A Study on Five Year Plan in Pre and Post Liberalization of India

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Abstract

The economy of India is based in part on planning through its five-year plans, which are developed, executed and monitored by the Planning Commission. The tenth plan completed its term in March 2007 and the eleventh plan is currently underway. The function of planning in a predominantly market-driven economy has to be symptomatic, co-coordinative and authoritarian. That provides the good reason for India's Planning Commission to engage in preparing development plans for the economy periodically even after liberalization. However as it can't control investment in the private sector so such planning can at best be at least indicative. It is still be necessary for planning commission to integrate and coordinate the plans of different ministries and undertakings of the central government, and bring them in line with the medium and long-term goals while keeping within the budget constraint. At the same time, the system of transfers from the centre needs to be reformed. There should be some rethinking on the relative roles of the planning commission and the finance commission. In this paper an attempt has been made to analyze the five year plan in pre and post liberalization s in India.

Keywords: *Planning commission, GDP, Economic development, Pre- liberalization,* Post liberalization, indicative planning

INDRODUCTION

The potential rate of growth of an economy is the maximum sustainable rate at which an economy can grow without causing a rise in the rate of inflation. The potential growth rate is determined by the growth in the economy's capacity which, in turn, depends on the growth in inputs (labor, capital, land etc.) and technology. An economy can grow above the potential rate for some time but that will trigger rising inflationary pressures. Growing below the potential rate will imply rise in the rate of unemployment.

The objective of faster growth envisaged in Eleventh Five Year Plan (2007-12) set a target of 9% annual average growth rate and was successfully achieved during the first three year of the plan (2007-08, 2008-09, 2009-10). The global financial crisis, severe fluctuations in the International oil prices, strong inflationary pressure in domestic economy have resulted in the deceleration of growth rate to 6.7% during 2008-09 with 1.6% agriculture, 4.2% in industry and 10% in service sector. Visible signs of recovery are indicated by the significant growth in the manufacturing and services sector, surplus in net invisibles led by buoyant remittance, return of capital inflows etc. The turnaround in the economy is visible in the latest estimates released by central statistical organization indicating that the economy is regaining its momentum and would be able to outgrow the projections made for next five year plan.

The CSO has released the quick estimates with a new series of national accounts statistics with base year 2004-05, in place of the previous series with base year 1999-2000. As per the advance estimates released by the CSO, the growth rate of GDP at factor cost during 2010-11 is estimated at 8.7% as compared to growth rate of 7.2% in 2009-10 and 6.7% in 2008-09 showing a significant improvement over previous year.

PLANNING COMMISSION IN INDIA

The Planning Commission in India was set up on March 1950 to promote a rapid rise in the standard of living of the people by utilizing the resources of the country, increasing production and offering employment opportunities to all. The Planning Commission has the responsibility for formulating plans as to how the resources can be used in the most effective way.

The Planning Commission has to make periodic assessment of all resources in the country, boost up insufficient resources and formulate plans for the most efficient and judicious utilization of resources.

Pandit Jawaharlal Nehru was the first chairman of the Planning Commission.

COMPOSITION OF PLANNING COMMI SSION

The composition of the Commission has undergone a lot of change since its inception. With the Prime Minister as the ex-officio Chairman, the committee has a nominated Deputy Chairman, who is given the rank of a full Cabinet Minister. Mr. Montek Singh Ahluwalia is presently the Deputy Chairman of the Commission. Cabinet Ministers with certain important portfolios act as part-time members of the Commission, while the full-time members are experts of various fields like Economics, Industry, Science and General Administration.

The Planning commission functions through several subject matter divisions and a few specialist divisions. Each division is headed by a senior level officer of the level of Joint Secretary designated as Adviser or additional secretary designated as senior adviser or by a secretary level officer designated as a principal adviser.

FUNCTIONS OF PLANNING COMMIS SION

i. To make an assessment of the resources of the country like material, capital and human resources, and formulation of proposals for augmenting such of these resources as are found to be efficient and to see which resources are deficient.

ii. To formulate plans for the most effective and balanced utilization of country's resources.

iii. To defining the stage in which the plan should be carried out on a determination of priorities and allocation of resources for completion of each stage.

iv. To indicate the factors which are hampering economic development.

v. To determine the machinery, that would be necessary for the successful implementation of each stage of plan.

vi. Periodical assessment of the progress of the plan.

vii. From being a centralized planning system, the Indian economy is slowly progressing towards indicative planning wherein the Planning Commission has set the goal of constructing a long term strategic vision for the future. The commission is seeing to maximize the output with minimum resources.

viii. It sets sectoral targets and provides the catalyst to the economy to grow in the right direction.

ix. The Planning Commission plays an integrative role in the development of a holistic approach to the formulation of policies in critical areas of human and economic development.

x. The Planning Commission is an institution in the Government of India, which formulates India's Five-Year Plans, among other functions.

STATAEMENT OF THE PROBLEM

In terms of development planning the range of disciplines study is reflected by the following definition of development planning: "A participatory process to integrate economic, sectorial, spatial, social, institutional, envi ronmental and fiscal strategies in order to support the optimal allocation of scarce resources between sectors and geographical areas and across the population, in a manner that provides sustainable growth, equity and the empowerment of the poor and marginalized."

From my perspective the record of development has shown that one size would not fit all. The right policies may differ across phases of development. Planning is the base term for the growth of the economy, industry as well as organization.

There has been the enormous amount of attention to paid to issues like the lower growth rate in agriculture and food inflation. While important, there are many other areas where reforms are less controversial but perhaps as important.

Instead of focusing primarily on a few large and usually politically controversial steps, we also need to study and take hundred of steps in the same direction that will collectively take us very far.

OBJECTIVES OF THE STUDY

xi. "To study of the five year plan in pre liberalization and post liberalization period during 1985-2010."

xii. To determine the linkage between the GDP of the country over the period.

xiii. To study socio-economic and infrastructure growth rate during the five year plan period of 1985-2010.

xiv. To unearth the plan wise deviation, from before and after liberalization era.

xv. To give findings and suitable solutions.

SCOPE OF THE STUDY

An equally important scope for a study is that we need a paradigm in Indian Economy. Such as paradigm should recognise that efficiency, innovation and effectiveness of the plan are important to develop the new strategy for rapid growth.

The kind of liberalization as well as the more effective regulation that has had such beneficial results in sectors like foreign trade should now be also extended to the industry sector as well as agriculture sector. In this dynamic environment, we will need skilled regulator who encourages growth and innovation even while working harder to contain risks. It is important to recognise that vulnerabilities may be building up in India. The shift in paradigm, if implemented could usher in a revolution in that hit the real economy in the early 1990s, whose fruits we are now reaping. This study will helpful to familiarise the environmental condition under which the growth may rise and give better results.

RESEARCH METHODOLOGY:

1. Research Design The quantitative study process normally consists of one or more of the following approaches:

1) A descriptive study in a regional context, comprising

i. The reconstruction of a region's past by analysing relevant information for various time scales;

ii. A replication and diagnosis of a region's current features by indicating principal regional imbalances, effects of past corrective action, development resources, potential and conditions. In describing a region's characteristics, it is important to indicate comparative cost advantages, potential, needs and economic structure and trends.

2) A comparative study consisting of

i. A macro-regional comparison of relevant development indicators that highlight inter-regional, intra-regional and micro-regional disparities. This kind of comparison provided inputs for identifying critical issues, while indicating the extent and context of these issues. Furthermore, it provides a view on the comparative potential of the region and sub-region, could assist in reviewing or setting goals and objectives for a specific region or sub-region, and could enhance the optimum allocation of available resources;

ii. A macro-analysis, which is a vital framework for linking the different vertical or sectoral analyses and for highlighting the socio-economic inter-relationship in each region/sub-region; and

2. Data Collection Methods: The source of data includes secondary data sources. Data has been collected directly from

i. The official report of the planning commission.

ii. Standard textbooks, newspapers, Magazines & websites of the planning commission and Indian statistical department.

3. Data type: Data sets to which econometric analysis are applied can be classified as time-series data and multi dimensional panel data. Time Series data sets contain observations over the single point of time. Multidimensional panel data sets contain observations across the time, cross sectional and across some third dimensions.

3. 1 Data size and economic indicator

Study size: 25 years of plan (1985-2010)

The study includes the several economic indicators of the Indian Economic for the assessment of the growth. These are: GDP, Agriculture, Industry Production, Power, WPI, Monetary Resources, Foreign Reserve, Economic structure and performance

3.2 Research instruments:

Data analysis instrument includes: Graphical Representation, Moving average, Time series analysis, Regression analysis, paired t- Test

ELEVENTH FIVE YEAR PLAN (2007-12)

The eleventh plan has the following objectives:

1. Income & Poverty

a. Accelerate GDP growth from 8% to 10% and then maintain at 10% in the 12th Plan in order to double per capita income by 2016-17

b. Increase agricultural GDP growth rate to 4% per year to ensure a broader spread of benefits

c. Create 70 million new work opportunities.

d. Reduce educated unemployment to below 5%.

e. Raise real wage rate of unskilled workers by 20 percent.

f. Reduce the headcount ratio of consumption poverty by 10 percentage points.

2. Education

a. Reduce dropout rates of children from elementary school from 52.2% in 2003-04 to 20% by 2011-12

b. Increase literacy rate for persons of age 7 years or above to 85%

c. Lower gender gap in literacy to 10 percentage point

d. Increase the percentage of each cohort going to higher education from the present 10% to 15% by the end of the plan.

3. Health

a. Reduce infant mortality rate to 28 and maternal mortality ratio to 1 per 1000 live births

b. Reduce Total Fertility Rate to 2.1

c. Provide clean drinking water for all by 2009 and ensure that there are no slip-backs

d. Reduce malnutrition among children of age group 0-3 to half its present level

e. Reduce anemia among women and girls by 50% by the end of the plan.

4. Women and Children

a. Raise the sex ratio for age group 0-6 to 935 by 2011-12 and to 950 by 2016-17

b. Ensure that at least 33 percent of the direct and indirect beneficiaries of all government schemes are women and girl children

c. Ensure that all children enjoy a safe childhood, without any compulsion to work.

5. Infrastructure

a. Ensure electricity connection to all villages and BPL households by 2009 and round-the-clock power.

b. Ensure all-weather road connection to all habitation with population 1000 and above (500 in hilly and tribal areas) by 2009, and ensure coverage of all significant habitation by 2015

c. Connect every village by telephone by November 2007 and provide broadband connectivity to all villages by 2012

d. Provide homestead sites to all by 2012 and step up the pace of house construction for rural poor to cover all the poor by 2016-17.

6. Environment

a. Increase forest and tree cover by 5 percentage points.

b. Attain WHO standards of air quality in all major cities by 2011-12.

c. Treat all urban waste water by 2011-12 to clean river waters.

d. Increase energy efficiency by 20 percentage points by 2016-17.

Table 1

Data of Eleventh five year plan (2007-12)*

(% change over previous period)

Economic Indicator	2007-08	2008-09	2009-10	2010-11*	Average*
GDP(Factor cost 2004-05)	9.3	6.8	8.0	8.6	8.17
Agriculture production	16.03	15.7	14.6	14.2	15.13
Industrial Production	8.7	3.2	10.5	8.8	7.8
Power generation	8.3	4.9	6.4	5.1	6.17
Wholesale price index	4.8	8.0	3.6	9.4	6.45
Monetary Resources	21.4	19.3	16.8	16.5	18.5
Import at current price	35.5	20.7	-5.0	19.0	14.04
Export at current price	29.0	13.6	-3.5	29.5	17.15
Foreign Exchange Reserves (in cr.)	12474.7	11589.5	13234.9	13580.7	12719.95

Interpretation

i. GDP in the 2007-08 and 2010-11 is the higher than the average of the GDP of this five year plan.

ii. Agriculture and as well as monetary resources shows normal growth during this plan. Summarized Data analysis of five year plan (1985-2011) The duration of 25 years is divided into the pre liberalization and post liberalization economy. In this study for the pre liberalization economy study 7th five year plan is taken into consideration. After the liberalization of the Indian economy plan implemented be 8th (1992-1997), 9th (1997-2002), 10th (2002-2007) and 11th (2007-12)*.

Table 2

Summarized data for 7th, 8th, 9th, 10th & 11th five year plan

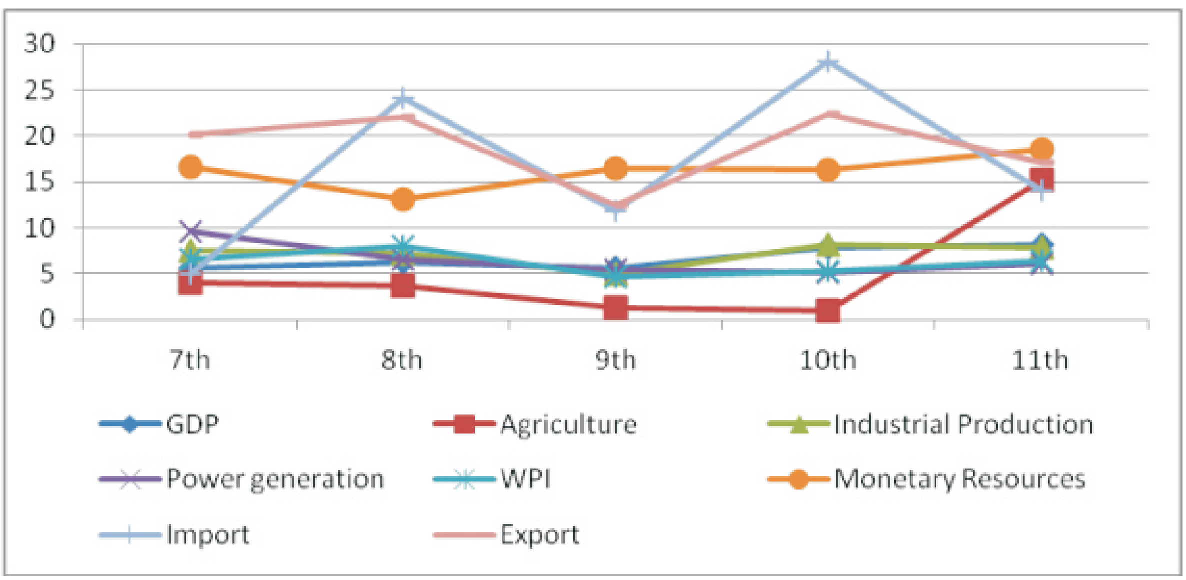
(% change for the annual average growth over the previous plan period)

Five year plan	7th	8th	9th	10th	11th*
Economic Indicator/ years	1985-90	1992-97	1997-2002	2002-07	2007-12
GDP	5.56	6.22	5.58	7.8	8.17
Agriculture production	4.0	3.78	1.38	1	15.13
Industrial Production	7.6	7.2	5	8.2	7.8
Power generation	9.56	6.58	5.46	5.16	6.17
WPI	6.66	8.02	4.62	5.24	6.45
Monetary Resources	16.6	13.2	16.4	16.38	18.5
Import	5.0	24.08	11.88	28.12	14.04
Export	20.1	22.12	12.56	22.38	17.15
Foreign Exchange Reserves (in cr.)	7205	5877.0	162888.6	632043.8	12719.95

Source: various planning commission reports

*11th planning period is under progress –from planning commission

Chart No1. : Summarized data for 7th, 8th, 9th, 10th & 11th five year plan



Interpretation:-

i. 1th five year plan gives the better growth than other plan. Up to the completion of third quarter of the 4th year of the 11th five year plan shows the highest annual average growth.

ii. During the 11th five year plan export and import is not showing the growth with respect to the growth during previous five year plan.

Table 3

5 Year Moving average of the GDP

Year	GDP	5 Year moving total	5 Year moving average
1985-86	4.2		
1986-87	4.3		
1987-88	3.5		
1988-89	10.2		
1989-90	6.1	28.3	5.66
1990-91	5.3	29.4	5.88
1991-92	1.4	26.5	5.3
1992-93	5.4	28.4	5.68
1993-94	5.7	23.9	4.78
1994-95	6.4	24.2	4.84
1995-96	7.3	26.2	5.24
1996-97	8.0	32.8	6.56
1997-98	4.3	31.7	6.34
1998-99	6.7	32.7	6.54
1999-2000	6.4	32.7	6.54
2000-01	4.4	29.8	5.96
2001-02	5.8	27.6	5.52
2002-03	3.8	27.1	5.42
2003-04	8.5	28.9	5.78
2004-05	7.5	30	6.00
2005-06	9.5	35.1	7.02
2006-07	9.6	38.9	7.78
2007-08	9.3	44.4	8.88
2008-09	6.8	42.7	8.54
2009-10	8.0	43.2	8.64

Interpretation: - y=4.1258e0.0273x

i. During the FY 1988-89 GDP recorded its highest level of these 25 years of 10.2%, while during FY 1991-92 GDP recorded at the minimum level of 1.4%.

ii. 5 year moving average is near to the GDP of the respective year for the FY 1992-93, 1998-99, 1999-2000.

iii. In line chart the exponential trend line be Y= 4.1258e0.0273X

iv. 4.2.2 Time Series Analysis (or Trend analysis)

v. Using Time series analysis for the 6th, 7th, 8th, 9th and 10 five year plan to estimate the overall growth rate for each sector during 11th five year plan.

Plan	GDP
6^{th}	6.44
7^{th}	5.56
8^{th}	6.22
9^{th}	5.58
10^{th}	7.86

The equation of straight line trend is: Y= a + bX

Let us take 8th plan as origin with unit = five year plan

Table 4

Calculation for Time series analysis

Year	GDP (Y)	Deviation from 8^{th} plan (X)	XY	X^2
6^{th}	6.44	-2	-12.88	4
7^{th}	5.56	-1	-5.56	1
8^{th}	6.22	0	0	0
9^{th}	5.58	1	5.58	1
10^{th}	7.86	2	15.72	4
N= 25	ΣY= 31.66	ΣX=0	ΣXY=2.28	ΣX^2=10

Since $\Sigma X = 0$, therefore,

$a = \Sigma Y/N$

$= 31.66/25$

$= 12.664$, and

$b = \Sigma XY/\Sigma X2$

$= 2.28/10$

$= 0.228$

Thus substituting the value of 'a' and 'b' in the straight line of trend, we get

$Y = a + bX = 12.664 + 0.228X$

Interpretation:

The straight trend line for the time series analysis of the plan during 1985-2010 be $Y = 12.664 + 0.228X$.

Regression Analyses:

Determining the regression line for the five year plan during 1985-2010 from the given NNP

Five year Plan	7	8	9	10
NNP	5.5	6.7	5.3	7.8

Solution

Table 5

Calculation for Regression analysis

Plan (X)	x= X-8.5	x^2	NNP (Y)	y= Y-6	y^2	xy
7	-1.5	2.25	5.5	-0.5	0.25	0.75
8	-0.5	0.25	6.7	0.7	0.49	-0.35
9	0.5	0.25	5.3	-0.7	0.49	-0.35
10	1.5	2.25	7.8	1.8	3.24	2.7
$\Sigma X = 34$	$\Sigma x = 0$	$\Sigma x^2 = 5$	$\Sigma Y = 25.3$	$\Sigma y = 1.3$	$\Sigma y^2 = 4.47$	$\Sigma xy = 3.45$

Here $N = 4$,

Mean $(\bar{X}) = 34/4 = 8.5$

Mean $(\bar{Y}) = 25.3/4 = 6.325$

Also, we know that,

bxy $= \Sigma xy/\Sigma x2$ $= 3.45/5 = 0.69$

byx $= \Sigma xy/\Sigma y2$

$= 3.45/4.47$

$= 0.77$

Regression equation of Y on X: $Y-\bar{Y} = byx\,(X-\bar{X})$

=> $Y- 6.32 = 0.77(X-8.5)$

=> $Y = 0.77X -8.5+6.32$

=> $Y = 0.77X - 2.18$

Correlation Coefficient: $r = (bxy * byx)$ ½

$= (0.69*0.77)$½

$= (0.5313)$½

$= 0.729$

Interprétation

The linear regression line for the GDP (Y) on the plan number (X) is Y=0.77X-2.18.

Correlation coefficient between the GDP and five year plan is 0.729.

PAIRED t-Test

PAIRED t-Test for Growth Rate during pre-liberalization economy and post liberalization economy

Statement: - Test whether there is any change in the growth after the LPG policy implementation with respect to the period of 1985-1995.

Step 1:- Null Hypothesis: There is change in growth after implementation of LPG policy.

$H0: \mu 1 \neq \mu 2$

Alternate Hypothesis: There is no any change in growth after implementation of LPG policy.

H1: $\mu 1=\mu 2$

Table 6 Calculation for paired t-Test

Year	GDP before LPG (y)	Year	GDP after LPG (x)	Difference (D)=x-y	D^2
1986	4.3	1991	1.4	-2.9	8.41
1987	3.5	1992	5.4	1.9	3.61
1988	10.2	1993	5.7	-4.5	20.25
1989	6.1	1994	6.4	0.3	0.09
1990	5.3	1995	7.3	2.0	4
Total				-3.2	36.36

Step 2:- Computation of Test Statistics

Mean Difference ($\bar{D}$) $=\Sigma D/n$

$= -3.2/5$

$= -0.64$

Estimated Variance: $S2 = \Sigma D2/(n-1) - (\Sigma D)2/\{n(n-1)\}$

$= 36.36/4 - 10.24/20$

$= 9.09 - 0.512$

$= 8.578$

Standard Error of Difference S.E ($\bar{D}$) $= S/\sqrt{n}$

$= \sqrt{8.578}/\sqrt{5}$

$= \sqrt{1.7156}$

$= 1.30$

Test statistics: $t = \bar{D}/S.E(\bar{D}) = -0.64/1.30$

$= -0.49$

Step 4:- Critical value at α=0.01.

The critical value of t at α=0.01 for (5-1) = 4 degree of freedom is 4.6.

Step 5: Conclusion: value of test statistics is -0.49. So, the value of test statistics is lower than the critical value of α. It accepts the null hypothesis.

Interpretation: - There is a change in the growth of the economy after the implementation of LPG policy.

1) GDP shows the normal growth during these 5 plans. During the 11th five year plan GDP shows the highest growth of 8.17% while the plan period only completed four year. 7th plan shows the lowest annual average growth rate of 5.56%.

2) Agriculture sector growth is not achieving the target, during the period of 9th and 10th five year plan sector shows growth 1.38 and 1 respectively. While 11th five year plan shows the 15.13 growth, which is the highest growth during these 25 year.

3) The industry sector shows the normal growth during these 5 plans, during 10th plan shows the highest growth of 8.2 %, and 9th plan shows the lowest growth of 5 %. After implementation of the LPG policy first two plans (8th & 9th) have the negative trend for growth against the pre liberalization economy.

4) After the implementation of LPG policy import and export shows the abnormal growth. 10th plan shows the highest growth of 28.12% and for the same period export is also recorded the highest growth of 22.38%.

5) As the speciality of LPG policy "to open the nation for global" foreign reserves shows the more growth. 10th plan shows the highest foreign reserves of Rs. 632043.8cr. While the 7th plan implemented before the LPG policy recorded the minimum foreign reserves of Rs. 7205cr. It shows the better effect of the LPG policy.

6) The economy shows the change in growth after the implementation of the LPG policy.

SUGGESTIONS AND RECOMMENDATIONS

1) Government has to focus on the agriculture sector for their growth. Due to the uncontrollable factor the agriculture sector shows the fluctuating growth during these 25 year.
2) After the 20 year of the implementation of the LPG policy Indian GDP growth does not achieve the target fixed under the 11th five year plan of GDP 15%.
3) Industry sector as well as power sector didn't record the two digit growth rate, so government has to funding the industry in better way.
4) Increase in the agriculture productivity especially in these times of rising prices should be a great opportunity for India. Better specific and defined plans for increasing productivity in agriculture are essential and could allow India to benefit from the global thirst for better quality food.
5) Focus on infrastructure in India is legendary and tales of woe abound. Improvement is taking place, but the need for more is paramount. Without such improvement development will be limited.

CONCLUSION

As per the data analysis and findings of this study, the plan needs to be implemented in a better way to get the 100% of the expected results. Each plan showed the growth in GDP over the previous plan period, but in sectorial view it did not follow the upward movement over the previous plan. This made the gap for GDP to reach up to target level set by the planning commission for the national growth. India needs to boost agricultural productivity, improve its infrastructure and environmental quality, at the same time also needs to improve its governance, control inflation, introduce credible fiscal policy, liberalized financial market and increase trade with its neighbors like Pakistan, China, Russia, Indonesia, Bangladesh and Iran.

The researcher feels that a formal adoption of inflation targeting would be a very sensible move to help India persuade its huge population of the permanent benefits of the price stability. Targeting low and stable inflation is not easy if fiscal policy is poorly maintained.

World Bank stated that the rapid reduction in global poverty is in large part due to economic growth. Without better governance, delivery system and effective implementation India will find it difficult to raise the living standards, built its infrastructure, increase the agriculture productivity and ensure that the fruits of economic growth are well distributed.

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