

## ANALYTICAL FRAMEWORK FOR ADDRESSING VALUE CHAIN FRACTURES

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It is not COVID-19 itself that has affected or continues to affect the way agrifood value chains work; rather, it is policies and other government responses that are put into place to reduce the spread of the pandemic that have created or continue to create bottlenecks in value chains. Two types of policies may have affected agrifood value chains, which can largely be categorized as movement restrictions or market restrictions. By category, these policies include:

### **Movement restrictions**

- Restrictions on movement across borders is an obvious policy that could have affected agrifood value chains; they may affect agricultural labor in specific countries or contexts when done by immigrant workforce. But there have been restrictions on internal movement within countries as well and that can also affect the production (particularly in terms of timely and affordable access to input, service and labor) and movement of food within countries; these restrictions may have also caused changes in demand as food vendors may have stopped working (at least during lockdowns), changing the types of food people could consume. These measures may also have led to income reduction and job loss, which translated into reduced purchasing power and shifts toward cheaper and less nutritious foods.
- Food processors were also potentially affected in several ways: Staff had commuting difficulties, some may have returned to rural areas, processors may have had to introduce shifts, and protective measures including physical distancing may have increased costs. Further, their supply chains may have had reduced quantity and quality of raw materials in them, and at least during an adjustment period. And on the demand side, price volatility occurred due to demand fluctuations or changes in demand structure due to less restaurant and hotel activities and less tourism, and other markets may have changed due to changes

in consumption and purchase behavior, and distribution challenges, among other things.

- When movement restrictions were in place, logistics behind agricultural value chains were often affected, even if food businesses were exempted from restrictions. For example, materials such as boxes for crop shipping may have been in short supply, or if fuel was not available at times or in specific areas, then agricultural products could not move.
  - Internationally traded agricultural products — while less important as a share of the total food consumed, particularly in Africa (in terms of weight) — were more likely to have had problems due to substantially reduced global demand for those commodities; an example is cocoa in Ghana. Some such products are particularly important in generating foreign exchange for smaller countries and may be worth further exploration. Traded perishables that depended on air freight faced space reductions due to passenger flight cancellations. Export bans (e.g. rice from Vietnam) prevented access to international markets and might have affected access to food elsewhere, as well as exerted downward pressure on domestic prices of the country imposing the ban.

### **Market Restrictions**

- Retail restrictions, including restrictions on wet markets/supermarkets/restaurants, whether formal or informal, can also affect value chains, particularly for specialty products.
  - If urban customers cannot reach street vendors, then major problems can result as they rely on those retailers for their food supply.
  - Some traders and processors might have responded by changing the product mix and distribution strategy (e.g. shift from catering toward supermarkets and processors, for which some governments waived restrictions).

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- A related market restriction is in finance: while most farmers do not have access to formal finance sources, many smallholders depend on off-farm earnings (whether local or distant through remittances) to finance crop production and may lack such liquidity this year to purchase inputs. Farmers linked to large firms through farming contracts have experienced delays in payment due to buyer cashflow problems, in some cases resulting in an inability to repay the input received on credit at the onset of the season (e.g. sorghum for breweries in Ghana). Similarly, it is important to understand whether inputs and labor were available to farmers at the time of planting or need during the season (e.g. seeds, fertilizers, seasonal workers, other inputs).

It should be noted that all these factors — including policy and the extent to which extenuating factors matter — are likely to differ both nationally and sub-nationally and by commodity (e.g. perishable or not; for domestic or international markets).

Therefore, we hypothesize the following: First, the more geographic distance that agricultural products moved pre-COVID-19, the more likely they were to be affected. A corollary is that perishable commodities within countries were affected if the time to market substantially increased. A further corollary is that the number of intermediaries and transactions occurring between farm and consumer could also cause difficulties, as additional actors handling food could lead to more challenges within the chain (vertical integration could counteract this effect). Stronger linkages between actors could mitigate these effects. More hypothesized relationships are found in Tables 1A and 1B, unpacking value chains into different parts, from production to consumption.

### **Risk Management Strategies**

Some value chains bounced back quickly from shocks related to COVID-19, whereas others have had more difficulty recovering. It is important to understand what types of factors led specific agrifood value chains to bounce back more rapidly or more slowly. Hypothesized relationships are given in Tables 2A and 2B.

### **Policy Confusion**

There are several aspects of policy enacted to reduce the spread of COVID-19 that can increase uncertainty about how to react from a business perspective within

the value chain. Policy measures in a crisis are often unpredictable, and often lack transparency. These characteristics lead to uncertainty. A further important aspect of policy is coherence. At the onset of the pandemic, there was naturally a great deal of confusion reflected in policy that could affect agrifood value chains, as it was not clear what types of policies would (or could) be implemented, how value chain actors perceived those policies, nor what types of policies were actually enforced. So long as policies lack predictability, transparency, and coherence, agrifood value chain actors, as well as those in complimentary sectors (logistics), may have altered their behavior in ways that affected outcomes. Similarly, information about the spread of COVID-19 has evolved; that evolution and the parallel evolution of uncertainty likely has important effects on outcomes of interest.

### **Research questions**

Based on this framework, the following questions appear to be most pertinent for future research in agrifood value chain fractures. Further research will begin to answer the following questions:

- 1) Which value chains were more resilient and able to bounce back from the initial COVID-19 policy “shocks”? We seek to assess resilience in value chains according to the following variables:
  - a. The proportion of a product meant for commerce (rather than subsistence),
  - b. Fresh versus processed food products,
  - c. Durable versus perishable commodities,
  - d. The level of formality in relationships along the product value chain,
  - e. Short- versus longer-cycle commodities (e.g. annual versus perennial), and
  - f. Locally versus internationally traded commodities.
- 2) What policies, innovations or measures put in place by either the public or private sector have helped promote resilience in value chains and the ability to recover from the shock? Several of these interventions are listed in Tables 2A and 2B, along with hypothesized effects at different stages of the value chain.

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**Table 1A: Potential Impact of COVID-19 Related Policies on Value Chains**

Type of Policy Change	Inputs	Farming	Handling & transporting	Processing	Retail	Consumption
Lockdowns	XX	XX	XX	XX	XX	XX
Market closures	X	X	XX	XX	XX	XX
School, restaurant, and hotel closures		X	X	X		XX
Restriction to inter-regional/provincial transportation	XX	Z	XX	X	XX	XX
Social distancing requirements	X		XX	XX	XX	X
Bottlenecks in getting goods across national borders	X		X	X	X	X
Export ban		Z	X	X	X	
PPEs and health-related requirements			X	X	X	

Note: XX- large potential impact; X- smaller potential impact; Z- potential longer-term impact

**Table 1B: Potential Impacts of COVID-19 Related Policies on Cross-Value Chain Services**

Type of Policy Change	Value Chain Labor	Value Chain Materials	Credit	Business services	Extension and advisory services
Lockdowns	XX	X	XX	XX	XX
Market closures	X	X	Z	Z	
School, restaurant, and hotel closures	X	X	Z	X	
Restriction to inter-regional/provincial transportation	XX	X		X	XX
Social distancing requirements	X				X
Bottlenecks in getting goods across national borders	X	X			
Export ban	X	X	X	X	
PPEs and other health-related requirements		X			

Note: XX- large potential impact; X- smaller potential impact; Z- potential longer-term impact

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**Table 2A: Measures or Interventions Mitigating Impacts of COVID-19 Related Policies**

	Inputs	Farming	Handling & Transporting	Processing	Retail	Consumption
<b>Public Sector</b>						
“Food corridors”			+		+	
Financial assistance to firms in the food sector	+	+	+	+	+	+
Increased public procurement		+		+		
Release of strategic food reserves and/or facilitating food imports		-	+/-	+/-	+/-	+
Short-term arrangements to ease shipments (contracting airlines to airlift perishables), produce aggregation and speeding up export licensing		+	+	+		
Job/income protection schemes		+				+
<b>Private Sector Actions</b>						
Adopting Information and Communication Technology (payments, commodity sourcing, service delivery)	+	+/-	+	+	+	+
Balancing staffing level/shifts and providing protective equipment	+/-		+/-	+/-	+/-	
Firms changing in product mix and distribution channels (e.g. retail vs food services)	+/-	+/-		+/-	+/-	+/-
Firms stocking up on supplies		+/-		+	+	+/-
Creditors’ relief mechanisms	+		+	+	+	+
Change in suppliers (type, location, etc.)		+/-	+/-			

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**Table 2B: Measures or Interventions that Mitigate Impact in Cross-Value Chain Services**

	Value Chain Labor	Value Chain Materials	Credit	Business Services
<b>Public Sector</b>				
“Food corridors”	+	+		
Financial assistance to firms in the food sector			-	
Increased public procurement		+	+	
Release of strategic food reserves and/or facilitating food imports		+/-		+/-
Short-term arrangements to ease shipments (contracting airlines to airlift perishables), produce aggregation and speeding up export licensing		+		+/-
Job/income protection schemes	+		-	
<b>Private Sector Actions</b>				
Adopting Information and Communication Technology (payments, commodity sourcing, service delivery)			+/-	+
Balancing staffing level/shifts and providing protective equipment	+/-	+	+/-	
Change in product mix and distribution channels (e.g. retail vs food services)	+/-	+/-		+/-
Stocking up on supplies		+		
Creditors’ relief mechanisms		+		+
Change in suppliers (type, location, etc.)		+/-		+/-

NOTE: “+” means potential direct positive impact; “-” potential direct negative impact; +/- implies impact likely but depends upon context.