Remittances and food security in rural Zimbabwe: Does the gender of the remittances recipient matter?

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Outline of presentation

- Introduction
- Research questions
- Study design
- Descriptive analysis
- Empirical estimation and results
- Conclusion and policy recommendations

Introduction

- A target of the second United Nations Sustainable Development Goals (SDGs)
  - is to end hunger and ensure access by all people, in particular the poor and people in vulnerable situations to safe, nutritious and sufficient food all year round by the year 2030.
- The majority of countries in South Asia and Sub-Saharan Africa (SSA) lagged behind (FAO, 2015; FAO et al., 2015).
- Lack of essential nutrients such as proteins, vitamins, and hem iron lead to malnutrition
- The target essentially looks at ending malnutrition
- Malnutrition especially has long lasting consequences for development
  - including reduced cognitive impairment, reduced school attendance, as well as reduced productivity.
- Interventions to reduced have basically focused on the first 1000 days
  - Window of opportunity
- Interventions have previously focused on WASH and access to food (e.g., SHINE experiment in Zimbabwe).

Introduction

- Interventions in WASH and food access have recorded modest but insufficient success to meet SDG 2
- This has called upon for MCBM
- In this paper we look at the impact of remittances on food and nutrition security in rural Zimbabwe
- We also included a component of gender
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Questions

- What is the impact of the gender of the household head on the propensity to receive remittances?
- Doe remittances improve household food and nutrition security?
- Is there gender heterogeneity in the impact of remittances on household food and nutrition security?

Design of the study

- Nationally representative household data on rural livelihoods from a cross-section survey conducted by the Zimbabwe Vulnerability Assessment Committee (ZimVAC).
  - ZimVAC is a consortium comprising of the Zimbabwean government, UN agencies and non-governmental organizations.
  - It is headed by the Food and Nutrition Council of Zimbabwe (FNC) in the president's office
- 2017 data comprises 11,661 rural households in Zimbabwe
- Urban surveys are conducted every five years

Design of the study

- Four outcome variables at the household level:
  - Consumption of proteins
  - Consumption of vitamins
  - Consumption of iron
  - Dietary diversity score (DDS)
- Key control variable is the reception of remittances

Descriptive analysis

Table 1. Background characteristics by gender of the recipient

	Household head is female	Household head is male	Difference
	[F]	[M]	[F-M]
	(I)	(II)	(III)
Household head age [Years]	52.846	48.421	4.425***
Household head education [8 ascending categories]	2.131	2.746	-0.614***
Married living together	0.187	0.891	-0.704***
Married living apart	0.135	0.032	0.103***
Divorced/Separated	0.117	0.016	0.100***
Widow/widower	0.534	0.036	0.499***
Never married	0.027	0.024	0.002
Household size	4.674	5.172	-0.497***
Household has HIV positive member	0.035	0.042	-0.007*
Household income [USD]	3.310	3.651	-0.341***
Manicaland	0.139	0.103	0.036***
Mashonaland Central	0.102	0.151	-0.049***
Mashonaland East	0.149	0.153	-0.003
Mashonaland West	0.087	0.132	-0.045***
Matabeleland North	0.120	0.116	0.004
Matabeleland South	0.145	0.101	0.044***
Midlands	0.117	0.140	-0.023***
Masvingo	0.141	0.104	0.037***

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Descriptive analysis

Table 2. Gender differences in nutrition and remittances

	Household head is female	Household head is male	Difference
	[F]	[M]	[F-M]
	(I)	(II)	(III)
Household consumes proteins [1 if Yes, 0 if No]	0.820	0.865	-0.045***
Household consumes vitamins [1 if Yes, 0 if No]	0.910	0.932	-0.022***
Household consumes iron [1 if Yes, 0 if No]	0.509	0.588	-0.079***
Household dietary diversity score	4.490	4.689	-0.199***
Household receives remittances [1 if Yes, 0 if No]	0.327	0.249	0.078***

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Empirical estimation and results

- Assessing the impact or the treatment effect of remittances on food security using observational data is confounded by incomplete information arising from the self-selection of observations into remittances (Austin 2009; 2011; Caliendo & Kopeinig, 2008; Heckman et al., 1997).
- Propensity score matching (PSM) is used to eliminate the confounding effects of observational survey data as observational or non-randomized studies always suffer from selection bias unlike randomized control trials (RCTs) which use random treatment allocation.
- Using PSM, we can reduce or eliminate the problem of systemic differences in baseline characteristics between treated and untreated groups (Austin 2009; 2011; Caliendo & Kopeinig, 2008; Heckman et al., 1997).
- We estimate the average treatment effect on the treated (ATT) that provides the impact of remittances on food security food security as follows:
- $$ATT = E(Y_{i1} \mid Rem_i = 1) - E\{E(Y_{i0} \mid Rem_i = 0, Pr(Rem_i = 1|X)\} \quad [1]$$

Empirical estimation and results

Table 3. Impact of gender on remittances

VARIABLES	Logit	Probit	OLS
	(II)	(II)	(III)
Household head sex [1 if Male, 0 if female]	-0.288***	-0.170***	-0.0573***
	(0.0629)	(0.0379)	(0.0126)
Household head age [Years]	0.0165***	0.00983***	0.00327***
	(0.00145)	(0.000866)	(0.000288)
Household head education [8 ascending categories]	0.0230	0.0140	0.00439
	(0.0189)	(0.0113)	(0.00368)
Married living together	-0.526***	-0.320***	-0.105***
	(0.139)	(0.0830)	(0.0288)
Married living apart	-0.0102	-0.00863	0.00259
	(0.152)	(0.0922)	(0.0329)
Divorced/Separated	-0.633***	-0.380***	-0.128***
	(0.166)	(0.0991)	(0.0339)
Widow/widower	-0.563***	-0.340***	-0.112***
	(0.148)	(0.0895)	(0.0312)
Household size	-0.0313***	-0.0186***	-0.00662***
	(0.00987)	(0.00589)	(0.00194)
Household has HIV positive member	-0.0496	-0.0269	-0.00907
	(0.113)	(0.0661)	(0.0206)
ln (Household income [USD])	0.000111**	6.61e-05**	2.20e-05*
	(5.35e-05)	(3.28e-05)	(1.16e-05)
Manicaland	-0.156*	-0.0894*	-0.0299*
	(0.0873)	(0.0520)	(0.0169)
Mashonaland Central	-0.0218	-0.0125	-0.00411
	(0.0838)	(0.0501)	(0.0164)
Mashonaland East	-0.126	-0.0728	-0.0244
	(0.0814)	(0.0486)	(0.0160)
Mashonaland West	-0.188**	-0.109**	-0.0345**
	(0.0890)	(0.0527)	(0.0168)
Matabeleland North	-0.187**	-0.107**	-0.0361**
	(0.0871)	(0.0518)	(0.0169)
Matabeleland South	0.159*	0.0984*	0.0345**
	(0.0834)	(0.0505)	(0.0176)
Midlands	0.174**	0.105**	0.0360**
	(0.0814)	(0.0491)	(0.0168)
Constant	-1.009***	-0.617***	0.275***
	(0.173)	(0.103)	(0.0353)
Observations	11,661	11,661	11,661
R-squared	0.0236	0.0236	0.028

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	(0.148)	(0.0895)	(0.0312)
Household size	-0.0313***	-0.0186***	-0.00662***
	(0.00987)	(0.00589)	(0.00194)
Household has HIV positive member	-0.0496	-0.0269	-0.00907
	(0.113)	(0.0661)	(0.0206)
ln (Household income [USD])	0.000111**	6.61e-05**	2.20e-05*
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Constant	-1.009***	-0.617***	0.275***
	(0.173)	(0.103)	(0.0353)
Observations	11,661	11,661	11,661
R-squared	0.0236	0.0236	0.028

Empirical estimation and results

Table 4. PSM estimates of the impact of remittances on FS

	Household consumes proteins [1 if Yes, 0 if No]	Household consumes vitamins [1 if Yes, 0 if No]	Household consumes iron[1 if Yes, 0 if No]	Household dietary diversity score
VARIABLES	(I)	(II)	(III)	(IV)
Household receives remittances [1 if Yes, 0 if No]	0.0271***	0.00437	0.0507***	0.141***
	(0.00856)	(0.00658)	(0.0119)	(0.0308)
Observations	11,661	11,661	11,661	11,661

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Empirical estimation and results

Table 5. PSM estimates of gender heterogeneity in the impact of remittances on food security

	Household consumes proteins [1 if Yes, 0 if No]	Household consumes vitamins [1 if Yes, 0 if No]	Household consumes iron[1 if Yes, 0 if No]	Household dietary diversity score
VARIABLES	(I)	(II)	(III)	(IV)
Household head is female [4,138 observations]				
Household receives remittances [1 if Yes, 0 if No]	0.0813***	0.0197*	0.122***	0.377***
	(0.0139)	(0.0108)	(0.0194)	(0.0508)
Household head is male [7,523 observations]				
Household receives remittances [1 if Yes, 0 if No]	0.00844	0.00113	0.0192	0.0570
	(0.0107)	(0.00821)	(0.0155)	(0.0393)

Empirical estimation and results

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Household head is male [7,523 observations]				
Household receives remittances [1 if Yes, 0 if No]	0.00844	0.00113	0.0192	0.0570
	(0.0107)	(0.00821)	(0.0155)	(0.0393)

Conclusion and policy recommendations

- Results consistent with our other findings on the impact of FinTechs & Remittances on household and firm level outcomes
  - Kairiza, Terrence, Kiprono, Philemon & Magadzire, Vengesai. 2017. Gender differences in access and returns to financial inclusion amongst SMEs in Zimbabwe. *Small Business Economics*
  - Kairiza , Chigusiwa, Kiprono, & Pallegedara. submitted. Does mobile money transfer usage affect household commercialization of farming? Empirical evidence from Rwanda. *RDE*
  - Kairiza, Kembo, Magadzire and Pallegedara. submitted. Gender Attributes of the Impact of Informal Savings and Loans Associations on Food Security in Rural Zimbabwe. *RDE*
- Results have been based on observational data
- RCTs needed to establish causality definitively

Thank you for your attention