

Net and Percentage Change in Area & Production of Rice in Major States in India

Supriya Saha

Assistant Professor, Rishi Bankim Chandra College, Department of Economics

Abstract

The paper was conducted to analyze the net and percentage change of rice in 12 major states of India. The study was taken for a period from 2010-11 to 2023-24. I used secondary data for the purpose of the study. The findings of the study showed that net and percentage change of area under production was negative for 50% of states like Andhra Pradesh, Assam, Bihar, Odisha, Uttar Pradesh and West Bengal. But the net and percentage change of production throughout the study period was positive.

Keywords: Net change, percentage change, area, production

Introduction

Rice is a staple food in many parts of Asia due to its grown capacity in appropriate climates and soil types. Rice is now a main food grains not only India but globally. Rice use not only directs meal, it can be used to make different form of delicious dishes. It is a good source of Carbohydrates and other ingredients, like protein, fiber and minerals & vitamins. As production of rice depends on climates and soil types, Asia is perfect for its production and India is important country to produce it. The topography condition highly affected production process of rice.

Mainly ten (10) countries produce rice almost 84% in the World. According to the data of USDA of 2024/2025, India & China producing 27% of total rice production in the World. As per data USDA, after china & India, Bangladesh contribute to 7% and Indonesia produce 6% of global rice production. The share of contribution of rice production, Vietnam and Thailand are 5% and 4% respectively.

Many states of India contribute in production of rice which includes Telangana is the largest producer (12.24%) of rice, Uttar Pradesh (11.6%) is second highest state in India and West Bengal (11.38%) is next of U.P. in producing rice in 2023-24.

Literature Review

The study of Nain, M. & Aneja, D. R. (2019) examined the performance of rice production in Haryana and India during 47 years period, 1966/1967 to 2012/2013 using quantitative analysis and secondary data. The study revealed positive trends in area, production and yield of rice for both Haryana and India. The production of rice at the state level and at country level increased mainly due to increase in area. Similar results are obtained on triennium bases. Ray, S. K. (1983) attempt to analyse the nature and causes for growth and instability in Indian agriculture during the period 1950-1980. He examined the pattern of growth and instability in crop production. The study of Chaturvedi, P., Nahatakar, S. B., Rajput, A. (2023) was conducted to analyze the growth rate and instability of rice production in major rice producing states of India using secondary data on area, production and productivity for a period

from 2000-01 to 2020-21. The analytical tools used in the study were simple growth rate and instability index.

Objectives

In this paper, I want to study on India's major states which produce rice and its net change and percentage change for a period of 2010-2011 to 2023-24.

Methodology

The study is based on secondary data on production of food grains rice and area used to production of rice which collect from RBI official website. For the analysis, I use major states of India like, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal. The study is limited for period of 2010-11 to 2023-24.

To study on growth of production of rice, I use the approach of 'Net Change' over the time in area and production. To calculate the net change in area and production, I take average area/ productivity for the base year (Triennium Ending (TE) for 2010-11 to 2012-13) and the average of the current year (TE for 2021-22 to 2023-24) of the study period which process is used by Singh et. al, 2014.

$$\text{Net Change} = Y_n - Y_0$$

Y_n = Current year value of area/ production (TE for 2021-22 to 2023-24)

Y_0 = Base year value of area/ production (TE for 2010-11 to 2012-13)

Also, I was used this method to measure the comparative change in area / production of rice by using the 'Percentage Change' formula which is used by Chaturvedi et. al, 2023.

$$\text{Percentage Change} = \frac{Y_n - Y_0}{Y_0} \times 100$$

Y_n = Current year value of area/ production (TE for 2021-22 to 2023-24)

Y_0 = Base year value of area/ production (TE for 2010-11 to 2012-13)

Results

To analyze the collected data, I got the clear picture of growth area of production and production of rice of the major states in India. The net change and percentage change of rice area and production was given in the below table. It showed that the area under production of rice decreased in all the states over period of my study except Chhattisgarh, Gujarat, Madhya Pradesh, Maharashtra, Punjab, Rajasthan and Telangana. The area under rice production net change was highest declined the two major states Andhra Pradesh (-329.8 Thousand Hectares) and Assam (-209.5 Thousand Hectares) and highest increased the state Telangana (2,618.4 Thousand Hectares). Also, the percentage change of area of rice production was highest declined in the states Andhra Pradesh (-13.5028%) and Assam (-8.27464%) and increased in Telangana (152.6220%).

In the case of production of rice, from the collected data were analyzed to get a clear picture of rice production of major states of India. The highest net change in production was Telangana (9,531.8 Thousand Tonnes) and the second highest was Madhya Pradesh (3,954.2 Thousand Tonnes). The highest percentage change of production of rice was Telangana (172.6230%).

States	Particular	Base Year	Current Year	Net Change	% Change
Andhra Pradesh	Area	2,442.7	2,112.9	-329.8	-13.5028
	Production	7,365.2	7,682.5	317.4	4.308904
Assam	Area	2,531.8	2,322.3	-209.5	-8.27464
	Production	4,827.1	5,181.7	354.6	7.34547
Bihar	Area	3,151.8	3,021.5	-130.3	-4.13419
	Production	5,825.0	7,547.3	1,722.4	29.56907
Chhattisgarh	Area	3,753.7	3,783.8	30.1	0.801875
	Production	6,378.2	9,178.9	2,800.8	43.91164
Gujarat	Area	781.7	936.0	154.3	19.73987
	Production	1,615.9	2,301.4	685.5	42.42012
Haryana	Area	1,231.7	1,454.7	223.1	18.11096
	Production	3,801.3	5,234.3	1,433.1	37.70032
Madhya Pradesh	Area	1,715.8	3,001.0	1,285.2	74.90044
	Production	2,404.8	6,359.0	3,954.2	164.4281
Maharashtra	Area	1,539.3	1,687.6	148.3	9.631875
	Production	2,928.5	3,799.0	870.5	29.72625
Odisha	Area	4,084.3	4,028.0	-56.4	-1.38007
	Production	6,885.9	8,671.6	1,785.7	25.93270
Punjab	Area	2,831.3	3,082.1	250.7	8.855663
	Production	11,005.0	13,410.8	2,405.8	21.86128
Rajasthan	Area	130.3	232.9	102.5	78.67008
	Production	263.5	600.5	337.0	127.9064
Tamil Nadu	Area	1,767.5	2,159.3	391.7	22.16271
	Production	5,662.7	7,420.9	1,758.2	31.04820
Telangana	Area	1,715.6	4,334.1	2,618.4	152.6220
	Production	5,521.8	15,053.5	9,531.8	172.6230
Uttar Pradesh	Area	5,821.7	5,789.7	-31.9	-0.54853
	Production	13,766.5	15,801.5	2,035.0	14.78226
West Bengal	Area	5,274.0	5,256.8	-17.3	-0.32739
	Production	14,511.5	15,966.6	1,455.0	10.0268

Conclusion

From the study on net change and percentage change of rice production and area under rice production it can be concluded that over the study period the production of rice increased in all the major states. But the area under production of rice declined many states like Andhra Pradesh, Assam, Uttar Pradesh, West Bengal etc. Though we were known that West Bengal was a agriculture based economy and rice was main food of the people, area under rice production decreased not a good significance for the economy. Among the various states Telangana showed highest growth in area under rice production and production in the recent years. Area under production of rice declined many states but, the production

increased recent years. So, I concluded that the production was not directly depended on the production area, others variables also affected production of rice.

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