A Study on Impact of Covid-19 on Farmers towards Agriculture Production Using Data Mining Techniques

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Abstract:

COVID-19 pandemic lockdown period has created greatest challenges in front of all and it also created a big problem to farmers. The main aim of the study is to analyse the impact of covid-19 on farmers towards agriculture production. A sample of 200 farmers in Dindigul District has been selected by using convenient sampling method. The findings were analyzed using simple percentage analysis, chi-square test and weighted average method. Thus, it found from the above table that most of the farmer revealed that covid-19 showed a high level of impact not on their livelihood. The study concluded that central and state government should take serious efforts to help the farmers.

Keywords: Farmers, Products, Impact, Covid, Period, Market, Agriculture, Food, Supplier, etc.

Introduction

According to *Food and Agriculture Organisation* of United Nations, "*Agriculture, with its allied sectors, is the largest source of livelihoods in India. 70 percent of its rural households still depend primarily on agriculture for their livelihood, with 82 percent of farmers being small and marginal.*" In all over world India is one of the major supplier of food staples such as rice, wheat, paddy, etc., In India, majority of the people depends on agriculture for their livelihood. Indian farmers every year face risks such as price volatility, rising debts and low rainfall.

In Tamilnadu, the first case of the COVID-19 pandemic was reported on 7 March 2020. Tamil Nadu is the second largest number of covid-19 confirmed cases in India. In Tamilnadu state 37 districts are affected by the covid-19 pandemic. COVID-19 pandemic lockdown period has created greatest challenges in front of all and it also created a big problem to farmers too. Due to Covid-19, nationwide lockdown came at an unexpected time for farmers and it was the harvest season of many crops. The covid-19 created a shortage of labor, equipment, transportation problems, scarcity of fertilizers, imbalance of demand and supply, etc.

In rural communities, covid-19 preventive measures such as regular handwashing, social distancing and self-isolation showed a big challenge for them. In many places of the country water-scarcity is a big problem repeated hand washing is a luxury that cannot be put into practice in all places. Agriculturist depends on labor and wages for their farming social distancing and isolation are a huge challenge.

Impacts of COVID-19 on Agriculture Production

1. Markets and farm prices

2. Supply chains slowdowns and shortages

3. Farmers' health

4. The farm workforce

5. Worker safety and Personal Protective Equipment (PPE)

6. Other disruptions

Review of Literature

Jyoti Prakash Sahoo and Kailash Samal (2020), revealed that COVID-19 has stronger impact into the global economic system and also it affects India. In this study it also explained the weak financial quarters, activity losses, profits cuts of the people and lower income level of people. This study also explained the impact of COVID-19 on the rural quarter by many authors, which constitutes large part of the Indian economic system and standard consumption across various product categories within India. In India 69% of the people is living in rural areas, which constitutes of seven hundred million people consists of farmers, housewives, Small and Medium scale Entrepreneur's, servants and youth, etc.,

Padam Bahadur Poudel, Mukti Ram Poudel, Aasish Gautam, Samiksha Phuyal, Chiran Krishna Tiwari, Nisha Bashyal, Shila Bashyal (2020), revealed that agriculture is the most important economic

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sector endorsing food security and for human development. This study helps to find out every possible impact of global pandemic COVID-19 on Food and Agriculture across the world. This study also assessed the effect of COVID-19 pandemic on Agricultural sector and Food as it necessary of every human life and secondarily involves the finance. Covid-19 also has a greater impact on the supply chain of the market with imbalance production and distribution. Hence the study concluded that covid-19 also affects the not only supply chain management but also the livestock, farming, poultry, fishery as well as dairy production. Hence the government should take serious efforts to solve the problems.

Christian Elleby, Ignacio Pérez Domínguez, Marcel Adenauer and Giampiero Genovese (2020), analysed the impacts on global agricultural markets of the demand shock caused by the COVID-19 pandemic The study is based on scenario analysis on the IMF economic growth forecasts for 2020 and 2021 using a global multi-commodity agricultural market model. The study concluded that decline in economic growth causes a decrease in international meat prices by 7–18% in 2020 and dairy products by 4–7% compared to a business as common circumstances.

Objectives of the Study

- To study the present scenario of farmers in Dindigul District

- To analyse the impact of covid-19 on farmers towards agriculture

Research Methodology

Dindigul District, Tamil Nadu is the study area selected for this research. Primary data is collected through well-structured interview schedule method. A sample of 200 farmers in Dindigul District has been selected by using convenient sampling method. The collected information from farmer's were reviewed and consolidated into a master table. For the purpose of analysis the data were further processed by using statistical tools. The statistical tools are

1. Simple Percentage

2. Chi-Square Test

3. Weighted Average Method

Limitations of the Study

❖ All the limitations of primary data are applicable to this study

❖ The statistical methods used to analyze the data have their own limitation

❖ The study is restricted to the selected sample of Dindigul District and hence the result of the study cannot be generalized

Analysis and Interpretation

1.1 Demographic Profile of the Farmers

Table no.1 describes the demographic profile of the farmers taken for this study. Out of 200 farmers who were taken for the study: it has been identified that most (53%) of the respondent are male, (47%) whose age group is under 26 to 50 years, most (58%) of the farmers studied upto school level, the annual income of (42%)farmers is above Rs.2,50,000, (54%) of the farmers have 5 to 15 acres farm area for their agriculture , (42%) of the farmers have above 40 years farming experience , (54%) of the farmers belong to joint family.

Table No.1 Demographic Profile of the Farmers

Factors	Number Of farmers N=200	Percentage
Gender		
Male	106	53
Female	94	47
Age (Years)		
Up to 25	48	24
26 to 50	94	47
Above 50	58	29
Educational Qualification		
Up to School Level	116	58
Graduate	62	31
Post Graduate	22	11
Annual Income		

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Up to Rs.1,00,000	68	34
Rs.1,00,001 to Rs.2,50,000	48	24
Above Rs.2,50,000	84	42
Farm size (acres)		
Up to 5	74	37
5 to 15	88	44
Above 15	38	19
Farming experience (years)		
Less than 10 Years	86	43
11 to 40Years	50	25
Above 40 Years	84	42
Type of Family		
Nuclear Family	92	46
Joint Family	108	54

Table No.2 Relationship between Farmers Demographic Profile and Level of Impact on Covid-19 towards Agriculture Production

Variables	Level of Impact			Total	χ^2 Value	Table Value	Remarks
	Low	Moderate	High				
Gender							
Male	26	44	56	106	7.64	5.991	S
Female	36	26	32	94			
Age (Years)							
Up to 25	8	10	30	48	12.46	9.488	S

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26 to 50	35	32	28	94			
Above 50	24	10	24	58			
Educational Qualification							
Up to School Level	32	40	44	116	16.18	9.488	S
Graduate	36	16	10	62			
Post Graduate	8	6	8	22			
Annual Income							
Up to Rs.1,00,000	22	14	12	68	12.83	9.488	S
Rs.1,00,001 to Rs.2,50,000	18	18	12	48			
Above Rs.2,50,000	28	36	20	84			
Farm size (acres)							
Up to 2	24	16	34	74			
2 to 10	38	26	24	88	13.63	9.488	S
Above 10	8	18	12	38			
Farming experience (years)							
Up to 2 Years	16	22	28	66			
2 to 10 Years	30	42	36	50	12.53	9.488	S
Above 10 Years	16	12	10	84			
Type of Family							
Nuclear Family	34	20	38	92	3.58	5.991	S
Joint Family	36	48	24	108			

*significant at 5% percent level

1.2. Relationship between the Demographic Profile and Level of Impact on Covid-19 towards

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Agriculture Production

Table no.2 depicts the relationship between selected demographic variables and level of impact on covid-19 towards agriculture production of the farmers. It is clear that , the calculated chi-square value is greater than the table value at five percent level, there exists any significant association between gender, age, annual income, gender, educational qualification, farm size, farming experience, type of family of the farmers and level of impact on covid-19 towards agriculture production .

Table No.3 Impact of Covid-19 on Farmers– Friedman Rank Test

Factors	sum of wxi	weighted average	Rank
Scarcity of Capital			
wx1	331	6.4	2
Less Demand and Supply			
Wx2	333	5.53	1
Transportation Facility			
Wx3	294	2.9	5
Scarcity of worker's			
Wx4	312	4.13	3
Demand for seeds and fertilizers			
Wx5	310	3.78	4

The above table shows about the Friedman Rank Test of Impact of Covid-19 on Farmers and their level of significance is at 0.000 which shows that there is a relationship between the ranks given. The above table shows that the impact of Covid-19 on Farmers, it is found that majority of the farmers face less Demand and Supply of their commodities, Scarcity of Capital, , Scarcity of worker's, Demand for seeds and fertilizers and Transportation facility . Thus, it found from the above table that most of the farmer revealed that covid-19 showed a high level of impact not on their livelihood.

Conclusion

The Covid-19 pandemic lockdown period will have a greater effect on the agriculture sector and farmers in India. In India agriculture sector is facing a lot of problems with labourers and farming goods. Even though agriculture products are exempted from lockdown directives, but agriculturist are facing lot of problems due to some restriction. In India agriculture sector facing rainfall disruptions, crop damage and presently they are facing disruptions created by the Coronavirus. The study concluded that central and state government should take serious efforts to help the farmers.

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