

Children's Resources and Poverty in Single-mother and Male-headed Households: Evidence from Ethiopia

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Contents of the presentation

- 1 Introduction
- 2 Estimation issues
- 3 Results
- 4 Concluding remarks

Introduction

- The unitary (classical) model's **black box** ignores intrahousehold resource allocation.
 - This leads to an **understatement** of the level of poverty (Haddad & Kanbur, 1990).
- In contrast, the collective household model argues that:
 - household choices are grounded on individual member preferences.
- Key to unlock black box is the **sharing rule** (Chiappori, 1988, 1992)
 - rule with which the family allocates resources.
- When such a rule exists:
 - The bargaining process within the household is captured.
 - One can consider intrahousehold inequality in resource allocation & make individual welfare analyses.

Introduction 2

- Consequently, there has been an increased interest to measure resource shares and welfare of HH members:
 - Academia: continues documenting intrahousehold inequality.
 - Global policy: Commission on Global Poverty recently recommended the WB to compute poverty rates at women, children and young adults levels.
- However, until Bourguignon (1999), children were considered as public or private goods for their parents.

Introduction 3

- Yet, only **few empirical evidence** is available from developing countries.
- And the available scant evidence is **mixed**:
 - Dunbar et al (2013) on Malawi, Bargain et al (2014) on Cote d'Ivoire & Bargain et al (2018) on South Africa:
 - Child resource shares are **lower** than adults and vary by family size, and
 - Unitary poverty measures **understate** child poverty.
 - In contrast, Bose-duker (2018) on Ghana and Mangiavacchi et al (2013) on Albania find that:
 - Children enjoy **higher** resource shares than adult females;
 - Unitary poverty indices **overstate** child poverty.

Introduction 4

- The paper thus **aims** to contribute in that line by:
 - estimating the sharing rule of children from a complete collective AIDS; &
 - analyzing their poverty status using data from Ethiopia.
 - Testing the Haddad-Kanbur **hypothesis**:
 - Poverty depth & severity measures ignoring intraHH resource allocation understate poverty.
 - providing evidence on how results vary with **gender, family type, demography and geography**.
- **Data**: from Ethiopia Socioeconomic Survey (ESS) 2013/14.

The collective demand system

- Following Menon et al (2017) & Mangiavacchi et al (2013, 2017), we specify a collective AIDS.
- Begins with a specification of an individual expenditure function to ultimately get demands functions.
- Estimated demographically-modified demand system in budget share form:

$$w_i = \alpha_i + t_i(\mathbf{d}) + \sum_j \gamma_{ij} \ln p_j + \beta_i^1 [\ln \phi_1^* - \ln A_1(\mathbf{p})] \\ + \beta_i^2 [\ln \phi_2^* - \ln A_2(\mathbf{p})] + \rho_i \hat{v} + \xi_i$$

where $\ln \phi_1^*$ and $\ln \phi_2^*$ are the sharing rules (specified below); and ρ_i are used to control for endogeneity of total expenditure.

The sharing rule

- Ideally, individual total expenditures e_k are used to estimate CAIDS.
- Nonetheless, e_k are not directly observed.
 - a case in many HH surveys and in the Ethiopian LSMS too.
- **Solution:**
 - Use expenditures on *assignable goods*, and then
 - Correct for the resulting *measurement error* (Chavas et al., 2012; Caiumi & Perali, 2015).

The sharing rule 2

- We use as **assignables** expenditures on:
 - clothing and footwear, education & adult goods (alcoholic drinks, stimulants & some personal care item).
- For **non-assignables**:
 - Assumption: shared equally by members (Chavas et al., 2012, 2017).
- The **sharing rule**, showing shadow intraHH bargaining, is defined as a function of:
 - individual exp e_k & distribution factors \mathbf{z} .

Demographic variables & distribution factors

- **14 demographic variables** to control for differences in demand due to various characteristics at:
 - children, head, household and community levels.
- **Distribution factors** to capture bargaining within the household:
 - Age difference of parents (wife - husband)
 - Education difference of parents (wife - husband)
 - All children are in school
 - Proportion of female children
 - Proportion of women
 - Number of non-biological (extended) children

Estimated sharing rule:
Expenditure scaling m -function: bargaining

Table 1.2.: Coefficients of the sharing rule's expenditure scaling m -function: bargaining

Variable	Male-headed		Single-mother	
	Coeff.		Coeff.	
Educ. diff. (wife-husb.)	0.187***	(0.037)	-	
Age diff. (wife-husb.)	-0.069***	(0.015)	-	
All children in school	-0.324*	(0.166)	1.200**	(0.504)
% of female children	-0.409*	(0.228)	-0.181	(0.327)
% of women	1.188	(0.862)	3.178***	(2 .940)
# of non-biol children	0.291**	(0.145)	0.120	(0 .122)

Notes: *, ** & *** show significance at 10%, 5% & 1% levels respectively. Standard errors, corrected for clustering and sampling weights, are in parentheses.

Estimated children's resources

Table 1.3.: Means of estimated resources and shares by family type

	Male-headed		Single-mother		Whole sample	
Total expenditure (ETB) (e)	2221	(53.04)	1664	(87.82)	2115	(46.33)
Resources in ETB:						
Children's resources (ϕ_2)	1033***	(28.02)	804***	(56.76)	989	(25.18)
Each child	339***	(8.87)	433***	(20.00)	357	(8.37)
Adults' resources (ϕ_1)	1188***	(35.38)	860***	(44.23)	1126	(30.01)
Each adult	491	(14.82)	457	(19.70)	485	(12.57)
Resource shares:						
Children's resource share ($S_2 = \phi_2/e$)	0.47*	(0.005)	0.49*	(0.008)	0.48	(0.005)
Each child ($r_2 = S_2/h_2$)	0.16***	(0.002)	0.30***	(0.007)	0.19	(0.002)
Adults' resource share ($S_1 = \phi_1/e$)	0.53*	(0.005)	0.51*	(0.008)	0.52	(0.005)
Each adult ($r_1 = S_1/h_1$)	0.23***	(0.003)	0.32***	(0.007)	0.24	(0.003)

Notes: *** & * show significance of mean difference in male-headed and single-mother sub-samples at 1% & 10% levels respectively. ETB = Ethiopian Birr; 1 ETB = 0.0524 US\$ (2013/14 Avg.) (NBE). All observations are weighted to make estimates nationally representative. Standard errors, corrected for clustering and sampling weights, are in parentheses.

Estimated children's resources 2

- Our estimates generally reveal significant inequalities in intrahousehold resource allocation.
- In **aggregate** terms, children command slightly less resources than adults:
 - 48% of total expenditure in **whole** sample:
 - 47% in **male-headed** and
 - 49% in **single-mothers**.
- **Each child:** < a fifth (19%)
 - **Each adult:** 24%.
 - Child in **single-mothers:** 30%
 - In **male-headed:** 16%
 - Bargain et al. (2014): Child in single-mothers: 31% & in two-parent families: 23%.

Child poverty

- Resource shares provide info on who gets what from the HH's cake.
 - But, don't tell if a member's cake is enough to satisfy their needs.
- One more step is needed: computing member's well-being & any intrahousehold disparity.
 - Enables to better analyze poverty among children, &
 - Assess any existing inequality between child and adult poverty.
- Hence, we use estimated resources to compute FGT poverty rates (incidence, gap & severity).
 - For comparison: rates based on equivalent scale (household level or equal-sharing).
 - PL: National (official) poverty line adopted (CBN approach).

Child poverty 2

Table 1.4.: Poverty measures based on new method and traditional approaches (%)

	Male-headed families		Single-mother families		Whole sample	
	New Method	Household level	New Method	Household level	New Method	Household level
	(1)	(2)	(3)	(4)	(5)	(6)
Child poverty headcount P_0	83.8***	66.5 ^u	72.9***	61.2 ^u	81.7	65.5 ^u
Adult poverty headcount P_0	70.2		69.7		70.1	
Child poverty gap rate P_1	45.9***	27.8 ^u	33.0***	22.7 ^u	43.4	26.8 ^u
Adult poverty gap rate P_1	32.3***		28.2***		31.5	
Child poverty severity P_2	29.6***	14.6 ^u	18.8***	11.2 ^u	27.6	14.0 ^u
Adult poverty severity P_2	18.4***		14.4***		17.6	

Notes: *, ** & *** show significance of mean difference of poverty rates (based on estimated resources) between male-headed and single-mother sub-samples at 10%, 5% & 1% levels respectively. ^ashows household level or equal sharing-based poverty rates are less (or understate poverty) than estimated resources-based rates at 1%. MoFED (2012)'s 2010/11 CBN-based national poverty line, adjusted for inflation, is considered. All observations are weighted to make estimates nationally representative.

Child poverty 3

Three findings stand out:

- ① Poverty incidence, gap and severity are **higher for children** than for adults.
- ② Child (& adult) poverty depth & severity in **married male-headed are higher** than in single-mother HHs.
- ③ All poverty indices are **lower** when based on equal-sharing expenditures than on estimated resource shares.
 - Implies ignoring intrahousehold distribution among members **understates** poverty situation.
 - Verifies the hypotheses of Haddad & Kanbur (1990).
 - Same findings as in Dunbar et al. (2013), Bargain et al. (2014) & Bargain et al. (2018).

Child poverty by number of children

Table 1.5.: Child poverty headcount rates (%) by number of children

	One child	Two children	Three children	Four children	Over four children	Overall
Male-headed households:						
Poverty rate: child	65.5	78.8	87.2	87.5	92.9	83.8***
Poverty rate: adult	47.4***	61.5**	71.0	78.8	84.1	70.2
Pov. rate: household level	41.1**	57.5**	68.3	72.2	83.4	66.5***
Single-mother households:						
Poverty rate: child	64.1	76.7	78.1	86.5	92.7	72.9***
Poverty rate: adult	62.5***	71.7**	76.5	81.1	86.5	69.7
Pov. rate: household level	53.2**	67.3**	63.6	66.4	79.1	61.2***
Whole sample:						
Poverty rate: child	64.9	78.3	86.2	87.4	92.9	81.7
Poverty rate: adult	53.9	64.1	71.6	79.0	84.2	70.1
Pov. rate: household level	46.3	60.0	67.7	71.6	83.2	65.5

Notes: *, ** & *** show significance of poverty difference between male-headed and single-mother sub-samples at 10%, 5% & 1% levels respectively. All observations are weighted to make estimates nationally representative.

Number of children vs poverty

- Child **poverty increases** with the **number of children** in the household.
 - E.g., in whole sample: child P_0 increases from 65% (**1** child) to 93% (**4+** children).
 - Dunbar et al (2013) also find a similar positive relationship.

Overlap: child poverty, household poverty & undernutrition

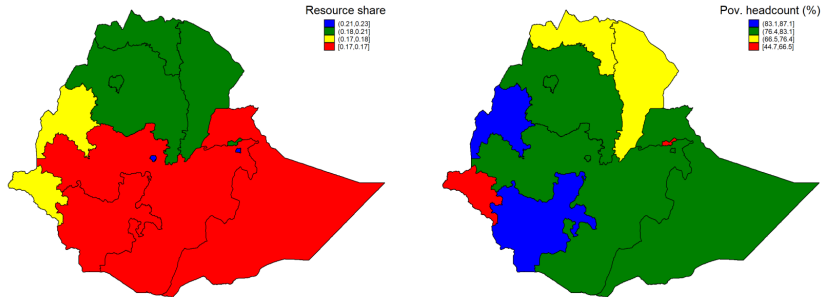
Table 1.7.: Overlap between child undernutrition and poverty of children, adults and the household

		Child poverty		Adult poverty		Household poverty	
		Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
		(1)	(2)	(3)	(4)	(5)	(6)
Child stunting	Any stunted	0.24 (0.010)	0.03 (0.004)	0.21 (0.010)	0.06 (0.005)	0.19 (0.009)	0.09 (0.006)
	No stunted	0.58 (0.012)	0.15 (0.008)	0.50 (0.012)	0.24 (0.010)	0.47 (0.012)	0.26 (0.010)
Status match*		0.39		0.45		0.45	

Notes: *Status match implies the proportion of children with similar status in two measures. All estimates are weighted to make them representative of the corresponding population. Standard errors in parentheses.

Spatial distribution of resource shares & poverty

Figure 1.1.: Regional distribution of child resource shares and poverty headcount rates (%)



Note: Estimates are representative only to regions of Addis Ababa, Amhara, Oromia, SNNP and Tigray.

Spatial distribution of resource shares & poverty 2

- **Per-child resource share:** increases with *urbanization* in traditional male-headed families.
- **Poverty** decreases with *urbanization*.

Concluding remarks

- Results generally confirm **inequalities** in intrahousehold resource allocation and well-being.
 - Children command **less** household resources and are poorer than adults;
 - which worsen with the **number** of children.
- Single-mothers not only are **more altruistic** to their children, but also
 - **avoid** higher child poverty than married male heads although gap falls with number of children.
- Non-poor families also **host poor** and undernourished children.
- Unitary (traditional) poverty measures **understate** child (& adult) poverty.

Concluding remarks 2

- **Implications:**

- Fertility, gender, targeting & spatial redistribution issues.

- **Contributions:**

- Methodological and evidence gap in system-wide estimation of resource shares; and
- use of them in poverty estimation and analysis.

