LISER
LUXEMBOURG INSTITUTE OF SOCIO-ECONOMIC RESEARCH

RESEARCH PROGRAMME
CROSSING BORDERS

LUXEMBOURG AID & DEVELOPMENT

CAIPD
Cellule d'analyse d'impact des politiques de développement
Issue 06 (May 22, 2024)*

Temporary Migration Response to Rainy Season Conditions in Senegal: New Evidence using Mobile Phone Data

Flore Gubert, Paul Blanchard
French National Research Institute for Sustainable Development (IRD)

Established at the initiative of the Directorate of Development Cooperation, CAIPD brings together researchers from LISER and J-PAL Europe to equip the government with methodological tools for impact evaluations and programme monitoring in cooperation projects.

Summary

In Senegal, rural livelihoods based on agropastoral activities are highly rainfall dependent and vulnerable to climatic shocks. Temporary migration serves as a dual-purpose strategy, acting as a risk coping mechanism and as a response to adverse climatic conditions. This study uses mobile phone data to examine how temporary migration patterns are affected by rainy season conditions. The analysis shows that temporary movements far outnumber long-term migrations and show strong seasonal variations. Furthermore, the research highlights the impact of rainy season conditions on the scale and timing of these movements.

Advantages of Mobile Phone Data

Mobile phone data provides unprecedented insight into temporary migration flows, including their size, timing, duration, and direction, with high spatial and temporal resolution. It circumvents recall bias, ensuring greater accuracy, and allows for the measurement of short-term mobility patterns at a relatively low cost compared to traditional survey instruments.

Short-term movements

The study identifies about 4.3 million migration events lasting at least 20 days in 2013. Taking into account that multiple events may relate to the same person, it is estimated that about 2.6 million people (representing 33% of the adult population) were involved in one or more migrations. In contrast, census data indicate a long-term migration rate of about 2% for the same year.

Rural-to-rural migration

A significant majority of migration flows originate from rural areas, accounting for 65% of the total outflow. Despite the attractiveness of large cities (with Dakar alone attracting 25% of the total flow), rural-to-rural movements account for one-third of the total outflow. These movements are predominantly short distance, highlighting localized migration patterns within rural areas.

Main Takeaways

Analysis of the mobile phone data reveals several important findings:

- **Drier Conditions Impact Migration:** Drier conditions during the rainy season result in a significant decrease in migration, particularly during the peak harvest season.
- **Impact on Poorer Locations:** The reduction in migration is more pronounced in poorer areas, likely due to heightened financial constraints.
- **Risk Coping Strategies:** Drier conditions lead to a rural-to-rural spatial redistribution during the subsequent off-season, at the trough of the migration curve.
- **Negative Effects on Migration:** Overall, drier conditions negatively impact both the ability to migrate during harvest season and the expected return from migration.

These findings suggest that interventions to support production and consumption during adverse climatic conditions must be carefully timed to be effective.

Policy brief n° 2024-02 from the LISER series.