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Gender and Willingness to Pay for Insured Loans: Empirical Evidence from Ghana

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Motivation

- Inefficiencies in Ghanaian agriculture:
 - Agriculture is a critical economic sector (23% of the GDP and half of the workforce).
 - Share of total public expenditure increased, but the share of GDP decreased during 2007 to 2013
- Large proportion of farmers use traditional rainfall dependent production systems.
 - Female farmers lag further behind.
- 13% female farmers vs. 22% male farmers use certified seeds.

Objective and Contributions

- Objective:**
 - To investigate the demand for index-based drought insurance (IBDI) coupled with agricultural loans by type and gender.
- Contributions:**
 - Add to the limited literature on index-insurance and gender.
 - First study to estimate the demand for IBDI across four innovative insured products by gender.
 - Value gender differentials in basis risk and in insurance through groups.

Data

- Part of the Ghana randomized control trial project: 258 farmer groups with 779, 777, and 777 farmers in each of the three panels.
- Insured loan products:
 - Product 1: micro-insured loans with payouts given to the farmers
 - Product 2: meso-insured loans with payouts given to the banks
 - Product 3: micro-insured loans without basis risk
 - Product 4: uninsured loans
 - Product 5: micro-insured loans with payouts given to the farmer groups.

Methodology

- Collected data on a set of variables that are potential determinants of demand and willingness to pay for IBDI
 - farmer's income and asset ownership, financial access and familiarity, attitude towards risk, and additional household and individual characteristics.
- To determine the valuation of the five loan products, we use a contingent valuation method
 - Utilizes precisely defined survey questions to determine Willingness to Pay (WTP) for a hypothetical product.
- Single bounded dichotomous choice WTP questions as opposed to a double bounded dichotomous choice method since the latter is prone to anchoring bias on responses to subsequent WTP questions.
- The bid values employed in the WTP questions represent total loan repayment amounts which includes loan plus interest rate (23%) and insurance premium (10%).
 - Generated six additional bid values by employing a uniform distribution of $\pm 5\%$, $\pm 15\%$, and $\pm 25\%$ around the market value.
- To reduce hypothetical bias and ordering bias, we used:
 - Cheap talk
 - Certainty scale adjustment
 - Randomized question order

Empirical Estimation

- To estimate WTP demand and calculate WTP estimates, we use a parametric model of WTP, following the random utility framework.
- Using the marginal effects from the Probit model, we identify demand determinants and calculate individual and mean WTP estimates for the five products.
- Using the WTP estimates, we also calculate the market-viability of the different products via percentage of population willing to pay above the market repayment rate for an insured loan.
 - Market repayment rate: $Repayment = (Principle +$

Results

- Demand decreases in price and risk aversion while increases in education, remittances, irrigation, and experience with borrowing for females.
- Demand for group insurance increases with risk aversion and decreases with education for females.
- There is no significant design effect for females in terms of demand but basis risk reduces demand for males.
- The WTP estimates for each of the five products are significantly lower for females than males at 5% level.
- For a subsample with lower trust in their banks, micro-insured loans hold a higher value than meso-insured loans.
- The market-viability of these products are lower for females than for males.

	Product 1	Product 2	Product 3	Product 4	Product 5
Panel A – Mean WTP Estimates					
Females	474	472	480	462	479
Males	516	507	543	480	493
Difference	42**	35**	63**	18**	14**
Panel B – Percent of population with WTP above market price					
Females	45.7	43.1	---	---	47.5
Males	68.1	62.6	---	---	56.0

Policy Implications

- A need for a reduction in the premium cost by either providing the more vulnerable farmers (female-headed and/or poorer households) with subsidies to be used towards the insurance premium or by lowering the interest rates which would be compensated for by the insurance protection.
- Policies that build trust between the farmers and financial institutions, increase education and non-farm income for females .

References

- Chantarat et al. (2009); Doss & Morris (2000); Ghana Statistical Survey (2016); Haab & McConnell (2002); Hill et al. (2013); Sarris et al. (2006)