

17. COVID-19's varied impacts on fresh fruit and vegetable supply chains in Senegal

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In response to the COVID-19 pandemic, Senegal declared a state of emergency on March 23, 2020, followed by a range of policy measures to prevent the spread of the coronavirus: Transport was significantly restricted, wet markets were closed, and shops were required to limit their hours. These moves disrupted food supply chains, in particular, those for highly perishable products such as fresh fruits and vegetables (FFV).

But these impacts were not evenly felt. Our survey of different actors in Senegal's FFV supply chains, [published in Agricultural Economics](#), found larger agro-industrial companies in modern, capital-intensive supply chains were mostly able to weather the crisis with minimal disruptions, while smaller FFV actors in traditional supply chains faced substantial disruptions to their supplies of labor and inputs, with many smaller producers reducing their area for producing FFV.

The majority of FFV for domestic consumption are produced by smallholder farmers. Disruptions to supply chains dominated by smaller actors can therefore lead to significant impacts on the availability of nutritious food, employment, and poverty. As we look for lessons from the pandemic's early impacts in order to better prepare for future shocks, these findings suggest policymakers should put a special focus on improving the resilience of domestic supply chains through supporting small producers, stimulating innovations, and regulating internal trade.

To understand the implications of COVID-19 containment measures on FFV supply chains in Senegal, we interviewed all relevant actors, including farm and agro-industry workers, smallholder farmers, traders, agro-industrial companies, importers, and consumers – but without arriving at representative samples for all categories. Data were collected between April and June 2020, using phone interviews and self-administered online questionnaires. These primary data were complemented with secondary data on international FFV trade flows. We rely on recall data to compare the situation before and after the state of emergency but cannot completely disentangle COVID-19-related impacts from seasonal variation.

Specific pandemic-related supply chain disruptions depend on the structure and organization of the supply chain in question. It is therefore useful to distinguish between two co-existing FFV supply chains in Senegal:

1. **A modern, vertically coordinated, capital- and labor-intensive supply chain** is organized around a few large capital-intensive agro-industrial companies that produce, process, and distribute produce. These FFV companies mainly focus on supplying export markets.

2. **A more traditional supply chain** is focused on supplying the domestic market, and has a high labor intensity but a lower capital intensity. This chain is dominated by smallholder farmers and small to medium traders and wholesalers, who transport produce from rural production zones to urban wet markets.

The distinction between a modern export chain and a traditional domestic chain should not be interpreted as absolute. Some large-scale agro-industrial export companies recently started to supply the domestic market as well and are selling to domestic traders and local supermarkets. Nevertheless, our results indicate that these broad differences played a role in how the COVID-19 crisis affected modern and traditional FFV supply chains differently.

Impacts on the supply side

On the supply side of Senegal's FFV chains, we find changes in the allocation and productivity of land, labor, and capital inputs in the months after the start of the pandemic and the declaration of the state of emergency.

First, among export-oriented FFV companies, larger companies indicated they did not change their production area, but smaller companies indicated they reduced FFV production area by 50 to 75 percent because of the crisis. Among interviewed smallholders, 25 percent said they left land completely fallow during the hot dry season, for which preparation more or less coincides with the start of the COVID-19 crisis, while only 15 percent said they started a new production cycle of FFV in this season, and mostly on a smaller share of land than under normal circumstances. For the next season, the main rainy season that began at the end of the interview period, only 40 percent of the interviewed farmers indicated an intention to allocate land to FFV, while some farmers intended to switch to groundnuts or staple crops instead of FFV.

Second, smaller agro-industrial companies and smallholder farmers faced important restrictions in hiring workers, because of both mobility restrictions and workers' fear of becoming infected. In contrast, larger agro-industrial companies reported no problems with the supply of labor. These companies invested in protective and sanitary measures, including setting conditions for social distancing between workers in the field and in processing units, and in a larger capacity or more frequent commuter bus service for their workers – a service that many large companies offer to attract workers. Nevertheless, because of reduced activities, the demand for labor in these companies fell by 20 to 90 percent. Only 66 percent of the sampled agro-industry workers were employed both before and after the declaration of the state of emergency, and 45 percent reported working less frequently afterward. We find no changes in wages and contracts of workers.

Third, access to agricultural inputs was a major constraint for smallholder farmers and smaller agro-industrial companies because of mobility restrictions, closed shops, lower availability of vendors, increased input prices, and lack of cash. The largest agro-industrial companies did not experience input-related problems: they had sufficient input stocks, direct buying relations with international input dealers, and could switch between input suppliers in the case of delivery problems.

In short, the variance in impacts on the supply of FFV depends on the size of producers and the type of supply chain in which they operate. Our data reveal that better vertical coordination contributes to more resilient supply chains and that the export-oriented supply chain adapts more easily to the COVID-19 situation through innovations.

Impacts on trade and consumption

In addition to supply-side impacts, we also observed disruptions in other stages of the FFV chains, including drops in domestic and international demand and substantial changes in how FFV were bought and sold. Also in these stages of the FFV chains, we observe a resilient vertically integrated modern export chain, while the domestic chain was much more impacted, with a wide network of heavily affected traders, intermediaries, and retailers.

Conclusion

The pandemic's differential impacts on large versus small producers and the different value chain actors (such as traders or retailers) in Senegal demonstrate the complexity of a shock like COVID-19, suggesting careful and targeted policy attention is required to mitigate the damage among the most affected. Further research is needed to understand the long-term impacts of these supply chain disruptions. However, our early findings point to a severe impact on the availability of nutritious foods, food insecurity, and hunger in the aftermath of the COVID-19 pandemic. To improve domestic value chain resiliency, and prevent disruptions during future crises, policy attention is needed to support vulnerable small-scale producers, enhance value chain coordination, and foster innovation.

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