

Gender, remittances, and household expenditures

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Research questions

- We look at how remittances and the gender of the household head influence the household budget allocation to education and entrepreneurship expenditure
 - ❶ Do female-headed households allocate more resources to education and entrepreneurship compared to male-headed households?
 - ❷ Do remittances have a positive impact on such investments?
 - ❸ What is the interaction between the gender and the educational attainment of the household head in affecting education and business investments?

Where we start from - I

- Development economics literature suggests that women give more importance to the welfare of their families and children than men do (Duflo 2003; Doepke and Tertilt 2014; ADB 2015)
- Women invest a larger share of household income in children's health (Duflo 2003; Qian 2008; Goldman Sachs Global Markets Institute 2009, 2014) and education (Heintz 2006; Qian 2008; Duflo 2012; Elborgh-Woytek et al. 2013; IMF 2015)

Where we start from - II

- Remittances increase the incomes of household members left behind, relaxing their budget constraints and improving their life conditions (Acosta et al 2006, 2008; Adams and Cuecuecha 2013; Bertoli and Marchetta 2014; Yang and Martinez 2007).
- Positive impact of remittances on children's education and health, poverty reduction, and small business investments, across a broad range of countries

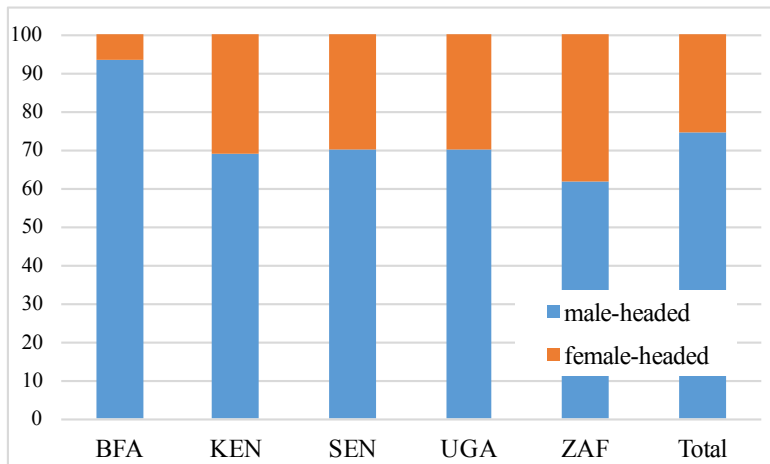
Our main contributions to the literature

- We use micro data from 5 African countries to:
 - provide additional insights on the impact of the gender of the household head and remittances received from abroad on per capita expenditure on education and entrepreneurship activities;
 - overcome the possible endogeneity of either household structure or remittances that could bias OLS estimates by means of matching techniques and a multiple treatment setting.
- We also investigate the relationship between gender and educational (of household head) in determining household investment in human capital and entrepreneurship.

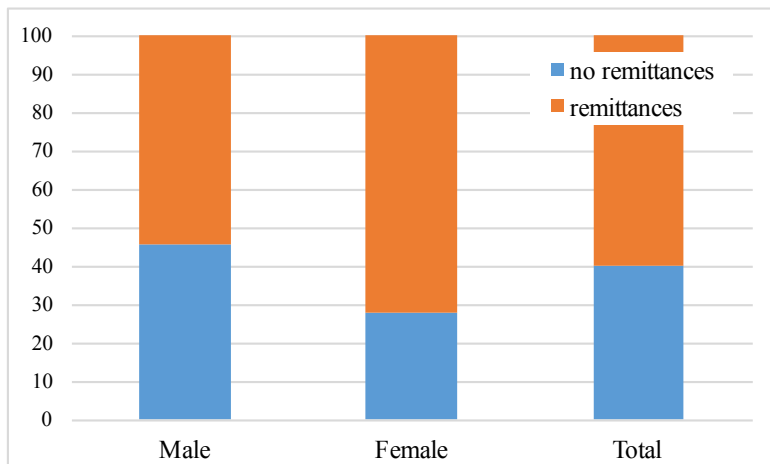
Data

- Micro data from World Bank Migration and Remittances Surveys on 5 African countries:
 - ➊ Burkina Faso
 - ➋ Kenya
 - ➌ Senegal
 - ➍ South Africa
 - ➎ Uganda
- Cross section: 2009 or 2010
- More than 11,000 households
- Detailed information on demographics, household expenditure, migration patterns and remittances

Female- vs. male-headed households



Gender and remittances



The empirical specification

We estimate the following model:

$$EXP_{ic} = \alpha + \beta_1 * GENDER_i + \beta_2 * REM_i + \gamma \times X_i + \mu_c + \epsilon_{ic}$$

where

- EXP_i = log of expenditure per capita on either education or entrepreneurship by household i in country c ;
- $GENDER_i$ = gender of household head;
- REM_i = log of remittances per capita received by household i ;
- X_i = control variables;
- μ_c = country fixed-effect.

Control variables

- *Household characteristics*
 - total consumption per capita (log)
 - number of children (0-15 years) (log)
 - household size (log)
 - number of working adults (log)
 - urban/rural environment
 - home ownership
 - owned agricultural land
 - owned non agricultural land
- *Household-head characteristics*
 - age
 - educational attainment
- Country Fixed Effects
- (Region Fixed Effects)

Estimation methods

- **OLS estimates**
 - There might be endogeneity concerns:
 - Omitted unobservable factors driving both household expenditure patterns, household structure (gender) and remittances received from abroad
 - Reverse causality: migration strategies (which impact both the gender of the household head and remittances) might be oriented to invest in either children's human capital or entrepreneurship activities
- **Propensity Score Matching** at two different level:
 - Gender of the household head
 - Remittances from abroad
- **Multiple treatment framework:** gender and remittances are considered jointly.

OLS preliminary estimates

Dependent variable: log per capita expenditure on education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
gender (1=male)	-0.601*** [0.097]	-0.326** [0.155]	-0.241 [0.229]	-0.330** [0.155]	-0.558*** [0.097]	-0.300* [0.158]	-0.201 [0.234]	-0.304* [0.158]
remittances		0.025** [0.013]	0.008 [0.035]	0.026** [0.013]		0.025* [0.013]	0.005 [0.036]	0.026** [0.013]
gender × remittances			0.014 [0.027]				0.016 [0.027]	
migrant hh				-0.406 [0.336]				-0.402 [0.337]
Controls	yes	yes	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes	yes	yes
Region FE	no	no	no	no	yes	yes	yes	yes
Observations	8,631	4,012	4,012	4,012	8,631	4,012	4,012	4,012
R ²	0.352	0.276	0.276	0.276	0.378	0.308	0.308	0.308

OLS preliminary estimates

Dependent variable: log per capita expenditure on entrepreneurship

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
gender (1=male)	-0.03 [0.071]	0.022 [0.122]	-0.063 [0.160]	0.021 [0.122]	-0.03 [0.071]	0.039 [0.126]	-0.059 [0.166]	0.037 [0.126]
remittances		0.017** [0.008]	0.035 [0.024]	0.017** [0.008]		0.013 [0.008]	0.034 [0.024]	0.013 [0.008]
gender × remittances			-0.015 [0.018]				-0.017 [0.019]	
migrant hh				-0.166 [0.214]				-0.169 [0.216]
Controls	yes	yes	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes	yes	yes
Region FE	no	no	no	no	yes	yes	yes	yes
Observations	7,686	3,640	3,640	3,640	7,686	3,640	3,640	3,640
R ²	0.716	0.717	0.717	0.717	0.73	0.733	0.733	0.733

PSM preliminary estimates

	log per capita education expenditure	log per capita entrepreneurship expenditure
GENDER (Male 1 vs Female 0)	-0.512*** [0.175]	-0.083 [0.200]
Observations	8,096	7,138
REMITTANCES (Remittances 1 vs No Remittances 0)	0.501*** [0.168]	0.196* [0.112]
Observations	3,557	3,190

Multiple treatment: preliminary estimates I

Inverse probability weighting with regression adjustment

- linear regression model for the outcome (expenditure)
- multinomial logit for the treatment probability
- “Wooldridge’s double-robust” estimator: only one of the two models must be correctly specified to consistently estimate the treatment effects

Group	Multiple treatment definition	N obs	Perc.
1	no remittances, female headed	361	9.76
2	no remittances, male headed	1,417	38.33
3	remittances, female headed	609	16.47
4	remittances, male headed	1,310	35.43

Multiple treatment: preliminary estimates II

	ATT	
	log per capita education expenditure	log per capita entrepreneurship expenditure
group 1 vs group 3	-0.967** [0.381]	-0.657** [0.334]
group 2 vs group 3	-1.464*** [0.392]	-0.641* [0.364]
group 4 vs group 3	-0.275 [0.596]	-0.464 [0.559]
Obs	3560	3573

Interacting gender and education

Dependent variable: log per capita expenditure on education						
	(1)	(2)	(3)	(4)	(5)	(6)
gender (1 = male)	-1.192*** [0.160]	-0.926*** [0.218]	-0.928*** [0.217]	-1.081*** [0.160]	-0.819*** [0.222]	-0.822*** [0.222]
educ (primary) × gender	0.962*** [0.227]	1.109*** [0.324]	1.107*** [0.324]	0.845*** [0.225]	0.943*** [0.325]	0.942*** [0.325]
educ (secondary) × gender	1.021*** [0.240]	1.161*** [0.391]	1.157*** [0.391]	0.940*** [0.240]	1.113*** [0.395]	1.108*** [0.395]
educ (tertiary) × gender	1.228*** [0.346]	1.600*** [0.533]	1.600*** [0.533]	1.093*** [0.342]	1.433*** [0.534]	1.435*** [0.535]
educ (primary)	0.262 [0.192]	-0.109 [0.278]	-0.108 [0.277]	0.282 [0.192]	-0.092 [0.284]	-0.092 [0.284]
educ (secondary)	0.213 [0.209]	0.062 [0.332]	0.065 [0.332]	0.241 [0.211]	0.037 [0.344]	0.039 [0.344]
educ (tertiary)	0.346 [0.312]	-0.461 [0.467]	-0.465 [0.467]	0.383 [0.311]	-0.362 [0.479]	-0.369 [0.480]
remittances		0.025** [0.013]	0.025** [0.013]		0.025* [0.013]	0.025** [0.013]
migrant hh			-0.367 [0.330]			-0.377 [0.331]
Country FE	yes	yes	yes	yes	yes	yes
Region FE	no	no	no	yes	yes	yes
Observations	8,631	4,012	4,012	8,631	4,012	4,012

Notes: The reference group is individuals without formal education (37%). Other categories: individuals with primary education (24%), with secondary education (24%), with tertiary education (15%).

Main takeaways

- Women (in selected African countries) allocate a larger share of household expenditures on education
 - This gender gap tends to become smaller with formal education
- Remittances contributes to higher spending in education and entrepreneurship.
- Results confirm: 1) the importance of boosting women's influence over household decisions, 2) the key role of parental education, and 3) the need to facilitate remittance flows.