Coping strategies to mitigate the effects of the COVID-19 pandemic on agricultural household income in Osun state, Nigeria

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Abstract - Agricultural households with low socio-economic status in emerging nations face the hardships of generating income, including rural Nigeria. Moreover, the emergence of the COVID-19 pandemic posed a grave risk to these households’ finances. Therefore, this study investigates coping strategies to mitigate the effects of the COVID-19 pandemic on agricultural households’ income. Data were collected from 150 heads of agricultural households via multistage sampling. Interviews were scheduled and analyzed using the appropriate statistics. Findings showed that 57.3% of respondents were male. The most practiced coping strategies during the pandemic included, in descending order, expenditure rationing (R = 2.63), job diversification (R = 2.40), reduced hired labor (R = 2.36), and household food rationing (R = 2.28), among others. We found a substantial relation between household size (R = 0.075, P = 0.003), annual income (R = 0.033, P = 0.004), and coping strategies (P = 0.005). We conclude that the pandemic negatively affected the income of agricultural households. The study recommends formulating necessary, effective, and urgent policies such as adequate social welfare net, provision of relief materials, and improvements in food assistance and revenue-producing prospects for affected households to lessen the negative effect of the pandemic on the income of this population.

Index terms: Family farming; Farming families; Surviving tactics; Revenue; COVID-19

Estratégias de enfrentamento para mitigar o efeito da pandemia de COVID-19 na renda familiar agrícola no estado de Osun, Nigéria

Resumo - A renda de famílias agrícolas com baixo status socioeconômico é uma tarefa em nações emergentes, incluindo as áreas rurais da Nigéria. Além disso, a entrada da pandemia de COVID-19 representou um grave risco para a economia das famílias. Este estudo, portanto, investiga as estratégias de enfrentamento na mitigação do efeito da pandemia de COVID-19 na renda das famílias agricultoras. Os dados para o artigo foram coletados a partir de 150 famílias agricultoras, por meio do método de amostragem multi-estágio, com o uso de entrevista agenda e analisada por meio de estatísticos. Os resultados mostraram que 57.3% por cento dos entrevistados eram do sexo masculino. As estratégias de enfrentamento amplamente praticadas durante a pandemia foram por ordem decrescente racionamento de gastos (R = 2.63), diversificação de empregos (R = 2.40), redução de mão de obra contratada (R = 2.36), racionamento de alimentação domiciliar (R = 2.28), entre outras. Há relação substancial entre tamanho de domicílio (R = 0.075, P = 0.003), renda anual (R = 0.033, P = 0.004) e estratégias de enfrentamento praticadas em p<0.005. Concluiu-se que a pandemia teve grande efeito na renda das famílias de agricultores. O estudo recomenda a formulação de políticas necessárias, eficazes e urgentes, como rede de assistência social adequada, fornecimento de materiais de alívio, juntamente com melhorias na assistência alimentar e perspectivas de geração de receita para as famílias afetadas, a fim de amortecer o efeito negativo da pandemia em sua renda.

Termos para indexação: Agricultura familiar; Famílias agricultoras; Táticas de sobrevivência; Receitas; COVID-19

Introduction


COVID-19 pandemic has impacted everything and everyone around the world, some more than others. Estimates expect Africa to be one of the most harshly infected continents by COVID-19 due to its poverty rate, poor access to excellent health care, inadequate medical staff, and poor technology (WALKER et al., 2020). It has caused many families to make significant changes to their day-to-day activities due to financial restrictions and other effects stemming from the pandemic. The COVID-19 pandemic and non-pharmaceutical measures to curtail its spread, such as lockdowns, travelling restrictions, social distancing, and face masks, among others, have negatively affected people and families.

Different households greatly affected by the pandemic have, to some extent, adopted different strategies to cope with this crisis (FULLANA et al., 2020, KOOS et al., 2020), its associate

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lockdown, and how life has changed since then. However, some coping strategies, such as selling agricultural/non-agricultural assets and reducing food consumption (KOOS et al., 2020) seem insufficient to meet households’ food and other needs. Generalizing coping strategies in such an emergency is hard since effective strategies for one part of the country might not be effective in another. This study specifically defines the agricultural household heads’ characteristics, identifies their economic activities, examines how COVID-19 pandemic has affected agricultural households’ income, and investigates the coping strategies they employed to mitigate the effects of the pandemic on household income in the assessed area. We postulated the absence of any substantial relation between household heads’ characteristics and their coping strategies. This study can provide an enhanced overview of the increase in agricultural household size and the apt reactions to mitigate the effects of the COVID-19 pandemic. The outcomes might contribute to formulating definite policies for poor agricultural households.

Materials and methods

This study was conducted in Osun state, in Southwestern Nigeria. The state is located within the forest region in Southwestern Nigeria and its capital, in Osogbo. It covers an area of about 14,875km² and had an estimated population of 3,705,589 in 2016 (NIGERIA, 2018). The state has 30 Local Government Areas (LGAs).

The studied area is divided into six administrative zones: Ede, Osogbo, Iwo, Ikirun, Ife, and Ilesha. A Multi-stage sampling was adopted. This purposive sampling technique was used first to select the most rural/agricultural LGAs among the six administrative zones; totaling 6 LGAs. During the second stage, a proportionate sampling was employed to select respondents from each community, totaling 150 individuals. Before surveying them, informed consent was obtained from all participants. We introduced prospective participants to our goals before including them in the study. Those who agreed with our aims participated voluntarily. A pre-tested interview schedule was used to elicit data between July 8 and 25 2022, analyzed via SPSS - 2020 Edition.

Coping strategies to mitigate the effects of the COVID-19 pandemic on agricultural households’ income was measured by asking respondents to rate the strategies they had been using into very often (3), often (2), rarely (1), and never (0). The lowest possible score was 0, whereas the highest, 36. The effect of the pandemic on household income was measured by asking respondents to rate a list of possible effects on household income (derived from the literature) into no effect (0), little effect (1), moderate effect (2), and serious effect (3), as per Adeloye et al. (2020). The lowest achievable score was 0, whereas the highest, 48.

Results and discussion

Characteristics of household heads

Table 1 shows that respondents’ average age was 49.09±10.95 years, implying that they were middle aged but economically active and productive. Table 1 also shows that most of heads of households were male (57.3%), suggesting that agricultural family heads in farming areas are mostly men. This corroborates the findings in Omotoso et al. (2018), which found that males constitute most agricultural heads of households in Ogun state, Nigeria. Moreover, the Table shows that most of respondents (72.0%) had at least primary school education. This agrees with Obaniyi (2020) and Omonona et al. (2015), who reported that farming is the main occupation in rural Nigerian communities.

Off-farm activities

Table 2 show that 27.3% heads of households worked as wage laborers, 62% worked in agro-processing; 88.7%, in agro-marketing; and 32.7%, in fishery. This result implies that some respondents engaged in more than one on-farm activity and that arable crop production predominated. This suggests that respondents will likely engage in more on-farm activities during the pandemic since most may be unable to engage in other type of activities due to restrictions and lockdowns. Results also support the finding in OECD (2009) and Omonona et al. (2015), who reported that farming is the main activity in rural Nigerian communities.
Furthermore, since agro-marketing and agro-processing are the household’s main off-farm activities, these activities would most likely to suffer from the COVID-19 pandemic, forcing the heads of households to adopt coping strategies, such as taking government input subsidies, to mitigate the effects of the COVID-19 pandemic on their households. Results also support the findings in Balde et al. (2020), who showed that marketing agricultural products is the second largest economic activity in rural areas and that it had been dramatically affected by the pandemic.

**Non-farm activities**

Table 2 shows that 51.3% of heads of households worked in trading; 8.7%, in tailoring; 6%, in carpentry; 14.7%, in commercial motorcycle usage; 6%, in vulcanization; 5.3%, in hairdressing; 14.7%, in craftsmanship; and 8.7%, in civil services. This implies that the heads of households engage in at least one or more non-farm activities and that trading is the main non-farm activity. Respondents’ non-farm activities would most likely suffer from government lockdowns and restrictions, which would lead them to adopt coping strategies, such as taking new job opportunities, to mitigate the effects of the COVID-19 pandemic on their households. These results support the findings in Ovwigho (2014), who found that agricultural households usually participate in various non-farm income-generating activities, apparently to balance the shortage of income due to the seasonality of agricultural production and develop unceasing sources of income to satisfy the different household needs.

**The effects of the COVID-19 pandemic on agricultural household’s income**

Table 3 shows the mean rank of effects of the COVID-19 pandemic on agricultural households’ income. Results show that the effect on household expenditure ranked highest among all effects (mean = 2.52), followed by reduced ability to save money (mean =
2.47), increased production costs (mean = 2.44), decreased access to financial institutions (mean = 2.37), affected work supply (mean = 2.21), decreased spending power (mean = 1.91), reduced cooperation with other people (mean = 1.87), and affected credit ratings (mean = 1.71).

Table 3 also shows that the pandemic helped respondents discover new ways of doing business (mean = 1.35) and marketing (mean = 1.33), increased household size (mean = 1.05), affected owned properties and the acquisition of new properties (mean = 1.04), and affected employment opportunities (mean = 0.85). Based on these results, increased household expenditures, reduced ability to save money, decreased spending power, and increased production costs, which are associated with household income, constitute the major effects of the COVID-19 pandemic on rural households. Moreover, reduced access to financial institutions and affected work supply — a major COVID-19 pandemic effect on agricultural households — may be due to lockdown and restrictions imposed by the government. This result implies that most respondents agreed that the pandemic had a moderate effect on their income. This might be associated with the fact that many heads of households work on daily wages, might suffer from unemployment, and have no alternative source of revenue. This result mirrors the findings in Ayewumi & Okeke (2020), Celik et al. (2020), and Sumner et al. (2020), who stated that the pandemic would inversely influence poor people’s finance, especially in Sub-Saharan Africa. Thus, family incomes would significantly decrease and family expenditures, income.

**Coping Strategies to Mitigate the Effects of the COVID-19 Pandemic on Agricultural Households’ Income**

Table 4 shows the mean rank order of the coping strategies used to mitigate the effects of the pandemic on agricultural households’ income. Results showed that “Rationed spending (mean = 2.63)” ranked the highest, followed by “Diversification into a new job (mean = 2.40),” “Labor usage reduction (mean = 2.36),” “Food rationing (mean = 2.28),” “Capital inflows from family and friends (mean = 2.15),” “Financial institution loans (mean = 2.09),” “Free health care provision (mean = 2.09),” “Input subsidy provision (mean = 1.87),” “Government palliatives (mean = 1.79),” “Government tax breaks (mean = 1.75),” “Loan interest reduction (mean = 1.71),” and “Skill acquisition center (mean = 1.71).” From this result, we can infer that respondents rationed spending (which has the highest mean) the most to mitigate the effect of the pandemic on agricultural households. Also, they used diversification into new jobs and reduction in labor usage to create new income streams and reduce production costs during the pandemic. While government palliatives and tax breaks and skill acquisition centers ranked lowest, this may stem from the government failing to effectively and efficiently play its role to care for people’s needs during this period. The effect of the pandemic on households is exceptional and we observe different responses among families due to their different socio-economic status (SES). Previous studies have reported a similar
situation in the state of Osun state, Nigeria, postulating that rural families with high SES might have better coping strategies and greater resilience than those with low SES; findings which agree with Gideon et al. (2020); Mukaila et al. (2020); Okidim et al. (2021); BALDE, R.; BOLY, M.; AVANYO, E. (2016). Agricultural households adopted skipping meals, engaging in additional small-scale productivity activities, borrowing money to buy food, among others to cope during the COVID-19 pandemic.

Relation between Selected Characteristics and Coping Strategies

We found no substantial relation between coping strategies to mitigate the effects of the COVID-19 pandemic and respondents' characteristics. Table 5 shows that occupation has a significant association (p ≤ 0.05) with coping strategies to mitigate the effects of the COVID-19 pandemic on agricultural households. It also shows that gender, religion, marital status, educational attainment, and travel frequency have no significant association (p≤0.05) with such coping strategies.

Furthermore, Table 6 shows the relation between selected characteristics and coping strategies. Results show that household size (r = 0.075, p = 0.003) and annual income (r = 0.033, p = 0.004) have a positive relationship (p ≤ 0.05) with coping strategies to mitigate the effects of the COVID-19 pandemic on rural households' income as do age (r = 0.029, p = 0.722) and work experience (r = -0.001, p = 0.991) (ps0.05).

Conclusions

- Based on the study outcomes, many heads of households were male and involved in on-farm, off-farm, and non-farm activities to make ends meet. Many claimed that the pandemic negatively impacted their households’ income.

- The most common coping strategies during the pandemic were rationed spending, job diversification, reduction in hired labor, and household food rationing, among others.

- We conclude that the pandemic adversely affected agricultural households’ income.

- We recommend the formulation of necessary and effective policies, such as an adequate social welfare net, provision of relief materials, improved food assistance, and revenue-producing prospects for affected households, to help lessen the negative effect of the pandemic on these households’ income.

References


Table 4. Respondents’ coping strategies to mitigate the effects of the COVID-19 pandemic in Osun State, Nigeria, 2021

<table>
<thead>
<tr>
<th>Coping strategies</th>
<th>Very often</th>
<th>Often</th>
<th>Rarely</th>
<th>Never</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input subsidies from the government</td>
<td>40(26.7)</td>
<td>61(40.7)</td>
<td>39(26.0)</td>
<td>10(6.7)</td>
<td>1.87 8th</td>
</tr>
<tr>
<td>Government palliatives</td>
<td>43(28.7)</td>
<td>49(32.7)</td>
<td>41(27.3)</td>
<td>17(11.3)</td>
<td>1.79 9th</td>
</tr>
<tr>
<td>Household food rationing</td>
<td>76(50.7)</td>
<td>44(29.3)</td>
<td>26(17.3)</td>
<td>4(2.7)</td>
<td>2.28 4th</td>
</tr>
<tr>
<td>Rationed spending</td>
<td>108(72.0)</td>
<td>33(22.0)</td>
<td>5(3.3)</td>
<td>4(2.7)</td>
<td>2.63 1st</td>
</tr>
<tr>
<td>Financial institution loans</td>
<td>69(46.0)</td>
<td>44(29.3)</td>
<td>21(14.0)</td>
<td>17(11.3)</td>
<td>2.09 6th</td>
</tr>
<tr>
<td>Free health care provision</td>
<td>65(43.3)</td>
<td>41(27.3)</td>
<td>37(24.7)</td>
<td>7(4.7)</td>
<td>2.09 6th</td>
</tr>
<tr>
<td>Loan interest reduction</td>
<td>30(20.0)</td>
<td>59(39.3)</td>
<td>48(32.0)</td>
<td>13(8.7)</td>
<td>1.71 11th</td>
</tr>
<tr>
<td>Skill acquisition centre</td>
<td>16(10.7)</td>
<td>38(25.3)</td>
<td>82(54.7)</td>
<td>14(9.3)</td>
<td>1.37 12th</td>
</tr>
<tr>
<td>Government tax breaks</td>
<td>49(32.7)</td>
<td>37(24.7)</td>
<td>41(27.3)</td>
<td>23(15.3)</td>
<td>1.75 10th</td>
</tr>
<tr>
<td>Capital inflows from family</td>
<td>69(46.0)</td>
<td>40(26.7)</td>
<td>36(24.0)</td>
<td>5(3.3)</td>
<td>2.15 5th</td>
</tr>
<tr>
<td>Reduction in hired labour</td>
<td>62(41.3)</td>
<td>81(54.0)</td>
<td>6(4.0)</td>
<td>1(0.7)</td>
<td>2.36 3rd</td>
</tr>
<tr>
<td>Diversification into new jobs</td>
<td>96(64.0)</td>
<td>21(14.0)</td>
<td>30(20.0)</td>
<td>3(2.0)</td>
<td>2.40 2nd</td>
</tr>
</tbody>
</table>

Source: Field Survey, 2021
Table 5. Análise qui-quadrado mostrando associação entre características selecionadas e estratégias de enfrentamento contra o efeito da pandemia de COVID-19 na renda familiar no estado de Osun, Nigeria, 2021

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\chi^2$</th>
<th>DF</th>
<th>P-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>1.175</td>
<td>1</td>
<td>0.278</td>
<td>Not significant</td>
</tr>
<tr>
<td>Religion</td>
<td>0.131</td>
<td>2</td>
<td>0.937</td>
<td>Not significant</td>
</tr>
<tr>
<td>Marital status</td>
<td>3.826</td>
<td>3</td>
<td>0.281</td>
<td>Not significant</td>
</tr>
<tr>
<td>Level of education</td>
<td>4.534</td>
<td>3</td>
<td>0.209</td>
<td>Not significant</td>
</tr>
<tr>
<td>Occupation</td>
<td>0.987</td>
<td>2</td>
<td>0.003</td>
<td>Significant</td>
</tr>
<tr>
<td>Travel frequency</td>
<td>3.323</td>
<td>3</td>
<td>0.344</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

$\chi^2 =$ chi-square, DF = Degree of freedom
Significant at p ≤ 0.05
Source: Field Survey, 2021

Table 6. Correlation analysis showing the relation between selected characteristics and coping strategies to mitigate the effects of the COVID-19 pandemic on households’ income in Osun State, Nigeria, 2021

<table>
<thead>
<tr>
<th>Variables</th>
<th>R</th>
<th>P-value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.029</td>
<td>0.722</td>
<td>Not significant</td>
</tr>
<tr>
<td>Household size</td>
<td>0.075</td>
<td>0.003</td>
<td>Significant</td>
</tr>
<tr>
<td>Years of work experience</td>
<td>-0.001</td>
<td>0.991</td>
<td>Not significant</td>
</tr>
<tr>
<td>Annual income</td>
<td>0.033</td>
<td>0.004</td>
<td>Significant</td>
</tr>
</tbody>
</table>

r = correlation coefficient
Significant at p ≤ 0.05
Source: Field Survey, 2021


