Sourcing Strategies of Nigerian Maize Traders in the Face of Multiple Risks

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BACKGROUND

- Agrifood supply chains in developing countries are substantially threatened by supply uncertainty.
  - Weather risks (climate-induced risks) can disrupt:
    - Agricultural production (rain-fed agriculture)
    - Transportation system (e.g., road washouts)
  - Violent conflicts can also disrupt the overall supply chain.

➡ Diversifying suppliers is one way to reduce exposure to and the effects of risks and uncertainties in supply.

OBJECTIVES

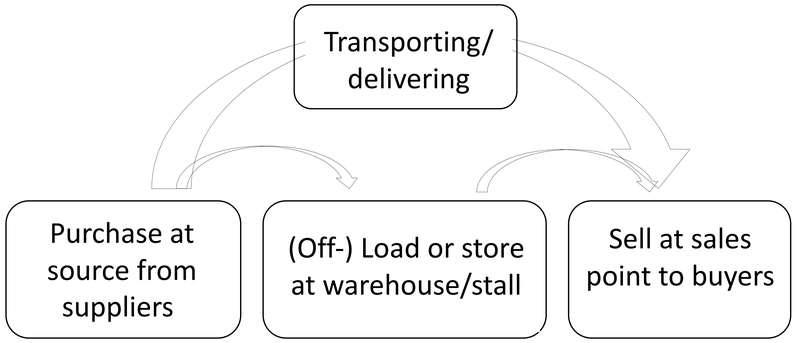
- How do midstream actors in agrifood supply chains diversify their sources (suppliers) in the face of supply uncertainty?
- Investigate the sourcing strategies of Nigerian maize wholesale traders in response to weather & conflict risks.
- Examine how traders' sourcing responds to the risks in different stages (places) of sourcing.
  - Supply risks affecting the production of maize
  - Risks affecting the transaction/transportation of maize

NIGERIAN MAIZE TRADERS

- Play a crucial role in the maize value chain, supplying maize to approximately 75% of the Nigerian population.
- Nigeria is an ideal case study:
  - Agriculture is largely rain-fed.
  - Diverse conflicts (Boko Haram conflicts & Herder-farmer conflicts) are prevalent and on the rise.

DATA

- 2021 Nigerian maize wholesale trader survey
  - Demographic characteristics, sourcing & marketing behavior, transportation costs & experience of risks.
- 1,110 traders in four major maize producing states in the North (Kano, Kaduna, Katsina, and Plateau) & one major maize consuming state in the South (Oyo).
- Rainfall & temperature data (CHIRPS & Climate Data Store)
- Fatalities from conflicts (ACLED)



Transaction stages of maize trading

Boko Haram activities (source: Encyclopædia Britannica)

METHOD

- Theoretical framework:
  - Expected profit maximization of traders, sourcing from multiple suppliers with risks affecting suppliers' production & traders' transactions.
- Empirical estimation:
  - GLS estimation (simultaneous system of equations) for joint decision of the amount sourcing from North/South.
  - OLS estimation for the overall number of suppliers.

PRELIMINARY RESULTS

- Having experienced conflict risks is related to higher number of suppliers on average.
  - Traders are likely to diversify suppliers if they faced disruption in sourcing maize due to conflicts.

POLICY IMPLICATIONS

- Understanding how actors in different segments of the agrifood supply chains adapt to risks is important for building more resilient agrifood systems.
- Investigating how weather & conflict risks affect different stages of traders' activities would be crucial for policies efficiently addressing the effects of the risks.

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