

RESEARCH ARTICLE

A MULTIVARIATE CONCEPT CANNOT BE DETERMINED ON A SINGLE FACTOR

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ARTICLE INFO

Article History:

Received 14th September, 2017
Received in revised form
17th October, 2017
Accepted 10th November, 2017
Published online 30th December, 2017

Keywords:

Inclusive and Sustainable Growth,
Rate of Economic Growth
and Jobless Growth.

ABSTRACT

Economic Growth implies increase in GDP or a continuous and steady increase in national income. Economic growth of a community is reflected in people's high standard of living, better food and housing, improved education and medical facilities, advance means of transport and communication, reduction in poverty and inequalities in the distribution of economic power, expansion of job opportunities, increase in productivity with the advancement of science and technology, increase in the wages of the poor, promoting human skills and health rapidly, increase in human development index (life expectancy index, adult literacy, mean years of schooling, purchasing power etc.) and above all sustainable development that is meeting the needs of the present generation without compromising the need of future generations. Hence growth is a multivariable concept and it cannot be judged on the basis of a single factor in isolation. The behaviour of rate of growth (percentage point) and gross fixed capital formation (as percentage of GDP) from 2011-12 to 2016-17, they are not establishing a positive relationship between the two (normally it is believed that there is a positive correlation between the two in a developing economy). This paper examines the reality of the situation.

INTRODUCTION

Classical Economists such as Adam Smith (1776), David Ricardo (1817) and Thomas Malthus (1798) and much later Frank Ramsey (1928), Allyn Young (1928), Frank Knight (1944) and Joseph Schumpeter (1934) provided many of the basic ingredients that appear in modern theories of economic growth. Neo-classical methodology language rely on the concepts such as aggregate capital stocks, aggregate supply (production) functions, utility functions etc. The process of economic growth depends on the shape of production $Q = F(K, L, T)$ subject to the condition following properties are satisfied :

Constant Return to Scale: If inputs are change in λ proportion, production also changes in the same proportion. (T remains constant that is technology does not change) then $F(\lambda K, \lambda L, \bar{T}) = \lambda F(K, L, T)$ for $\lambda > 0$. We know the properties of a homogeneous function that is if a function is homogeneous of degree h then $f(\lambda L, \lambda K) = \lambda^h f(L, K)$ h is the degree of the function and if $h=1$, it is the case of constant return to scale.

Euler's theorem is also true $F(K, L) = \frac{\partial f}{\partial K} \cdot K + \frac{\partial f}{\partial L} \cdot L$

Marginal Productivity is positive but rate of return is diminishing

$$\frac{\partial F}{\partial K} > 0 \quad \text{And} \quad \frac{\partial^2 F}{\partial K^2} < 0$$

$$\frac{\partial F}{\partial L} > 0 \quad \text{and} \quad \frac{\partial^2 F}{\partial L^2} < 0$$

Inada Conditions

$$\lim_{K \rightarrow 0} \left(\frac{\partial F}{\partial K} \right) = \lim_{L \rightarrow 0} \left(\frac{\partial F}{\partial L} \right) = \infty$$

$$\lim_{K \rightarrow \infty} \left(\frac{\partial F}{\partial K} \right) = \lim_{L \rightarrow \infty} \left(\frac{\partial F}{\partial L} \right) = 0$$

Essentiality

$F(0, L) = F(K, 0) = 0$ (It means both the input are needed for production and Iso-product curves do not touch the axes.)

Output = Income = $Y = F(L, K, \bar{T})$ T is constant.

$$= LF \left(1, \frac{K}{L} \right) = LF(k)$$

$$k = \frac{K}{L} \quad k' = \frac{d(k)}{dt} = \frac{k}{L} - nk, \quad n = \frac{L'}{L}$$

Rate of growth is a direct function of rate of capital accumulation via rate of savings (sacrifice of consumption) and is an inverse function of rate of growth of population after a certain point. Rate of growth is a function of net rate of capital accumulation. The success story of china depends on both the factors. A number of problems arise due to higher rate of growth of population (even demographic dividend also proves to be a demographic curse). Emphasis should be laid on

capital accumulation and rate of population growth should be discouraged after a particular point.

Research objectives: There are mainly two objectives of this paper:

- Numbers do not determine the true picture of the economy- to study growth aspect in relation to other variables.
- To examine whether the real or core issues have been resolved or not.

MATERIALS AND METHODS

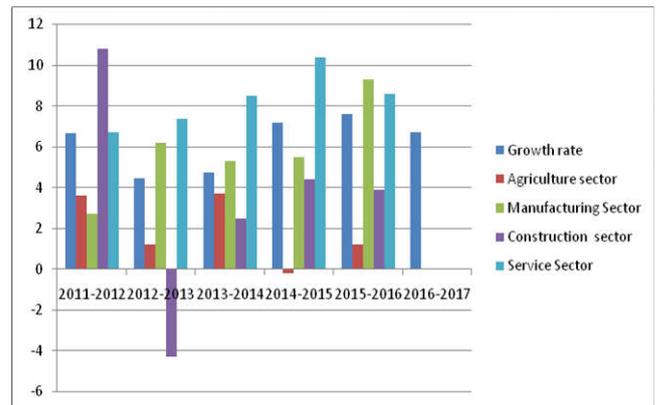
The debate under big tent is about job creation and the 2014 manifesto underlined its need. Indian economy (the 2 trillion dollar economy) average 7+ percent growth since 2014. Job crisis cannot bring better days. The parameters of progress are to be revived. Research methodology is linked up with the objectives. This paper is purely based on secondary data obtained from authentic and standard sources like blue prints produced by the govt. think tanks and other journals, magazines and daily news papers. An analysis of facts and figures has been made with the help of statistical tools and methods. There is a big question mark- are we a matured democracy of seven decades?

world faced a global crisis mainly due to fall of Lehman Brothers. A new era began in May 2014, when the govt. led by PM Modi came to power at the centre. The table given below reveals the trends in real GDP growth and comparative view of different sectors of Indian Economy (2011-12 to 2015-16).

Table 1. Growth rate in Percentage Points

Year	Growth Rate	Agriculture Sector	Manufacturing Sector	Construction Sector	Service Sector
2011-12	6.69	3.6	2.7	10.8	6.7
2012-13	4.47	1.2	6.2	-4.3	7.4
2013-14	4.74	3.7	5.3	2.5	8.5
2014-15	7.20	-0.2	5.5	4.4	10.4
2015-16	7.60	1.2	9.3	3.9	8.6
2016-17	6.7				

(IMF Forecast) (Source-Various issue of Economic Survey, GOI). Manufacturing sector is employment elastic.

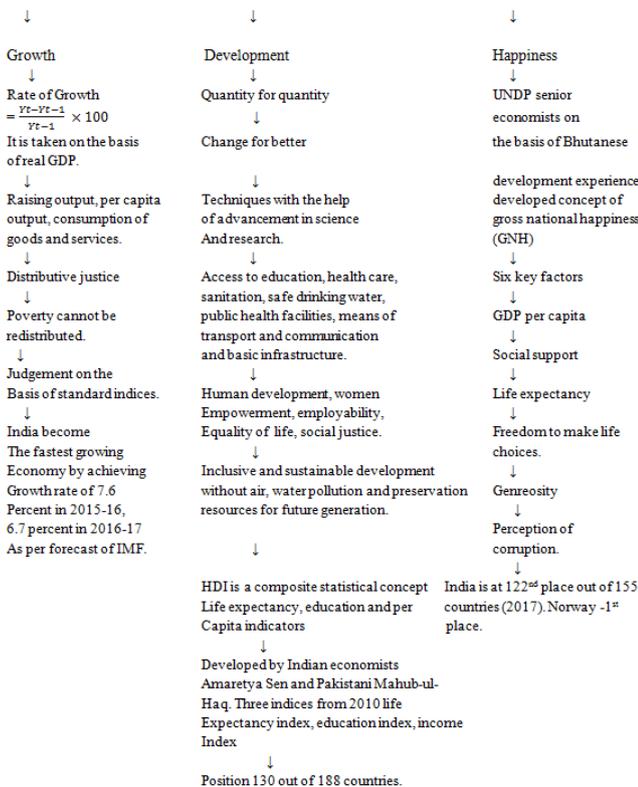


How Demonetisation (Nov.8, 2016) decision has given growth rate in India.
 March 2016 9.1 %
 June 2016 7.9%
 September 2016 7.5 %
 Demonetisation
 December 2016 7.0 %
 March 2017 6.1%
 June 2017 5.75
 (Source-Bloom Perg)

As per the report published on Nov. 18, 2017, Pg.21 in daily Hindustan Times, Moody's has upgraded India's government bond rating for the first time in last 14 years, the debt-to- GDP Ratio will increase in 2017-18 by one percent point to 69 percent and the economy is expected to see a rebound in real GDP growth rate to 7.5 percent in 2017-18. The upgrade will reduce borrowing cost for the government and Indian corporations, freeing up additional capital for investment. The Indian stock market is already experiencing an increase in anticipation of higher earnings¹.

Standard & Poor's (sand P) on Nov.24, 2017 kept India's sovereign rating unchanged BBB- the largest investment grade, with a stable outlook, citing a sizeable fiscal deficit, high general government debt and low per capita income. Sand P projects India's annual GDP growth to average 7.6 percent over 2017-20 and India's external debt to average a modest 8.4 percent of current account receipts over 2017-20 and underpinned by an improved current account deficit which is expected to average 1.8 over 2017-20(same period), down from 2.3 percent level recorded on average 2011-16. The World Bank released the Doing Business (DB) report 2018 on October 31, 2017, India ranked 100 among 190 countries a quantum leap of 30 notches over its rank of 130 last year. This can be an excellent news for Job Creation, at a time when technology and automation are reducing jobs in the economy.

Flow Diagrams



Parameters related to Economic Issues

Trends in GDP Growth Rate, Capital Formation, Rate of Poverty, Unemployment, Inequalities in the Distribution of Power, Ease of doing Business etc. India was ruled by the UPA govt. led by a noted economist Dr. Manmohan Singh during 2004-2014 (GDP growth rate percentage was above 9 percent during 2005-06 to 2007-08, three consecutive years) and it was also 6.72 percent during 2008-09, the year where

A Comparative view of Rating					
Sand P			Moody's		
Date	Rating	Action	Date	Rating	Action
2-2-2005	BB+	Upgrade	22-1-2004	Baa3	Upgrade
30-1-2007	BBB -	Do	16-11-2017	Baa2	Upgrade
24-11-2017	BBB -	Same			

(Source- Daily HT, Nov.25, 2017, Pg. 23)

For last so many years we are seeing a jobless growth. This ranking could be an indicator for the solution of unemployment problem and reaping the demographic dividend. Gross capital formation as a proportion of GDP that is required to achieve a growth rate of 7.5-8 percent, it was 31.9 percent in both 2014-1015 and 2015-16. It is below the 34.6 percent figure during 2003-04 and 2011-12. But in the year 2003-04 the economy had achieved a growth rate of 8.1 percent with a GCF at just 26.1 percent. There is a popular belief of positive and high correlation between the two, but now this belief is partially ruled out because other factors like technology and productivity play a significant role² (Daily HT Oct. 4, 2017, P 12)

Post demonetisation, registration of companies with a smaller capital is gaining place, the trend in income tax e-filing shows for the five year period ended (FY14) approximately 5 million people were filing returns on an annualized basis- that has increased to 7.7 million (FY14-Fy17) and could have extended further, the share of small currency notes in circulation that was 28 percent in FY09 (54 percent in FY04) declined to 13 percent in November 2016 has now gone up to 28 percent by March 2017, thus improving transparency in cash dealings and gross financial saving has also increased from 10.9 percent of GNDI in FY16 to 11.8 percent in FY17, a notable climb of 90bps³. (Source- Daily HT, Nov. 9, 2017, Pg.18)

The government maintains that macroeconomic fundamentals of the economy are robust. Foreign exchange reserves have been built up to top 400 billion dollar, average inflation is under 5 percent from Jan 2014 and it is around 2 percent between July 2016 to July 2017. William Foster, Vice President of the sovereign risk group at Moody's said, "Lower the revenues this year than planned budget spending could lead the fiscal deficit overshooting the target of 3.2 percent of the GDP.

Table 2. Current Account Deficit and Fiscal Deficit (As percentage of GDP)

Year	Current Account Deficit (-)	Fiscal Deficit (-)
2011-12	4.3	5.3
2012-13	4.8	4.9
2013-14	1.7	4.5
2014-15	1.3	4.1
2015-16	1.1	3.9
2016-17	0.7	3.5
2017-18	---	3.2

This is even after increased devolution of taxes of an 32 % to 42%to states. Per capita income at current prices has gone up from Rs.22131 in 2005-06 to Rs. 103219 in 2016-17. FDI which was on average 20 billion dollar a year up to 2013-14, has almost doubled to 35 billion dollar a year⁴. India has also become a favorable destination for investment because its ranking has gone up from 130 to 100 in case of ease of doing business (Daily HT, 25-20-2017, P.9)

Poverty: If growth is not conducive in reducing the poverty by enhancing employment opportunities, this growth is known as jobless growth (exclusive growth).

As per the formula given by Prof. Rangrajan (Rs. 32 and Rs.47 per day per person in rural and urban areas respectively), 21.9 percent people are below poverty line. The government claims to eradicate poverty completely by the end of year 2022. According to the latest data related by the world bank, anyone living below US dollar 1.9 per day is poor = Rs.138 per day per person. As per The government have been in the process of taking reforms initiatives in the area of financial inclusion through a series of measures like Jan Dhan accounts, MUDRA and Suraksha Schemes.

As a result 300 million families have now been linked to Jan Dhan Accounts with Rs.660 billion of deposits, disbursement of Mudra loan to 92 million units with Rs. 5 trillion disbursement and insurance of 140 million insurance policies for masses. The economic survey 2016-17 carries employment statistics dated March 2012- a five year gap in which the economy has added over 60 million to the work force. Labour Bureau data point to a steady declaration in employment growth through 2001-10, stagnation in the following three years and a contract on in jobs since 2013. Prof. Vinod Abraham estimates an absolute decline in formal employment between 2013-16, perhaps for the first time in the history of independent India⁴. (Daily HT, 15-20-2017, P.16)

About 80 percent of the global population lives in emerging economies. Flexibility and uncertainty defines informal markets in developing economies. Those who have formal jobs (less than 40 percent) often have side hustles. Informal markets in developing countries provide a vast field for experimentation to transform a patch work of jobs into a steady upward path for workers. The future of jobs is in the formal sector. Development report released by the world bank ranked India 120th among 131 countries when it comes to participation of women in work force.

Inclusive and Sustainable Growth

It was in 2000-01 that the government of India came to think clearly about inclusiveness in the economy while reviewing the performance of economic reforms. Inclusive growth in the country means covering schedule castes, schedule tribes, OBCs, minorities and women in the process of growth and development. Global inequality index reflects the inequalities of high order in India because India has been placed at 135th position out of 180 countries of the world. Only 1 percent people own 58 percent assets of the country and 10 percent have the ownership of 80 percent assets⁷. (Daily HT, 23-11-2017, P.7).

The UN general assembly in its 17th session in September 2015 announced a set of 17 sustainable development goals. In the past two decades the key environmental challenges in India have been sharper because of climate change, food, security, water severity, energy security and managing urbanization. Pollution is killing more people every year than smoking, hunger, natural disasters, more than AIDS, TB and malaria put together and 15 times more than all wars and other form of violence. Prolonged exposure to pollution- air, water and other forms leads to non-communication diseases. Air pollution has grown worse in the past two decades with number of deaths

surging 20 percent from an estimated 3.5 million in 1990 to 4.2 million in 2015 (2.5 million Indians died of pollution in 2015- a study conducted by the Lancet Medical Journal)⁶ (Daily HT, 21-10-2017, P.17). We have to think 100 times, what we are leaving for our future generation.

Parameters Related to Social Issues

Education, Health and Employability: At present India is midway through its demographic dividend-a period of times when demography gives economic growth- a boost by expanding the working age share of the population and this share will continue rising till about 2035-40. Employability is a function of number of variables and attributes e.g. quality education, knowledge, application oriented skills for the solution of different problems in real life, health conditions, attitude and thinking process, basic IT and soft skills, group behaviour, leadership qualities, planning and organization, decision making etc. The centre and states spend roughly Rs. 12 trillion or Rs. 3200 crores per day on education, health and social services. Take education, barely four of ten class V students can read a class II text, the poor are switching to private schools and over 33 percent of million plus schools do not maintain pupil-teacher ratio⁶.

World rankings across BRICS countries appear on page one (plus) Daily HT, November 11, 2017, P.18

Top 10 BRICS Universities

Institutions	Rank	
	2017	2018
Tsinghua University	1	1
Peking University	2	2
Fudan University	3	3
University of Science & Technology of China	4	4
Lomonosov Moscow State University	7	5
Zhejiang University	9	6
Shanghai Jiao Tong University	5	7
Nanjing University	8	8
Indian Institute of Technology –Bombay	13	9
Indian Institute of Science (IISc) Bangalore	6	10

Institutions	Rank	
	2017	2018
Indian Institute of Technology –Bombay	13	9
Indian Institute of Science (IISc) Bangalore	6	10
Indian Institute of Technology-Delhi	15	17
Indian Institute of Technology-Madras	19	18
Indian Institute of Technology-Kanpur	22	21
Indian Institute of Technology-Kharangpur	25	24
Delhi University	41	41
Indian Institute of Technology- Roorkee	39	51
Indian Institute of Technology- Guwahati	54	52
Calcutta University	54	64
Jadavpur University	88	74

Health

So far as health conditions are concerned heart attack, strokes, chronic respiratory diseases Nov.15,2017, Page Plus one).

Year	Major Causes of Death (In Percentage)		
	Non-Communicable Diseases (NCDS)	Communicable Maternal, Neonatal and Nutritional Diseases	Injuries
1990	37	53.6	8.5
2016	61.8	27.5	10.7

Some Indices

Global Hunger Index: GHI scores are based on a formula that captures three dimensions of hunger- insufficient calories intake, child undernourishment and child mortality(using four component indicates namely undernourishment, child wasting(low weight-for height), child stunting (low height for age) and child mortality(mortality rate under the age of 5). India is a country with a serious hunger situation (GHI ranging between 34.9-20). India has been placed at 100 out of 119 countries in 2017.

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Infant Mortality Rate: Infant mortality rate compares the number of deaths of infants under one year old in a given year per 1000 live births in the same year. This rate is often used as indicator of the level of health in a country. India’s infant mortality rate declined from 58 in 2005 to 37 in 2015 and to 34 per 1000 live birth in 2016. However there is a long way to go to meet in 2019 target of IMR 28 per 1000 live births. What is more encouraging that gender gap in India for child survival is reducing steadily and gender difference between female and male IMR has reduced to below 10 percent.

The Maternal Mortality Rate (MMR): It is the annual number of female deaths per 1 lakhs live births from any cause related to aggregated by pregnancy or its management (excluding accidental or incidental causes). The recent World Bank data puts the MMR for India reported in 2015 at 174 per 1 lakhs births, which is a significant decline from the 215 that was reported in 2010. India’s MMR is declining faster than the global target and govt. aim is to bring it down to 100 by 2030.

Life Expectancy by Sex: ‘Save and Educate Girl Child’ is one of the popular themes of the present government. In India sex ratio as well as literacy rate both are responding in the positive direction.

Life Expectancy by Sex		
Year	Men	Women
1990	58.3	59.7
2016	66.9	70.3

Sex Ratio & Literacy Rate		
Year	Sex Ratio	Literacy Rate
1991	927	52
2001	933	65
2011	943	73

Women Empowerment: India ranks a poor 141st place according to the data of inter parliamentary union. The numbers of women in the government are a few.

Peace Index: Today we are living in a more violent world. India’s position in global peace index is 141 out of 163 countries. One can understand the gravity of the situation. Without peace development is not possible.

Moral Issues

India had a cash GDP ratio of 10.5 percent in 2000-01. In 2014-15, it increase to 13 percent clearly, was occurring. The figure had dropped to a little less than a percent in 2016-17 with digitalization and use of non-cash instruments. The government is claiming that demonetization. Has effectively wiped out black money worth Rs.6 lakh crores from the Indian economy. The main objective of demonetisation was to wipe out black money which exceeds Thailand's GDP which is equal to Rs. 30 Lakh crore or about 20 percent of our GDP as per the report of Ambit Capital study. In India the number of non-tax payer is greater than the number of tax-payer (who are able to pay but do not pay). Bad money has to be identified once it gets back into the formal system. As per the report of RBI, 99 percent of the money has come back into the system after demonetization of high valued currency notes. Thus black money that was idle is now back and earning interest also. There was a news in daily HT on Nov.8,2017, Pg. 10 (after one year of demonetisation) hawala operations limp back to business. The Indian Banks are sitting on a stressed asset pile of close to Rs. 10 trillion due to NPA ultimately turning into bad loans. Is this a business-model or a business strategy or a game plan? Public sector banks will get Rs. 2 trillion infusion of the capital over the next two years. Recapitalisation of banks would help channel more investments to sectors such as infrastructure (for creating jobs). Hammer is again on the heads of honest tax payers. President of India has given his nod to the amendments approved by the cabinet in regard to bankruptcy code (Daily HT, Nov.24, 2017). Corruption Perception Index 2017 has been prepared for 176 countries and India has been ranked 79th and has also improved its position from 83rd in 2015.

Conclusion

The share of agriculture and allied activities in GDP is bound to decline because the segment in variably grows slower than industry or service. A demographic shift is occurring, though India will age beyond 2035. Not with standing problems with education, skills and health, that is an incremental to GDP growth. If young India has an entrepreneurial inclination, the argument is strengthened. Competition and infrastructure improvements reduce incremental capital output ratio, a measure of efficiency of capital usage. The world bank classifies as a lower middle income country by crossing the threshold of US \$3955. Today India's per capita GDP is us \$1850. Deep Structural changes accompanied with tactical improvements means that India will start to witness the benefits of her tenacious labour reforms. We need to improve the competitiveness of our economy that is a visible export sector and sound regulatory framework is needed to cap double digit growth rates. Key points to be noted:

- Job could not be created through growth process, let welfare economics do this.

- Education, Health and other human development indices must be redressed.
- Inclusive and sustainable development both have to be focused. There should be a balance between development and conservation of forests and natural resources.
- How long the honest tax payers will share a major burden?
- Last but not the least, planned family welfare programme be kept on the top of the agenda. Laakh Dukho ki ek Dawa hai kyo na Aajmale.

Endnotes

- Global Hunger Index- The Inequalities of Hunger, October 2017.
- Human Development Index.
- World Happiness Report.
- Corruption Perception Index 2017- Transparency International.
- Daily HT, October 4, 2017, P.12.
- Daily HT, October 19, 2017, P.18.
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