



Constraints on farmer **demand** for credit and the **supply** of credit at the farm household level

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“On the money”: Innovating finance to enable farmer-led irrigation

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Assessment of smallholder farmers' demand for small-scale irrigation technologies: Evidence from Ethiopia

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ABSTRACT

Increasing agricultural productivity of smallholders' livelihoods and their access to irrigation technologies in Ethiopia and other developing countries is a major challenge. Assessment of farmers' preferences for agricultural water lifting technologies (e.g., pump, rope and washer and treadle pump) is essential for the adoption of these technologies. Use of modern technologies, however, results in increased agricultural productivity and sustainability. Enhanced access to irrigation technologies, however, results in increased agricultural productivity and sustainability. Enhanced access to irrigation technologies, however, results in increased agricultural productivity and sustainability. Enhanced access to irrigation technologies, however, results in increased agricultural productivity and sustainability.



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Agricultural credit constraints in smallholder farming: Evidence from Ethiopia

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Demand and supply constraints of credit in smallholder farming: Evidence from Ethiopia and Tanzania

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ABSTRACT

Credit constraint is often considered as one of the key barriers to the adoption of modern agricultural technologies and low agricultural productivity in low- and middle-income countries. Past research and much of the policy discourse associate agricultural credit constraints with supply-side factors, such as limited access to credit sources or high costs of borrowing. However, demand-side factors, such as risk-aversion and financial illiteracy among borrowers could also affect credit-rationing of smallholder agricultural households. This study investigates the nature of credit constraints, factors affecting credit constraint status, and the effects of credit constraints on adoption and intensity of use of three modern agricultural technologies – small-scale irrigation, chemical fertilizer, and improved seeds. The paper also assesses whether credit constraints are gender-differentiated. Primary survey data were collected from sample farmers in Ethiopia and Tanzania, and Tobit and two-step hurdle econometric models were used to analyze these data. Results show that demand-side credit constraints are as important as supply-side factors in conditioning smallholders' access to credit in both countries. We also find that credit is a binding constraint for the decision to adopt technologies and input use intensity in Tanzania but not statistically significant in Ethiopia. Results suggest that women are more likely to be credit constrained (from both the supply and demand sides) than men in both study countries. Based on these findings, we suggest that policies should focus on addressing both supply- and demand-side credit constraints to credit access, including through targeted interventions to reduce risk, such as crop insurance, and to strengthen the gender sensitivity of credit policies.

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Outline

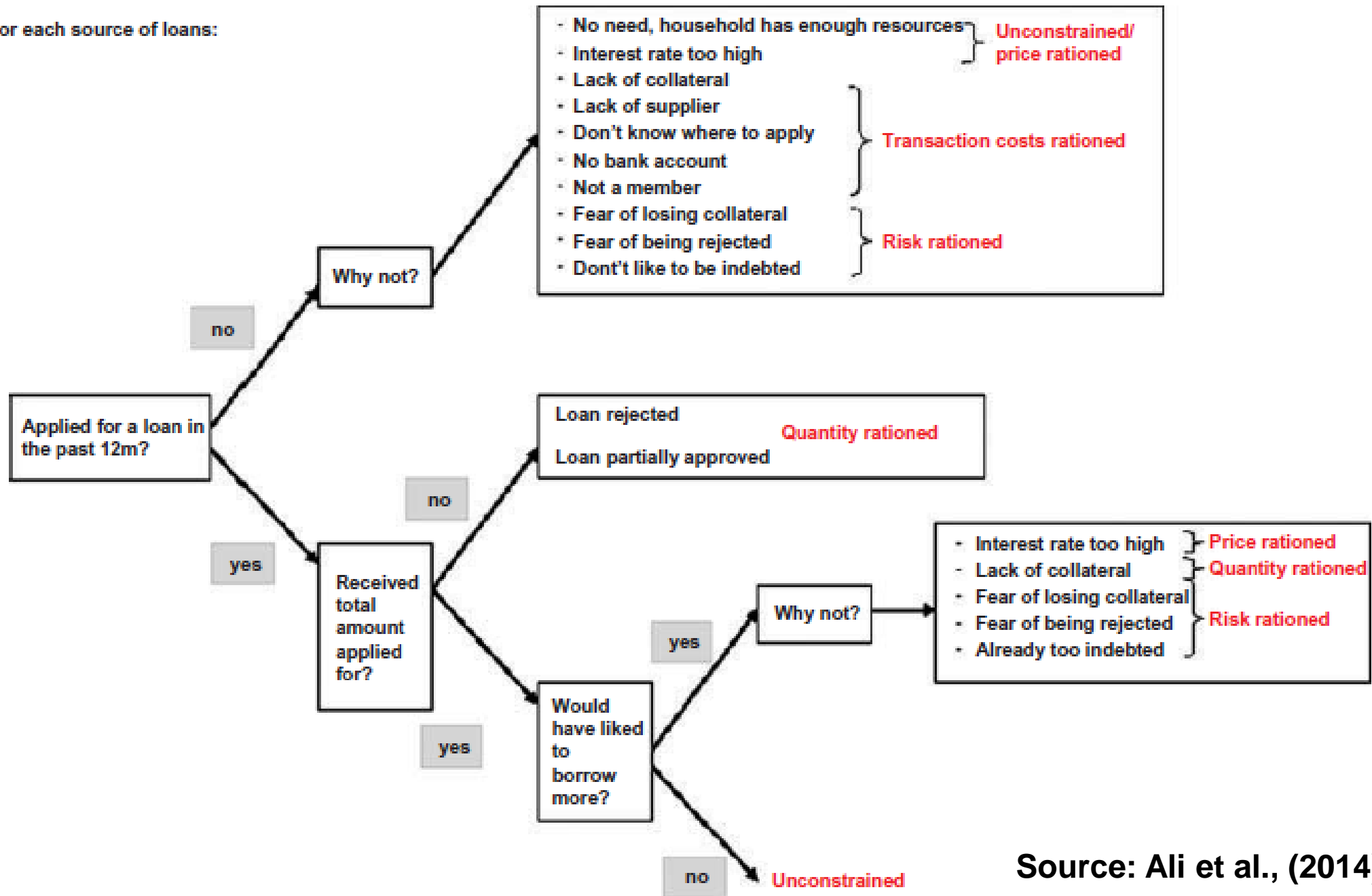
- Motivation
- Methodology – data
- Classification/Identification
- Key Messages
- Policy implications

Study Motivation

Credit & Ag. Technology (incl. irrigation)

- Credit - major constraint limiting adoption of agric. technologies incl. irrigation (Feder et al. 1990; Feder and Umali 1993; Fernandez-Cornejo and McBird 2002; Carter and Olinto 2003; Guirkinger and Boucher 2008; Abate et al. 2016; Khandker and Koolwal 2016).
- **ss-side** credit constraints (high interest rates; absence of accessible credit, unsuitable credit products,...).
- **Policy focus** – on removing supply-side factors/constraints
- **How about dd-side factors?** (Risk-behavior, transaction cost, illiteracy, lack of entrepreneurship, aspiration, etc.)?

For each source of loans:



Source: Ali et al., (2014)

Identification/classification

Unconstrained		Constrained: Supply-side		Constrained: Demand-side	
				Due to risk-aversion	Due to transaction costs
Borrowers	Obtained amount of loan requested	Applied or attempted	<i>Rejected borrowers:</i> Applied or otherwise attempted to obtain a loan. Ready to pay the existing interest rate, but loan application rejected.	Non-borrowers	Afraid of taking risks, e.g., high-interest rates Lenders not located nearby, e.g., do not know any lenders
Non-borrowers	Do not need a loan	Borrowers	<i>Unsatisfied borrowers:</i> Obtained less than the amount of loan requested; wanted a larger loan at same interest rate	Non-borrowers	Afraid that cannot pay the money back Procedure too cumbersome, too much paperwork, too expensive
Non-borrowers	Prefer working with their own liquidity, i.e., reason for not borrowing is “do not like to be in debt”	Non-borrowers	<i>Non-applicants who perceive themselves to “certainly be rejected”:</i> Were certain that their loan application would be rejected due to inadequate collateral; past credit history; existing outstanding loans; or irregular income	Non-borrowers	Do not want to be worried; afraid. Need to pay bribes, too much politics involved

Key messages

- Yes, credit could be a constraint – but it is from both ss & dd sides.
 - Collateral (ss)
 - Risk behavior/perception (dd)
 - Information/knowledge gap/extension..(dd)
 - Subsistence farming nature – lack of aspiration – farming way of life (not as a business(dd)
 - Illiteracy (complex paper works, cumbersome, high transaction costs).
- Irrigation technology & credit:
 - **Irrigation infrastructure/equipment** (large credit – initial investment)
 - **Irrigation running costs** (small credit - fuel, labor, maintenance)
 - **Other complementary/associated costs** – improved seeds, fertilizer, & agro-chemicals.

Key policy implications

- Address both **supply and demand side factors**.
- Supply-side factors - focus on smallholder's **capacity to possess bankable collateral**, such as **land titles** or **bankable assets**.
- Demand-side factors – focus on **human capital, information, extension services, risk mitigation (e.g., bundle with insurance)**.
- **Irrigation vs. credit** – differentiate credit constraints to: (1) **capital investment**, (2) **operational costs**, & (3) **complementary inputs (e.g., fertilizer and improved seeds)**.

