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Indian Agriculture: Challenges and Opportunities

Chief Editor:

Mr. Dnyaneshwar Vishnu Gore

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03

Employment Elasticity of Agriculture Sector in Post Reform Period

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Introduction:

Agriculture sector play a dominant role in India's economy by contributing to GDP, employment and exports. This sector has remained as backbone of the Indian economy by providing employment to 56 percent of labour force. Employment generation has always been consider as prime objective of growth and development process. India being a highly labour surplus economy, employment becomes a crucial element of strategies for economic development of the country. Employment acts as a link between economic growth and poverty alleviation and therefore serves as a significant variable in attainment of inclusive and sustainable growth. The efforts of increasing employment and reduction in poverty for last six decade, has not yielded desired outcome, as poverty and disguised unemployment are being considered as main features of India. This paper examines the employment elasticity and its macroeconomic determinants of employment in agriculture sector during the post-reform period (1990-91 to 2014-2015).

OBJECTIVES

- To analyze the performance of employment in agriculture sector during post reforms period
- To identify macroeconomic determinants of employment in agriculture sector.
- To suggest the measures for the growth of employment in agriculture sector.

Database and Methodology:

The study is based on secondary data. The data is gathered from various economic survey reports, RBI Bulletin and Planning Commission reports. Data on GDP, private investment and public expenditure at factor cost and at constant prices are collected from the Central Statistical Organization (CSO) considering 1998-99 as the base year. Economic openness is measured as export plus import as a ratio to GDP. Inflation is calculated from the GDP deflator taking the data on GDP from CSO. The statistical tool such as averages and percentage is also used. The result is estimated by using ordinary least square technique. The Eviews 8 was used to estimates the regression result.

Section II: Employment Elasticity in Agriculture Sector

Contribution of the Agriculture Sector to India's GDP

After India's independence, the agriculture sector was a major contributor to GDP. In 1950-51 the share of agriculture sector in GDP was 55. 1 percent. The table No: 1 reveals that the share of service sector in GDP has increased when compared to agriculture and industry. In post reform period, share of service sector has surpassed the combined share of agriculture and industrial sector.

Table 1: Share of the Different Sectors in India's GDP

Year	Agriculture	Industry	Service Sector
1950-1951	55.3	14.8	29.8
1970-1771	42.8	21.3	35.9
1990-1991	30.9	23.3	45.7
2000-2001	21.8	24.5	53.7
2013-2014	18.2	26.4	57. 4

Source: Planning Commission, published by GOI.

Table No. 1 shows that during the period of economic reforms, the share of agriculture sector in GDP have decline from 30. 9 per cent in 1990-91 to 18. 2 per cent in 2013-14. The share of service sector has increased rapidly while there is marginal increase in share of industry in GDP. The share of industry has increase from 23.3 per cent in 1990-91 to 26.4 per cent in 2013-14. The share of service sector has increase from 45.7 per cent to 57.4 per cent in 2013-2014.

There is lot of debate on employment generating capacity of agriculture sector. The change in composition of GDP has not brought a proportionate change in the occupational structure. Over the years, the percentage share of labour force employed in agriculture sector has declined but broad pattern of employment has remained the same with agriculture having the highest proportionate share in occupational structure of India.

Table 2: Comparative Share of Different Sectors in Employment in Post Reform

Year	Agriculture	Industry	Service Sector
1993-94	61.1	16.0	22.9
1999-00	58.5	16.8	24.7
2004-05	54.5	19.5	26.0
2009-10	51.6	21.8	26.6
2014-15	47.1	26.3	29.4

It is evident from above table that the agriculture sector was employing 61.1 per cent of labour force in 1990-91, which has decline to 47.1 per cent in 2014-15. However, the share of industrial and service sector have show significant increase in employment generation. The share of industrial sector increased from 16 per cent in 1993-94 to 26.3 percent in 2014-15. Similarly the share of service sector in employment increase from 22.9 per cent in 1993-94 to 29. 4 percent in 2014-15.

Table No 3: Output, Rate of Employment and Employment Elasticity of the Agriculture

Year	Employment growth	(GDP Growth at Factor Cost)	Employment elasticity of Agriculture Sector
1993-94 to 1999-00	1.0	6.8	1.23
1999-00 to 2004-05	2.8	5.7	1.09
2004-05 to 2009-10	0.1	8.7	-0.39
2011-12 to 2014-15	1.1	7.3	-0.39

Source: Various Economic Survey, Government of India

The table No: 3 shows that the agriculture sector have shown negative elasticity of employment. It can be observed that higher GDP have not shown correspondence increased in employment in the agriculture sector. For instance period in 1993-94 to 1999-00 the employment elasticity was 1.23 per cent which decline to -0.39 percent for the period of 2011-12 to 2014-15. It can observe that during the period from 2004 -05 to 2011-15 the employment elasticity was negative, although this period was marked by high growth rate of economy.

Table 4: Comparative Employment Elasticity of Agriculture, Industry and Service Sec.

Year	Agriculture	Industry	Service Sector
1993-94 to 1999-00	1.23	0.79	0.2
1999-00 to 2004-05	1.09	0.80	0.3
2004-05to 2009-10	-0.39	-0.27	0.7
2011-12 to 2014-15	-0.39	1.64	0.2

Source: Various Economic Survey, Government of India

When we compare the elasticity of different sectors, agriculture sector has shown negative growth rate of employment from 2004 to 2014. It is industry and service sector which have provided impetus to employment generation in post economic reform period. The above table reveals that the agriculture sector was having employment elasticity of 1.23 per cent, which turn negative (-0.39 per cent) for the period 2011-12 to 2014-15.

Section III: Determinants of Elasticity of Employment in Agriculture sector

Employment elasticity is a measure of the percentage change in employment associated with a 1 percentage point change in economic growth. The employment elasticity indicates the ability of an economy to generate employment opportunities for its population as per cent of its growth (development) process. In the empirical literature, there are two methodologies that have generally been used for calculation of employment elasticities. These are based on compound annual growth rate (CAGR) approach that gives the 'arc' elasticity and regression approaches that provide point elasticity. We have used (CAGR) approach in determining the employment elasticity in agriculture sector.

There are econometric models which are built to measure employment elasticities with respect to GDP, which help us to understand the determinants that affect elasticities. The determinants include factors like labor supply, economic stability, trade openness the tax system, and the degree of rigidity/flexibility of the labor market. To estimate the elasticity of employment in agriculture sector, the following variables were identified.

Employment elasticity = f (Constant, Private Investment, Public Investment, Trade Openness, Inflation, Growth rate of GDP, Residual)

Result and analysis:

This section deal with the result analysis by OLS approach. The F- statistic confirms that the model is correctly specified as value of F-Statistics is less than 0.05 significance level. The result shows that private investment and public expenditure are positively related and have significant relation with employment intensity. Coefficient of private expenditure is positive and significantly related. It shows that when private investment is increased by one percent, employment will increase by 0.34 percent. Similarly one percent change in public expenditure will change the employment elasticity positively by almost 0. 16 percent. The trade openness measured as exports to imports ratio of GDP, shows negative correlation with employment intensity. The trade liberalization was expected to have positive impact on employment generation due to expected boost in exports. The growth rate of GDP is expected to have positive impact with correlation coefficient showing significant relationship with employment elasticity in agriculture sector.

Table 5: Estimated results of equation using log- log OLS approach

Variable	Coefficient	Standard Error	T-statistics	Significance level
Constant	1.098534	0.37	7.297704	1.9867 *
Private Investment	0.339699	0.22	1.353345	0.0234*
Public Expenditure	0.15933	0.76	5.289003	0.5632**
Trade Openness	-0.610787	0.27	-3.45643	0.0123*
Inflation	-0.159256	0.26	1.450034	0.0456*
Growth Rate of GDP	0.23319	0.23	2.456324	0.3256**
Adjusted R Square	0.65			
Akaike Info Criterion	0.987069			
F. Statistics	114.01 (0.0000)			
Durbin Watson test	1.9365			

Source: Author own computation

(* shows the significant level at 0.05 per cent and ** show significance level at 0.10 per cent)

Section IV: Suggestion, Policy Implication and Conclusion Policy Implication:

The major policy implication from this study emerged is that increasing the public and private investment can significantly reverse the trend of negative elasticity of employment in Indian agriculture sector. The Government of India has initiated various polices and measures to increase productivity, output and employment but has not yielded desired outcome. This study suggests that there should be increase in productive investment by private and public sector for generation of employment opportunities for growing labour force.

Suggestion:

- Urgent need of expansion of banking sector in rural areas to mobilize saving.
- Large investment in storage, rural infrastructure, marketing networks and communication.
- Increasing investment in agriculture education, technology, research and development with focus on productivity and efficiency

Conclusion:

Employment elasticity thus helps in understanding the employment generation capacity of different sectors. The analysis clearly shows that although India has achieved higher growth rate in post reform period, there is no correspondence increase in job opportunities. This has created a situation of jobless growth in India. The analysis of determinants shows that private investment and public expenditure play crucial role in determining the employment elasticity and therefore this study suggest that higher productive investment must be encourage in agriculture sector.

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