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Perception of Farmers towards Economic Impact of Covid-19 Pandemic on Agriculture and Allied Sectors

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ABSTRACT

The Covid-19 pandemic has inflicted unprecedented challenges on global health, triggering far-reaching economic ramifications. The lockdown measures imposed in response to the pandemic disrupted the entire agriculture value chain, affecting input availability, labor movements and supply chains. Farmers faced challenges such as reduced access to agricultural inputs, fluctuating prices and disruptions in farm operations. Hence, this study, assesses the economic impact of the pandemic on the agriculture and allied sectors in India, with a focus on its consequences on production, farm gate prices, agricultural operations, marketing and the overall rural economy. The research reveals the severe disruptions caused by the pandemic, particularly during the peak harvesting season, leading to substantial losses for farmers, especially in the informal rural economy, repercussions on banking activities, adverse effects on credit access, recovery and basic banking services, difficulties in purchasing inputs, labor shortages, disruptions in processing and marketing and need for targeted relief measures. The research underscores the vulnerability of small and marginalized farmers, who constitute a significant portion of the agricultural workforce, highlighting the varying degrees of adversity faced them. Furthermore, the study investigates the changes in consumption patterns among farmers during the lockdown, shedding light on alterations in food preferences and expenditures. Hence it provides valuable insights into the multifaceted challenges faced by the agriculture and allied sectors during the Covid-19 pandemic, offering a comprehensive understanding of the sector-specific vulnerabilities and the broader implications for India's rural economy.

Keywords : Economic impact of Covid-19, Agriculture, Allied activities, Production, Marketing, Rural economy

HUMANS have experienced numerous epidemics since ages that are particularly lethal and resulted in greater death rates. They even wiped out the entire villages and small towns some times. Now the new pandemic, that devastated the entire world is, Covid-19 which evolved as one of the most serious pandemic situations in the past 100 years. (Dhama *et al.,* 2020). Increased globalization and enormous number of travelling happening in between the countries, the virus has spread swiftly throughout the countries and within a matter of months it reached almost every country in the world. This led to lockdown and quarantine creating unprecedented losses and disruptions. The concern is not just for the human wellness, but also for the global economy, which was taken a significant hit from every angle. (World bank report, 2020).

India's economy has suffered greatly as a result of the governments' poor planning and preparedness prior to the abrupt implementation of a lockdown to combat the Covid-19 epidemic, which has also created great problems for the nation's working class. This has had the greatest impact on the unorganized rural economy, as the media has frequently documented. Farmers suffered severe losses as a result of the lockdown that was implemented in March 2020, which fell during the height of the Rabi agricultural harvest season in India, mostly in the northwest. Agriculture and related industries, which account for around one-sixth of India's national GDP and employ close to 50 per cent of the workforce, are frequently the main sources of jobs, money and food for local people in rural regions. It is essential to maintaining the country's food security and through its forward and backward links, also affects the expansion of the secondary and tertiary sectors of the economy (NABARD, 2020). They faced more challenges as a result of the Covid-19 pandemic because of its extensive effects on the agricultural industry. Agrarian activities, such as the availability of inputs, labor mobility restrictions, delayed field operations and disruptions in regular supply chains, have been slowed down as a result of the nationwide Covid-19 mitigation efforts. This has created a difficult environment for the farming community as well as other sectors. The agriculture value chain was severely disrupted in order to prevent these impacts, even though agricultural operations were initially spared from lockdown. This had a substantial detrimental impact on the rural Indian economy. 'Farmers in Maharashtra called it a worse situation than that occurred during the demonetization in 2016' (Saha & Bhattacharya, 2020). The limitations imposed as a result have had a significant influence on agriculture and related industries worldwide, which has caused farmers to become extremely stressed and alter their adaption tactics (NABARD, 2020). People's mental health has been shaken by mass unemployment, company failures, income loss, rising poverty disparities, fatalities, a lack of transit options, trouble getting medications, limited access to healthcare and other issues. This effect is particularly noticeable among India's small and disadvantaged farmers, who make up around 90 per cent of all farmers. Their already stressful situation was made worse by falling output prices, which further exacerbated their economic and psychological predicament. They also had to deal with issues related to purchasing inputs, planting, labor availability, harvesting, processing and marketing, as well as supply chain disruptions that caused the market to shrink. The agricultural community experienced stress as a result of these socio economic, psychological and physical health problems, which made their financial circumstances worse (Hossain *et al*., 2020). The new Corona virus (Covid-19) pandemic's economic effects have focused attention on the agriculture industry and increased its duty to provide food and jobs for thousands of people who may have lost their jobs. In light of this, a survey was developed to investigate farmers' perceptions of the economic effect of agricultural and related sector operations.

Methodology

In 2021-2022, the research was carried out in the districts of YSR Kadapa in Andhra Pradesh and Raichur in Karnataka. For this study, an ex-post-facto research design was employed. Five taluks of Raichur and four mandals of Kadapa were chosen for research based on the variety of crops cultivated and the kinds of cropping ecosystems found in the villages. One or two villages were chosen at random from each taluk and mandal, for a total of twelve villages. Six of these 12 villages had irrigated agricultural systems, while the other six had dry land farming ecosystems. A simple sampling technique was used to choose 15 farmers from each of these chosen villages. Thus, 180 respondents made up the entire sample size used for this research.

For measuring the perception of farmers regarding economic disruptions, the procedure followed by NABARD (2020) to assess the impact of Covid-19 on rural economy was made use in this study. All the parameters considered by them was utilized along with addition of some other relative parameters, which

were selected based on the reviews made to collect required information for carrying out this objective. Each respondent, was asked whether the impact on the indicator was favorable, adverse or no impact using the questionnaire. The perception recorded as favorable impact was coded as 1, adverse impact as -1 and no impact as 0 respectively. After collecting and analyzing the required data the percentages, frequencies were employed to the data.

Results and Discussion

Perception Regarding Impact on Production

The impact on production of agriculture and allied sectors was represented in Table 1. The results clarified that, adverse impact was faced by nearly two-thirds of Poultry farmers (64.29%) followed by one third of dairy farmers (32.95%) and farmers growing both horticulture and agriculture crops (30.67%). Nearly one-fifth of farmers reported adverse impact in case of horticulture (25.00%), while agriculture and sheep/goat rearers experienced little impact with majority (77.78%) and (76.19%) stating no impact respectively.

The pandemic's breakout had the greatest impact on the poultry, with demand dropping as a result of widespread concern in the context of Covid-19 that the animal products were carriers of the Corona virus and may be a source of infection. Demand for milk in the dairy sector was not seriously hit, but demand for processed dairy products was, owing to demand disruptions induced by the lockdown. The closure of hotels and in particular, street vendors reduced demand for processed dairy products. As a result of decreased availability of green and dry fodder, feed, and so forth, milk production also decreased in some cases. The lower impact on agriculture, followed by horticulture was attributed to the fact that most crops reached harvest stage by the time of lockdown imposition. (NABARD report, 2020).

Perception Regarding Impact on Farm Gate Prices

According to the findings, 100 per cent adverse impact was reported by poultry farmers, followed by horticulture (70.83%) and both agriculture and horticulture crops growing farmers (65.33%). A majority of respondents (80.95%) reported no impact in case of sheep/goat rearing, agriculture respectively. In contrast, 21.59 per cent stated positive impact in dairy sector. (Table 1).

This was mostly owing to the fact that, with the closure of significant sections of the economy, demands for these products also decreased due to a lack of transportation and the closure of rural haats/markets

Table 1

Farmers' perception on impact of Covid-19 lockdown on production and farm gates prices of agriculture and allied sector products

Impact on	Agriculture (n=81)		Horticulture (n=24)		Agriculture + Horticulture (n=75)		Poultry* (n=14)		Dairy * (n=88)		Sheep/Goat* (n=21)	
	F	%	F	%	F	%	F	%	F	%	F	%
Production												
Favourable Impact	0	0	0	0	0	0	0	0	0	0	0	0
Adverse Impact	18	22.22	6	25.00	23	30.67	9	64.29	29	32.95	5	23.81
No Impact	63	77.78	18	5.00	52	69.33	5	35.71	59	67.04	16	76.19
Farm gate prices												
Favourable impact	0	0	0	0	0	0	0	0	19	21.59	0	0
Adverse Impact	28	34.56	17	70.83	49	65.33	1	100	24	27.27	4	19.04
No Impact	53	65.43	7	29.16	26	34.67	0	0	45	51.13	17	80.95

Note : * = Subsidiary enterprise along with either agriculture or horticulture; F=frequency, %= per cent

and stores, resulting in a fall in pricing. With the misconceptions regarding consuming animal meat, the poultry sector was worst hit with drastic fall in prices. This was followed by a decrease in the prices of horticulture produce, mainly due to its perishability, lower demand and no transportation, exports. Sheep and goat though initially reported reduced demands, in a short span its consumption increased, thus making less impact on prices. Disruptions in movement of agriculture produce due to the closure of markets and ban on movement of vehicles even though created certain price fluctuations in agriculture, but due to its non perishable nature the losses were less. (Cariappa *et al*., 2021, Srinivasan *et al.,* 2021 and Kumar *et al.,* 2021).

Perception Regarding Impact on the Availability of Agricultural Inputs

The findings in Table 2 demonstrated, a general decline in input availability, with 58.33 per cent farmers reporting a particularly sharp decline in the availability of fertilizer and pesticides each followed by, rental agriculture machinery (50.00%), fodder/ animal feed (39.02%) respectively.

The reasons for decline in input availability were disruption in supply due to restrictions on movement of vehicles, closure of shops and markets, higher difficulties for private agencies to reach villages for input supply. Farmers experienced challenges travelling to nearby towns and making purchases within the short time span, even if the shops were permitted to operate for specific time period. (Rawal *et al.,* 2020).

Perception Regarding Impact on the Prices of Agri - Inputs

All the inputs had shown significant increase in prices, as reported by nearly half of the farmers, with no one stating decline in it. The highest increase was reported in case of rental agricultural machinery by 47.78 per cent respondents, followed by fertilizers and pesticides (43.33%) each and feed/animal fodder (42.28%) respectively. While, only 35.56 per cent reported increase in seed price. (Table 2).

Although there was a general overall increase in prices of agricultural inputs, there were minor variations across villages owing to distance to its nearby town and input availability. The reason for this trend was decreased availability of inputs, as mentioned in

Table 2

Farmers' perception regarding impact of Covid-19 lockdown on the availability and prices of agricultural inputs

(n =180)

Impact on	Seeds		Fertilizers		Pesticides		Agricultural machinery		Fodder/Animal feed	
	F	%	F	%	F	%	F	%	F	%
Availability										
Increased	0	0	0	0	0	0	0	0	0	0
Decreased	45	25.00	105	58.33	105	58.33	90	50.00	48	39.02
No change	135	75.00	75	41.66	75	41.66	90	50.00	75	60.98
Prices										
Increased	64	35.56	78	43.33	78	43.33	86	47.78	52	42.28
Decreased	0	0	0	0	0	0	0	0	0	0
No change	116	64.44	102	56.67	102	56.67	94	52.22	71	57.72

Note : F=frequency, %= per cent

previous section. As some of the farmers had their own seed for next season, the seed availability and prices did not bothered them. Another reason was such that decline in purchasing power of farmers as they were facing difficulty in marketing of their produce, they felt increase in prices even with slight changes in them. (Kumar *et al.,* 2021).

Perception Regarding Impact on Banking Activities

Observation of the results unveiled that; the only favorable impact was reported in case of digital banking by 63.95 per cent respondents. The adverse impact was seen with term lending stated (72.38%) and basic banking services (71.67%). More than three fifth (38.18%) reported no impact regarding KCC credit availability. Although banking institutions were spared from the lockdown's limitations, the negative impact on KCC distribution was attributed to limits on people's movement and fear of getting corona virus difficulty in conducting field visits by bank officials for project appraisal, reduced repayment capabilities of households due to current challenges, and postponement of new investments due to current economic and health uncertainties were the reported reasons for reduced basic banking services. Among the many banking components, only digital financial transactions were believed to have been reported positive impact during pandemic.

Perception on Impact of Agricultural Operations by the Farmers

A general scrutiny of the results cleared that, the highest impact was found in the case of harvesting, where 58.33 per cent farmers reported being most affected, followed by processing and storage (52.22%) and sowing (6.67%) operations. In case of remaining operations such as land preparation, sowing, fertilizer application and irrigation, less than a quarter of them reported least affected, while the majority of farmers did not face any problems with these operations. (Table 4). The reason for high impact on harvest was the coincidence of lockdown with the peak of Rabi season harvest. This restricted the movement, so the availability of labor, agricultural machinery got disrupted affecting harvesting & post harvest operations along with transportation.

Also, there was lack sufficient storage structures within villages affecting farmers, particularly horticulture farmers, due to which fruits and vegetables along with coarse cereals, in certain cases, continue to ripen in the fields. (Singh *et al.,* 2020).

Perception Regarding Impact on the Marketing of Agricultural Produce

The major findings with respect to perceived impact on different ways of marketing of final produce by farmers have been accorded in Table 5. A high adverse impact was seen with transportation to mandis and the conduct of weekly markets as reported by cent per cent respondents. This was followed by three fourth (75.00%) farmers stating an adverse impact on collection by the private agencies. In contrast, favorable impacts were

Table 3

Perception on impact of Covid-19 on banking activities in rural areas

Banking activity	Sample size (n)	Favourable impact		Adverse impact		No impact	
		F	%	F	%	F	%
KCC Credit	55	0	0.00	21	38.18	34	61.81
Basicbanking services	180	0	0.00	129	71.67	51	28.33
Term lending	105	0	0.00	76	72.38	29	27.62
Digital banking	86	55	63.95	0	0.00	31	36.04

Note : F=frequency, %= per cent

Table 4

Farmers perception on impact of Covid-19 on various agricultural operations

(n=180)

Crop cultivation activities	Most affected		Least affected		Not affected	
	F	%	F	%	F	%
Land preparation	0	0.00	37	20.55	143	79.44
Sowing	12	6.67	45	25.00	123	68.33
Fertilizer application	0	0.00	38	21.11	142	78.89
Irrigation	0	0.00	24	13.33	156	86.67
Harvesting	105	58.33	38	21.11	37	20.56
Processing& Storage	94	52.22	35	19.44	51	28.33

Note : F=frequency, %= per cent

Table 5

Perceived impact on the marketing of agricultural produce

(n=180)

Difficulties	Favourable impact		Adverse impact		No impact	
	F	%	F	%	F	%
Transportation to mandis	0	0.00	180	100.00	0	0.00
Procurement by government agencies	37	20.56	29	16.11	114	63.33
Collection by private agencies	0	0.00	135	75.00	45	25.00
FPOs - Aggregation	35	19.44	47	26.11	98	54.44
Weekly markets/ Haats	0	0.00	180	100.00	0	0.00

Note : F=frequency, %= per cent

noticed in procurement by government agencies (20.56%) and FPO-aggregation (19.44%).

This was attributed to the government's decision to shut down many mandis and completely forbid the operation of such rural haats in order to prevent crowding and slow the spread of the corona virus. Although the movement of essential goods was made exempt from the restrictions put in place during the lockdown, private transporters encountered restrictions while travelling from urban to rural areas, which had a greater negative impact on the collection of harvested produce by private agencies. The positive impact of procurement by government agencies was reported due to procurement being done by government for the first time with those farmers and concerned FPOs helping them to move their produce to nearby markets. (Singh *et al.,* 2020).

Perception Regarding Impact on Availability and Movement of Agricultural Laborers

The movement of laborers outside the village had been the hard hit as expressed by 100.00 per cent respondents, followed by financial stability of the workers (76.67%), fluctuations that caused mostly increase in wage rates (58.33%), the availability of employment opportunities for laborers (53.89%) and labor availability to farmers (50.00%), respectively. Whereas, the favorable impact on reverse migration of laborers was expressed by 37.78 per cent and labor availability by 16.67 per cent respondents respectively. (Table 6).

Table 6

Perceived impact of lockdown on availability and movement of agricultural laborers

(n=180)

Particulars	Favourable impact		Adverse impact		No impact	
	F	%	F	%	F	%
Labor availability for farmers	30	16.67	90	50.00	60	33.33
Fluctuations in wage rates	0	0.00	105	58.33	75	41.67
Reverse migration of labourers on farming	68	37.78	24	13.33	88	48.89
Availability of employment opportunities for labourers	0	0.00	97	53.89	83	46.11
Movement of workers within their village	0	0.00	75	41.67	105	58.33
Movement of workers outside their village	0	0.00	100	100.00	0	0.00
Financial stability of the workers	0	0.00	138	76.67	42	23.33

Note : F=frequency, %= per cent

The outbreak and the following lockdown implemented had a big influence on the availability, demand and wages of agricultural labor in all the villages. Because of a large number of migrant laborers returning to their native localities and mobility restrictions on local employees, the availability of labor for farmers was reduced in some villages while increased in other areas, resulting in both a positive and no impact. This brought changes in wage rates and mostly they increased. (Srinivasan *et al.,* 2021, Kumar *et al.,* 2021).

Farmers perception regarding access to relief measures

A quick glance at the Table 7 revealed that, the majority of farmers (81.11%) received support in the form of access to food grains through Public Distribution System. The remaining relief measures were received by not more than half of them, with work availability through MNREGA by 57.78 per cent farmers, followed by assistance through schemes like PM-KISAN (52.78%) and financial help from friends and relatives (43.33%) respectively. Very meager assistance was received in the form of funds availability from the government (29.44%), money support from SHG's (25.56%) and no financial support was reported to have received from NGO's (0.00%).

5 kg of free grains was distributed along with the regular quantity distributed through PDS for most of the farmers. The government's flagship

Table 7

Access to relief measures as perceived by the farmers during Covid-19 lockdown

(n=180)

Relief measures	Yes		No	
	F	%	F	%
Availability of funds from the Government	53	29.44	127	70.55
Access to food grains through Public Distribution System	146	81.11	34	18.89
Work availability through MGNREGA	104	57.78	76	42.22
Aid from Non Governmental Organizations	0	0.00	180	100.00
Financial help from friends and relatives	78	43.33	102	56.67
Assistance through schemes like PM-KISAN	95	52.78	85	47.22
Money support from self help groups	46	25.56	134	74.44

Note : F=frequency, %= per cent

employment generation programme, MNREGA, had been one of the main pillars of support in providing relief to the rural households generally and even during the times of crisis. Through cash and kind transfers mostly to the *Jan Dhan* accounts in the form of Direct Benefit Transfers and assistance through government schemes, they supported them to some extent. SHG assistance was limited owing to their own budgetary constraints and also lack of sufficient funds.

Changes in Consumption Pattern

Table 8, shows the consumption changes made by the farmers during lockdown. The results gave an idea that more than half of the respondents (57.22%) reported a decrease in eggs and non vegetarian consumption, followed by alcohol and other beverages (51.11%). Similarly there reported no change in FMCG's, by more than half (57.78%) of the respondents and inversely an increase in consumption was found with fruits and vegetables among one third (33.89%) farmers.

Perceived Reasons for making Changes in Consumption Pattern

The main reasons quoted for changes made by farmers were, buying food available only in the nearby stores as reported by 86.44 per centrespondents followed by, disruptions in the availability of regular consuming products (73.73%), experiences of income shock (68.64%) and food shortage due to

Table 8

Changes made in their consumption pattern by the farmers

(n=180)

Particulars	Consumption					
	Increased		Decreased		No Change	
	F	%	F	%	F	%
Fruits and Vegetables	61	33.89	75	41.67	44	24.44
Eggs and Non Vegetarian food	45	25.00	103	57.22	32	17.78
Fast Moving Consumer Goods (FMCG)	0	0.00	76	42.22	104	57.78
Alcohol and other beverages	36	20.00	92	51.11	52	28.89

Note : F=frequency, %= per cent

Table 9

Perceived reasons for changes made in consumption pattern by the farmers

(n=118)

Reasons	Yes		No	
	F	%	F	%
Perceived increase in food prices lead to change in consumption pattern	48	40.68	70	59.32
Access and availability of their regular consumable products got disrupted	87	73.73	31	26.27
More consumption of fruits and vegetables during the pandemic	42	35.59	76	64.41
Experienced income shock	85	68.64	33	27.97
Food shortage due to market disruption	64	54.24	54	45.76
Bought cheaper foods owing to financial crunch	55	46.61	63	53.39
Bought only from nearby available markets and stores	102	86.44	16	13.56
Preferred only semi perishable food items with the intention of stocking for longer periods	32	27.11	86	72.88

Note : F=frequency, %= per cent

market disruptions (54.24%). Less than half of the respondents (46.61%) expressed buying cheaper foods owing to financial crunch, increase in food prices (40.68%), increased consumption of fruits and vegetables (35.59%). (Table 9). The movement restrictions forced them to buy from nearby shops even if their preferred food items were not available. Farmers who experienced more economic fallout, particularly in terms of reduced income, increased production costs, job loss of family members, severe health consequences and so on, resulting in changes in their consumption where expensive foods were not preferred. (Cariappa *et al.,* 2021).

The pandemic, with its sudden imposition of lockdowns and restrictions, disrupted agricultural activities, supply chains and markets, leading to adverse consequences for farmers and rural communities. The restrictions on movement and closure of markets led to a decline in demand and farm gate prices for various agricultural products, particularly in poultry and horticulture sectors. Moreover, the pandemic disrupted the agricultural activities and availability of agricultural inputs such as fertilizers, pesticides, and machinery, leading to increased prices and further impacting farmers' productivity. Banking activities also suffered adverse effects, with limited access to credit and basic banking services due to mobility restrictions and economic uncertainties.

Changes in consumption patterns and the adverse effects on local business enterprises reflect the broader economic repercussions of the pandemic on rural livelihoods. However, amidst these challenges, certain relief measures such as access to food grains through the Public Distribution System and government support schemes like MNREGA provided some respite to farmers. In light of these findings, there is a critical need for comprehensive policy interventions and support mechanisms to address the immediate and long-term impacts of the pandemic on agriculture and rural economies. Efforts to strengthen supply chains, provide financial assistance, enhance access to credit and markets, and promote digitalization in rural areas are essential for building resilience and ensuring the sustainable recovery of rural livelihoods in the post-pandemic era.

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