that India is certainly profiting from an enormous population.

Following the neo-classical growth model, India has advanced as a result of population growth. According to Figure 2 India's GDP has increased at a steady rate and is ranked among the top among developing countries for their high rates of GDP and their steady increase of output and wealth. Yet, looking at India's GDP versus its population, in no way explains why population growth has a positive effect on India's striving economy.

A variety of factors play into the models that depict India's growing economy. Due to the rising population a large labor force is thus created. Yet the labor force never arrived from thin air. Through Indian fiscal policies, India was able to spend money on education to instruct the youth and adults, in order to help them play a productive role in India's economy. Due to the rise in the education among citizen's, India was able to generate a high employment field. The high rates of employment meant that India's economic sectors, mainly agriculture and industry, began increasing their productivity. Increase in productivity thus meant an increase in the output of goods and services. This meant that the nation could now meet demands of the rising population without having to raise prices, making necessities affordable to the poor. The Indian Government acknowledged the high population growth of their nation, initiated fiscal policy on education and thus expanded their frontier through a rise in productivity.

The increased output that the Indian Economy achieved created a rise in micro and macro profits which would in turn lead to a rise in GDP. Through everything, India seemed to defy many economists theories that rising population growth, in essence, is detrimental to a nation. India, in fact, embraced the theories of Julian Simon, and used their disadvantage, or even advantage to further expand their possibilities. Yet, there still is a rising problem in India

concerning poverty and malnutrition. But, through the theory that population growth has a positive effect on economic growth, India will prosper in the long run.

In the end, India, has become one of the world's fastest growing economies, primarily due to the rise in population growth creating a positive effect on its long run economic growth. India is now ranked one of the top producers in agriculture and is a top nation in terms of GDP in a developing country. In many cases, economists are correct in saying that population growth has a positive effect on economic growth of a nation. In reality, economists might say, "If it weren't for its high populations India would still be a suffering developing nation."

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