

Covid-19: Emerging Opportunities and Positive Fallouts in the Postharvest Milieu in Nigeria

Adetayo Jacob Adegbola^{*}, Olaoluwa Babatunde Ogunremi^{**}, Rukayat Queen Adegbola^{***}, Oluwasanjo Biodun Owojaiye^{****}, Lateef Oladimeji Sanni^{*****}

ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Accepted December 2024 Available online December 2024</p> <p><i>JEL Classification:</i> Q18, H12</p> <p><i>Keywords:</i> food preferences, pandemic, postharvest value chain, restrictions, value addition</p>	<p>It is increasingly becoming an acceptable line of thought in the academia that outside the factual daunting challenges of COVID-19 pandemic and containment measures which in most instances include restrictions in many countries there are no positive fallouts as well as lesser studied opportunities. 96,000 respondents comprising farmers, marketers, processors, consumers and transporters in the 6 geopolitical zones of Nigeria were subjects for this survey whose broad goal is to look into effects of COVID-19 in Nigeria. The study revealed that in some ways postharvest actors were able to make good the pandemic and its containment measures. Inter alia, family labour became abundant leading to considerable reduction in the cost for labour for some postharvest activities. Sourcing for inputs from immediate and neighboring communities by producers and selling directly in these communities improved their financial and economic health; neighborhood corner shops and businesses that deal in food commodities thrived. Increased family intimacy is a key social benefit which came with the restrictions. Coping approaches adopted during this time include the following amongst others: consumption of more staples, reduced protein consumption, skipping and rationing of meals and increased use of leftovers. It was concluded that understanding the shifts in food preferences and consumption patterns, embracing technology-intensive mechanisms for increased efficiency, developing alternate marketing and sales channels and facilitating alternative workforce for the agro-food supply chain are ways the sector can maximize these opportunities post pandemic.</p> <p style="text-align: right;">© 2024 JARDS. All rights reserved.</p>

1. Introduction

The novel human coronavirus disease 2019 (COVID-19) was first reported in Wuhan, China in December 2019 and subsequently spread globally to become the fifth documented pandemic since the Spanish Flu of 1918-1920 (World Health Organization, 2021). COVID-19 is highly contagious and lethal with the index case of the disease in Nigeria recorded in February 2020.

At the time, no vaccines or specific treatment therapies existed, the Federal Government of Nigeria therefore introduced restrictions (movement, time, and social distancing) as a containment measure along with other strategies to control the spread of the disease; the introduced control measures had unprecedented and long-lasting effects on all facets of life. These effects, well-documented as they are,

^{*}, ^{**}, ^{****}Research Outreach Department, Nigerian Stored Products Research Institute, Ilorin, Nigeria, ^{***}, ^{*****}Durable Crops Research Department, Nigerian Stored Products Research Institute, Ilorin, Nigeria. E-mail address: tayoadegebola@yahoo.com (A. J. Adegbola – Corresponding author).

include but are not limited to dramatic loss of lives and disruptions to social and economic systems. Decimation of jobs, dwindling incomes, escalation of food shortages, inflation, and lower purchasing power put livelihoods at risk while the number of vulnerable and malnourished people increased (Food and Agriculture Organization [FAO], International Fund for Agricultural Development [IFAD], United Nation's Children Fund [UNICEF], World Food Programme [WFP] and WHO. (2022).

Further, education was disrupted in 182 countries (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020), food supply chains were upended, and access to health, transport, logistics and other essential services were severely constrained. Many agricultural workers took predatory loans coupled with distress sale of assets while dealing with issues related to inadequate input supply, decrease in quality of unsold produce, increased production costs and outright loss of produce. The foregoing supports the general conception that COVID-19 and resultant restrictions have changed the world forever for bad. The impact of the disease is however broader and thus raises the need to examine areas where this pandemic has been "good". Consequently, this investigation has restricted itself to opportunities associated with Covid-19 restrictions in Nigeria as seen from the lenses of agricultural value chain actors. Simply put, this investigation harvests several dimensions of how the pandemic positively affected the fortunes of postharvest value chain actors in Nigeria considering the growing number of studies on consequence of COVID-19 which have most often than not dwelled on negativities and with emphasis on developed countries.

This emphasis exposes the lacuna in understanding of how the pandemic impacted developing countries, especially in terms of the opportunities it sometimes provided. It has also become expedient to espouse coping strategies cum actions adopted and deployed by subjects in dealing with challenges brought about by the pandemic especially on food supply within the family unit. Intrinsically, this investigation would help adaptation to the new conditions brought about by the pandemic and prepare stakeholders for future occurrences of pandemics or epidemics while aiding the establishment of a dynamic agricultural sector.

2. Materials and method

This investigation adopted a desk review of data obtained in a national survey on the impact of COVID-19 on postharvest value chain actors and their activities in Nigeria in 2021. The study was conducted in 16 states across the 6 geopolitical zones of Nigeria. Postharvest value chain actors were selected from an assortment of geographical zones and states in the country because it is assumed that they experienced effects of the COVID-19 restrictions in ways peculiar to their situation and locality. A total of 96,000 respondents were sampled for the study. Data were obtained through key informant interviews, focus group discussions (FGDs), questionnaires and interview schedule. Sampling was stratified along farmers, marketers, processors, consumers and transporters divide.

3. Results and discussion

3.1 Farmers

Farmers play a significant role in ensuring availability of food required for an active and healthy life. During the pandemic, restriction of movement improved labour availability for about 15% of farmers in Nigeria. This is particularly important because agricultural production is majorly rain-fed and human labour-dependent in the country. This containment measure ensured that farmers were able to rely

more on family labour for the execution of certain farm activities. Related to this, labour cost for 16% of farmers reduced during this period. This represents an opportunity in that cost and access to labour contributes to the overall household income and livelihood in terms of ability, skill and strength (Takane, 2008), especially in Nigeria where 80% of farmers are smallholders cultivating less than 2 hectares (United Nations Conference on Trade and Development [UNCTAD], 2015).

While the number of family labour force usually exceeds the number of hired workforce on these smallholdings, the use of family labour (often free of charge) increased, moving from 20% to 47% during the period under discussion (fig. 1). This represents an opportunity for extension agents to promote family and community farming among rural and urban dwellers in the bid to shore up sustainability and resilience of the food system. For 33% of farmers, sales did not dip during the restrictions, and for 16% prices improved. This opportunity came about because of the restriction which closed open markets and large supermarkets but opened and improved demand in neighbourhood markets and grocery stores. Most households and businesspeople had to buy products from farmers and suppliers close to their homes and or areas of business operation due to movement restriction; the effect of this is a boost for the local economy.

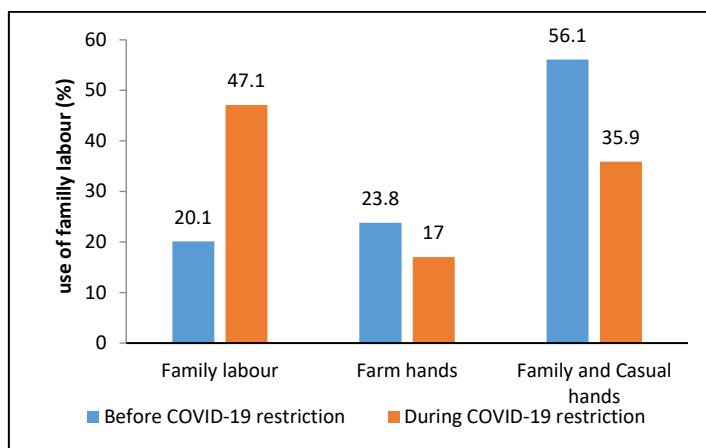


Figure 1. Family Labor for Farmers increased during restrictions

Source: Authors

Inputs, especially seeds, were acquired from farmers in the community rather than from input dealers in urban centres as was the norm pre-restriction. Also, during this period more commodities were sourced from farmers within Local Government Areas (LGAs) as input by processors during the restriction (76%) than before the restriction (67%). In the same token during the restrictions more marketers (75%) of commodities sourced for commodities for their businesses from farmers in their locale within their immediate LGAs than before the restriction (58%); the implication of these is greater revenue for local farmers compared to pre-restriction.

3.2 Processors

Processing in the agricultural sector involves value addition to agricultural produce which allows stakeholders in the sector to meet quality expectations of consumers, in addition to the demands and opportunities in export markets. The agro processing subsector has received little empirical attention over time (Bene et al., 2021), what’s more, a significant share of the agricultural output in Nigeria is lost due to the highly underdeveloped nature of primary and secondary processing. During the restriction

occasioned by the pandemic, labour cost for processing reduced for about 15% of processors as labour became more available for agro processors (figure 2).

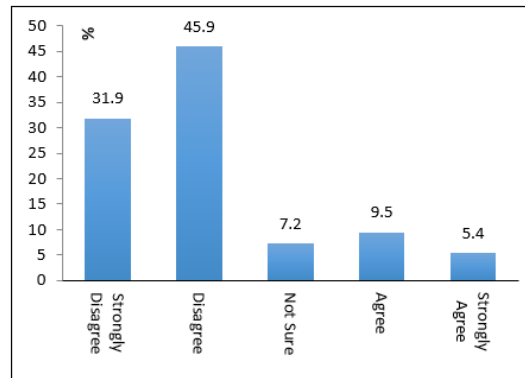


Figure 2. Labor cost trimmed down for some processors during restrictions

Source: Authors

Family labour utilization for processing increased, moving from 34% to 48%. This change represents an opportunity for this subsector to home in on opportunities to facilitate access to alternate workforce for more resilient operations. More money was made by 17% of processors; that prices of food went up during this period and consumers bought same or lesser quantity of food at higher prices could well be a valid explanation why processors made more money during this epoch. More commodities were sourced for within LGAs for processing during the restriction (76%) than before the restriction (67%) (fig.3), this is in agreement with Lakumaet al. (2021), these reported an increase in agro-processing Micro, Small, Medium Enterprises (MSMEs) that sourced inputs within their immediate environment during the pandemic. In the same token during the restrictions more marketers (75%) of commodities sourced for commodities from processors within their immediate LGAs than before the restriction (58%) (fig.3), the implication of these is greater revenue local farmers as well as processors compared to pre-restriction.

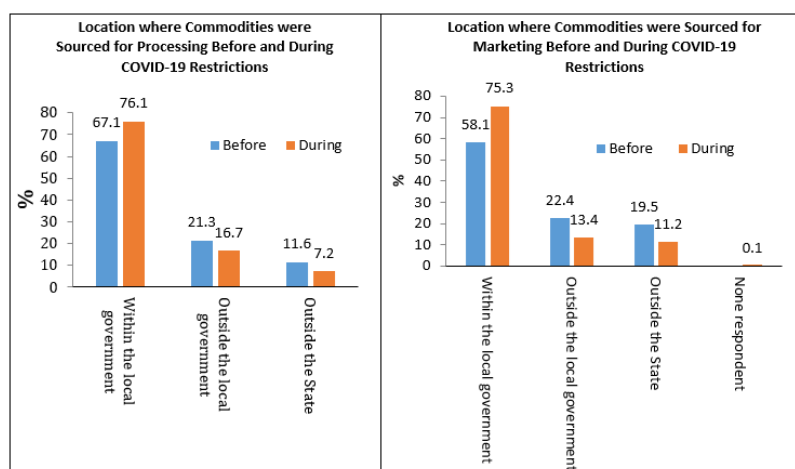


Figure 3. Processors and marketers bought more commodities from nearby during restrictions

Source: Authors

3.3 Marketers

During the restrictions, 13% of marketers/market men and women sold more (Fig.4). This corroborates Chen and Yang (2021) that containment measures led to improved retail sales. That said, 10% of marketers/market men and women sold at a better price (fig.4). This is not unrelated to the fact that beyond selling in neighborhood markets and stores, these actors were able to integrate technology for orders and delivery with minimal or no contact on designated days. Going forward, the maximization of this opportunity lies in adoption and integration of technology-intensive structures. Relatedly, cost for marketing activities reduced for about 16% of marketers. Tan et al. (2021) asserted that the use of technology improved operational marketing efficiency to avoid unnecessary losses.

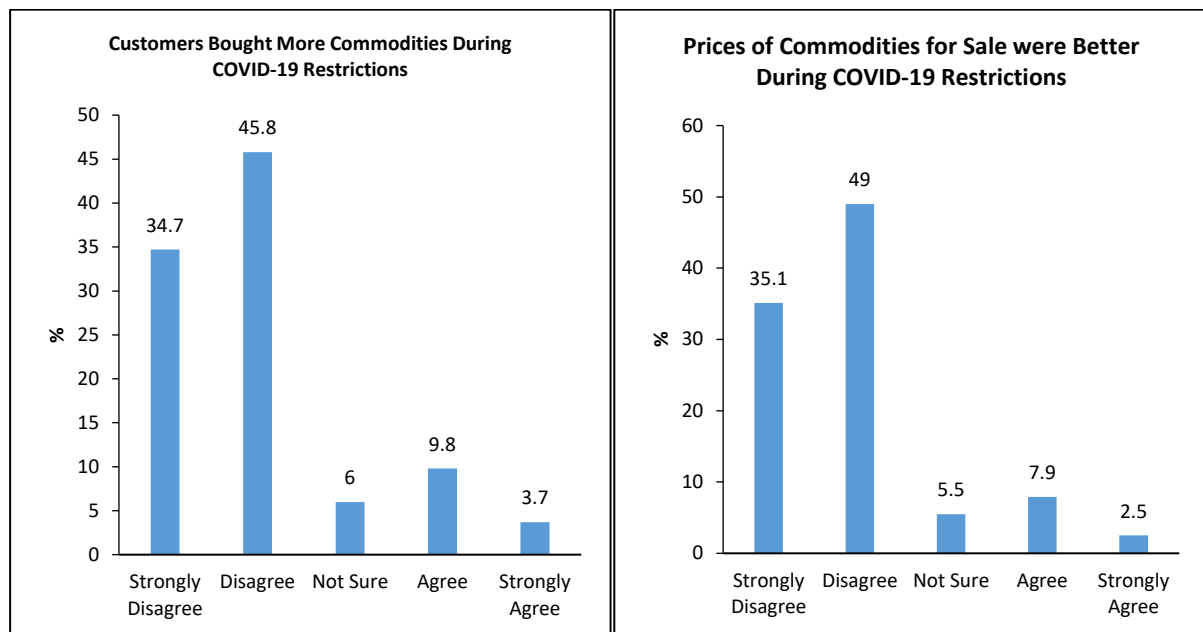


Figure 4. Some marketers sold more commodities and at a better price during restrictions

Source: Authors

Restriction of movement made labor for marketing activities more available for about 10% of marketers. Specifically, family labor increased, moving from 40% to about 47%. Most owners of shops, market men and women, and small-scale dealers had to buy products from dealers and warehouses close to their areas of business operation due to movement restriction; the effect of this is a boost for the local economy. The obstruction of food imports provided a manifest opportunity for marketing locally produced commodities and a latent chance for saving foreign exchange. Consumers patronize neighborhood shops/markets more for their commodities during the restrictions (Lusk, 2020); patronage for these shop/markets by consumers went from 9% to about 53% (figure 5). Again, this increase is good for the health of the local economy. More inputs (73%) were sourced for farming within the immediate LGAs of farmers during the restrictions than before restriction (68%), this translates to better economy for the immediate communities and specifically more money in the pockets of marketers and sellers of inputs.

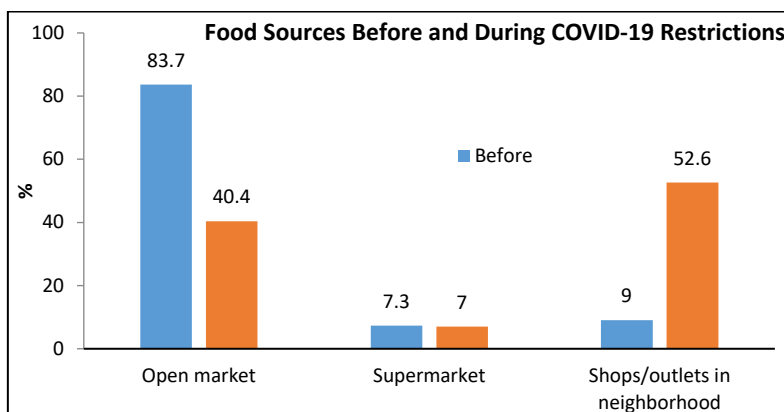


Figure 5. Neighborhood food marketers witnessed a boom in business during restrictions

Source: Authors

3.4 Transporters

During the pandemic, transporters of agricultural commodities in Nigeria were granted specific regulatory exemptions or waivers due to the critical role they play in commodity and food distribution. Labor cost for loading and offloading commodities reduced for 17% of transporters (fig.6). The waivers granted to this class of employers made them a coveted source of employment for many wage earners and possibly led to the reduced cost as labor became more available for 16% of transporters due to restriction of movement. About 15% of transporters made more money; this may be attributed to increased cost of transportation in Nigeria owing to demand being greater than supply (Mogaji, 2020).

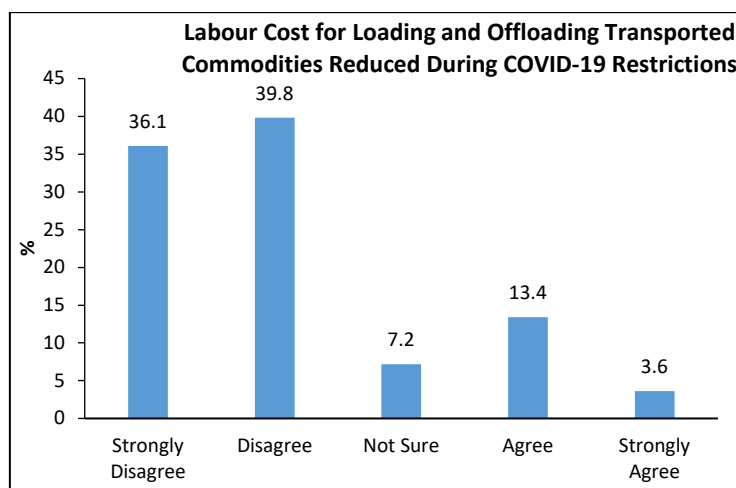


Figure 6. Labor cost reduced for some transporters of food commodities

Source: Authors

3.5 Consumers

Safety concerns by households and control measures enforced by government led to a reduction in the frequency of market visits for food purchase but family expenditure on food did not reduce during the

period. This may be attributed to the reality that more of family income was allocated to food consumption. Correspondingly, 14% of consumers bought more commodities. A good number of consumers (33% of consumers) developed coping mechanism to deal with untoward consequences of covid-19 restriction on food availability and affordability for the family. Outside the economic benefits and opportunities discussed, a principal social benefit which came with the restriction is increased intimacy between family members. This substantiates Banerjee and Rao (2020) that in periods of crisis (such as COVID-19), intimacy and social interaction aid well-being. Other top ranked benefits that are worth mentioning include but are not limited to diversification of income sources and distribution of food/money palliative from government.

Coping Strategies

Coping approaches adopted by subjects to mitigate the effect of the harsh realities (dwindling income, lower purchasing power, inflation, and unemployment) of the pandemic with respect to food include but are not limited to removing fruit and vegetables from meals, excluding animal protein from meals, increased use of leftovers, rationing meals and skipping meals. From these strategies, it could be deduced that COVID-19-related shocks affected the consumption of high-value nutrient rich food items (Mogues, 2020). In other words, many stakeholders changed their food preferences and behaviour during this period. Many of these mechanisms started off as a transition approach at the outset (Rogers and Cosgrove, 2020) but became a habit as the pandemic wore on.

4. Conclusions

Given the impact of COVID-19 on all dimensions of human living, especially on health, agriculture, economy, environment and social systems, postharvest value chain actors in Nigeria necessarily deployed reduced protein consumption, removal of fruits and vegetables from meals, skipping and rationing of meals as coping mechanisms to mitigate the challenges of the period. Despite the challenges brought about by the pandemic, it has opened a vista for the development of e-commerce in the sector via the integration of technological innovations in sales and marketing. The shifts in food preferences have the potential to reshape dietary habits in the long-term. Labour is an essential input from farm to fork, and the pandemic has provided an opportunity to build systems resilient to future shocks in the agricultural sector in Nigeria.

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References

1. Banerjee, D., and Rao, T. S. S. (2020). Sexuality, sexual wellbeing, and intimacy during COVID-19 pandemic: An advocacy perspective. *Indian Journal of Psychiatry.*, 62, 418.
2. Bene, C., Bakker, D., Rodriguez, M. C., Even, B., Melo, J. and Sonneveld, A. (2021). Impacts of COVID-19 on people's food security: Foundations for a more resilient food system. CGIAR COVID-19 Hub Discussion Paper February 2021. Washington, DC: IFPRI (International Food Policy Research Institute).

3. Chen, J. and Yang, C.C. (2021). How COVID-19 Affects Agricultural Food Sales: Based on the Perspective of China's Agricultural Listed Companies' Financial Statements. *Agriculture* 2021, 11, 1285. <https://doi.org/10.3390/agriculture11121285>
4. FAO, IFAD, UNICEF, WFP and WHO (2022). *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO.
5. Lakuma, C. P., Sunday, N., Sserujogi B., Kahunde, R. and Ogwang, A. (2021). The effect of COVID-19 on the operations of agro-processing MSMEs in Uganda. *Economic Policy Research Centre (EPRC). Policy Note: 5, Issue 3: July 2021*.
6. Lusk, J. (2020). "Ruminations on Solutions to the COVID-Related Food Disruptions." Jason Lusk, *Food and Agricultural Economist*. Available online: <http://jaysonlusk.com/blog/2020/5/12/ruminations-on-solutions-to-thecovid-related-food-disruptions>
7. Mogaji, E. (2020). Impact of COVID-19 on transportation in Lagos, Nigeria. *Transportation Research Interdisciplinary Perspectives*, 6, 100154.
8. Mogues, T. (2020). *Food markets during COVID-19*. International Monetary Fund. Fiscal Affairs Special Series on COVID 19. June 29, 2020.
9. Rogers, K., and Cosgrove, A. (2020) *Future Consumer Index: How COVID-19 Is Changing Consumer Behaviors*. Available online: https://www.ey.com/en_id/covid-19/enterprise-resiliency-nine-areas-of-focus-for-covid-19-crisis-management. (Accessed on 2 September 2023).
10. Takane, T. (2008). Labor use in smallholder agriculture in Malawi: Six village case studies. *African Study Monographs*, 29(4), 183-200.
11. Tan, S.P., Lyndon, N., Hashim, K. and Aman, Z. (2021). The role of social media applications in palm oil extension services in Malaysia. *Akademika*. 2021; 91:145–156. doi: 10.17576/akad-2021-91K-13.
12. UNCTAD (2015). *Commodities and development report 2015: smallholder farmers and sustainable commodity development*. In: *Proceedings of the United Nations Conference on Trade and Development*. Geneva: UNCTAD (2015).
13. UNESCO (2020). *COVID-19 educational disruption and response* Paris. France: UNESCO; 2020. Available from: <https://en.unesco.org/covid19/educationresponse>. Accessed 01/09/2023
14. World Health Organization (2021). *Monitoring Health for the SDGs, Sustainable Development Goals*. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.