

Intra Household Decision Making and Children Outcomes in Malawi: the Effect of Matrilineal and Patrilineal Descent

Marinella Boccia [#], Fernanda Mazzotta[#], Anna Papaccio[#] and Lavinia Parisi[#]

Department of Economics and Statistics and Celpe University of Salerno

SITES - IDEAS 2018, 3-4 October, Rome

Overview of presentation

- Motivation
- Aim
- Background
 - ~ Theoretical Literature
 - ~ Empirical Literature
- Sample Description and Variables
- Female Power Index
- Results
 - ~ Probability of schooling
 - ~ The Body Mass Index (BMI)
- Concluding Remarks

Motivations

- Three important Goals which are strictly correlated:
 - Improving Education
 - Improving Health for Youth
 - Analyse Women's power in Developing countries

Motivations: Improving Education

- Education has been recognized as a basic human right, highlighting its role as a safeguard for human dignity and a foundation of freedom, justice and peace
- In developing countries the literacy rate is sharply lower than in developed countries (62% for total adult in Malawi that is the among the latest three countries)



Motivations: Improving Health for Youth

- The health improvements globally, during the 20th century, arguably contributed as much or more to improvements in overall well-being
- In far too many countries health conditions remain unacceptably poor. This factor is a source of grief and misery, and it is a sharp brake on economic growth and poverty reduction (D.T. Jamison, (2006)



5

Motivations: Women's power within the family

- Women's empowerment is a critical Goals of the United Nations. Women's decision power within the family is one of the indicator of women's empowerment
- Women in developing countries suffer from gender inequalities
- Countries like Yemen, Chad, and Pakistan have been ranked at the bottom of the World Economic Forum's Global Gender Gap Index
- Decision maker for women visit to her relatives are more husband then wife (DHS-2014)



6

Motivations: Why Malawi?

- Several international institutions (as for example: United Nations Population Fund, European Union, Action Aid, International Crops Research Institute) are implementing programmes that focuses on women empowerment in Malawi:
- \checkmark the Gender Equality and Women Empowerment (GEWE)
- ✓ the women's empowerment project of The Hunger Project's programs, build a Women's Empowerment Index (WEI)
- ✓ the Girls Club, a female youth empowerment program directed at primary and secondary school girls implemented by Determined to Developed institution

• Heritage

✓ Malawi is a unique country because of its system of inheritance: around 60% of households are matrilineal and follow descent through the female line, so the land is passed from mother to daughter at the time of marriage, while the remainder are patrilineal and follow descent through the male line

Motivations: Why Malawi?



 Ranked 139 out of 144 for Global Competitive Index (2017–2018) and 170 out of 188 countries on the Human Development Index (UNDP, 2015)



• One of the poorest country in the world (poverty index 50.7 in 2010, World Bank Data)

Aims

- Education: analyzing the probability that young children (less then 21 yrs of age) attend school of any level;
- Health: analyzing the Body Mass Index (BMI) of children aged from 6 to 59 months;
 - we focus on the effect of the <u>Female Power Index</u> in the family;
 - we distinguish between <u>matrilineal and patrilineal</u> (i.e. the descent land heritage in the family) and between <u>daughters and sons.</u>

Theoretical Background: Conceptualization 1/2

- <u>In households where the wife has a higher decision's power, the expenditure share of items that are positively correlated with household's welfare, such as healthy food and education, are higher than in households where women have less power</u>
- If the <u>husband has a higher power</u>, the household will spend more on "men's" goods such as alcohol and tobacco (Buchmann, 2000; Lam and Schoeni 1993; Smith et al, 2003, Kanbur and Haddad, 1994)
- Non Unitary Economics Models: Examining how households make decisions considering <u>separated utilities function</u> for each member. Thus, we can examine decisions made by men and women who have distinct preferences and make decisions somewhere along a spectrum between full cooperation and conflict (Chiappori,1988, 1997; Lundberg and Pollak 1993; McElroy 1990, 1992).

Theoretical Background: Conceptualization 2/2

Heterogeneous preferences between men and women can lead to different household decisions depending on several theoretical explanations:

- Maternal Altruism: a mother tends to internalise her children's preference, that is, her utility function reflects the child's interest (Basu, 2006; Mason, 1986).
- The parent-child relationship has been described as an implicit contract:
 - On one side, women may gain greater future benefits from educational investments in their children given they <u>are more dependent than men on</u> <u>their children for old-age support.</u>
 - On the other hand, <u>the opportunity costs of their children's school</u> <u>attendance may also</u> be higher for mother, given their children's potential contribution to the domestic economy as well as to the care of younger siblings. (Lloyd and Gage-Brandon, 2011)

Empirical Background: findings 1/4

Positive link between women's power and children's health

- Research on women's decision-making autonomy and children's outcomes found significant positive effects on child survival, nutrition, and health (Hossain et al. 2007, Shroff et al. 2009, Brunson et al. 2009, Shroff et al. 2011; Shroff et al. 2011)
- Desai and Johnson (2005) found in two Asian countries (Nepal and India) that women's decision making authority improves height-for-age and reduces child mortality, even after controlling for education and wealth
- Effects are the weakest in sub-Saharan Africa, with Latin America and the Caribbean falling in between
- Fantahun et al. (2007) showed that combined efforts to improve women's involvement in household decision making, social capital and immunization may decrease high child mortality in Ethiopia where the level of poverty is high and no appreciable trend in child mortality decline has been noted over the years

Empirical Background: findings 2/4

Contradictory results on the link between women's power and schooling:

- Fewer researches has addressed the association between women's autonomy and schooling, Luz and Agadjanian (2015) for Mozambique found that women with higher levels of decision-making autonomy may have a stronger preference for children' schooling, especially for daughters
- Other researches found the opposite (Felkey 2005; Basu 2006; Lancaster, Maitra, and Ray 2006; Gitter and Braham, 2008)
- Basu (2006) showed that if the woman has more power than the man, she will gather a greater share of the income produced by child labor. When women power increases, she will receive more benefits from child labor, while the benefits of schooling may stay the same. Therefore additional female power may actually result in a decline in school enrolment
- <u>The opportunity costs of their children's school attendance may also</u> <u>be higher for mother</u>, given their children's potential contribution to the domestic economy as well as to the care of younger siblings (Lloyd and Gage-Brandon, 1994).

Empirical Background: findings 3/4

The different impact of women's power on girls and boys

- Cross-national studies using data from Bangladesh, Ethiopia, Indonesia, and South Africa found <u>that women's control over household resources reduce the female</u> <u>gender gap in children's education in Bangladesh</u> but not in the other three countries (Quisumbing and Maluccio 2003)
- Fuller et al. (1995) found that in Botswana mothers were more likely to invest in their daughters than were fathers and tended to support their daughters' schooling more fairly in relation to their sons
- Women with greater power to negotiate their preferences within the household may be better able to translate their preferences into outcomes, but their preferences may still be shaped by dominant community gender norms. <u>In contexts</u> with strong preferences for sons, or where women's social and financial well-being depends overly on sons, as it is typical in patrilineal settings, female decision power may have a more favourable effect for boys' outcomes (Das Gupta 1987, Eswaran 2002)
- Afoakwah, Deng and Onur (2018) in a preliminary work for Ghana show that girls tend to benefit more from the mother's bargaining power compared to boys, which reflects, in part, the large matrilineal society in Ghana

Empirical Background: findings 4/4

The different impact of women's power considering different descent

 Luz and Agadjanian (2015), using data from a 2009 survey of rural women and their households in a patrilineal setting in southern Mozambique, showed unexpected positive effect of women's autonomy on the probability of being enrolled in primary school for daughters, but not for sons.

Hypotheses 1/2

- **H1:** Women's decision-making power has <u>a positive relationship</u> with their children's **education**
- H2: The relationship between women's decision-making power and children's education depends on child's gender

• H2a: Gender and Power:

The <u>positive relationship</u> between women's power and children's enrolment <u>is stronger for daughters because women</u> with greater decision-making power <u>may be more able to negotiate social and labor</u> <u>conditions that would reduce the female gap;</u>

H2b: Gender, hereditary descent and Power :

if <u>a matrilineal system implies</u> a better outside option for the mother, the relationship between women's autonomy and children's enrolment is <u>positive and stronger for daughters since the outside/exit option for the mother increases women's power to favour her daughter/descendant;</u>

if a matrilineal system brings an higher opportunity cost of the daughter's school, it produces a negative relationship between women's power and daughter's enrolment

Hypotheses 2/2

- H3: <u>Women's power has a positive relationship with their children's</u> health
- H4: The relationship between women's power and children's health depends on child's gender

• H4a: Gender and Power:

There are no reasons for thinking of a stronger and positive relationship between women's power and daughter's (or son) health H4b: Gender, hereditary descent and Power:

The positive relationship between women's autonomy and children's health will be stronger for daughters in a matrilineal system, to improve the health of her descendant. In patrilineal system, more female's decision power increase the health of sons on which women's social and financial well-being depends.

Data and sample

- The Integrated Household Panel Survey (IHPS) is a dataset provided by Government of Malawi- GoM Financial support to The World Bank
- The IHPS program is useful to study trends in poverty, socioeconomic and agricultural characteristics over time through a longitudinal survey
- We used the long panel composed by three waves: 2010-2013-2016

Dependent variables: definitions

• This article uses the School Attendance:

Did you attend school in the last completed academic year? "Are you currently attending school or, if school is not now in session, did you attend school in the session just completed and plan to attend next session?"

We select children younger than 21 yrs'

• The Body Mass Index:

defined as WEIGHT OF CHILD in kg/(HEIGHT / LENGTH OF CHILDREN) in m²

We select the children aged six to 59 months

Main independent variables: hereditary descent about land and a Female Hereditary descent: Power Index 1/2

• IHPS question at community level CC06:

Do individuals in this community trace their descent through their father, their mother, or are both kinds of descent traced?

- From this question we distinguish Matrilineal, Patrilineal communities and those with both kinds of descent
- In a matrilineal household, the woman traditionally receives land from her mother when she marries, which she keeps if the couple divorce (Berge et al., 2014; Peters, 2010; Davison, 1997). The husband has no rights to this land;
- In patrilineal households, the opposite happens: men receive land from their families on marriage and keep this land if the couple divorce, with the woman returning to her family

Main independent variables: heritage and female power index 3/3

- The Female Power Index (FPI) is a measure of intra-household decision making of women within her family
- The procedure used to construct this index is the following: we select four different dimensions of intra-household decision making.
 - ~ (i) decisions on how to use earnings;
 - ~ (ii) decisions on allocating transfers given away;
 - ~ (iii) decision on planting of the crops;
 - ~ (iv) decision on feeding/taking care the livestock.
- We then take into account whether the woman in the family take each of the four decisions inside her home.
- ✓ P04: "Who in your household kept/decided what to do with -these- earnings?"
- ✓ Q03: "Who in the household decided on the allocation of cash, food or in other in kind transfer given away to individuals outside your household (friends/family) during the last 12 months?"
- ✓ D01 (in agriculture questionnaire) : "Who in the household makes the decisions concerning crops to be planted, input use and the timing of cropping activities for each of 8 plots
- ✓ R06 (in agriculture questionnaire) : "Who in your household is responsible for feeding/taking care of each of 16 typology of livestocks

The Female Power Index (FPI)

- Each dimension *D* measured by the respectively *I* sub-indicators, are aggregated using a weighted sum over all items *h*. Thus, the final FPI is constructed following a modified procedure using to calculate the fuzzy non-monetary deprivation index (Betti and Verna, 2008).
- The Female Power Index of the *j*-th household over the d-th dimension is calculated as follows:

$$FPI_{tj}^{D} = \frac{\sum_{h=1}^{H} I_{htj} w_{ht}}{\sum_{h=1}^{H} w_{ht}}$$
(1)

- Where D=4 are the dimensions, h=(10;3;7; 13) are the items for each dimension, t=3 are the waves (2010, 2013 and 2016), j are the household (the number of families is different for each items), w_{ht} are item-specific weights, taken as w_{ht} = ln(¹/_{I_{ht}}). For dichotomous indicators I_{ht} is the mean of I_{htj} values for item h, simply equals the proportion of household where at least a women decide for that items, (excluding the missing, namely the household who don't have a specific items).
- Finally, all the FPI_{tj}^{D} are synthesized with a simple mean, considering the effective number of Dimension present in the family, from 1 up to 4:

$$FPI_{tj} = \frac{\sum_{D=1}^{4} FPI_{tj}^{D}}{4}$$

Data and sample: descriptive statistics



Data and sample: descriptive statistics





Data and sample: descriptive statistics

Data and sample: descriptive statistics (2/2)



Estimated Equation

 $Y_{it} = \beta_{FPI} FPI_{ht} + \beta_M M_{ct} + \beta_{FPI \# M} FPI_{ht} \times M_{ct} + \beta_x X_{it} + u_i + \varepsilon_{it} .$

- <u>*Y_{it}* are the children outcomes:</u>
 - i. School attendance we run a Random-effects probit regression
 - ii. BMI we run a Random-effects GLS regression.
- <u>FPI_{ht} and M_{ct} are the core covariates (Female Power</u> Index and Matrilineal Systems).
- <u>We interact the *FPI*_{ht} with *M*_{ct} in this way we control if the FPI has a different impact when the system of inheritance follow a matrilineal descent.</u>
- <u>X_{it} are control variables μ_i </u> is the individual-specific random component and ε_{it} stand for the idiosyncratic error $[\mu_i \sim N(0, \sigma^2); \varepsilon_{it} \sim N(0, \sigma^2)]$

Control variables

- Following the theoretical and empirical background, the most important covariates selected are:
- \checkmark dummies variables indicating the matrilineal and patrilineal descent
- \checkmark the gender of household head
- \checkmark the different level of education of father and mother
- \checkmark the localization in urban or rural area
- \checkmark the number of children and grandchild, the number of males in the family
- \checkmark Age and age squared
- \checkmark gender of children
- ✓ whether the family receive benefits from food program, education or cash transfer and whether these benefits are received by women
- \checkmark dummies for the three years

Results for schooling attendance

	ALL	SON	DAUGHTER	ALL	SON	DAUGHTER
	(1)	(2)	(3)	(4)	(5)	(6)
FPI	0.152**	0.205**	0.103	-0.035	0.144	-0.234
	(0.079)	(0.108)	(0.116)	(0.108)	(0.151)	(0.158)
Matrilineal*FPI				0.277**	0.089	0.502***
				(0.110)	(0.154	(0.161)
Matrilineal	-0.188***	-0.162**	-0.231***	-0.272***	-0.189**	-0.387***
	(0.047)	(0.065)	(0.067)	(0.058)	(0.078)	(0.085)
	13,122	6,577	6,549	13,122	6,577	6,549
		ALL	ALL		DAUGH	ITER
Matrilineal communities		8,451	8,451		4,20	0
FPI		0.507***	0.507***		0.474	! **
		(0.144)		(0.196)	(0.21	.6)
Patrilineal Communities		2,253	2,253		1,127	
FPI		0.438	0.438		0.42	26
		(0.309)		(0.466)	(0.42	28)
Both Matrilineal&patrilineal		2,418		1,200		8
FPI		0.292		0.581		4
		(0.247)		(0.669)	(0.32	29)

Results for BMI

_	ALL	SON	DAUGHTER	ALL	SON	DAUGHTER	
	(1)	(2)	(3)	(4)	(5)	(6)	
FPI	0.010	0.050	-0.030	0.033	0.103**	-0.026	
	(0.020)	(0.021)	(0.026)	(0.027)	(0.044)	(0.034)	
Matrilineal	0.020*	0.019	0.021	0.031**	0.040*	0.023	
	(0.012)	(0.018)	(0.015)	(0.014)	(0.022)	(0.018)	
Matrilineal*FPI				-0.038	-0.079**	0.0064	
				(0.029)	(0.1047	(0.035)	
	4,550	2,222	2,328	4,550	2,222	2,328	
		ALL		SON	DAU	DAUGHTER	
<u>Matrilineal_communities</u>		2,989		1,464	1,525		
FPI		0.0596	0.0596		-0.040		
		(0.0570))	(0.0867)	(0	.036)	
Patrilineal Communities		719	719		372		
FPI		-0.0707		-0.147	-0.0725		
Poth Matrilingal@natrilingal		(0.124	(0.124)		(0.172)		
FPI		0.010**	0.010***		0.001		
		(0.087)		(0.071)	(0.022)		

Conclusions: School attendance (1/2)

- **H1 verified:** women's decision-making power shows <u>a positive</u> <u>association with their children's education</u>.
- **H2 verified:** <u>the association</u> between women's decision-making power and children's outcomes <u>varies by child's gender</u>
- **H2a not verified:** the positive relationship between women's power and children's enrolment is **NOT** stronger for daughters but for sons
- **H2b verified:** the **positive** relationship between women's power and children's enrolment is <u>stronger for daughter in matrilineal system</u>, in other words mothers with an outside/exit option can strengthen their power in favour of their daughters/descendent.

Conclusions: BMI (2/2)

- **H3 not verified:** women's decision-making power shows a positive but not significant association with their children's BMI.
- **H4a verified:** There are no differences between children about the effect of women's power and health.
- **H4b: yes and not verified:** The positive relationship between women's power and children's health is **NOT** stronger for daughters, however we do find a **positive** effect for sons in not-matrilineal (strong for mixed) communities, where the more the woman decides, the higher the son BMI, while in matrilineal systems the Female Power produce a negative difference on sons's BMI, but not significantly positive for daughters.

Thank you for your attention

Main independent variables: heritage and female power index 2/3

Empowerment of Women definition

- One critical methodological and empirical issue in the intra-household literature is how to measure bargaining power
- Even most research has typically focused on the relationship between women's education, work and income/transfers and children's outcomes, showing that higher educational levels and employment are positively related to children's survival chances (Basu and Basu 1991, Hobcraft 1993, Cleland 2010) and their schooling (Lam and Duryea 1999, Buchmann and Hannum 2001). However, more recent research has also emphasized the importance of women's decision-making autonomy for children's outcomes (e.g., Durrant and Sathar 2000, Yabiku, Agadjanian, and Sevoyan 2010, Shroff et al. 2011).
- The concept of women's autonomy is usually defined in terms of women's ability to formulate, negotiate, and carry out their preferences (Smith et al. 2003, Ghuman, Lee, and Smith 2006). Thus Kabeer (1999) argues that the ability to make choices and act upon them should be viewed as separate from personal resources and outcomes when analyzing women's empowerment. According to her, this dimension encompasses behavioral processes like negotiation and bargaining, and cognitive processes of reflection and analysis.
- Then as Luz and Victor Agadjanian (2015) for Mozanbique, we used a multidimensional approach and construct a power index 34



