

# PhD Defence: Noureini Sayouti Souleymane

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Poverty-Alleviating Policies for Agricultural Households  
in The Sahel

## Poverty-Alleviating Policies for Agricultural Households in The Sahel

### JURY

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### ABSTRACT

This dissertation provides three empirical essays on poverty-alleviating policies for agricultural households in the Sahel. Chapter 1 investigates **the effect of idiosyncratic price distributions faced by households on poverty estimates** by using a unique dataset from Niger in which agropastoral households provide the observed minimum and maximum prices in each season. Estimating poverty measures alternatively based on these distinct price data, with several absolute poverty line methodologies, elicit the potential range of poverty assessments generated by idiosyncratic price distributions. The results show that using minimum and maximum prices generates gaps in the estimated poverty for these households that exceed regional poverty disparities, which implies that regional targeting priorities in poverty alleviation policies would be reversed if these alternative prices are utilized. Chapter 2 proposes **an approach to predicting household resilience**. The proposed approach combines a Gaussian Mixture Model and a Neural Network

to predict household-specific conditional well-being probability density function. Its predicted resilience score can be computed as a probability of remaining above a prespecified threshold. We evaluate the proposed approach to household data from Nigeria and compare it to a conditional moment approach commonly used in the development resilience literature. The results shed light on the potential of our approach to accurately predict household resilience. Also, the results show that not accurately predicting the probability density function may lead to overestimating the predicted resilience score, which has implications for quantifying the prevalence of resilience in a population and the amount of effort needed to build resilience. Chapter 3 investigates **the mechanisms underlying the effect of agricultural policies on pastoralist households' dietary intake** by using statistical mediation analysis. Based on data from an agro-pastoral survey conducted in Niger, the effects of livestock extension services associated with better access to markets are found to operate mainly through a household's pastoral profit. At the same time, this is not the case for private veterinary services and low-cost livestock feed programs. In addition, livestock extension services may foster agro-pastoral households' specialization in cattle and sheep rearing, incentivizing them to switch toward pastoral transhumance and limiting their access to cereals. As a result, livestock extension services are found to damage their total calorie intake.

## KEYWORDS

Poverty, Resilience, Agricultural policies, Sahel.

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