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Growth of agriculture productivity of Odisha in post liberalization period

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Abstract

Agriculture is the mainstay of Odisha People where 60% of the population of the state directly depend on Agriculture for employment, income and raw materials to the Industrial sector. Last few years, though Odisha Agriculture exhibits better performance but still it lags behind in comparison to Indian Agriculture. Odisha is a state of frequent natural calamities and old and orthodox method of cultivation, so its agriculture needs a vibrant change.

The total cultivable land of the state is 61.8 lakh hectare approximately and the average annual rainfall of the state is 1455 mm. which is erratic and irregular. The cultivable land of cereals and food grain is reducing day by day. Though pulses area cultivation is reducing but it started increasing after 2006-07. Oil seeds cultivation is reducing all along the study period. But the production of cereals is increasing from 58.5 lakh M.T. of 1990 to 77 lakh M.T. in 2010-11. But rice production experiences increasing trend all along the study period. Food grain production has a increasing trend. The productivity of cereals shows increasing trend starting from 1181 kg. of 1991 to 1652 kg. in 2010-11. Pulses productivity shows decreasing trend from 561kg of 1990-91 to 481 kg. of 2010-11. Oil seeds productivity experiences decreasing trend from 821 kg. of 1991-91 to all time low of 142 kg. in 1995-96 but after that it started increasing trend of 828kg.per hectare Food Grain also experiences increasing trend from 1990-91 to 2010-11 except few years due to natural calamities.

The decadal analysis of area cultivation explains different things. The growth of cereal cultivation experiences negative trend and other crops mixed trend. The production of different crops show positive growth except the decade of 1991-2001. The productivity of different crops also show positive growth except 3rd decade i.e. 1991-2001.

Keywords: Hectare, humidity, temperature, longitude, variables, LPG, Productivity, declaration, production

Introduction

For ages and centuries agriculture being the way of life, has moulded the customs, culture and commerce of our society. From Mythological period to till today it continues to be the back bone of Indian economy, particularly Odisha's economy contributing 17% to the state gross domestic product and employing more than 60% of the population of the state in 2012-13. Since agriculture is the principal activity of 2/3rd of population, so agricultural growth holds the key to the overall development of such backward state like Odisha by way of creating employment, generating income, providing raw materials to the industrial sector and last but not least, ensuring self-reliance in food production and food security to deprive section. So agriculture progress is a basic pre-requisite of economic development of Odisha. But agriculture is a complex and multi-dimensional enterprise. Its development depends on various factors like agro climatic condition, technology, inputs and system of land holding and other social economic factors.

Geographical Feature

The state has geographical area of 155707 sq.km. This is 4.75% of country's total area of 3287263 sq.km. The population of Odisha is 4.19 cores which is 4% of country's total population of 121 crores as per 2011 census. Odisha rank 10th in respect of area among all the state and 11th with regard to population. Odisha lies in the east coast of the country between 81°22' and 87°29' east longitude and 17°49' and 22°34' north longitude. It is bounded by Bay of Bengal on the east and West on the north east, Jharkhand on the north, Chhattisgarh on the West Andhra Pradesh on the south.

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Climate & Rainfall

The climate of Odisha is tropical, characterized by high temperature, high humidity medium to high rainfall short and mild winter. The state’s mean temperature is 26°89’c. The state is divided into two broad climatic region (1) Odisha Coast region (2) Odisha highland region. Odisha coast region of undivided Balasore, Cuttak, Puri, Ganjam and part of Mayurbhanj which is covered with fertile, alluvium soils and deltaic sediment. The Odisha high land region consist of undivided Kalahandi, Bolangir, Koraput, Sambalpur, Boudh, Kandhamal, Dhenkanal and Keonjhar District which is rugged, undulating topography covered with lateric and brown soil. The normal rainfall of the state is 1451.2mm. Most of the rail is received over a period of 3 month of the monsoon season. Generally normal year experiences good output. But rain falls is erratic and irregular and the production is uncertain.

Research Methodology

Research study in social science is based on statistical techniques of data, tabulation, presentation and processing. The present study is an attempt to investigate the growth & Decay in Agricultural productivity of Odisha. It is related with the growth of area, production and productivity & growth of variables like fertilizer irrigation rainfall etc.

a) Source

The data for present study is mainly collected from the following sources

- Orissa Agriculture statistics
- Orissa Economic Survey
- Agriculture census of Orissa
- Input Survey
- Annual report on Agriculture

b) Period of study

The period of study covers from 1991 to 2010-11 the significance of choosing the year 1991 as base year is clear. Because the analysis focuses on agricultural productivity in L.P.G. area. After the new economic policy of 1991 the contributions of Agriculture to G.D.P. has fallen drastically, but its dependence is as it is in 1950.

c) Tools and Technique

Growth of Agricultural output is calculated for major crops in Odisha over long time periods simple growth rate is calculated by the following.

$$Gt = \frac{y_t - y_{t-1}}{y_t}$$

Where gt=growth rate at time T

Yt=agriculture output at time T

Yt-t=agriculture output in previous years

**Analysis of Area, Production & Productivity
Area Cultivation in Lakh Hectare**

Table 1

	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Cereal	49.52	51.09	49.52	50.78	49.67	50.15	49.02	49.42	48.89	50.62	48.72	49.39	46.77	49.25	49.28	49.09	48.88	49.03	49.11	48.28	47.3
Pulses	21.3	21.4	19.6	21.2	21.5	21.7	14.5	15.7	15.6	16.2	13.8	17.4	13.1	16.4	16.5	18.8	19.5	19.8	20.0	20.01	20.8
Oil Seeds	11.5	11.5	10.9	11.1	11.2	11.4	9.0	8.9	8.6	8.5	7.0	8.4	5.8	7.9	8.4	8.2	8.3	8.4	8.2	7.9	7.0
Rice	44	45.4	44.4	45.5	44.5	45.2	44.6	44.9	44.4	46	44.3	45	42.7	45.01	44.9	44.7	44.5	44.5	44.5	43.6	42.2
Food Grain	70.50	72.50	69.46	72.08	71.20	71.94	63.60	66.16	64.52	60.75	62.520	66.82	59.91	65.68	65.76	67.89	68.39	68.84	69.11	69.02	67.83

Source: Orissa Agriculture Statistics

Production Lakh MT.

Table 2

	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Cereal	58.5	71.40	58.4	71.03	68.28	67.29	47.77	66.01	57.67	56.11	50.27	69.12	75.35	71.13	69.63	74.26	74.32	83.46	76.39	77.44	77.70
Pulses	11.74	11.32	10.56	11.12	11.56	11.73	5.68	7.10	6.10	6.54	5.06	6.96	4.58	6.22	6.24	7.94	8.65	9.08	9.94	9.62	10.02
Food Grain	70.04	82.73	68.98	82.16	79.86	79.23	53.47	73.11	63.78	62.65	55.34	82.32	40.44	77.36	75.88	82.80	82.97	92.54	86.33	87.07	87.70
OIL Seeds	9.41	8.57	7.60	8.58	8.42	8.56	4.97	5.15	5.54	5.68	3.73	5.39	3.22	4.98	5.27	5.50	5.99	6.72	7.02	6.19	6.40
Rice	52.4	66.6	53.8	66.1	63.5	62.2	44.3	62.05	53.9	51.8	46.1	71.4	32.4	67.3	65.3	69.6	69.2	76.5	69.1	70.2	69.3

Source: Orissa Agriculture Statistics

Productivity In Kg/Hect

Table 3

	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
Cereal	1181	1398	1177	1399	1375	1342	975	1336	1180	1108	1032	1526	1767	1444	1414	1513	1520	1702	1556	1604	1652
Pulses	561	529	532	522	538	348	390	424	391	408	365	400	349	379	378	422	444	458	497	460	481
Oil Seeds	821	744	697	769	752	142	552	510	525	668	530	635	550	626	627	668	719	804	848	776	828
Rice	1198	1464	1213	1453	1426	1375	993	1380	1212	1127	1041	1589	759	1496	1455	1554	1557	1720	1553	1609	1640
Food Grain	992	1141	993	1140	1122	1101	841	1105	989	922	958	1230	675	1178	1154	1211	1213	1249	1291	1256	1293

Source: Orissa Agriculture Statistics

Table - 1 explains the cultivation area of different crops in Orissa starting from 1990-91 to 2010-11. In 1990-91 the cereal cultivation was 49.52 lakh which is increased to 50.15 lakh hectare in 2000-01. But again it started in increasing upto 49.09 lakh hectare in 2005-06 and decreased to 47.07 lakh hectare in 2010-11. It clearly ranges 47 lakh to 50 lakh hectare from 1990-91 to 2010-11.

The cultivated area of pulses also fluctuates differently in different years. It was 21.3 lakh in 1990-91, that increased to 21.7 hectare in 1995-96. But after that it decreased drastically to 13.1 lakh hectare in 2000-01 again it started increasing continuously upto 20.08 lakh in 2010-11. Oilseeds exhibit a decelerating situation all along to study period. The cultivated area of oils seeds in 1990-91 is 11.5

lakh hectare which reduced to 11.4 lakh hectar e8.2 lakh hector and 7 lakh in the year 1995-96, 2000-01, 2005-06 and 2010-11 respectively.

The cultivated area of rice fluctuates. The cultivated area was 44 lakh hector in 19-91 which was increased to 45.2 lakh hector in 1995-96. After that it decreased to 44.3 lakh hector in 2000-01 again it increased to 44.7 lakh hector in 2005-06 after that it started decreasing continuously and reached to 42.2 lakh hector.

If we look into the production aspect of different food grain in table -2 we can see that cereal production has the increasing tendency. It was 58.5 lakh m. ton in 1990-91 which increased to 67.29 lakh metric ton in 1995-96. But after that it started decreasing to 50.27 lakh ton in 2000-01. But it increased to 74.70 lakh m. ton in 2010-11.

The pulses production experiences decreasing tendency. While it was 11.74 lakh m. ton in 1990-91. It came down to 11.73 lakh ton in 1995-96. Again it falls drastically and reached to 5.06 lakh m. ton in 2000-01. After that it increased to 7.94 lakh m. ton 2005-06. Again it increased to 10.02 lakh m. ton in 2010-11. But it is always less than the production of 1990-91.

Oilseeds production shows decreasing tendency upto 2002-03 which is all time low. It is 9.4 lakh ton in 1990-91 and 8.55 lakh m. ton in 1995-96 again it reduced to 3.73 lakh m. ton in 2000-01. After that it started increasing except 2002-03 and reached 5.27 lakh m. ton in 2005-06 and 6.4 lakh m. ton 2010-11.

Rice production experiences increasing tendency all along study period 1996-97 and 2002-03. It was 524 lakh m. ton in 1990-91 and reached to 69.3 lakh m. ton in 2010-11. Food grain production exhibits increasing tendency all along the study period. When it was 70.04 lakh m. ton in 1990-91 jumped to 79.23 lakh m. ton in 1995-96. After that it reduced to 55.34 lakh m. ton in 2000-01. It again started increasing to 82.80 lakh m. ton in 2005-06 and finally

reached to 87.70 lakh m. ton in 2010-11 from 1995 to 2000-01 the food grain production experiences decelerating.

Table – 3 explains the productivity of different crops. The productivity of cereals experiences increasing tendency upto 1995-96 in 1990-91 it was 1181 kg per hectore which increased upto 1342kg. Per hect. In 1995-96. After that it started decreasing to 1032kg upto 2000-01 from 2000-01 it jumped to 1513 kg. Per hect. In 2005-06 and 1652kg. In 2010-11.

The pulses productivity experiences decreasing tendency. It was 561 kg up in 1991-91 and reduced to 548 kg. Per hectore in 1995-96. Again it reduced to 365kg. In 2005-06 & 2010-11.

Oilseeds productivity shows decelerating tendency from 821kg per hectare of 1990-91 to 742kg in 1995-96. After that it falls drastically to 530kg and 668kg. Per hectare in 2000-01 and 2005-06. Of course again it increased to 828kg in 2010-11.

Rice productivity experiences increasing tendency all along the study period except few year and all-time low of 2002-03. Food grain productivity exhibits fluctuating upto 2002-03 and after that it started increasing. The entire analysis indicates the area of cultivation of cereals starting from 1990 to 2011 almost remains constant the production and productivity increased continuously. But the pulses cultivation, production & productivity falls slightly upto 1995-96. But after that it decreases drastically upto 2005-06. Again there is little bit improvement in area cultivation production and productivity. The same situation is found in case of oilseeds. There is little bit variation of productivity of Oilseeds upto 2010-11. The cultivated area of Rice almost remains constant all along the study period, but the production and productivity increases continuously. The entire food cultivation remains constant but the production and productivity experiences increasing trend all along the study period due to increases in Rice production and productivity. We can draw the clear conclusion if we will examine the growth of area, production and productivity of all the food grain and Oilseeds on the decadal basis.

Table T1: Trends IN Area of Cultivation (IN LAKH HECT.)

Year	Cereal	Pulses	Food Grain	Oilseeds	Rice
1970-71	48.96	8.84	57.80	3.30	44.7
1980-81	51.83	17.26	69.09	7.36	41.9
1990-91	49.57	21.3	70.60	11.5	44.0
2000-01	48.72	13.820.08	62.52	7.0	42.3
2010-11	47.03		67.63	7.0	39.3
Growth In Percentage					
1 st decade 1971-1981	5.7	95.24	19.53	123.03	-6.26
2 nd decade 1981-1991	-4.3	17.21	21.18	56.25	5.01
3 rd decade 1991-2001	-1.7	-35.21	-11.44	-39.13	-3.86
4 th decade 2001-2010	-3.4	50.72	8.49	0	-7.09

Source: Compiled from Orissa Agriculture statistics

Table – T2: Trends IN Production (IN LAKH MT.)

Year	Cereal	Pulses	Food Grain	Oilseeds	Rice
1970-71	43.96	4.66	48.62	2.15	41
1980-81	50.90	8.86	59.76	4.84	43
1990-91	58.56	11.76	70.32	9.49	52.7
2000-01	50.27	5.06	55.36	3.73	46.1
2010-11	77.70	10	87.70	6.40	69.31
Growth In Percentage					
1 st decade 1971-1981	15.78	90.12	22.92	125.11	48.78
2 nd decade 1981-1991	15.04	32.73	17.67	96.07	22.55
3 rd decade 1991-2001	-14.15	-56.97	-21.27	-152.78	-12.52
4 th decade 2001-2010	54.56	88.21	58.41	71.58	50.34

Source: Compiled from Orissa Agriculture statistics

Table T3: Trends in Productivity

Year	Cereal	Pulses	Food Grain	Oilseeds	Rice
1970-71	898	552	847	652	917
1980-81	962	614	865	658	1026
1990-91	1181	551	992	821	1198
2000-01	1032	365	884	530	1041
2010-11	1652	481	1293	828	1640
Growth In Percentage					
1 st decade 1971-1981	7.1	11.23	2.12	.09	11.88
2 nd decade 1981-1991	22.7	-10.26	14.68	24.77	16.76
3 rd decade 1991-2001	-14.5	-33.75	-10.88	-35.44	-13.10
4 th decade 2001-2010	60.07	31.78	46.26	52.70	57.54

Source: Compiled from Orissa Agriculture statistics

Table T1, T2, T3 explains the decadal growth of area cultivation, production and productivity of cereals, pulses, oilseeds rice, and food crops. Four decades are taken into consideration 1971-81, 1981-91, 1991-2001 and 2001-2011. The cultivated area of cereals in the 1st decade shows 5.7% growth whereas production and productivity of cereals shows 15.78% and 7.1 percent growth respectively. But in 2nd, 3rd, 4th decade the cultivated area of cereals experience negative growth like -4.3, 1.7 and -3.4 percentage respectively. But the production of cereal in the 2nd and 4th decade explains positive growth that is 15.04 and 54.56 percentage respectively. But 3rd decade shows negative growth of -14.15%. The productivity cereal shows positive growth 7.1, 22.7 and 60.07 percentage in 1st, 2nd and 4th decade but negative of -14.55 in 3rd decades.

The cultivated area of pulses shows positive growth of 95.24%, 17.21% and 50.72% in 1st, 2nd and 4th decade, but negative growth of -35.21% in 3rd decade. The production of pulses shows positive growth of 90.12, 32.73 and 88.21 percentage in 1st, 2nd and 4th decade where as it is -56.97 percentage in 3rd decade. It clearly indicates that the area and production of pulses in interlinked. The productivity of Pulses in 1st and 4th decade shows positively growth like 11.23 and 31.78 percentage respectively but 2nd and 3rd decade show negative growth of -10.26 and -33.75 percentage respectively. The area of cultivation of food grain shows positively growth of 19.53, 2.18 and 8.49 percentage in 1st, 2nd and 4th decade, but negative of -11.44 percent in 3rd decade. The production of food grain shows positive growth of 22.92, 17.67 and 58.41 percent in 1st decade, 2nd and 4th decade respectively but 3rd decade i.e. 1991-2001 shows negative growth – 21.27 percent.

The cultivated area of Oilseeds shows growth of 123.03, 56.25 and 0 percentage in 1st, 2nd and 4th decade respectively, but – 39.13% in 3rd decade. But the production shows positively growth of 125.11, 96.07 and 71.58 percentage in 1st, 2nd and 4th decade and -152.78 percent in 3rd decade, the productivity of oil seeds show growth of 0.9, 24.77, -35.44 and 52.70 percent in 1st, 2nd, 3rd and 4th decade. The rice cultivated area shows negative growth of -6.25, 5.01, -3.86 and -7.09 percentage in 1st, 2nd, 3rd and 4th decade respectively. But the production shows positive growth of 48.78, 22.55, 50.34% in 1st, 2nd and 3rd decade but -12.50 in 3rd decade. The productively also shows positive growth of 11.88, 16.76 and 57.55 percent in 1st, 2nd and 4th decade and -13.10% in 3rd decade.

Conclusion

The entire analysis concludes the following

- The growth of area, production and productivity of cereals, pulses and oil seeds in 1990-91 to 2000-01 is

negative. That means the immediate post liberalization does not have positive growth.

- The production, productivity of cereals, pulses and oil seeds are somehow related to the growth of area in each case.
- Another thing reveals that from 1970-71 to 1980-81 the growth of area, production and productivity of cereals, pulses and oil seeds are more than other decade like 1981-91 to 1991 & 2001.
- In the 4th decade of 2001-10 to area growth of cereals and Rice shows negative growth but production and productivity shows positive growth. So the later post liberalization period has enough impact on food grain, cereals and oil seeds and pulses production and productivity.

Reference

- Vyas VS. 2nd round of economic reform, economic and political weekly (EPO) 2001, 36(10).
- Rao Hanumantha CH. Reform agenda of Agriculture, economic and political weekly (EPO) 2003, 8(7).
- Prasad Chandra Sekhar. Indian economic policies and performance 1947-78 to 2004-05. (New Delhi, New Century publication 2005.)
- Panda Parbha. Cropping pattern changes in Odisha. (Thesis), 2009.
- Singh Joginder. Factours in declining crop diversification case study of Punjab, economic and Political Weekly, 2004.
- Orissa Agriculture Statistics (Various issues)
- Economic Survey of Odisha (Various issues)
- Kurukhetra, Yojana (Various issues).