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Perception and Adoption Processes Regarding Index-based Insurance for Managing Climate Risks in Agriculture in Benin

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ABSTRACT

Agricultural production, pillar of food security and economic growth in African low-income countries, is genuinely affected by climate change. Nowadays, index-based risk transfer products occupy an important place in international discussions on coping and adaptation strategies. This study was carried out in rural Benin to investigate adoption processes in order to provide likely pathways of success of such mechanisms well believed to improve livelihoods of agricultural households. Sixty cotton and food crops farmers in the district of Banikoara in northern Benin, regularly courted by three companies, promoters of index-based insurance, supplied empirical data through semi-structured interviews. The mixed approach used has combined content analysis of key informant discourses and statistics. Spearman's rank correlation was used to supply local index-based insurance model suggested by farmers. Our results showed a predominantly negative perception of farmers on index-based insurance products and a locally shaped model if they have to adopt such products. We argue that integrating this endogenous design in climate policies should help improving farmers' capacity to adapt to environmental changes so as ensuring production systems sustainability.

Keywords: Agriculture, Benin, climate change, index-based insurance, perception and adoption processes

INTRODUCTION

Climatic tragedies (drought, flooding, high winds, etc.) induce reduction of investments, revocation of wage-labour, abrupt removal of children from school, worsening of debt and slavery leading sometimes to suicide (Shukla *et al.*, 2002). Two groups of strategies (*ex ante* and *ex post*) are implemented by farmers to cope with these risks (Chetaille *et al.*, 2011). Despite the virtues of these mechanisms of risk management, they are ineffective against covariant and systemic risks affecting entire

populations of a given region (Kurosaki and Fafchamps, 2002; Townsend, 2005). In international talks on climate change, risk transfer tools like weather insurances occupy an increasing place for solving such problems (Lagandré and Chetaille, 2010). The development of micro-insurance programs for agricultural production is seen as providing a real welfare in farming communities while submitting insurers to informational asymmetry problems such as adverse selections and post-contractual moral hazards (Morduch, 2001). Accordingly, index-based insurances are

developed to compensate farmers, not in accordance with the damages to cultures, but rather through some weather indexes which are assumed to be correlated with a given crop yield (Leblois and Quirion, 2013; Leblois, 2012; Sarr *et al.*, 2012). Nowadays, index-based insurances are known as important as agricultural credits and extension services in agriculture. This paper analyses the perceptions of farmers and their willingness to contract these insurance products well believed to improve livelihoods of agricultural households in sub-Saharan Africa.

METHODOLOGICAL FRAMEWORK

Study area

Field data were collected in Banikoara located in Sudano-Sahelian Benin (Fig 1). The local climate is characterised by a rainy season from May to October and a dry season from November to April. The average annual rainfall is 850mm. Agriculture is the main activity employing about 50% of the active population. The main crops include cotton as export crop and maize, sorghum and millet as food crops. Banikoara is considered to be affected by climate perturbations.



Fig 1. District of Banikoara
Source: Sarah TN, 2012

Data collection and analysis

We investigated adoption processes through individual semi-structured interviews and group discussions. Empirical data were supplied by 60 farmers purposively selected in four villages: Gomparou, Alibori, Sompérékou and Godokpagounou. Furthermore, three companies initiators or promoters of index-based insurance (PlaNét Guarantee, Allianz Benin and AMAB) courting farmers were approached to provide useful details on their different insurance products. PlaNét Guarantee Benin is a subsidiary of PlaNét Finance Group dedicated to microinsurance. Allianz Benin is a branch of Allianz Group proposing index-based insurance from its experiences in Burkina and Mali. AMAB (Agricultural Mutual Insurance of Benin) is a mutual insurance with fixed contributions holding a weather insurance product to secure farmers' incomes. All discourses of our respondents were analysed with regards to their content and some statistic parameters were calculated especially the Spearman's rank correlation for reporting the local model formulated by farmers.

RESULTS

Farmers' positions vis-à-vis Index-Based Insurance (IBI)

Different factors evoked by farmers are responsible of the lack of their commitment to contract index-based insurance products. Three major trends emerged from the dominant discourses among farming communities:

IBI as a means of securing agricultural income

The weather index-based insurance is seen by a first group of 11 farmers (18.33%) as the ultimate solution for preserving agriculture against the range of climate risks. They argue that it should consolidate their resourcefulness in applying various strategies to cope with climate uncertainties.

IBI as a means of plundering farmers

Index-based insurance is perceived by a second largest group of 32 farmers (53.33%) as a means of insurance companies and all involved groups to gouge them. These farmers perceive insurance advertising in rural areas as preparing a new form of financial looting system. The difficulties on going with the existing agricultural funding mechanisms and the financial scandal "ICC and Consorts" happening in Benin in 2011 are often cited as examples.

IBI as a new uncertainty for agriculture

For a third group of 18 farmers (28.33%), meaningfully engaging in insurance system where someone else will look at an uncontrollable weather, will calculate potential risk and will decide whether to compensate or not, is to truly commit oneself in a real additional uncertainty. By wondering about the complexity and weak specificity of such products, they also complained that farmers are always losers across all top down "good ideas" promoted to secure their livelihoods.

Willingness to contract an IBI

Beyond the relatively negative decoding of index-based insurance by farmers, the involvement the agriculture officers as well as farmers socio-professional organisations represent an important safeguard for grassroots farmers. However, they require a local model depending on their experience with credits services and their fear to be naively cheated by any swindlers. Therefore, farmers opt for an insurance product which cover three major hazards (droughts, floods, crop fires) and simultaneously two crops (cotton and one food crop) with some margins for animal divagations. The potentially adoptable insurance contract includes a one-year trial agreement, a monthly willingness-to-pay of 5000 FCFA (\$10), a quarterly option to pay and a systematic compensation during the same month of unforeseen damages.

DISCUSSION

The acceptance of index-based insurance is not systematic for farmers as response to secure agricultural productions and to reduce their vulnerability to climate risks. The predisposition to subscribe to such tools is not extensible as the context may be different even within sub-saharan countries (Dabiré, 2011; Sarr *et al.*, 2012). Farmers' perceptions about index-based insurance are mostly influenced by contextual determinants as is the case in many cases innovation (Adeoti *et al.*, 2002; Charlier, 2002). The promotion of index-based insurance seems to join the paradigm of complexity suggesting a negotiation between the inner complexity of innovation and external complexity that is socio-economic and political environment in which it is promoted (Casti, 1994; Smida, 2006). Indexes calculations and damages estimations are factors fueling this complexity. These perceptions collected in pre-extension situation justify as well the dynamics of a probable co-production essential for social survival of innovations (Guichon, 2004).

CONCLUSION AND OUTLOOK

There are no success warranties or obviousness for risk transfer tools on sale in North Benin. Banikoara offers an array of assessment leading to the conclusion of a war over some ongoing innovations. The technically well made product has to deal with the socially resented background. Integrating the endogenous design in climatic insurance policies should help improving farmers' capacity to adapt to environmental changes so as ensuring production systems sustainability.

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