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Market participation and marketing performance: A case study of Bolivian potato farmers

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Introduction

• Potato production is vital for the impoverished households living in the Bolivian Andes.

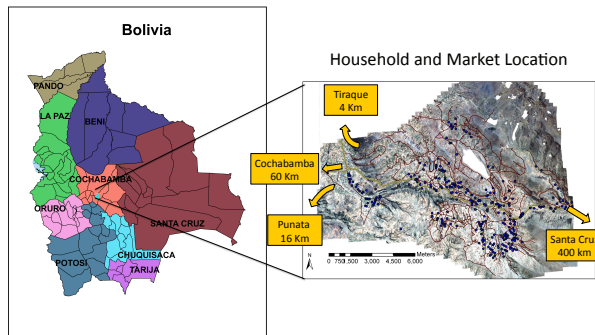
✓ Potato is the main food crop and cash crop followed by Lima beans, cereal, and livestock.



✓ Potato sales represent 79.5% of crop revenue and 49.5% of total household revenue.

• Market participation can be used as a tool to lift small-scale farmers out of semi-subsistence farming and poverty trap¹.

• Identifying obstacles to market participation and factors to promote participation in higher-valued markets is primordial to increase farmers' income and welfare.



Research questions

1. What is needed to simulate small-scale farmer market participation and volume sold?

- Hypothesis²: ✓ Productive assets
- ✓ Improved technology
- ✓ Lower transaction costs



2. What is needed to improve marketing performance?

- Hypothesis: ✓ Capital endowment
- ✓ Access to information



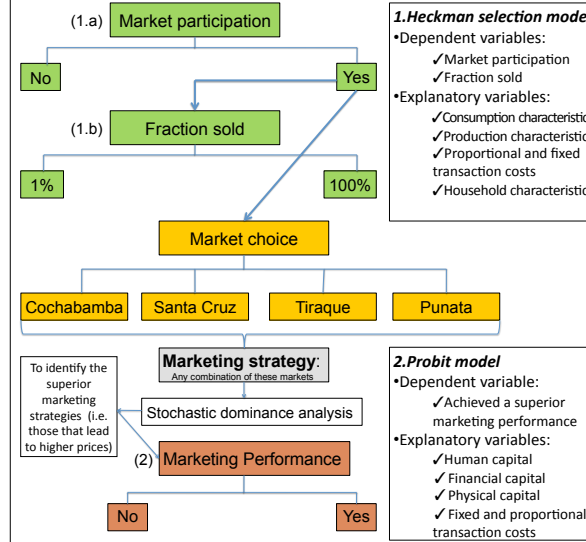
Acknowledgment:

We acknowledge funding support from Sustainable Agricultural and Natural Resource Management Collaborative Research Support Program (SANREM CRSP).



Reference:
[1-2]: Barrett, C.B. (2008), Smallholder market participation: Concepts and evidence from eastern and southern Africa, Food Policy 33(4): 299-317.

Conceptual and empirical framework



Results and conclusion

Market participation	Faction sold
Production characteristics	
• Technical efficiency and the number of field a household owned have a small and positive impact on market participation.	• 1 ha increase in farm size leads to a 1.5% increase in the fraction sold. • Tractor ownership increases the fraction sold by 4.8%. • A 10% increase in technical efficiency increases the fraction sold by 3.1%.
Transaction costs	
• Proportional and fixed transactions do not have a significant impact on market participation.	• Living 1 km closer to the Tiraque market leads to a 1% increase in the fraction sold. • Living 1 km further away from the paved road reduces the fraction sold by 3.7%.
Household characteristics	
• The age of the household head has a negative impact while being a female household head has a positive impact on market participation.	• Being a female household head reduces the fraction sold by 10.3% while the ratio adult of females has a positive impact on quantity sold.
Marketing performance	
Human capital	
• One-year increase in the household head age reduces the probability of selecting a superior marketing strategy by 1.9% • An additional family member increases the probability of selecting a superior marketing strategy by 5%. • A 10% increase in the ratio of adult females increases the probability of selecting a superior marketing strategy by 3.2%.	
Financial capital	
• A 10% increase in the fraction of potato sold increases the likelihood of selecting a superior marketing strategy by 2.1%.	
Physical capital	
• 1 ha increase in farm size increases the probability of selecting a superior marketing strategy by 4.4%.	
Transaction costs	
• Owning a radio increases the probability of selecting a superior marketing strategy by 13.8%. • Living 1 km closer to the Tiraque market increases the likelihood of selecting a superior marketing strategy by 11.5%.	

Data

- Survey data:
 - ✓ 352 potato farmers
 - ✓ Data on agricultural activities, market participation, household characteristics, etc.
- GIS Data:
 - ✓ Geo-referenced household location
 - ✓ GIS data for road network, elevation, soil, etc.
- Market participation:
 - ✓ 90% of households sold potatoes
 - ✓ Households sold an average of 64% of production
- Market choice:
 - ✓ 72.9% of households sold potatoes in Tiraque
 - ✓ 40.7% of households sold potatoes in Punata
 - ✓ 19.2% of households sold potatoes in Cochabamba
 - ✓ 7.6% of households sold potatoes in Santa Cruz
 - ✓ 67.8%, 24.9%, 6.3%, and 0.9% of households sold potatoes in 1, 2, 3, and 4 markets
- Prices:
 - ✓ Average net price received is 139 BS/100 Kg potatoes (±29)
 - ✓ Selling potatoes in more than one market and selling potatoes in Santa Cruz and Cochabamba yielded to higher net prices.
- Marketing strategies:
 - ✓ Five superior marketing strategies were identified:
 1. Cochabamba
 2. Santa Cruz-Cochabamba
 3. Punata-Tiraque
 4. Punata-Tiraque-Santa Cruz
 5. Punata-Tiraque-Cochabamba
 - ✓ 30.6% of households selected a superior marketing strategy (i.e. achieved a superior marketing performance).



Policy implications

Farmers' income can be increased through:	
Increased market participation	Improved marketing performance
By providing technical assistance ↓ Increase agricultural productivity	By improving access to market information ↓ Better informed about price
By improving road quality and transportation alternatives ↓ Reduce proportional transaction costs, i.e. transportation costs	By improving access to market information ↓ Reduce fixed and proportional transaction costs, i.e. search costs and transportation costs
By implementing microfinance programs ↓ Facilitate acquisition of productive assets ↓ Increase agricultural production	By improving access to market information ↓ Cover transportation costs of reaching the further away markets
Greater volume sold	Higher price
Risk is a limiting factor	
Risk of not meeting the family consumption needs by participating in the market.	Greater price uncertainty and higher transportation costs when selling in the further away markets.