

Impact of Globalization on Indian Agricultural Produces

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Abstract: The present study is analytical in nature and an effort to acknowledge the changes occurred in the production of agricultural crops during the period of New Economic Reforms which took place in the year 1991. The researcher in this study focuses to bring out the comparative picture of production change in Major Food Crops and Major Commercial crops. The work is confined in the boundary of four decades; the first two before globalization and the later two after globalization. With the help of data published by Reserve Bank of India and Ministry of Agriculture and Farmers' Welfare, the study purely depends on secondary sources of data. The work has its importance in the area of study as it presents a comparative picture between the eras before and after globalization and the impact it made on the major crops of Indian Agricultural sector.

Keywords: Globalization, New Economic Reforms, Production, Major Food grains, Major Commercial Crops

Introduction: The Indian Agriculture used to be labour intensive and traditional in approach towards production techniques. However, the economical reforms changed it all up side down after its occurrence. The shift from labour intensive to capital intensive techniques, food grains to commercial crops and feeding approach to money making approach are the key reflectors of this economical change. In this study, Food Grains and Oilseeds have been compared with each other in two different eras of Indian Economic History. Rice, Wheat and Coarse Cereals comprise Food Grains in this work, whereas Groundnut, Rapeseed & Mustard and Soya Bean represent Oilseeds here.

Objectives of the Study: Any research attempts to add into the existing literature of the study area. This study also follows the same and has following objectives to attain at the end of the study:

- To present a comparative picture of Food Grains in two different eras of study
- To present a comparative picture of Oilseeds in two different eras of study
- To compare the production and growth in Food Grains and Oilseeds in different times of study
- To find out which produce and to what extent has been benefitted after Globalization

Significance of the Study: This study is significant in its area because it does not only reflect the growth in various crops or produces but also represents a comparison among those to bring the mostly benefitted crop into light. Further, it also compares the total production of Food Grains with that of Oil Seeds to construct the conclusion at the end of the study.

Methodology: As this study uses secondary sources of data, mathematical and statistical tools like, Compound Annual Growth Rate, Simple Percentage, Arithmetic Mean, Standard Deviation, Co-efficient of Variation and Co-relation have been used. Further, the presentation of data has been done by tables while Bar Graphs, Line Graphs and Column Charts have been used for graphical representation.

Hypothesis: Any statistical research is based on formulation and testing of hypothesis in the beginning of the study. This study has following hypotheses based on co-relation which have been tested with the help of **regression analysis at 5% level of significance:**

H₀1 There is no Co-relation in Production of Food Grains with total production.

H₀2 There is no Co-relation in Production of Oilseeds with total production.

Data Analysis: To present the work in an understandable manner, Food Grains and Oilseeds have been

studied separately comparison group has Further, comparison the mentioned above as well. In the end, hypothesis testing has been done to draw a significant conclusion.

Crops	Pre Globalization Production	Post Globalization Production	% Change	CAGR
Rice	10774	17146	59.1%	2.08%
Wheat	7567	14051	85.7%	3.10%
Coarse Cereals	5807	6658	14.7%	1.47%
Total	24148	37854		

studied and intra in their own been done. there is an inter- in between both categories

1. Food Grains

Table 1.1 (Growth Analysis of Food Grains)

Table 1.1 shows the production, percentage change in production and compound annual growth rate in production occurred during this period. As per the analysis, the production of **Rice** which was 10,774 lakh tonnes in pre globalization period increased to 17,146 lakh tonnes in post globalization period. This increase in terms of percentage was 59.1% whereas; the compound annual growth rate for Rice was 2.08%. The production of **Wheat** which was 7,567 lakh tonnes in pre globalization period increased to 14,051 lakh tonnes in post globalization period. This increase in terms of percentage was 85.7% whereas; the compound

annual growth rate for Rice was 3.10%. The production of **Coarse Cereals** which was 5,807 lakh tonnes in pre globalization period increased to 6,658 lakh tonnes in post globalization period. This increase in terms of percentage was 14.7% whereas; the compound annual growth rate for Rice was 1.47%. (See Figure 1.1 and 1.2)

Figure: 1.1 (Growth Analysis of Food Grains)

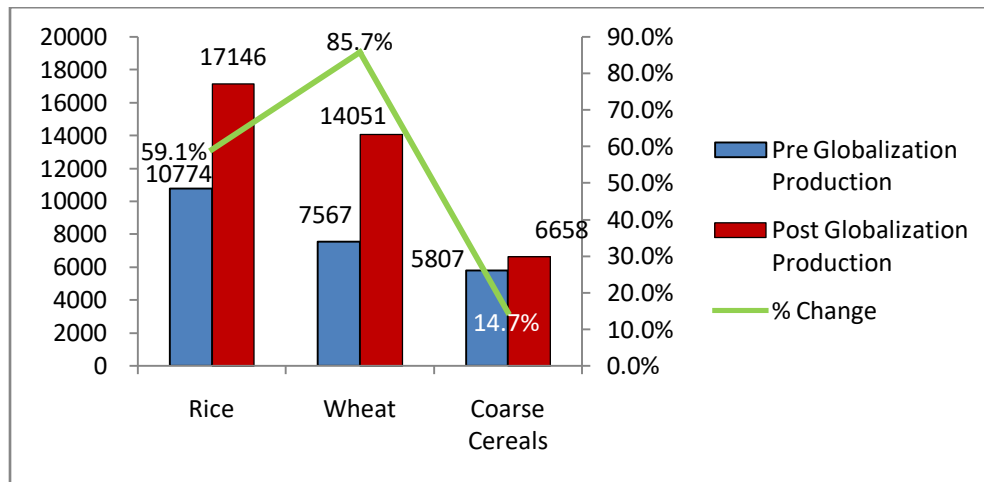


Figure: 1.2 (Compound Annual Growth Rate)

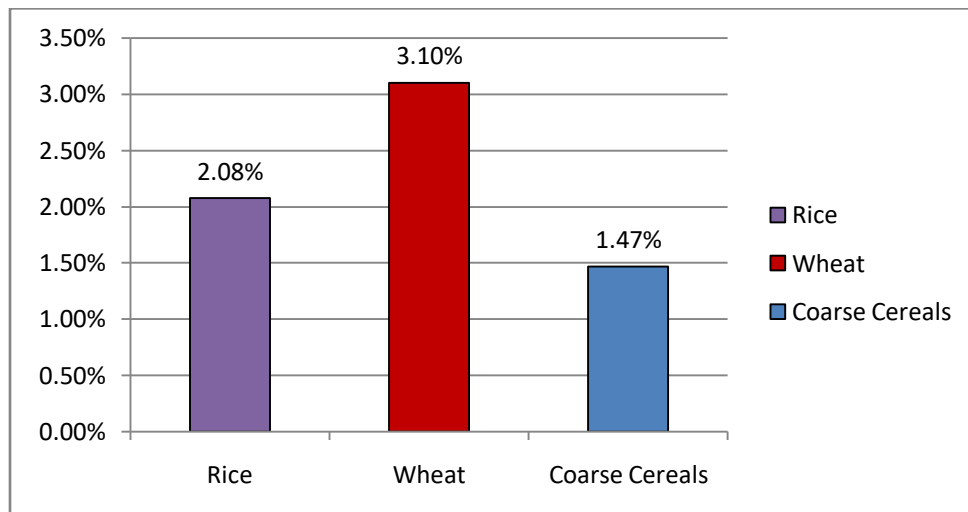


Table 1.2 (Descriptive Statistics)

Crops	Pre Globalization			Post Globalization Production		
	Mean	Standard Deviation	C.V. (%)	Mean	Standard Deviation	C.V. (%)
Rice	538.71	109.40	20	857.28	80.46	9%
Wheat	378.36	102.99	27	702.53	81.49	12%
Coarse Cereals	290.34	30.64	11	332.90	45.98	14%

Table 1.2 shows the average production, standard deviation and co-efficient of variation for Rice, Wheat and Coarse Cereals in two different eras of study i.e., Pre Globalization and Post Globalization. As per the results of analysis, **Rice** had the average production of 538.71 lakh tonnes which increased to 857.28 lakh tonnes in post globalization period. **Wheat** had the average production of 378.36 lakh tonnes which increased to 702.53 lakh tonnes in post globalization period. **Coarse Cereals** had the average production of 290.34 lakh tonnes which increased to 332.90 lakh tonnes in post globalization period. The standard deviation among the three crops was minimum with Coarse Cereals in both the periods, which means that the data set was more clustered around the mean whereas, the data sets of Rice and Wheat were more spread around the mean. The co-efficient of variation was minimum in case of Coarse Cereals in the pre globalization period where as in the post globalization period, Rice had the minimum value of the same. **Here it is important to note that lower value of standard deviation and co-efficient of variation is expected to rely on the results as it denotes the consistency and uniformity of the data sets.**

- **In terms of Production**, Wheat had the maximum growth in between 1971 to 2011 as it registered 85.7% increase in production, followed by Rice with 59.1% and Coarse Cereals at last in the list with the lowest growth of 14.7% in this period.
- **In terms of Compound Annual Growth Rate**, with the highest CAGR of 3.10% Wheat stood first while Rice was second with 2.08% and Coarse Cereals was the last with 1.47% in this period.
- **In terms of average production**, Rice had the maximum average value of production in the four decades of two different times in the study while Wheat and Coarse Cereals were second and third in this term.

2. Oilseeds

Table 2.1 (Growth Analysis of Oilseeds)

Crops	Pre Globalization Production	Post Globalization Production	% CHANGE	CAGR
Groundnut	1246	1447	16.2%	0.7%
Rapeseed & Mustard	507	1210	138.8%	4.6%
Soyabean	127	1370	978.0%	20.1%
Total	1879	4027		

Table 2.1 shows the production, percentage change in production and compound annual growth rate in production occurred during this period. As per the analysis, the production of **Groundnut** which was 1,246 lakh tonnes in pre globalization period increased to 1,447 lakh tonnes in post globalization period. This increase in terms of percentage was 16.92% whereas; the compound annual growth rate for Rice was 0.7%. The production of **Rapeseed & Mustard** which was 507 lakh tonnes in pre globalization period increased to 1,210 lakh tonnes in post globalization period. This increase in terms of percentage was 138.8% whereas; the compound annual growth rate for Rapeseed & Mustard was 4.6%. The production of **Soya Bean** which was 127 lakh tonnes in pre globalization period increased to 1,370 lakh tonnes in post globalization period. This increase in terms of percentage was 978% whereas; the compound annual growth rate for Rice was 20.1%. (See **Figure 2.1 and 2.2**)

Figure: 2.1 (Growth Analysis of Oilseeds)

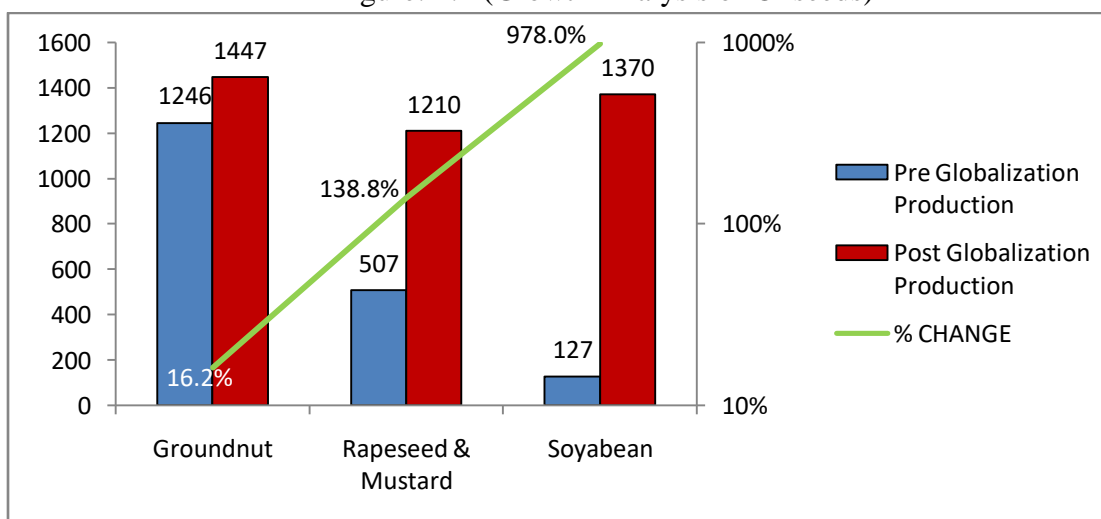


Figure: 2.2 (Compound Annual Growth Rate)

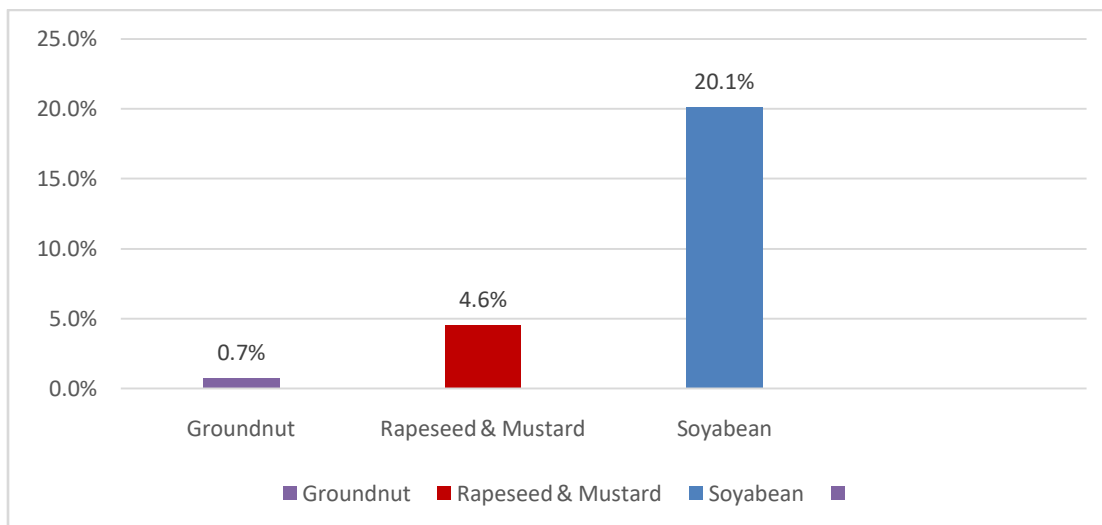


Table 2.2 (Descriptive Statistics)

Crops	Pre Globalization			Post Globalization Production		
	Mean	Standard Deviation	C.V. (%)	Mean	Standard Deviation	C.V. (%)
Groundnut	62.28	12.55	20%	72.36	14.08	19%
Rapeseed & Mustard	25.33	10.48	41%	60.49	12.28	20%
Soya Bean	6.36	6.91	109%	68.51	26.67	39%

Table 2.2 shows the average production, standard deviation and co-efficient of variation for Groundnut, Rapeseed & Mustard and Soya Bean in two different eras of study i.e., Pre Globalization and Post Globalization. As per the results of analysis, **Groundnut** had the average production of 62.28 lakh tonnes which increased to 72.36 lakh tonnes in post globalization period. **Rapeseed & Mustard** had the average production of 25.33 lakh tonnes which increased to 60.49 lakh tonnes in post globalization period. **Soya Bean** had the average production of 6.36 lakh tonnes which increased to 68.51 lakh tonnes in post globalization period. The standard deviation among the three crops was minimum with Soya Bean in the pre globalization period and Rapeseed & Mustard in the post globalization period, which means that the data sets of these crops were more clustered around the mean as compared to the other crop data. The co-efficient of variation was minimum in case of Groundnut in both the periods.

- **In terms of Production**, Soya Bean had the maximum growth in between 1971 to 2011 as it registered 978.0% increase in production, followed by Rapeseed &

- Mustard with 59.1% and Groundnut at last in the list with the lowest growth of 14.7% in this period.
- **In terms of Compound Annual Growth Rate**, with the highest CAGR of 20.1% Soya Bean stood first while Rapeseed & Mustard was second with 138.8% and Groundnut was the last with 16.2% in this period.
 - **In terms of average production**, Groundnut had the maximum average value of production in the four decades of two different times in the study while Rapeseed & Mustard was second and Soya Bean was third in pre globalization period. However, Soya Bean was second highest in this regard in post globalization period while Rapeseed & Mustard was at third and last position.

3. A comparative Analysis between Food Grains & Oilseeds

This section of work focuses on the comparative study of growth in between Good Grains and Oilseeds taken for the study. The comparison is based on change in production and percentage growth along with compound annual growth rate among the two.

Table 3.1 (Growth Analysis)

Crops	Pre Globalization Production	Post Globalization Production	% Change	CAGR
Food Crops	26488	40597	53%	2.3%
Commercial Crops	1879	4027	114%	1.8%

Table 3.1 shows the production, percentage change in production and compound annual growth rate in production occurred during this period. As per the analysis, the production of **Food Grains** which was 26,488 lakh tonnes in pre globalization period increased to 40,597 lakh tonnes in post globalization period. This increase in terms of percentage was 53% whereas; the compound annual growth rate was 2.3%. The production of **Oilseeds** which was 1879 lakh tonnes in pre globalization period increased to 4,027 lakh tonnes in post globalization period. This increase in terms of percentage was 114% whereas; the compound annual growth rate was 1.8%. (See **Figure 3.1 and 3.2**)

Figure: 3.1 (Growth Analysis)

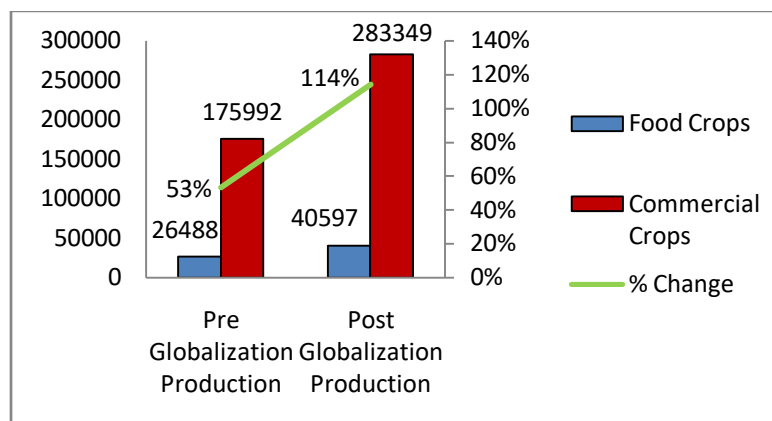
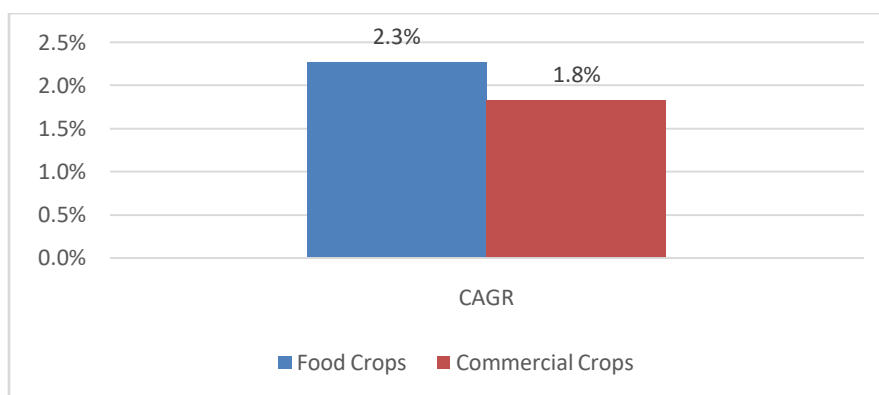


Figure: 3.2 (Compound Annual Growth Rate)



4. Testing of Hypothesis

The final section of the work is related to test of hypothesis. The two hypothesis formulated in the beginning of the work has been tested here. As per the hypothesis, at first the co-relation between two data sets was calculated. The total production was taken as independent variable whereas, Food Grains and Oilseeds were dependent variable on total production. It is to mention that if the F-value is less than 0.05 at 5% level of significance, the null hypothesis is rejected. In other words, the co-relation is considered significant. Whereas, if F-value is more than 0.05 at 5% level of significance, the null hypothesis is accepted. In other words, the co-relation is considered insignificant. On the basis of this rule, following test results have been drawn.

Table 4.1 (Testing of Hypothesis)

Calculations	Food Grains with Total Production	Oilseeds with Total Production
Co-relation	0.998	0.803
F-Value	0.009	0.00
At 5% level of significance	0.009 < 0.05	0.00 < 0.05
Null Hypotheses	Rejected	Rejected
Alternative Hypotheses	Accepted	Accepted

Table 4.1 shows that there is stronger co-relation in between Food Grains and Total Production as compared to Oilseeds and Total Production. In other words, Food Grains have very high level of positive co-relation with total production where as oilseeds have high level of positive co-relation with total production.

Hypothesis Result: In both the cases, the F-value is less than 0.05 at 5% level of confidence. This brings the test result in **rejection of null hypotheses**. So, the alternative hypothesis which advocates the co-relation between the dependent variables with the independent variable is accepted. Also, it states that the **co-relation between the variables is significant**.

Findings: The study draws the following findings based on the analysis performed.

- Oilseeds had more significant growth (114%) in comparison to Food Grains (53%) in the study Period.
- The Compound Annual Growth Rate was higher in case of Food Grains (2.3%) in comparison to Oilseeds (1.8%).
- Wheat (85.7%) in case of Food Grains and Soya Bean (978%) in case of Oilseeds had the maximum growth among the other crops of respective category during the study period.

Conclusion: The work concludes with the finding that commercial crops (oilseeds) had been benefitted more in comparison to Food Grains in the study period from 1971 to 2011. So, it makes clear about the fact that commercial crops have got more exposure ever since the globalization policy came into existence. The better return, maximal production with minimal efforts and high in market demand in both domestic and international market are the key factors why commercial crops are being benefitted consistently. To conclude the words, it can be said that the fundamental changes in the Indian agriculture Sector have changed the production priorities too and the agricultural produces are being given preference as per their market value based on respective demand.

Suggestions: The study has taken into consideration only major food grains and oilseeds for analysis. So, other crops can also be studied which has been untouched in this work. Further,

the production and its growth can also be studied in relation with area of production and yield per hectare to produce another extent of addition into existing literature of the study area.

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