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1. Introduction

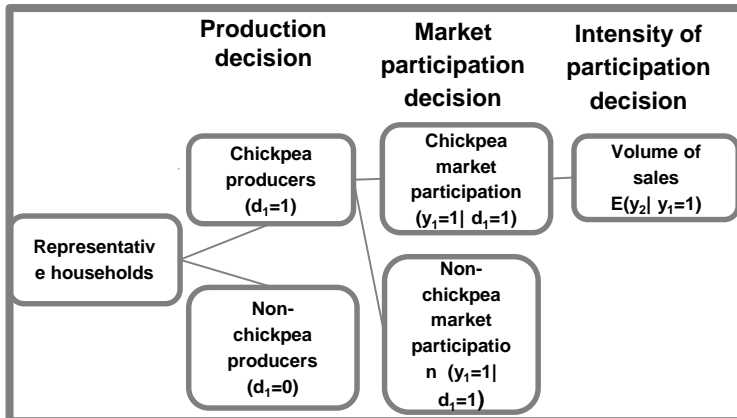
Enhancing agricultural productivity through the adoption of proven technologies presents a credible pathway to economic development and poverty reduction. The adoption of pro-poor, environmentally friendly technologies like improved chickpea varieties has the potential to contribute not only to economic growth but also to food security in rural communities. This study employed a balanced panel dataset of 614 households collected in 2008, 2010 and 2014 cropping seasons.

Research objective: To analyze the linkage between improved chickpea adoption and smallholder production and commercialization.

2. Methodology

- Conceptual framework based on the non-separable agricultural household model
- A triple hurdle model was employed
- Heterogeneity was addressed using the correlated random effect model
- Control function approach was used to correct for endogeneity

Figure 1: Chickpea market participation model



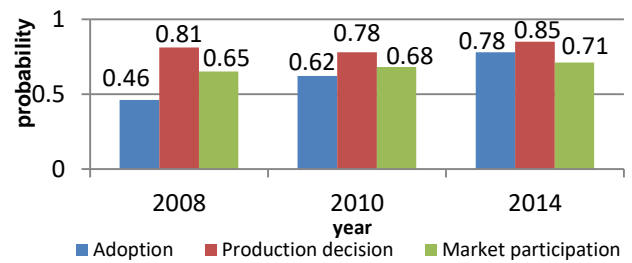
3. Descriptive results

- Adoption increased from 46-78%
- Decision to produce depicted a v-shaped trend from 81% – 85% through 78%
- Market participation also increased throughout the panel years from 65% to 71%.
- Quantity sold in markets also increased
- Mean area under improved chickpea has increased despite reducing arable land.
- Sellers adopted more than non-sellers

4. Correlated random Effect regression results

- Improved chickpea adoption drives smallholder production and commercialization
- Increased food production positively impacts commercialization.
- Drivers of production are gender, age, price, agricultural machinery and rainfall.
- Commercialization is influenced by education, experience, farm area, off-farm income, price and transaction cost.

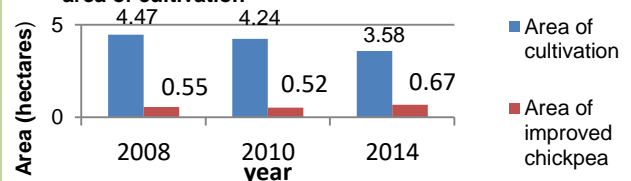
Figure 2 Trend of adoption, production and MP



4. Conclusion and policy implications

Key Findings	Policy Implication
Adoption of improved chickpea increases the decision to produce and market	Target more novel farm technologies <ul style="list-style-type: none"> • Improve extension services • Improve access to improved seeds
Education increases the expected sales of chickpea	Provision of informal education through farmer field schools and farmer business schools.
Farmers cultivating chickpea are more likely to sell	Promote cultivation of chickpea through on farm demonstrations
More output increases commercialization	Support and strengthen initiatives focusing on increasing output
Younger farmers are likely to produce chickpea than their older counterparts	Encourage young farmers by strengthening youth groups and movements
Area of cultivation increases commercialization	Improve access to land by young farmers

Figure 3 Total area of cultivation Vs improved area of cultivation



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