

DO FEMALE AND MALE FARMERS MANAGE RISK DIFFERENTLY?

Exposure to risk is a major impediment to development in African countries. This is particularly true as far as farmers are concerned. They are not only concerned with idiosyncratic shocks like illness, but also by covariant shocks like

drought, pests, and so on. These risks may have disastrous

Gender differences in terms of risk management behavior leads to higher incomes for males and lower incomes for females

consequences in the long term: for instance Alderman, Hoddinott and Kinsey¹ have shown that early childhood malnutrition, as a result of civil war or drought shocks for example, may lead to major reduction in individual productivity and lifelong losses of income. Exposure to risk may also lead to underinvestment in agriculture and non-adoption of new technology as shown by Dercon and Christiansen.²

Since 2010, a large part of development economics literature has focused on the demand for financial products and their impact on risk-coverage. This includes traditional products like saving accounts, and less traditional

ones like weather index insurance or health micro-insurance products. Most of the time, this

literature concludes that the availability of these products help manage risks and increase households' incomes in the short term as well as the long term.

In comparison, the literature comparing how households react when several financial and insurance instruments are available comprises a much smaller body of work. In a recent paper,³ Devallade, Dizon, Vargas Hill, and Petraud

AGRODEP is a Modeling Consortium of African researchers living and working in Africa with research interests ranging from economic modeling to regional integration and development to climate change, gender, poverty, and inequality.

There are currently 147 members from 27 countries; our members work at top research institutions and universities in their own countries as well as various government agencies and non-profit organizations.

The **benefits of being an AGRODEP member** include opportunities for research grants, free access to cutting-edge economic research tools, data, and training. Members also gain access and exposure to large global networks of economic researchers and experts. [Learn more.](#)

¹ Alderman, H., Hoddinot, J, and B. Kinsey, 2006, Long term consequences of early childhood malnutrition, *Oxford Economic Papers*, 58(3): 450-474.

² Dercon, S. and L. Christiansen, 2011, Consumption risks, technology adoption

and poverty traps: evidence from Ethiopia, *Journal of Development Economics*, 96(2): 159-173.

³ Devallade, C., Dizon, F., Vargas Hill, R. and J. P. Petraud, 2015, Managing risk with insurance and savings: experimental

evidence for male and female farm managers in the Sahel, World Bank Policy Research Working Paper 7176, January, The World Bank.

not only provide estimates of the impact of weather insurance and of three types of savings on investment and welfare, they also compare their efficiency and address a new issue in the economic literature: do female and male farmers manage risk differently?

Their research is based on a field experiment conducted in rural areas around Bobo-Dioulasso in Burkina Faso and the Kaffrine region in Senegal. The authors randomized the provision of four financial products to 806 farmers: a weather insurance, two agricultural investment saving products, and an emergency saving product. While the last product is targeted to cover health risk, the first three products are designed to stabilize or increase input purchase and augment incomes from agricultural activities.

The choice to offer these four products is based on the conjecture that men and women face different kinds of risk. On one hand, female and

male farmers are equally exposed to covariant risks which potentially affect agricultural yields. On the other hand, female farmers are more concerned with risks related to the lifecycle: physical risk related to child-bearing, more involvement in child-caring, and so on. Consequently, the authors expect male and female farmers to buy different financial products.

The field experiment confirms this hypothesis, finding that female farmers are less likely to buy weather insurance and agricultural investment saving products and are more likely to buy emergency savings. This difference could be explained by differences in access to informal insurance and/or differences in crop choices, but even after controlling for these differences, the same conclusion appears: male and female farmers manage risk differently.

This difference in behavior is well explained by the nature of these four financial products and the differences in the risks to

which male and female farmers are exposed. Weather insurance, for example does not cover the risk of a childbirth in a harvest period, a major issue in regions with very high fertility rates. Similarly, agricultural investment financial products do not cover the risk of lost income as a consequence of caring for sick children.

The study also shows that when farmers purchase insurance on investments in agricultural production, this consistently leads to higher use of inputs. Furthermore, higher use of inputs results in increased yields. This brings the authors to a strong conclusion: the gender differences in terms of risk management behavior leads to higher incomes for males and lower incomes for females. This conclusion shows how it is still important to get better designed financial products such that they can meet the specific needs of women.

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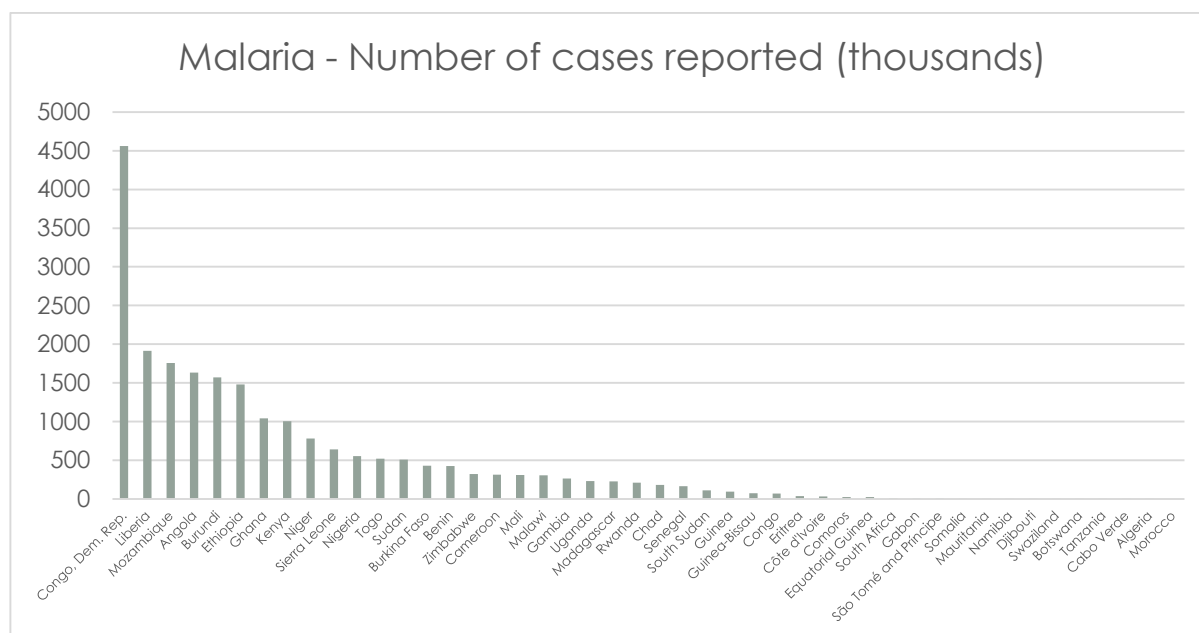
AGRODEP DATA REPORTS

2007 Guinea-Bissau SAM and Data Report Released

AGRODEP released the latest data report, [A 2007 Social Accounting Matrix for Guinea-Bissau](#), and the accompanying SAM, both by AGRODEP member François Joseph Cabral. The report is available in [English](#) and [French](#) and provides an overview of the construction of the SAM as well as an analysis on the Guinea-Bissau economy. Based on the 2007 SAM, Cabral found that the Guinea-Bissau GDP is based primarily on agriculture and the economy is highly dependent on the rest of the world.

DATA

Recent statistics about Africa



SOURCE: AFRICAN ECONOMIC OUTLOOK [HTTP://WWW.AFRICANECONOMICOUTLOOK.ORG/](http://www.africaneconomicoutlook.org/)

Malaria is a mosquito-borne infectious disease affecting humans and animals. According to the World Health Organization, there were 198 million cases of malaria worldwide in 2013, resulting in an estimated 584,000 to 855,000 deaths that year—90 percent of which occurred in Africa. The World Health Organization has recently shown that malaria mortality rates have been drastically reduced: by 47 percent between 2000 and 2013 globally, and by 54 percent in Africa. As shown by the above graph, however, malaria is still highly prevalent in some African countries.

TECHNICAL NOTES & MODELS

AGRODEP Technical Notes 11 and 12

AGRODEP continues to add to its [Technical Note](#) and [Model libraries](#) with two new models and accompanying Technical Notes.

Technical Note 11, [Macro Econometric Modelling: A Practical Approach under EViews, with a Focus on Africa](#), by Jean Louis Brillet, gives modelers a complete set of elements so they can build their own macroeconomic models using the technical note as a guide. Examples are given using EViews software, packaged as a part of the [Macroeconomic Modelling Toolbox](#). The Technical Note is publicly available, and all other files are available for AGRODEP member use only.

Technical Note 12, [Partial Equilibrium Trade Simulation \(PETS\) Model: Documentation](#), by David Laborde and Simla Tokgoz, was also recently published in the AGRODEP library. The Technical Note provides an in-depth description of the economic and mathematical structure behind the PETS model. It also provides a practical approach to use GAMS to run the model. The [PETS model](#), developed by Fontagné, Laborde, and Mitaritonna (2011), is available to AGRODEP members in the [Model Library](#).

GRANTS

Innovative Research Grants Awarded

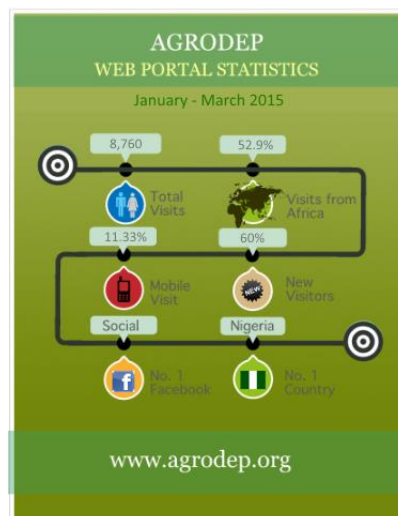
Awards for the **2014 Innovative Research Grant** have been **announced** on the AGRODEP website. The theme for the call was "**Linking Country Policies to Agricultural Development Outcomes**." Awards were granted to the following three teams:

- Ciliaka Gitau, Evans S. Osabouhien, Uchenna R. Efobi. "Forces from Above and Voices from Below: Large-scale Land Based Investments and Employment Questions in Selected SSA Countries"
- Bethuel Kinyanjui Kinuthia. "Credit constraints and Agricultural Productivity in East Africa"
- Reuben Adeolu Alabi, Oshobugie Ojor Adams, and Godwin Abu. "Does Inorganic Fertilizer Subsidy Promote the Use of Organic Fertilizer in Nigeria?"

MEMBERSHIP

Special Membership Call Concluded

More than 450 people applied for AGRODEP membership in the recently concluded **sixth membership call**. Women African researchers and those who are experienced or strongly interested in Impact Evaluation or Value Chain Analysis were encouraged to apply. The AGRODEP management team, together with experts in Impact Evaluation and Value Chain Analysis will review all applications. Selected applicants will be notified by mid-April.



TRAINING

Training Courses and Survey

Two AGRODEP training courses were held in Addis Ababa, Ethiopia in March. Applied Panel Data Econometrics, taught by Prof. Christopher Parmeter of the University of Miami, was held on March 10-14, 2015. Applied Microeconometrics, taught by Dr. Manuel Hernandez of IFPRI, was held on March 17-19, 2015. Both courses were postponed from September 2014 due to the Ebola outbreak in West Africa.

AGRODEP members recently had the opportunity to select their top three preferred training courses from 20 proposed courses which include a selection of short courses on data processing, computable general equilibrium modeling, and applied econometrics. The members' selection will help AGRODEP management in preparing the array of training courses that will be delivered this year. The results of the survey will be announced by mid-April.

WHAT IS AGRODEP?

The African Growth and Development Policy (AGRODEP) Modeling Consortium is an initiative led by the International Food Policy Research Institute (IFPRI). The goal of AGRODEP is to position African experts to take a leading role in both (1) the study of strategic development questions facing African countries as a group and (2) the broader agricultural growth and policy debate, which traditionally has been dominated by external actors and concerns.

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