



Who Will Succeed to Returns?: Technology adoption, gender, and social norms in Sub-Saharan Africa

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Importance of Technology adoption in rural development

- Technology adoption
 - Important in improving livelihoods, especially in African countries with high reliance on agriculture (Suri & Udry, 2022, *JEP*)
- Determinants of technology adoption
 - Social learning, credit constraint, gender of decision makers, and net returns etc (Suri, 2011, *ECMA*; Takahashi et al., 2020, *Agric Econ*; Conley & Udry, 2001, *AJAE*; Matsuura et al., 2023, *IDE Discussion Papers*)

What people have not discovered

- A remained and underexplored aspect of the determinants is kinship system (Di Falco, et al., 2023, *EAAE Conference Paper*)
- If farmers have their children, the children may success their farmland and business
 - Di Falco et al. (2023) found first born son increases technology adoption in Ethiopia
- In Sub-Saharan Africa, there are unique kinship systems: Patrilineal and matrilineal societies
- How about in matrilineal societies?

Research questions and contributions

Research questions

- Does gender of first-born affect decisions of farm investment?
- If yes, does it vary across kinship systems?

Contributions

- (Almost) first study examining the relationship between gender of first born and farm investment
- First study discovering whether the causal relationship stems from social norms

Data and Empirical strategy

- Data

- Rural Agricultural and Livelihood Survey 2012, 2015 (Zambia), Nationally representative and balanced panel ($N \times T = 13,926$)
- Living Standard Measurement Survey (Tanzania)

- Specification

- $$Y_{it} = \alpha_1 + \alpha_2 Firstson_{it} + \alpha_3 Firstdaughter_{it} + \alpha_4 X_{it} + a_i + t_t + g_p + e_{it}$$

- Assumption

- gender of a first born child is exogenous

Gender of first born does not matter, on average (Zambia)

	(1)	(2) OLS	(3)
	Soil and land management	Agroforestry	Irrigation
First son	-0.047 (0.047)	-0.012 (0.033)	-0.004 (0.019)
First daughter	-0.063 (0.045)	-0.022 (0.033)	0.024 (0.024)
Control variables	Yes	Yes	Yes
Household FE	Yes	Yes	Yes
Year FE × Province FE	Yes	Yes	Yes
Observations	13,926	13,926	13,926

Contrast with Di Falco, et al. (2023)

p<0.1, ** p<0.05, *** p<0.01

Outcome variables are areas of farm investment (ha)

Gender of first-born child matters (Tanzania)

	SUR		OLS	OLS
	Tree planting	Irrigation	Tree planting	Irrigation
First son	0.007 (0.005)	0.008 (0.007)	0.017** (0.007)	-0.006 (0.009)
First daughter	0.006 (0.005)	0.016** (0.007)	0.002 (0.007)	0.022** (0.009)
Household FE	No		Yes	Yes
Year Dummy	Yes		Yes	Yes
Region Dummy	Yes		No	No
Observations	10397		10397	18832

Social norms would be important

	(1)	(2) OLS	(3)
	Soil and land management	Agroforestry	Irrigation
First son	-0.074 (0.069)	0.009 (0.050)	-0.043 (0.028)
First daughter	-0.063 (0.045)	-0.022 (0.033)	0.024 (0.024)
First son × Patrilineal	0.043 (0.084)	-0.033 (0.059)	0.060* (0.033)
Control variables	Yes	Yes	Yes
Household FE	Yes	Yes	Yes
Year FE × Province FE	Yes	Yes	Yes
Observations	13,926	13,926	13,926

* p<0.1, ** p<0.05, *** p<0.01

Conclusions and remained tasks

RQ1: Does gender of first-born affect decisions of farm investment?

- Yes, but first-born daughter does not affect the decision

RQ2: Does it vary across kinship systems?

- First son only in patrilineal households increases adoption of irrigation
- Further investigation about patrilineal and matrilineal societies in Tanzania
- External validity
 - Malawi

Comments or further information?

- Welcome comments particularly on our model specification
- Look at my website
masanorimatsuura.github.io

