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Impact Of Covid-19 On the Growth Trajectory of The Agricultural Sector in India

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Abstract

The COVID-19 pandemic had a massive impact on Indian agriculture. As India is largely an agrarian economy, this impact has been felt across the country. In addition to the immediate economic impact, the pandemic has also caused long-term damage to agricultural production, employment, and food security. The pandemic has caused disruptions in the agricultural supply chain due to restrictions on trade, movement, and labour. The prices of agricultural commodities have also seen a steep decline due to the lack of demand, causing a significant financial burden on farmers. The Indian government has taken steps to mitigate the impact of the pandemic on agriculture, such as providing financial assistance to farmers and increasing food production. However, the long-term effects of the pandemic on Indian agriculture are yet to be seen. This paper is focused on analysing the impact of covid-19 on the agricultural sector. Secondary data has been used to analyse the trend of the agricultural sectoral growth and a regression model to measure the impact of development expenditure and percentage employed in the sector on the share of GVA to GDP growth.

Keywords: Covid-19, Growth Trajectory, Agricultural Sector, Economic growth, Development Expenditure.

1. Introduction

India is a prominent player in the global agriculture sector, and it has been the primary source of income for over 55% of the Indian population. The largest producer of milk, pulses, and spices worldwide is India. It also has the largest herd of cattle (buffaloes), and the largest area planted for wheat, rice, and cotton. It is the second-largest producer of wheat, rice, cotton, sugar, farmed fish, fruit, vegetables, tea, and farmed vegetables. About half of the population of India is employed in agriculture, which has the second-largest agricultural land area in the world. As a result, farmers become a crucial component of the industry that provides us with food. India has a strong agriculture system. However, the most recent quarterly GDP estimates under the COVID scenario reveal India's agriculture to be robust and resilient since it is the only industry to exhibit positive growth of 3.4% for the fiscal year 2020-21. The impacts on the production, marketing, and consumption aspects of the Indian agricultural system, are followed by a list of potential post-pandemic recovery and growth initiatives. The pandemic has impacted marketing and production through labour, and the negative income shock has limited access to markets and raised food commodity costs, impacting consumption patterns.

2. Literature Review

Shukla, K. H., (2015). The purpose of the paper is to use secondary data to investigate the significance of sustainable development in the agricultural sector. Since a substantial portion of India's population lives in rural areas and relies on agriculture for their survival, agriculture is the country's primary occupation. The goal of sustainable development in the agricultural industry is to boost output, effectiveness, and employment levels while also reducing the overuse of natural resources to safeguard and maintain them. Additionally, it offers methods for reducing soil degradation caused by deforestation and various farming patterns. Priscilla, L., (2017). The paper analyses the growth rate, instability index, and decomposition analysis carried out to examine the performance of the agriculture sector. The time series data at the national level in India on area, production, and productivity of food grains, production and per capita availability of milk and eggs, and production of meat were assembled. Over the course of time, production and productivity growth were positive but the area devoted to food grains exhibited a negative increase. Biswal, J. (2020). In their paper highlighted several aspects of the impact of the pandemic including a decline in demand for various commodities, food waste caused by the closure of supply chains for transportation and markets, produce sales at a loss, a labour shortage, and recovery measures taken by the government and related businesses. Kalogiannidis, S. (2020) in their report speaks about government responses to the epidemic that resulted in a variety of travel restrictions and temporary market closure. Due to disruptions in the supply chain caused by travel restrictions, there is unneeded supply waste and an increase in warehouse stock levels. Numerous industries suffered significant losses and shut down their businesses. Due to the government's recognition of the agriculture industry as crucial and its exemption from all travel restrictions, the sector only experienced minor limitations.

Objective

1. To analyse the trend in the growth of the agricultural sector in India
2. To evaluate the impact of Covid-19 on the agricultural sector.

Methodology

This study has employed secondary data that has been gathered from a variety of published sources, National Statistical Office, World Bank Data, and Ministry of Commerce and Industry, Department of Commerce including books, journals, newspapers, and magazines. The current study used trend analysis to project the performance of the agricultural sector and a regression analysis is performed to measure the impact of development expenditure and employment share in the sector on the GVA contribution to the country’s GDP.

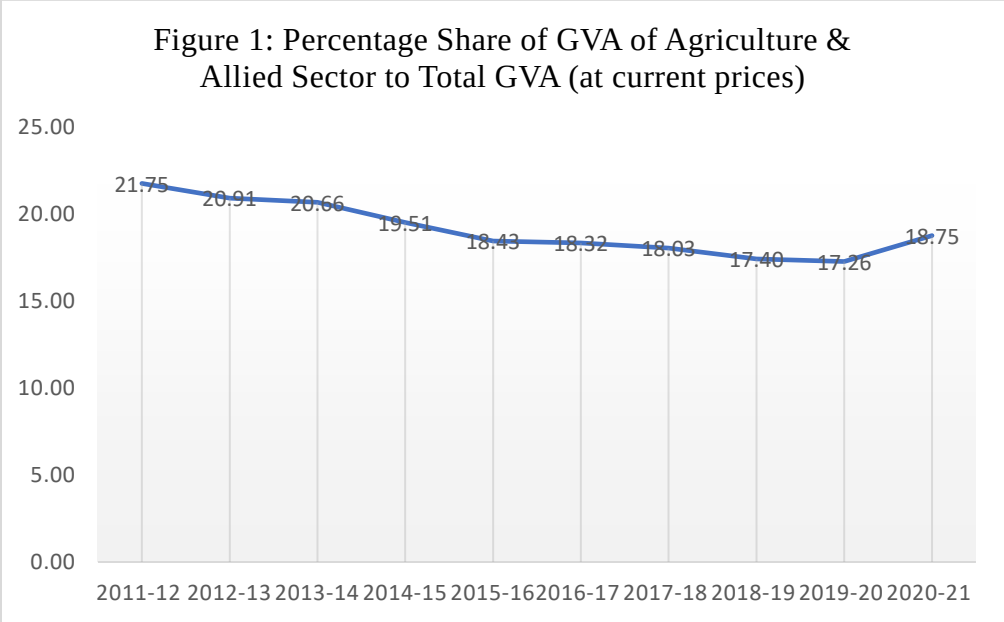
3. Growth of the Agricultural sector in India

For the Indian economy, the agricultural and associated sector is of utmost importance. It offers employment for about 50% of the workforce and nearly one-sixth of the national income of India. It is essential for guaranteeing the nation's food security and, through its forward and backward links, influences the development of the secondary and tertiary sectors of the economy. Achievements on numerous other fronts are significantly influenced by the success of the agricultural sector. The World Development Report 2008 published by the World Bank highlights the fact that growth in agriculture is, on average, at least twice as successful in alleviating poverty as growth outside of agriculture. By increasing farm earnings and

indirectly by creating jobs and lowering food prices, agricultural growth lowers poverty. In other words, the majority of the Indian economy benefits from a robust agricultural sector.

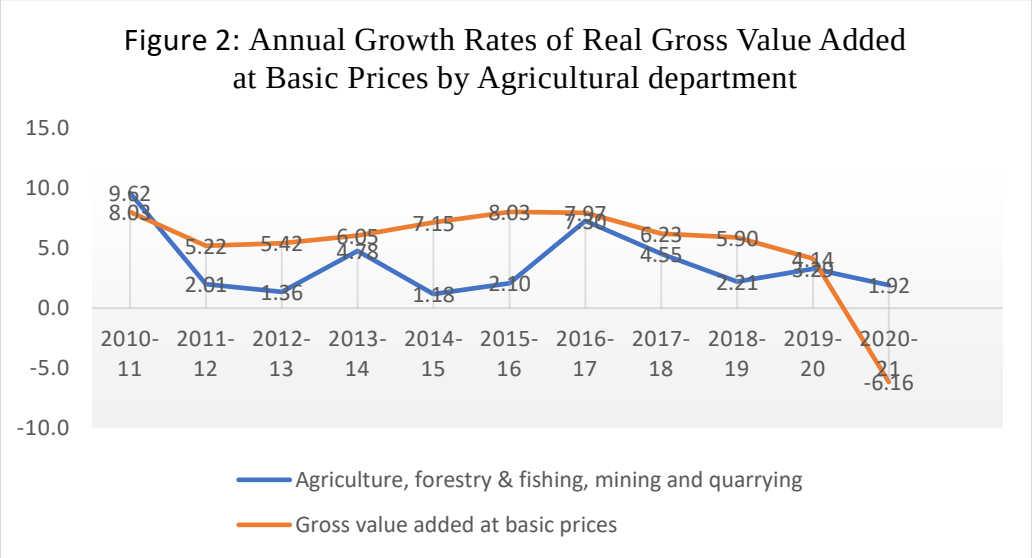
3.1. Trend of the Agricultural sector of India

Figure 1 shows a ten-year trend in the proportion of the economy's total GVA at current prices that comes from agriculture and related sectors. Long-term trends indicate that the sector's share of the economy's overall GVA is hovering around 18%. However, the percentage of the agriculture and allied sector in the total GVA increased to 18.75%, in 2020–21.



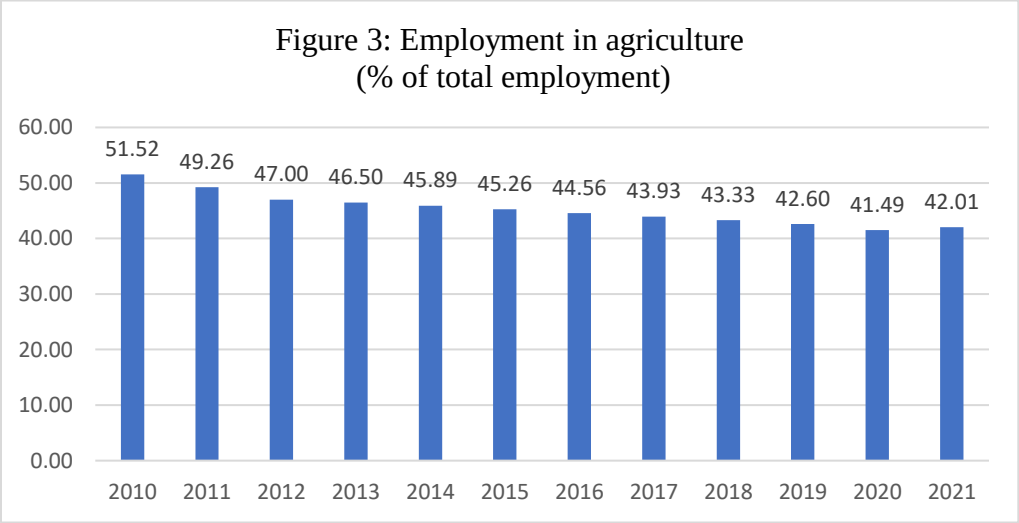
Source: National Statistical Office, Ministry of Finance, Government of India, Economic Survey 2021-22

Figure 2 depicts the year-wise gross value added at basic prices for agriculture, forestry & fishing, mining, and quarrying in India from 2010-11 to 2020-21. It can be observed that there has been a fluctuating trend in the growth of this sector over the years. The highest growth was seen in the year 2016-17, while the lowest growth was seen in the year 2020-21. According to the data provided, the gross value of agriculture, forestry & fishing, mining, and quarrying has declined from 3.3% in 2019-20 to 1.9% in 2020-21. The GVA has declined by - 6.2%. This decline is likely due to the outbreak of the coronavirus pandemic and the subsequent lockdowns that were imposed. This has had a severe impact on the agriculture sector, with farmers facing difficulties in transporting their produce to markets.



Source: National Statistical Office, Ministry of Finance, Government of India, Economic Survey 2021-22

From Figure 3, in 2010 the Employment in agriculture (% of total employment) was 51.52 and it has been decreasing steadily since then. In 2021, it shows an increase in the employment rate to 42.01. These figures demonstrate that while employment in agriculture is decreasing, there is still potential for growth in the sector. It is important to consider policies that can help boost employment in agriculture and ensure the sustainable development of this sector. Finally, climate change has been another major contributor to the reduction in employment and the number of farmers. The unpredictable weather patterns, extreme temperatures, and flooding have adversely affected the agricultural sector, leading to a decrease in productivity and income.

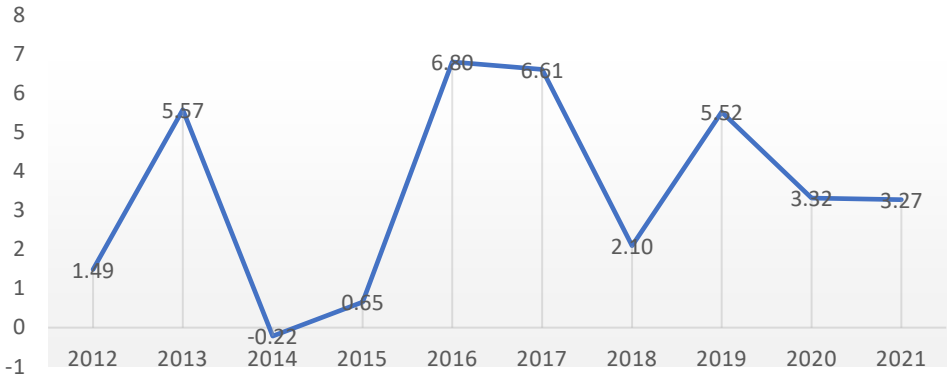


Source: The world bank data, International Labour Organization, ILOSTAT database.

Figure 4 provides a glimpse of the growth of agriculture, forestry, and fishing value added from 2012-2021. Starting in 2012, the growth rate was 1.487460495%. Growth continued at a steady rate from

2013-2016, with a peak of 6.797558631% in 2016. Unfortunately, in 2014 there was a slight dip of -0.216448191%. From 2015-2020, the growth rate gradually increased and peaked at 5.520315251% in 2019. The growth rate is projected to remain relatively stable in 2021 at 3.27183645%.

Figure 4: Agriculture, forestry, and fishing, value added (annual % growth)

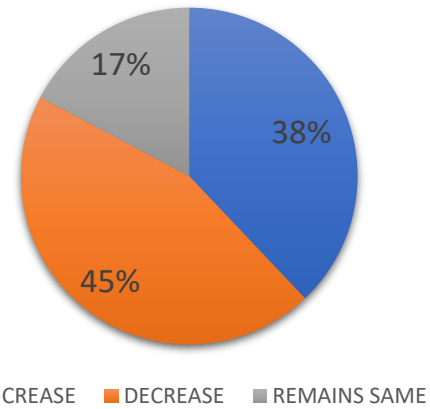


Source: The world bank data, World Bank national accounts data, and OECD National Accounts data files.

3.2 Impact of agricultural production during the pandemic

The COVID-19-related lockout has had a considerable negative impact on the overall production levels in the agricultural and allied sectors which is shown in Figure 5, with overall production levels in the sector dropping in 45% out of 29 states. However, 17% of the states showed no change in the levels of output in the agriculture and allied sector, while 38% of the states also reported an increase in the sector's total level of production.

Figure 5: Number of state showing change in overall agricultural production



Source: Department of Agriculture and Farmer welfare (2020-21)

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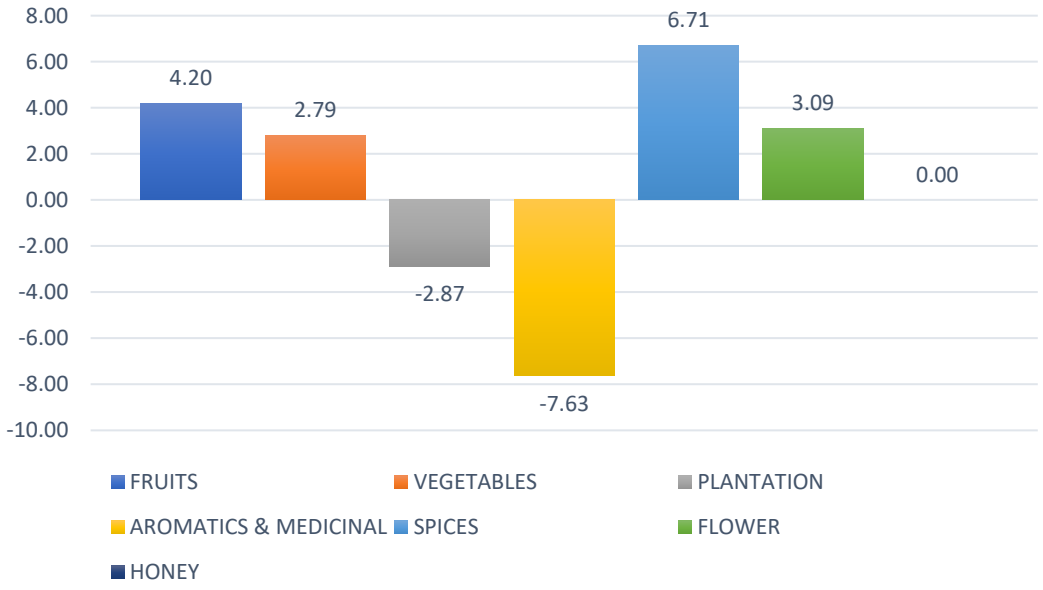
Lack of labour and equipment, the necessity for social isolation, and limits on the free movement of people and machinery are a few factors contributing to the decline of agricultural activity. Figure 6 measures the magnitude of change in the agriculture and allied sector divided into the following sub-sectors: vegetables, fruits, plantation, aromatic & medicinal, spices, flowers, and honey. The impact of Covid-19 could also be seen on other sectors like poultry, dairy and etc. The poultry industry, for instance, has faced one of the worst hits, with the industry seeing a significant decline in sales and production.

Figure 6: Change in different sectors of agriculture

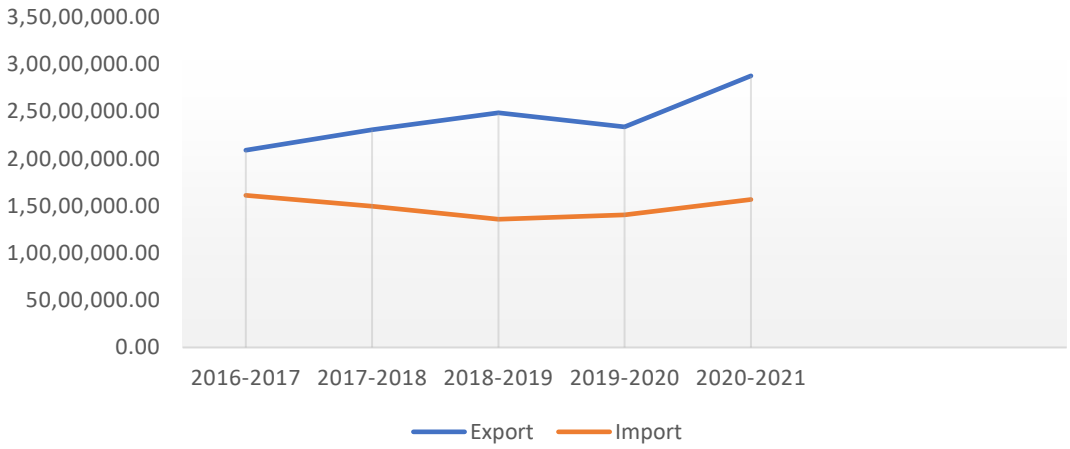


Source: Department of Agriculture and Farmer welfare (2020-21)

India has maintained its highest position in the world with 187.7 million tonnes of milk produced in 2018–2019 but it had a substantial negative impact on the dairy business in India because there has been a 25–30% decrease in overall demand, at least for the first month following the lockdown, or from March 25, 2020. The COVID-19 pandemic has resulted in a massive movement of internal migrants within India, around 50 million internal migrants have returned to their hometowns during the pandemic. This has led to a shortage of labour in some states, like Punjab and Haryana, while other states, like Bihar, Jharkhand, and West Bengal, have faced a surplus of labour. This has created a number of challenges for both the migrants and the states they come from leading to increased poverty and social tensions.

During the COVID-19 pandemic, India's agricultural exports increased from Rs 23384011.46 lakhs in 2019–20 to Rs. 28788133.69 lakhs in 2020–21 which is shown in Figure 7.

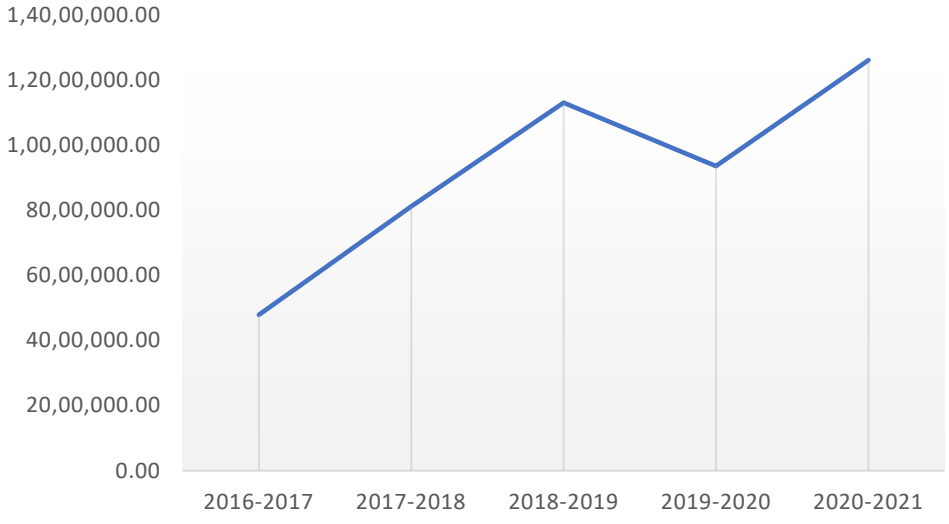
Figure 7: Trend in Imports & Exports of Agricultural commodities



Source: Ministry of Commerce and Industry, Department of Commerce

Additionally, in Figure 8, the net agriculture export surplus increased from Rs. 9346385.15 lakhs in 2019–20 to Rs. 12601073.71 lakhs in 2020–21, representing increases of 37.56% and 56.00%, respectively. Additionally, exports of agricultural products increased by 35.76% in the first quarter (April to June) of 2020–2021 compared to the same time in 2019–2020 due to factors including increased international demand. During the first quarter of 2020–21, other cereals, meat, dairy, and poultry products, cereal preparations, other processed goods, oil meals, and marine products were the main factors increasing agricultural exports. Comparing the first quarter of 2019-20 to the same period in 2020-21, agricultural imports increased as well.

Figure 8: Trend in export surplus of Agricultural product



Source: Ministry of Commerce and Industry, Department of Commerce

The government has been taking several measures to revive the agricultural sectors. Some are discussed below:

- To enable the harvest of Rabi crops, Prime Minister Narendra Modi has aggressively debated plans to selectively loosen the lockdown in rural areas.
- Various Ministries/Departments of state governments have released implementation guidelines based on the policy directives of the Indian government to support the continuance of operations linked to agriculture and its associated sectors.
- To preserve cleanliness and social distance among farmers working in their fields, the Indian Council of Agricultural Research (ICAR) has also released an agro-advisory.
- The Indian government has stated that the first payment under the PM-Kisan Yojana, or Rs. 2,000, will be made upfront to farmers. This will help more than 8.7 crore farmers in India. Additionally, it has stated that the MGNREGS wage will increase from Rs. 182 to Rs. 202 per day.
- A three-month ban on agricultural term loans (including crop loans) has been declared by the Reserve Bank of India (RBI).
- The swift announcement of exemptions for the agricultural sector, including seeds, workers, and farm-related activities, has greatly helped to allay farmers' fears. Several states, including Telangana, Punjab, and Uttar Pradesh, have taken the initiative in this area.
- To simplify agricultural produce transportation logistics, the Indian Railways has been enlisted.

3.3 Regression Analysis model

The annual growth rate of an economy represents the development of all the sectors through the contribution made to the growth. Hence, it is important to analyse the relationship between the GVA contribution of the agricultural sector to GDP, the share of employment in the agricultural sector and the development expenditure. A regression model is analysed to measure the relationship among the indicators mentioned above.

Table 1 : Regression analysis : GDP(annual growth, employment share in agriculture & Development expenditure

Multiple R	0.833612423
R Square	0.694909671
Adjusted R Square	0.593212895
Standard Error	3.156439177
Observations	9

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	136.1588942	68.07944712	6.833153392	0.028398
Residual	6	59.77864966	9.963108277		
Total	8	195.9375439			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	274.5316784	84.01573095	-3.267622328	0.017084983	-480.111	-68.9526	-480.111	-68.9526
Development Exp.	0.011149553	0.004360911	2.556702878	0.043099638	0.000479	0.02182	0.000479	0.02182
Employment Share	5.881369037	1.734564022	3.390690087	0.014663156	1.637044	10.12569	1.637044	10.12569

Regression Model:

GDP = 274.53 + 0.011 (Development expenditure) + 5.88 (Employment share in agriculture sector) + u_i

The result shows that a 1 unit rise in development expenditure will increase the growth rate by 0.011 percent. An increase in employment share in agriculture would increase the share of agricultural GVA by 5.88 percent. The model is statistically significant with p value less than 0.05 and R^2 shows 0.69, which makes it a good fit.

4. Conclusion

The impact of the COVID-19 pandemic on the agricultural sector in India has been profound. The pandemic has caused a sudden disruption to the supply chains, leading to a drop in agricultural prices and revenue. It has also affected the availability and access to agricultural inputs such as fertilizers, pesticides, and other agricultural chemicals. Moreover, the disruption of transportation networks, lockdowns, and restrictions on movement have hampered the marketing of agricultural products and the availability of farm labour. These disruptions have led to a decrease in agricultural productivity and income of small and marginal farmers, as well as a decrease in food supply and security. Further, the regression model shows the effective impact of development expenditure and share of employment in the sector on the sector's GVA contribution to the GDP. Hence, it is evident that the government should take proactive measures and increase the expenditure on the sector. Policymakers should take immediate and appropriate measures to mitigate the severity of these issues.

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