WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Role of Agriculture in Indian Economy – An Empirical Study

Dr Prabha Rani[1], Charu Singh[2]

[1]Associate Professor, Department of Mathematics, M.M.H. College, Ghaziabad (UP), INDIA
[2]Head: Instructional Design, Newjobs.ai, New Delhi, INDIA
DOI: https://doi.org/10.55248/gengpi.2023.4.4.34139

ABSTRACT

Agriculture is an integral part of the world's economy, mainly for developing countries. The history of agriculture in India dates back to the neolithic. India ranks second worldwide in farm outputs. The Indian Economy holds the sixth position in the world's top economies. The majority of the country's population depends on agriculture for their livelihood. The agriculture sector contributes roughly 14% of the country's total GDP. Although the agriculture sector plays a crucial role in the Indian Economy, there is a constant drop in this sector while the service sector is comparatively improving. In India, 82% of total operational holders are small and marginal farmers having only 39% of the total operated area, whereas 18% medium and large farmers occupy 61% of the area operated by them. The foodgrains production has increased from 50.82 Million Tones in 1950-51 to 310.74 Million Tones during 2020-21. Food security in India is a major challenge and there are several aspects to it. With an ever-growing population and decreasing productive land, food security is even harder to achieve than before. In view of the importance of this sector for ensuring inclusive growth and the need to achieve self-sufficiency, in the present paper, an analytical study has been taken up for production growth trend and key challenges faced and the strategy to address them.

Key Words: *Agriculture, Foodgrains, Growth Rate, Production, Productivity*

INTRODUCTION

"If agriculture goes wrong, nothing else will have a chance to go right in our country."– M. S Swaminathan

Agriculture plays an important role in India's economy. It provides gainful employment to nearly two-third of population of the country, particularly, the rural population. Agriculture sector also earns valuable foreign exchange to support Indian Economy in various sectors. It also supplies raw materials to various agro industries. India the world's largest producer of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea.

Methodology

Secondary data has been used from the published reports and datasets.

The following formulae are used:

Projection

Least Square Technique has been applied for the following linear model:

$Y = a + b X$

Where Y is foodgrains production

a is constant

b is regression of Y on X,

X is year (X=1 for 1990-91

=2 for 1995-96 & so on)

Moving Average

$$Y_{t+1} = \frac{Yt + Y_{t+1} + Y_{t+2}}{3}$$

Where Y_t is variable (area sown, production or yield)

And t is period, say, t = 0,1,2 …..

Growth Rate

The moving averages have been used to estimate growth rates.

$$R_t = \frac{Y1 - Y0}{Y0} * 100$$

Where R_t is the simple growth rate during two periods

Y_t -> Value of the variable of the time t.

Y_0 -> Value of the variable of the initial period

RESULTS & DISCUSSIONS

Agriculture, with its allied sectors, is the largest livelihood provider in India, more so in the vast rural areas. Sustainable agriculture, in terms of food security, rural employment, and environmentally sustainable technologies are essential for holistic rural development. **Table-A** presents the three yearly moving averages of area sown, production and Productivity for foodgrains. It is observed that production has also increased from 78.61 M tones in 1959-60 to 297.12 M tones in 2019-20. The area sown has also constantly increased from 115.48 M ha in 1959-60 to 127.04 M ha during 2019-20. The productivity level has been 681 kg per ha during 1959-60 which has gone up to 2338 kg per ha during 2019-20. This table also shows annual growth rates during different periods. The production level has shown positive growth rates per annum during all the periods. The growth rate has been highest at the level of 3.94 % per annum during 1979-80 to 1999-2000 and lowest i.e.,1.42% during 1999-2000 to 2009-10. The highest growth rate in area sown i.e., 0.63% was observed during 1959-60 to 1969-70. In case of productivity, the highest growth rate was observed during 1979-80 to 1989-90 (3.89%) and lowest (1.37%) during 1999-2000 to 2009-10.

Table -A Moving average of area, production and Productivity of the Foodgrains

Year.	Production M Tones	Annual Growth rate	Area M ha	Annual Growth rate	Productivity Kg per ha	Annual Growth rate
1959-60	78.61		115.48		681	
1969-70	100.64	2.80	122.77	0.63	819	2.03
1979-80	123.73	2.29	126.96	0.34	974	1.89
1989-90	172.45	3.94	127.43	0.04	1353	3.89
1999-2000	203.41	1.80	123.11	-0.34	1652	2.21
2009-10	232.36	1.42	123.61	0.04	1879	1.37
2019-20	297.12	2.79	127.04	0.28	2338	2.44

Table- B presents the total Numbers of Operational holdings during different Agricultural Censuses. It is seen that the number of operational holdings has been consistently increasing from 1985-86 to 2015-16. The total number of operational holdings in the country has increased from 97.15 million in 1985-86 to 146.45 million in 2015-16. It will be 153.69 million as per the projection. The highest percentage share in 2015-16 was observed in marginal category (68.45%) followed by small (17.62%), semi-medium (9.55%), medium (3.80%) and large category (0.57%).

Table -B Number of Operational Holdings (000 Nos)

Year -> Size Group	1985-86	1990-91	1995-96	2000-01	2005-06	2010-11	2015-16	Projected 2020-21
Marginal (below 1 ha)	56147 (57.79)	63389 (59.44)	71179 (61.58)	75408 (62.88)	83694 (64.77)	92826 (67.10)	100251 (68.45)	106878 (69.54)
Small (1 - 2 ha)	17922 (18.45)	20092 (18.84)	21643 (18.73)	22695 (18.92)	23930 (18.52)	24779 (17.91)	25809 (17.62)	27081 (17.62)
Semi Medium (2 - 4 ha)	13252 (13.64)	13923 (13.06)	14261 (12.34)	14021 (11.69)	14127 (10.93)	13896 (10.04)	13993 (9.55)	13973 (9.09)
Medium	7916	7580	7092	6577	6375	5875	5561	5115

(4 -10 ha)	(8.15)	(7.11)	(6.14)	(5.48)	(4.93)	(4.25)	(3.80)	(3.33)
Large (10 ha & above)	1918 (1.97)	1654 (1.55)	1404 (1.21)	1230 (1.03)	1096 (0.85)	973 (0.70)	838 (0.57)	648 (0.42)
All Size	97155	106637	115580	119931	129222	138348	146454	153697

Figures in brackets indicate %age

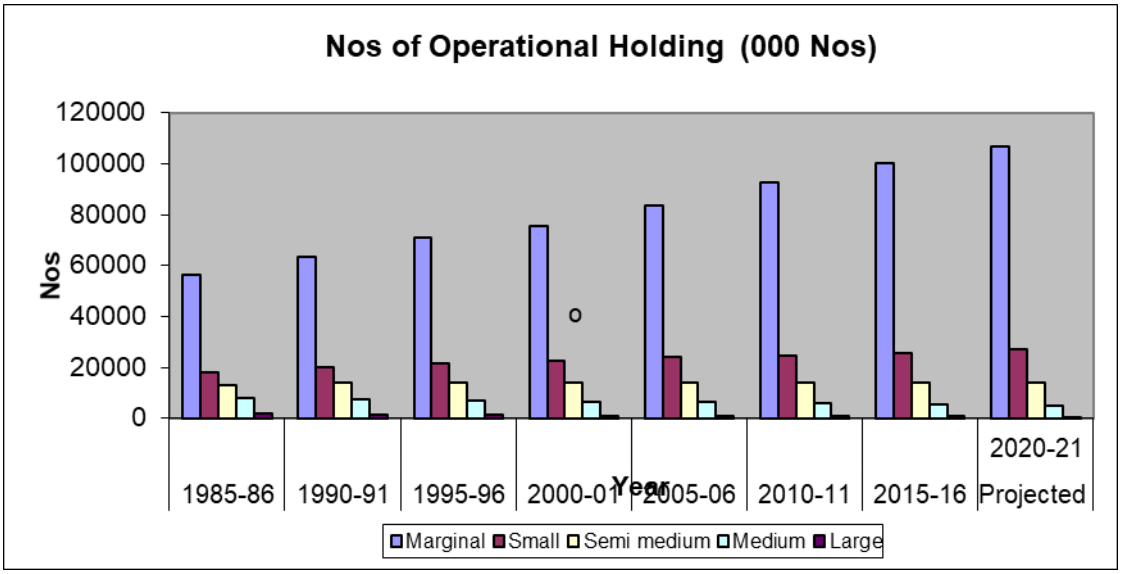

Table-B presents the three yearly moving averages of area sown, production and Productivity for foodgrains. It is observed that production has also increased from 78.61 M tones in 1959-60 to 297.12 M tones in 2019-20. The area sown has also constantly increased from 115.48 M ha in 1959-60 to 127. 04 M ha during 2019-20. The productivity level has been 681 kg per ha during 1959-60 which has gone up to 2338 kg per ha during 2019-20. This table also shows annual growth rates during different periods. The production level has shown positive growth rates per annum during all the periods. The growth rate has been highest at the level of 3.94 % per annum during 1979-80 to 1999-2000 and lowest i.e., 1.42% during 1999-2000 to 2009-10. The highest growth rate in area sown i.e., 0.63% was observed during 1959-60 to 1969-70. In case of productivity, the highest growth rate was observed during 1979-80 to 1989-90 (3.89%) and lowest (1.37%) during 1999-2000 to 2009-10.

Table –C Projected Area, Production and Yield for Foodgrains

	2024-25	2029-30
Production M Tones	295.53	314.85
Area M ha	125.33	125.91
Productivity Kg per ha	2355	2501

Table-C presents the projected area sown, production and productivity for Foodgrains for 2024-25, and 2029-30. It is seen that the estimated production will be 295.53 M tones in 2024-25 and 314.85 M tones in 2029-30. The area has been estimated of the order of 125.33 M ha 2024-25 and 125.91M ha in 2029-30. The projected productivity level will be 2355 kg per ha in 2024-25 and 2501 kg per ha in 2029-30.

Table - **D** presents the projected per capita net availability of foodgrains for 2024 and 2029. It is seen that the estimated per capita net availability of foodgrains will be 488 grams per day in 2024 and 493 grams per day in 2029. The projected per capita net availability of foodgrains per Annum will be 175 Kg and 176 kg in 2024 and 2029 respectively.

Table- D Projected per capita net availability of Foodgrains

	2024	2029
Per Capita net Availability of foodgrains per day (Grams per day)	488	493
Per Capita net Availability of foodgrains per Annum (Kg per year)	175	176

CONCLUDING NOTE

Even after over seven decades of planning since the independence, majority of the farmers are still facing problems of poor production and/or poor returns. Future of agriculture is a very important question for the planners and all other stakeholders. Government and other organisations may address the key challenges of agriculture in India, including small holdings of farmers, primary and secondary processing, supply chain, infrastructure supporting the efficient use of resources and marketing, reducing intermediaries in the market. There is a need for work on cost-effective technologies with environmental protection and on conserving our natural resources. Reforms to land distribution, water management and food distribution systems will further enhance productivity and help India meet its growing demand for food.

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