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# EFFECTS OF COVID-19 ON SMALL-SCALE AGRIBUSINESS IN ENUGU STATE, NIGERIA

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***Abstract***

*COVID-19 is one of the deadliest infectious disease that has affected mankind in recent time. The disease affected both public and private businesses. Thus, it has impacted negatively on the economy of many nations in the world. This study examined the effect of COVID-19 pandemic on the small-scale agribusiness sector in Enugu State, Nigeria. Data used for the study were collected from randomly selected 397 agripreneurs via a structured questionnaire. Descriptive statistics and logistic regression were used for the data analysis. The results revealed that the production, marketing, supply and demand of agricultural produce drastically declined significantly due to the outbreak of the corona virus. The study further showed that COVID-19 has led to disruptions in rural agribusiness in Enugu state Nigeria by reducing the profitability of agribusinesses through channels such as high cost of seeds, credit sales, produce not harvested due to the pandemic, and unavailability of seeds. The coping strategies adopted by the agripreneurs to lower the effect of COVID-19 pandemic on their business were selling at home, paying their way to the selected market, selling on credit, reduction in prices, further processing of the product and engaging in lower scale sales. The study recommends provision of financial, input, technology and marketing support to the agripreneur by the government and nongovernmental organisations to ease the effects of COVID-19 on their business. These will encourage agripreneurs to maintaining a steady supply of agricultural produce and make moderate profits and also reduce hardship to the citizens.*

***Key words*:** *agribusiness, Covid-19 pandemic, lockdown, Nigeria, profitability*

## INTRODUCTION

Since the turn of the last century, the world has had series of infectious and viral diseases with fatal consequences. The Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS), Ebola, Malaria, Lassa fever among other deadly diseases have posed great challenges to global health. Nigeria and its constituent states have their own share of these maladies but none of these diseases has held the world to ransom as Corona virus (COVID-19). COVID-19 is one of the deadliest infectious/contagious disease that has ravaged the nations of the world. Globally, COVID-19 has affected nations' economy, peoples' health, culture and social activities [8, 13, 14]. It is defined as an illness caused by a novel coronavirus called respiratory syndrome coronavirus II [7]. According to World Health Organization (WHO), coronavirus is largely family of viruses that are known to cause illness ranging from common cold to more severe diseases that affect the entire human body. This illness can have tremendous effect on economies as presently being witnessed and as such can affect the agricultural sector. The effect of COVID-19 in Nigeria if not timely contained could affect the entire population within a short period. The rural dwellers whom their mainstay of the economy is agriculture are among the most vulnerable group as they have limited or no access to protective equipment and health care facilities.

COVID-19 has become an economic crisis in Nigeria and has affected the low-income agribusiness communities that are the major domestic production hub in Nigeria. However, the economic effects are on the wellbeing of families of these production communities. The virus has affected both public and private

businesses as a result of restrictions in movement and movement of commodities which aides in the production, marketing and distribution of essential commodities [12]. Agricultural food distribution covers the activities of moving agricultural product from the producer to the consumer. These activities involve the planning, organizing, directing and handling of the produce in such a way as to satisfy intermediaries and consumers [4]. However, numerous interconnected activities are involved in doing this, such as production and harvesting, grading, packing and packaging, transport, storage, provision of market information [10]. These processes were severely disrupted due to COVID-19 pandemic.

With COVID-19 spreading to all parts of the country, the supply side of agricultural raw materials are heavily affected as the major imports from outside the country reduced tremendously during the lockdown and thus affected agricultural production [12]. The macroeconomic effects of COVID-19 have resulted in shutting down of the supply chain in most states. These disruptions due to closure of state borders by the government has resulted in a sharp decrease in the supply of agricultural raw materials, increase in the price and the demand of these commodities by consumers and agribusiness firms. The coronavirus has brought about a huge increase in the price of agricultural raw materials used in production in the country.

Also, from the supply side, the immediate exposure to the economic effects of COVID-19 is trade restrictions, supply shortages as well as price hikes. The restrictions on trade have affected the businesses and also has increased the poverty levels due to increase in the prices [5]. This also has resulted in the decrease in the demand for agro raw materials transported to and within the State. It is with clear understanding that most of the haulage services have cancelled orders due to border closures and restrictions on human movement by the federal government and also these have affected the availability and ultimately the prices of the traded agro commodities. Suppliers of these agribusiness commodities used in agricultural production are now forced to increase the prices of their products due to the uncertainties caused by the COVID-19 pandemic. Agribusiness firms have lost substantial income due to the outbreak of the disease as a result of the reduced demand of agribusiness raw materials and labour thus this has also translated into negative economic impact affecting the already most vulnerable population. The fear and the concern about COVID-19 is growing consequently, many agribusiness firms have put in place measures to ensure that the virus does not spread further among their employees and customers which, however, affected their business activities.

In view of the foregoing, this study aims at examining the economic effect of COVID-19 on small-scale agribusiness firms in Enugu state, Nigeria. Specifically, the study investigated the effect of COVID-19 pandemic on crop/food production of agribusiness, the effects of COVID-19 on agribusiness marketing, the effect of the pandemic on agribusiness profitability, as well as examined the coping strategies of small-scale agribusiness amidst the Coronavirus pandemic in Enugu State, Nigeria. The remainder of the study includes the methodology section, presentation and analysis of results as well as conclusions with relevant policy recommendations.

## MATERIALS AND METHODS

The study was conducted in Enugu State, Nigeria. The state has seventeen local government areas (LGAs), shares border with Abia and Imo State to the South, Ebonyi State to the East, Benue State to the Northeast, Kogi State to the Northwest and Anambra State to the West [1]. It is located between Latitudes $5^0$55'N and $7^0$08'N of the equator and longitudes $6^0$55' E and $7^0$08' E of the Greenwich meridian [1]. Enugu state has a population of 3,257,298 people and a landmass of 71,161 square kilometres [2]. The larger proportion of the population lives in rural areas who mostly engaged in agricultural activities.

The study employed a survey research design. A well-structured questionnaire was used to elicit information from 397 randomly selected

respondents (agripreneurs) who engaged in small scale agribusinesses. Number of respondents selected from each local government area (LGA) were based on agripreneur participation level. One hundred and thirty-three (133) respondents were randomly selected from Igboetiti LGA, one hundred and sixteen respondents were randomly selected from Igboeze South LGA, while one hundred and forty-eight respondents were randomly selected from Nsukka LGA. Thus, 33.50% of the respondents were residents in Igboetiti LGA while 29.22% and 37.28% were from Igboeze South and Nsukka local government areas, respectively.

Table 1. Sampling procedure

| Local government area | Number of respondents | Percentage |
|---|---|---|
| Igboetiti | 133 | 33.50 |
| Igboeze South | 116 | 29.22 |
| Nsukka | 148 | 37.28 |

Source: Field Survey, 2021.

The study elicited information from participants in agribusiness in Nsukka, Igboetiti and Igboeze South local government areas from January to February, 2021. Twelve research assistants who were trained and well familiar with the three LGAs selected assisted in the data collection. Due to the nature of the pandemic, the researchers and the assistants wore facemask, had hand sanitizers and also wore hand gloves which were regularly removed and disposed. The questionnaire had two sections (section A and section B). Section A captured information about the respondents while section B, which was divided into four clusters centred on the objectives of the study. Clusters one, two and three were structured in Likert format to capture the extent that COVID-19 affected crop/food production of agribusiness, the extent COVID-19 affected marketing of agribusiness and the extent COVID-19 affected profitability of agribusiness. Cluster four was structured to allow the respondents to state their coping strategies to reduce the effect of COVID-19 on their agribusiness.

The data were analysed using descriptive statistics such as mean, standard deviation, frequency, percentage and Likert rating scale. Inferential statistics, logistic regression, was also used as a means of data analysis. The entire analysis was done using STATA 15 software.

A four-points Likert scale was used to analysis the effects of COVID-19 on crop/food production of agribusiness and the effect of COVID-19 on agribusiness marketing. The nature of the questionnaire items for the first two objectives which were Likert scaled implied that decision for the result can only be done based on real limit means. By this method, means of 1 to 1.4 = very low extent (VLE), 1.5 to 2.4 = low extent (LE), 2.5 to 3.4 = high extent (HE) and finally 3.5 and above = very high extent (VHE).

To investigate the causal pathways through which the pandemic has affected agribusinesses (proxied by the extent or severity of profit losses) in the study area, the study used the logistic regression model. The logistic regression was used due to its simplicity and seemingly advantages over the Probit model. Also, it was used basically because the dependent variable; extent of profit declines associated with the pandemic was used in the model as a dummy variable having two categories 0 and 1. Those who reported very low extent and low extent on profit declines were coded as 0, while those who reported high extent and very high extent were coded 1. The use of the logistic for handling this kind of relationships is prevalent in literature such as [3, 6].

The model was fitted thus:

$$L_i = \ln((P_1 - P_2)/1 - P_1 - P_2)) = X_i'\beta + \mu$$

where:

$L_i$ = Logit

$P_1 - P_2$= Probability of success; High extent of profit decline.

$1 - P_1 - P_2$ = Probability of failure; low extent of profit decline.

$X_i$ $(X_{1-6})$ are vector of covariates.

$X_1$= cost of seeds as a result of the pandemic.

$X_2$= respondent's level of education.

$X_3$= age of the respondent.

$X_4$= gender.
$X_5$= credit sales.
$X_6$= products not harvested as a result of the pandemic.
$X_7$= unavailability of seeds.
$\beta$ is an unknown vector of regression coefficients.
μ is the error term.

## RESULTS AND DISCUSSIONS

### Demographic characteristics of the respondents

Table 2 presented the demographic features of the respondents. From the Table, it could be seen that most of the respondents were male (60.45%) and married (78.84%). These imply that married males were mostly engaged in small-scale agribusiness activities. Majority of the respondents were aged 40 and above which suggests that the agripreneurs were advanced in age who are, however, still within their economic active age. Considering the drudgery nature of agriculture which requires energy and quality of farm labour, age of the agripreneurs is a vital factor for effective maximization of available scarce resources for increased production and outputs [9, 11]. The educational status of the respondent revealed that majority had only secondary school education or its equivalent. This shows a low level of literacy among the agripreneurs which could affect their decision making.

Table 2. Frequencies and Percentages for the Personal Information of the Respondents

| Response Options | Frequencies | Percentages |
|---|---|---|
| Gender of respondents | | |
| Male | 240 | 60.45 |
| Female | 157 | 39.55 |
| Marital status of respondents | | |
| Single | 60 | 15.11 |
| Married | 313 | 78.84 |
| Divorced/separated | 5 | 1.26 |
| Widowed | 19 | 4.79 |
| Age of respondents | | |
| Below 30 years | 27 | 6.80 |
| 30 to 39 years | 96 | 24.18 |
| 40 to 49 years | 157 | 39.55 |
| 50 years and above | 117 | 29.47 |
| Highest completed education of respondents | | |
| Secondary education or equivalent | 289 | 72.80 |
| NCE/OND | 83 | 20.91 |
| HND/B.Sc. and above | 25 | 6.30 |

Source: Field Survey, 2021.

### The effects of COVID-19 on crop/food production of agribusiness

Table 3 showed the results of Likert mean, standard deviation (SD) and decision on the effect of COVID-19 on crop/food production of agribusiness. From the table, the respondents indicated that the quantity produced reduced greatly ($\overline{X} = 3.16$) and sales were negatively affected because of the lockdown ($\overline{X} = 3.51$). However, the respondents indicated that some of their produce were not harvested ($\overline{X} = 2.07$) because of COVID-19 lockdown (movement restriction). The mean score of 3.26 showed that the pandemic highly affected planting during the period. Furthermore, the mean value of 3.52 indicated that to a very high extent cost of seeds for planting went up as a result of COVID-19 pandemic. The result also indicated that seed for planting were to a high extent ($\overline{X} = 3.23$) not available for agripreneurs to buy in the market. Conclusively, the cluster mean of 3.12 indicated that to a high extent COVID-19 has affected agribusinesses. These results imply that COVID-19 had a great effect on agribusiness activities through reduction in production and loss in output due to inability to harvest produce. Due to movement restriction imposed by the pandemic during the lockdown, there was scarcity of seeds for planting and other agricultural input which led to an inflation in the agricultural inputs cost. These greatly affected the 2020 planting season which could increase the food insecurity level if

immediate and appropriate measures are not taken. The impact of COVID-19 was thus felt on all aspect of agriculture, especially small-scale agribusiness.

Table 3. Effects of COVID-19 on Crop/Food Production of Agribusiness

| Questionnaire Items | Mean | SD | Decision |
|---|---|---|---|
| Quantity produced reduced | 3.16 | 1.06 | HE |
| Some of your produce were not harvested because of lockdown | 2.07 | 1.10 | LE |
| Sales were negatively affected because of lockdown | 3.51 | 0.88 | VHE |
| Planting were affected because of lockdown | 3.26 | 1.01 | HE |
| The cost of seeds for planting went up because of COVID-19 | 3.52 | 0.86 | VHE |
| Seeds for planting were not available to buy in the market | 3.23 | 1.02 | HE |
| Cluster summary | 3.12 | 0.54 | HE |

Source: Field Survey, 2021.

## The effects of COVID-19 on agribusiness marketing

Table 4 showed the results of Likert mean, standard deviation (SD) and decision for the highlighted effects of COVID-19 on agribusiness marketing. As shown in the table, the respondents indicated that loan borrowed for their business to a high extent ( $\overline{X} = 3.19$) were not used for production purpose due to movement restriction, instead were used for consumption purpose. Similarly, the mean value of 3.23 indicated that their profit to a high extent declined due to low market participation among the agripreneurs. Also, with a mean score of 3.96, the study indicated that sales reduced to a very high extent and this was not surprising as the respondents indicated that markets were to a high extent ($\overline{X} = 2.99$) not open for their goods during the pandemic. In addition, the mean value of 3.88 indicated that the cost of marketing to a very high extent increased because of increased cost of transportation. Furthermore, the respondents indicated that non-durability of their goods to a high extent ($\overline{X} = 3.35$) led to spoilage and waste of their produce. Lastly, the cluster summary with a mean score of 3.43 indicated that COVID-19 to a high extent affected marketing of agribusiness. These results imply that rapid spread of the viral disease affected the various sectors involved in the supply and distribution channels of food. Thus, the disruption caused by COVID-19 affected the marketing aspect of agribusiness as producers and consumers were on the look-out to avoid contracting the disease.

Table 4. Effects of COVID-19 on Marketing of Agribusiness

| Questionnaire Items | Mean | SD | Decision |
|---|---|---|---|
| Loan borrowed were not used | 3.19 | 1.03 | HE |
| Profit declined | 3.23 | 1.00 | HE |
| Sales reduced | 3.96 | 0.29 | HE |
| Markets were not available | 2.99 | 1.16 | HE |
| Increase in cost of marketing because of increased in cost of transportation | 3.88 | 0.49 | VHE |
| None durability of the goods led to waste | 3.35 | 1.16 | HE |
| Cluster summary | 3.43 | 0.40 | HE |

Source: Field Survey, 2021.

## The effects of COVID-19 pandemic on agribusiness profitability

Table 5 shows the logistic regression estimates used to examined the effect of COVID-19 pandemic on agribusiness profitability among the small-scale agripreneurs. This was discussed based on the marginal effects for simplicity purposes. However, from the available result, education, respondent age, and gender did not influence profitability during the Covid 19 period under study. However, other variables such as cost of seeds, credit sales, products not harvested due to the pandemic, and unavailability of seeds significantly reduced the agribusiness profits during the period of the pandemic understudy. From the result of the marginal effect, cost of seeds, credit sales, inability to harvest products, and unavailability of seeds significantly increased the reduction of profits by the respondents during the period of the pandemic understudy.

Table 5. Effects of COVID-19 pandemic on agribusiness profitability

| | **Logit** | **Marginal effect** |
|---|---|---|
| Cost of Seeds | 2.312** | 0.099** |
| | (0.730) | (0.0294) |
| Education | 1.472 | 0.0627 |
| | (1.509) | (0.0637) |
| Age | -0.0695 | -0.0030 |
| | (0.277) | (0.0118) |
| Gender | 0.667 | 0.0284 |
| | (0.534) | (0.0224) |
| Credit Sales | 3.067*** | 0.131*** |
| | (0.901) | (0.0362) |
| Products Not Harvested | 1.956* | 0.0408* |
| | (0.443) | (0.0183) |
| Unavailability of Seeds | 3.120*** | 0.1330*** |
| | (0.426) | (0.0089) |
| Constant | -13.82*** | |
| | (2.666) | |
| R2 | 0.0000 | |
| AIC | 136.5 | |
| BIC | 180.4 | |
| F | 22.4543 | |
| N | 397 | |

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Source: Field Survey, 2021.

The results showed that with a unit increase in the cost of seeds during the pandemic, profits declined significantly by 9%. The result implies that increase in the cost of seed increased the severity in profit declines in the study area. This large cost of seed with the corresponding decline in profit could be attributed to the following reasons. Firstly, due to the pandemic, many cities were on lockdown. This situation led to farmers inability to access seeds, and as a consequent led to an increase in cost of purchase as demand overwhelms the supply. Secondly, due to the increasing cost of input, prices in the market for commodities are bound to rise, and with a general fall in the incomes of employees, especially private sector employees which account for the large chunk of the labour force, sales declined significantly due to low income. The result from the descriptive statistics also affirms the reduction in the volume of sales.

In addition, those who sold on credit were likely to experience loss in profits by 13%. Also, one of the coping strategies used by the farmers in order to increase sales was selling on credit, which led to further losses in profitability. This is intuitively so because, unlike the advanced societies, selling on credit are highly risky options which does not usually yield expected results due to factors such as lack of repayment, time of repayment and the economic environment which also affects the former.

Also, in terms of the severity of the respondents' inability to harvest farm produce, profits decline significantly by 4%. The failure to harvest all farm produce significantly led to profit losses in agribusiness firms. With reduced harvest, the availability of goods for sales reduced significantly which led to reduced sales and hence, profits.

For the degree of severity in the unavailability of seeds, profit declined by 13%. The unavailability of seeds also led to significant increases in the severity of profit loses due to the pandemic. Usually, one of the major problems that affect farming and agricultural production generally in developing countries is the lack of farm inputs. This lack of farm inputs leads to increases in the prices of available inputs and reductions in the scale of production hence reducing profitability. [16] found in Kenya that agricultural inputs significantly influenced agricultural

productivity. [15] have stated that "agricultural growth necessary for economic transformation comes from expanded input use, especially of modern inputs—like improved seed, fertilizers and other agrochemicals, machinery, and irrigation—that embody improved technologies" which Sub-Saharan Africa Countries lag behind especially when compared to the rest of the globe. Hence, it is expected that with productivity affected due to this, profit would be affected. And from our results, this variable exerts higher influence on profits compared to the others.

**Coping strategies adopted by agripreneurs to ameliorate the effect of COVID-19 on their business**

The result presented in Table 6 depicted the coping strategies adopted by those in agribusiness to ameliorate the effect of COVID-19 on their business.

The result revealed that 94.71% of the respondents adopted home sale. This result implies that selling from home was widely adopted and ranked first by the agripreneur to ameliorate the effect of COVID-19 on their business. This was due to the movement restriction during lockdown period which prevented them from accessing the market. Although, the respondents reported that selling at home did not give the required sales but assisted them to an extent. More than half (54.91%) of the respondents indicated that they adopted paid their way to the selected market as a coping strategy.

More so, only 37.78% of the respondents adopted selling on credit as their coping strategy. The agripreneurs, however, complaints of low rate and late repayment by some of their customers who took their commodities on credit. Sixty one percent of the respondents reduced their prices to ensure they sold their goods. This was done to attract more customers to avoid spoilage of their produce due to its perishable nature. Furthermore, only 29.97% of the respondents mentioned that they further process their product to increase its lifespan. Going further, 73.55% of the respondents mentioned that they engaged in lower scale sales to ensure they remain in business to avoid losing their customers to competitors.

Table 6. Coping Strategies for the Effect of COVID-19 on Agribusiness

| Items | Response Options | Frequencies | Percentages |
|---|---|---|---|
| Selling in their homes | Yes | 376 | 94.71 |
| | No | 21 | 5.29 |
| Paying their way to the selected market | Yes | 218 | 54.91 |
| | No | 179 | 45.09 |
| Selling on credit | Yes | 150 | 37.78 |
| | No | 247 | 62.22 |
| Reduction in prices | Yes | 153 | 61.46 |
| | No | 244 | 38.54 |
| Further processing of the product (like drying of cocoyam | Yes | 119 | 29.97 |
| | No | 278 | 70.03 |
| Engaging in lower scale sales | Yes | 292 | 73.55 |
| | No | 105 | 26.45 |

Source: Field Survey, 2021.

## CONCLUSIONS

The Covid 19 pandemic has remained an economic, political and social shock to the world, with all countries trying to recover from its effect. This study analysed the effect of coronavirus on agribusinesses in Enugu State, Nigeria. The result of this study showed that the pandemic has influenced the economic status of majority of the respondents, who were business owners in the agricultural sector. Thus, coronavirus outbreak had indeed affected small scale agribusiness. This was clearly revealed as individuals and businesses were not allowed to engage in any form of business activities in the market place due to the government-imposed lockdown which although necessary

had led to reduced economic status for individuals and businesses. Major results of the study showed that COVID-19 severely affected different segments of agribusiness which include production and marketing which thus affected their profitability. Channels such as the cost of seeds, credit sales, products not harvested due to the pandemic, and unavailability of seeds were significant areas through which the pandemic affected agribusinesses in the state. The coping strategies adopted by the agripreneurs to lower the effect of COVID-19 pandemic on their business were selling at home, paying their way to the selected market, selling on credit, reduction in prices, further processing of the product and engaging in lower scale sales.

From the fore-going, it was recommended that Nigerian government needs to give the health sector and the agricultural sectors serious priority, as the two sectors are very vital to ensuring food security, improved human capital development and sustainability in an economy. The current pandemic effect can be minimized if appropriate policies is geared towards absorbing its effect on agribusinesses. Therefore, the agripreneurs need financial supports from the government and nongovernmental organisations to ease the effects of COVID-19 on their business. Consequently, there is need for enhanced social and economic policies that will absorb the effect of the coronavirus in communities in order to reduce its impact on agribusinesses and most especially on well-being of the members of the society. Activities in agribusinesses can increase and be sustained by developing online technologies that both the large, medium and small-scale agribusinesses can afford. Also, agricultural innovation technologies that are tailored towards online activities such as e-marketing channels and logistics will reduce movement and face to face businesses interaction which will contribute to containing and reducing the spread of the virus. These will encourage producers and agribusiness owners to not only be in business but also make moderate profits. Furthermore, since the outbreak of the current COVID-19 has affected production, the use and adoption of technologies will also go a long way to bridge the gap in the production, marketing and movement of commodities from one area to another. This will go a long way to maintaining a steady supply of agricultural produce and reduce hardship to the citizens.

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