

Children and the Fiscal Space in Ethiopia: A Gendered CEQ Assessment

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Workshop on CEQ Assessment and Fiscal Incidence Analysis

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Outline

1. Introduction
2. Research Questions
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1. Introduction

Why a gendered child CEQ for Ethiopia

Children and the fiscal space

- Children could be disproportionately affected if taxes add to the cost of child goods and services. This is besides the indirect effects of consumption taxes such as VAT and excises through their parents.
- Children could also fare poorly in intrahousehold allocation (Dunbar et al. 2013). A recent study by Brown, Ravallion & Van de Walle (2017) shows that poor individuals do not necessarily live in poor households.
- Public spending on health and education could affect children's school enrollment and access to basic health services.

Ethiopia case study

- Child poverty is important in Ethiopia- According to the 2016 UNICEF World Child Poverty estimate, 88% of Ethiopia's children are multidimensionally poor.

Gender

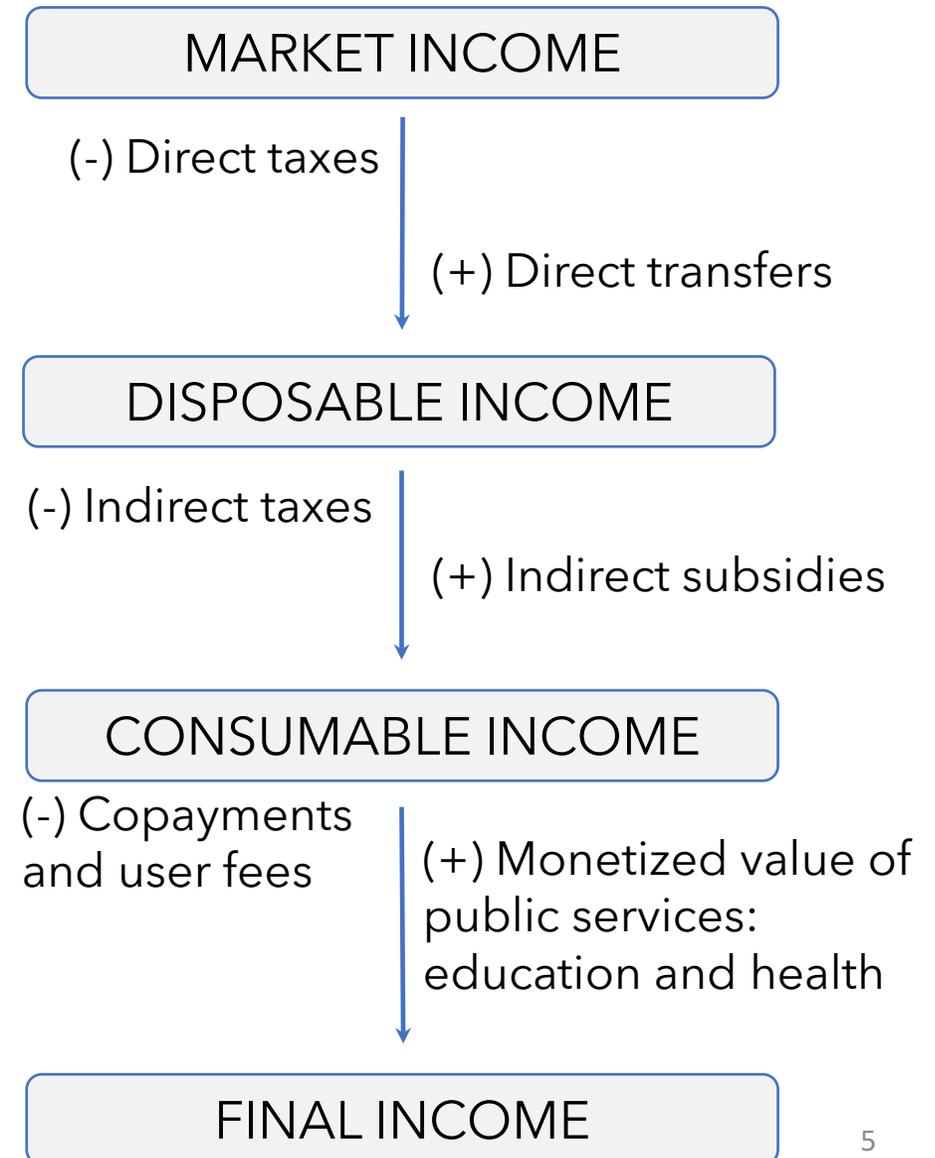
- Some of these effects could also be different for boys and girls.

2. Research Questions

- What do government transfers, spending, and taxes contribute to the reduction of child poverty and inequality?
- How do the tax burdens and the transfer benefits differ between boys and girls?

3. Methodology: CEQ Framework Income Concepts & Fiscal Actions

- Market Income
 - Direct Taxes: PIT, Informal Taxes, Other Income Tax, Agriculture Income Tax and Land Use Fee, Property Tax (housing)
 - + Direct Transfers: PSNP and Non-PSNP
- Disposable Income
 - Indirect Taxes: VAT and Excise
 - + Indirect Subsidies: Kerosene and Wheat Subsidies
- Consumable Income
 - Copayments and user fees
 - + Indirect Transfers: Education and health services (monetized value)
- Final Income



3. Methodology: Poverty and Inequality Measures

- **Child Poverty Measures:**
 - Relative monetary poverty: quintiles of disposable income
 - Multidimensional poverty: The counting approach
- **Inequality Measures:** Theil's index
 - Between group inequality (boys and girls)
 - Between group inequality (rural and urban children)
 - Within group inequality

3. Methodology: Multidimensional Child Poverty Indices

- The deprivation count (C) for each child i is
$$C = \sum_{j=1}^D w_j I_{(0,1)}(y_{ji} \leq z_j)$$

where w_j is the weight of indicator j , with y_{ji} achievement and z_j poverty line, and D is the total number of indicators.

- A child is multidimensionally-poor if she is deprived in at least a third of the indicators.
- At this cut-off k , multidimensional poverty headcount ratio (H) is

$$H = \frac{1}{N} \sum_{i=1}^N I_{(0,1)}(C_i \geq k)$$

- The average intensity of deprivations is

$$A = \frac{1}{N * D * h_j} \sum_{i=1}^N I_{(0,1)}(C_i \geq k) * C_i.$$

- The adjusted multidimensional deprivation index is $M = H * A$.

3. Methodology: Multidimensional Child Poverty

Dimension (weight)	Indicator	Deprivation threshold
Child education 2/10	Child (7-17 yrs) enrollment	School-age child is not currently attending school.
	Child (7-17yrs) formal education	School-age child has no formal education.
Child health 2/10	Child (0-17years) sickness	Child faced serious illness in last 2 months.
	Child (6-59 months old) stunting	Child is stunted (height-for-age z-score<-2) (WHO).
Living standards 6/10		Child (0-17 years) lives in a household with....
	Safe water	Unsafe source of drinking water (WHO).
	Sanitation	Unimproved toilet facility (WHO).
	Electricity	No access to electricity.
	Overcrowding	Four or more people per room.
	Floor	Floor made of natural, non-permanent material.
	Information	No television/ radio/mobile phone/ fixed phone.

3. Methodology: Inequality Measures

- The Theil's index is given by

$$I = \frac{1}{N} \sum_{i=1}^N \frac{Y_i}{\bar{Y}} \ln \left(\frac{Y_i}{\bar{Y}} \right)$$

where Y_i is the income of child i ; \bar{Y} is the average income; and N is the number of children.

- Within-child-gender inequality: $I_w = \sum_{g=1}^h S_g I_g$
- Between-child-gender inequality: $I_b = \sum_{g=1}^2 S_g \left(\ln \left(\frac{S_g}{P_g} \right) \right)$

where $S_g = \frac{\sum_{j=1}^{N_g} Y_j}{\sum_{i=1}^N Y_i}$ is gender g 's income share of total income, $P_g = \frac{N_g}{N}$ is the share of the child gender g 's population from the total child population.

4. Data

- **Survey data:** The 2018/19 ESS- (household and individual level data): demographic characteristics, health care utilization, school enrollment status, consumption expenditure, other income, property taxes, business taxes, land use fee, and agricultural income tax.
 - Individual level data construction from the ESS2018/19.
 - First-step: **Assignable**- direct identification from the data or using consumption patterns (alcohol and tobacco), recipients of the services (education).
 - Second step (mostly consumption items or services to prepare consumption items): Adult equivalent scale weight.
 - Allocation of spending and taxes among individuals.
- **Administrative data:** (1) national revenue and expenditure data for 2018/19, and regional education and health spending from MoF; (2) enrollment information from the MoE; and (3) Ethiopian Petroleum Supply Enterprise and Ethiopian Trading Businesses Corporation.

5. Preliminary Results

Multidimensional child poverty

	Number of deprivations (C)	Poverty incidence (H)	Poverty intensity (A)	Overall (MPI=H*A)
All children	4.05	0.69	0.49	0.336
	(0.013)	(0.024)	(0.005)	(0.013)
Girls	4.00	0.68	0.49	0.332
	(0.019)	(0.025)	(0.005)	(0.013)
Boys	4.09	0.70	0.49	0.341
	(0.018)	(0.024)	(0.005)	(0.013)

Note: Standard errors in parenthesis. The multidimensional poverty cut-off is 0.33.

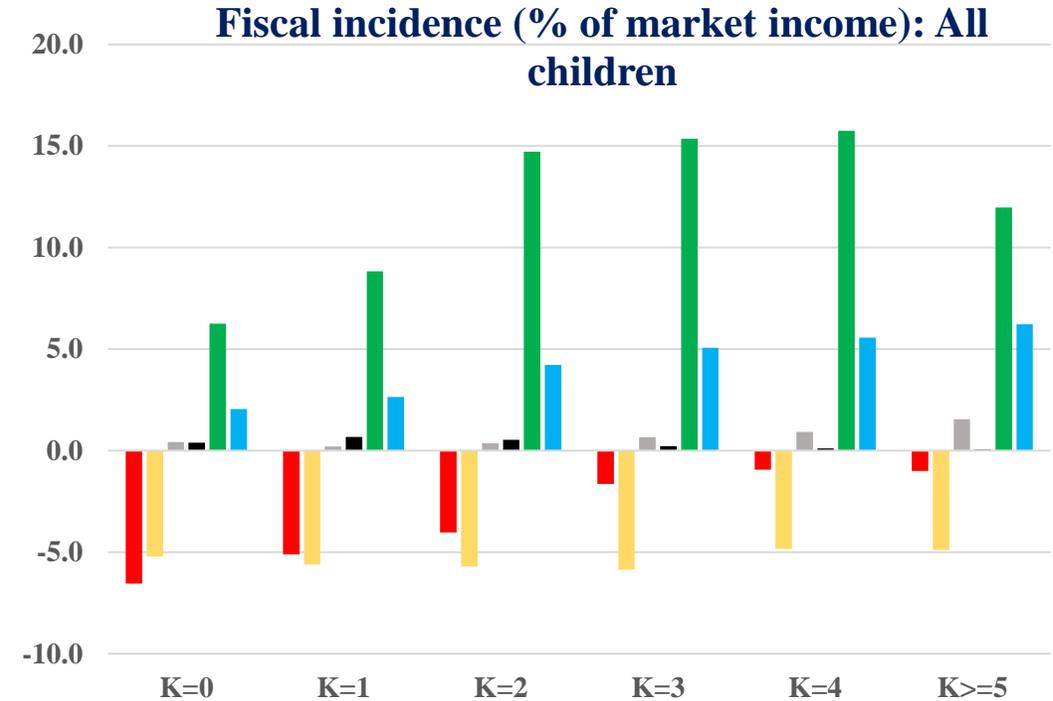
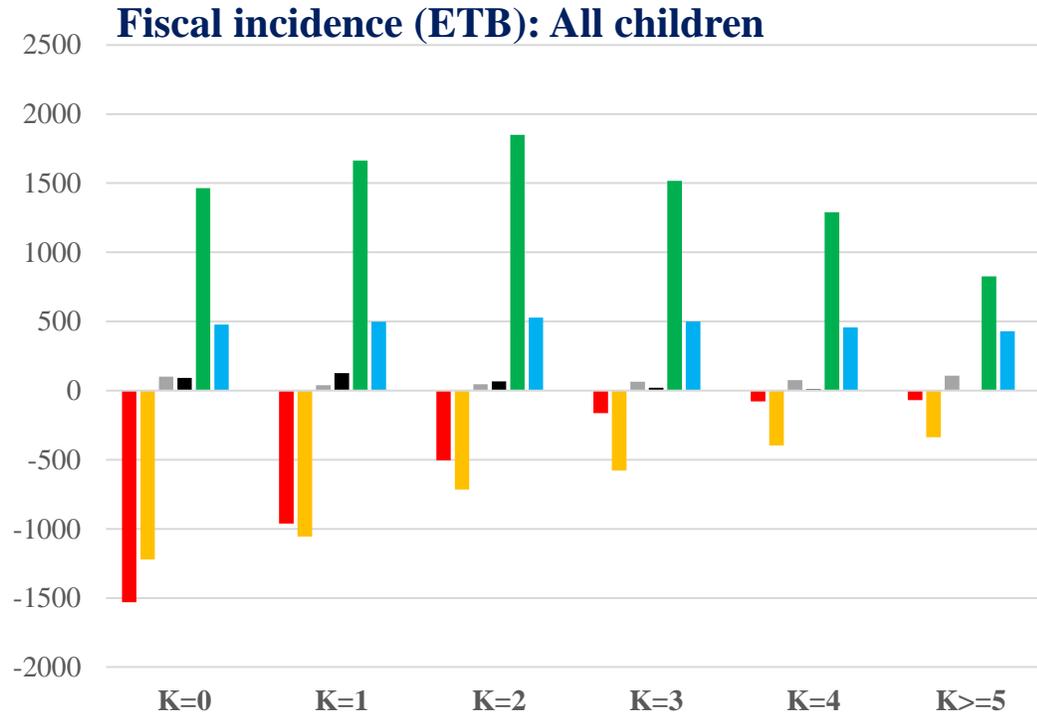
Multidimensional child poverty in rural and urban areas

	Rural				Urban			
	Number of deprivations (C)	Poverty incidence (H)	Poverty intensity (A)	Overall (MPI=H*A)	Number of deprivations (C)	Poverty incidence (H)	Poverty intensity (A)	Overall (MPI=H*A)
All children	4.55	0.83	0.49	0.407	2.22	0.18	0.45	0.079
	(0.013)	(0.021)	(0.005)	(0.012)	(0.018)	(0.029)	(0.008)	(0.014)
Girls	4.55	0.83	0.49	0.408	2.19	0.17	0.45	0.075
	(0.018)	(0.023)	(0.005)	(0.013)	(0.025)	(0.029)	(0.008)	(0.014)
Boys	4.56	0.83	0.49	0.407	2.25	0.19	0.45	0.084
	(0.017)	(0.022)	(0.005)	(0.012)	(0.026)	(0.030)	(0.008)	(0.014)

Note: Standard errors in parenthesis. The multidimensional poverty cut-off is 0.33.

Fiscal incidence across multidimensional child poverty

(K = Number of deprivations)

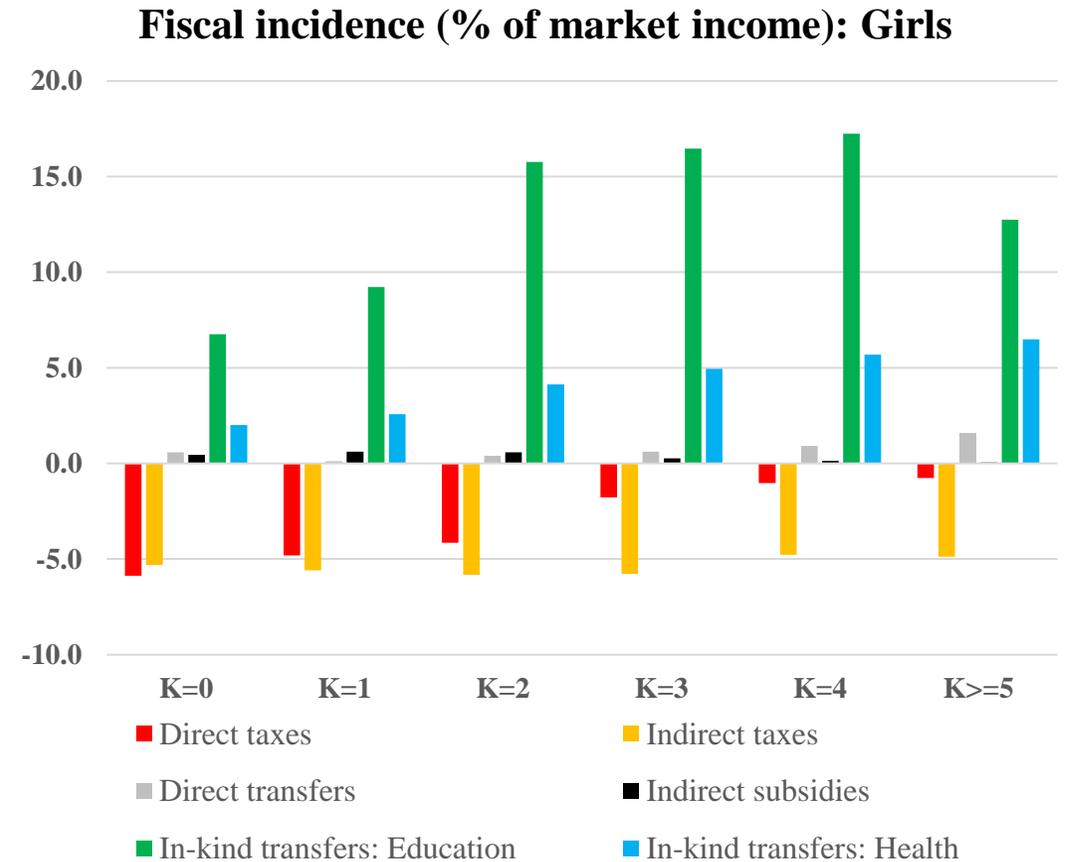
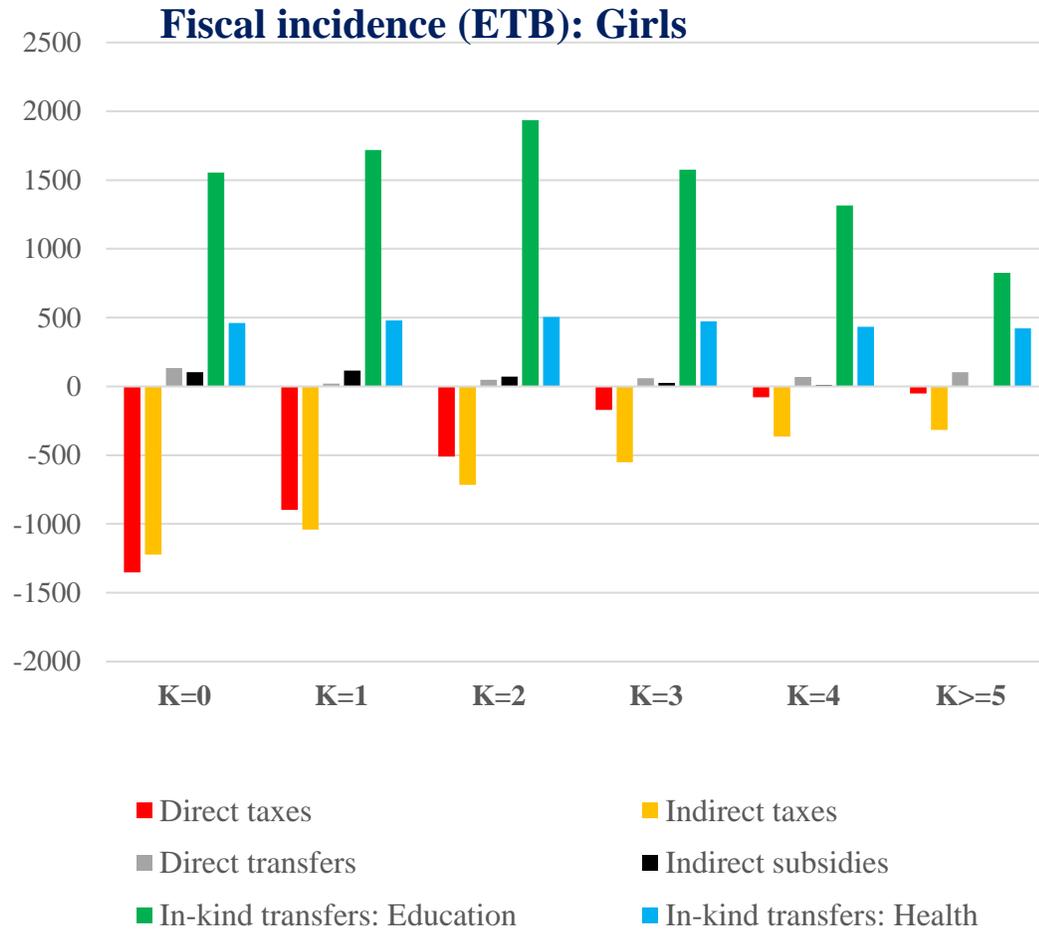


- Direct taxes
- Indirect taxes
- Direct transfers
- Indirect subsidies
- In-kind transfers: Education
- In-kind transfers: Health

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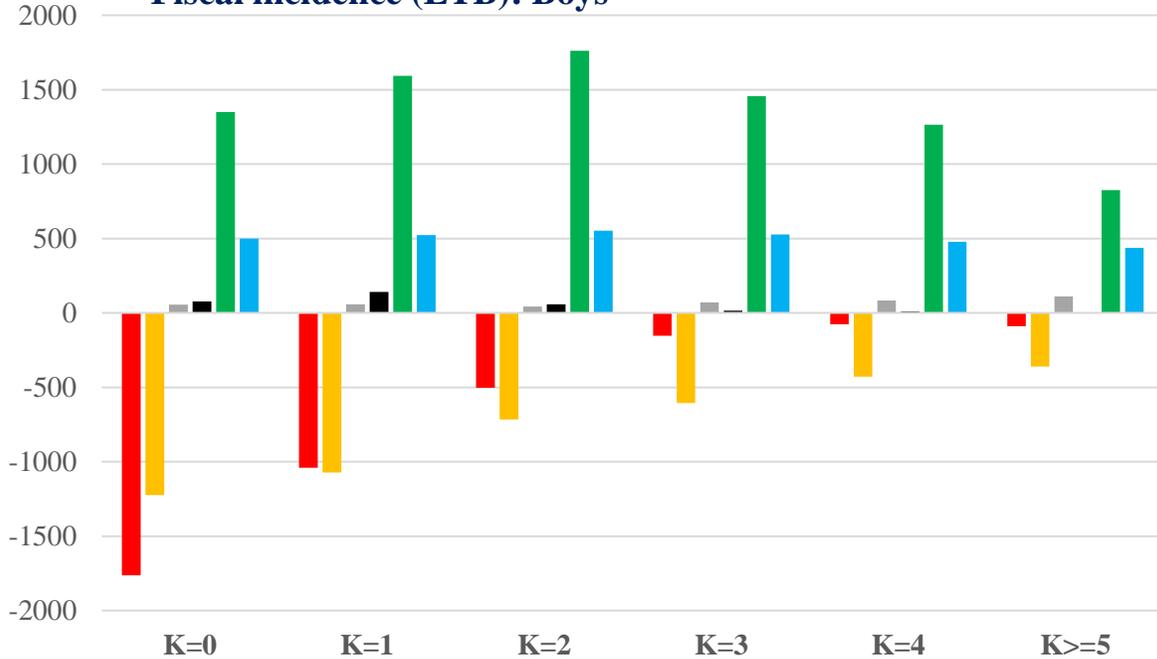
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Fiscal incidence across multidimensional child poverty

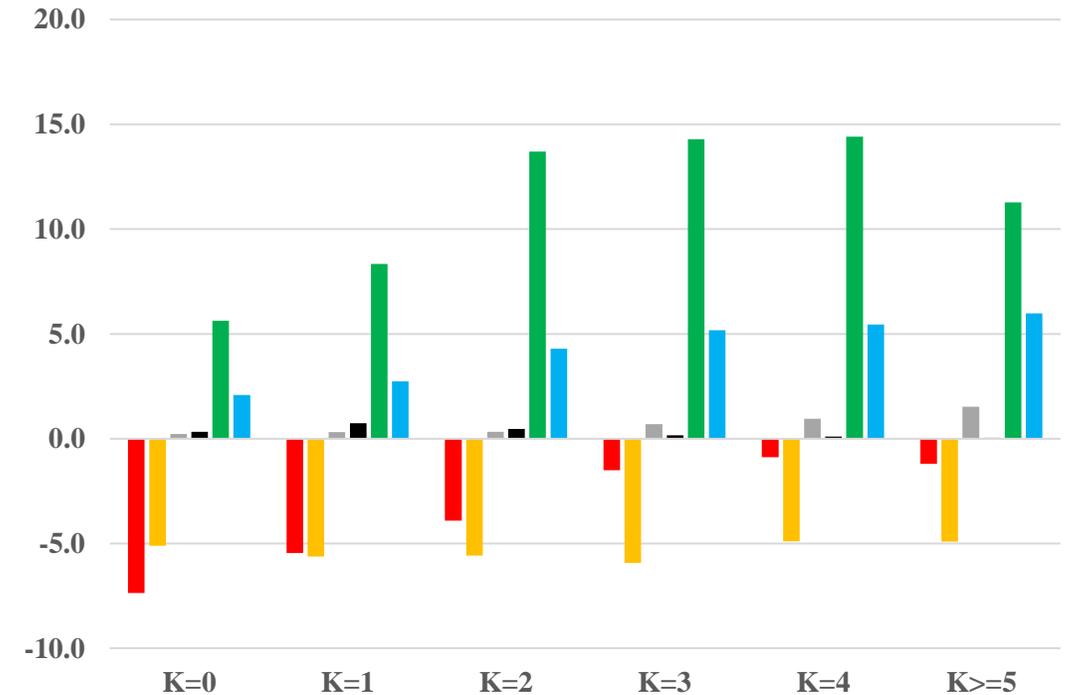
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Fiscal incidence (ETB): Boys



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- Indirect taxes
- Direct transfers
- Indirect subsidies
- In-kind transfers: Education
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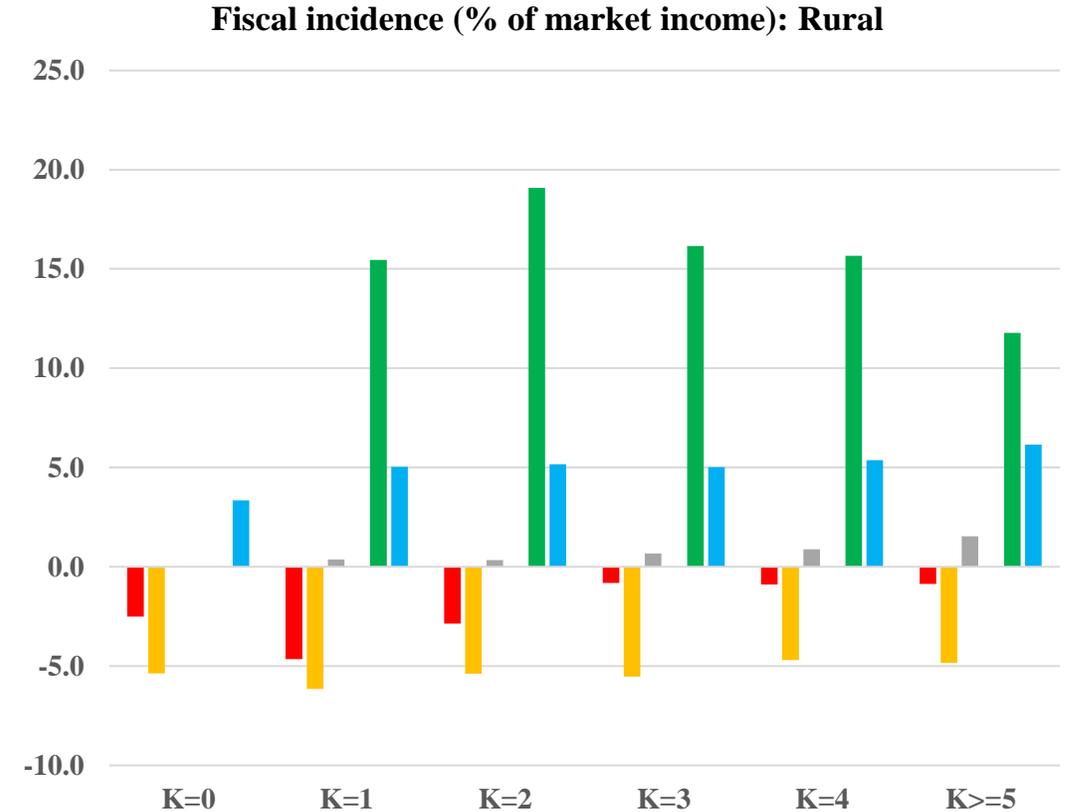
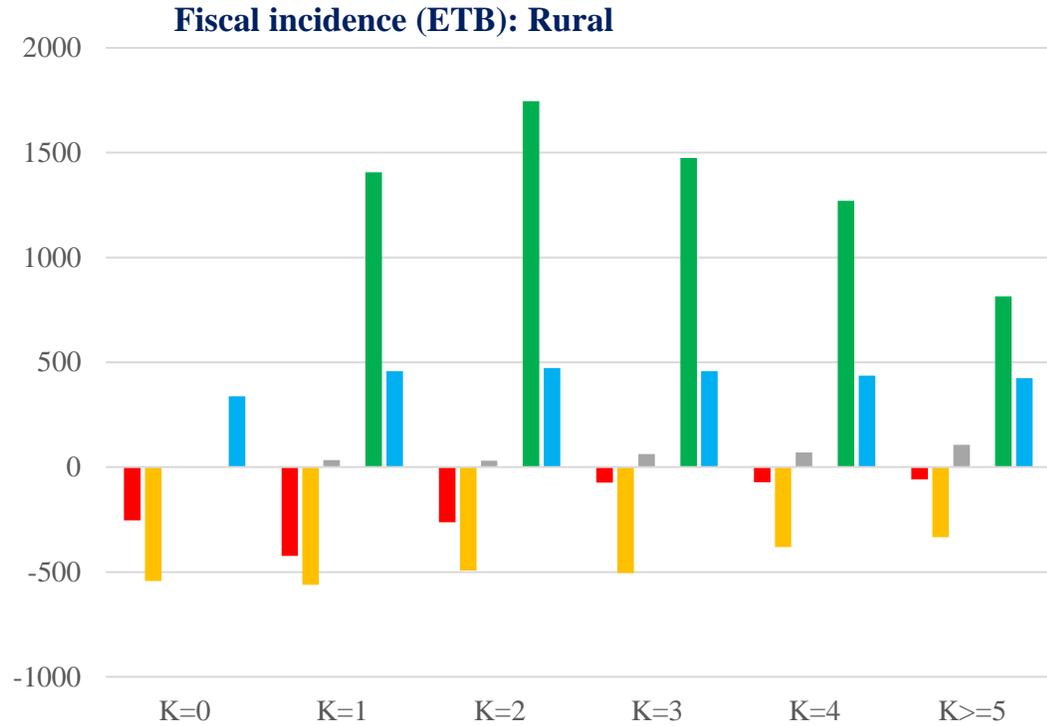
Fiscal incidence (% of market income): Boys



- Direct taxes
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Fiscal incidence across multidimensional child poverty

(K = Number of deprivations)



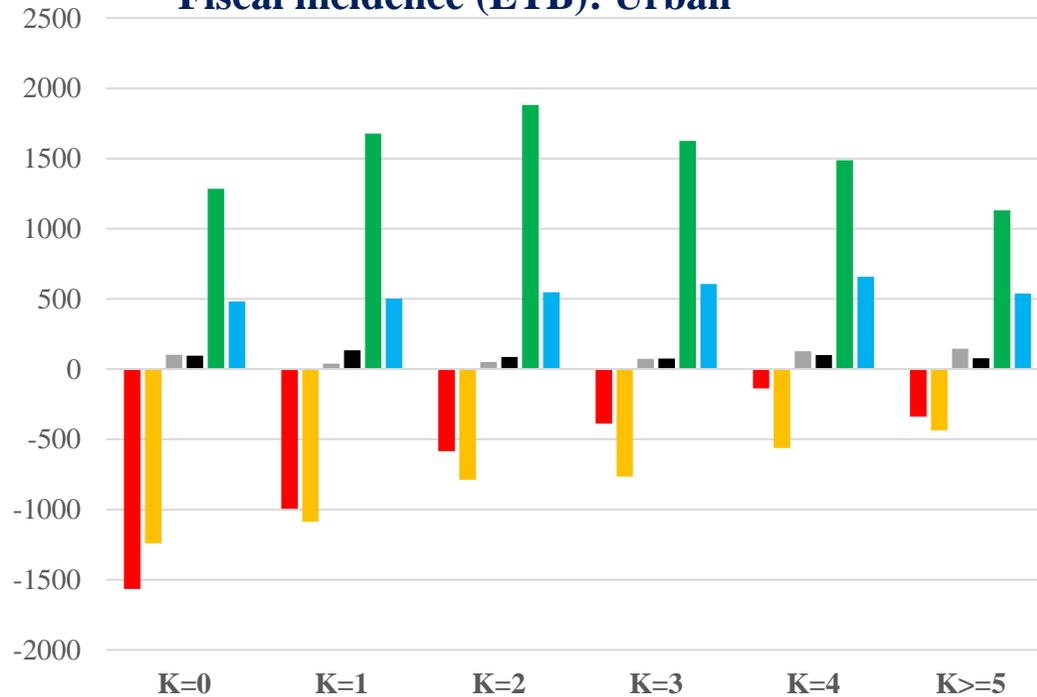
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Fiscal incidence across multidimensional child poverty

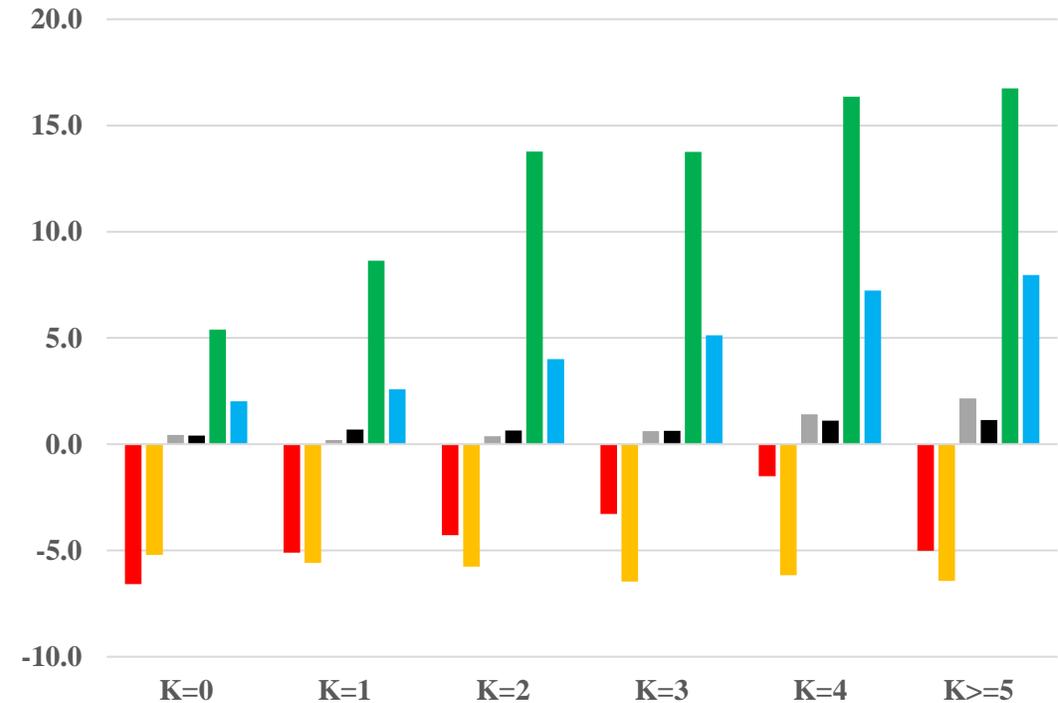
(K = Number of deprivations)

Fiscal incidence (ETB): Urban



- Direct taxes
- Indirect taxes
- Direct transfers
- Indirect subsidies
- In-kind transfers: Education
- In-kind transfers: Health

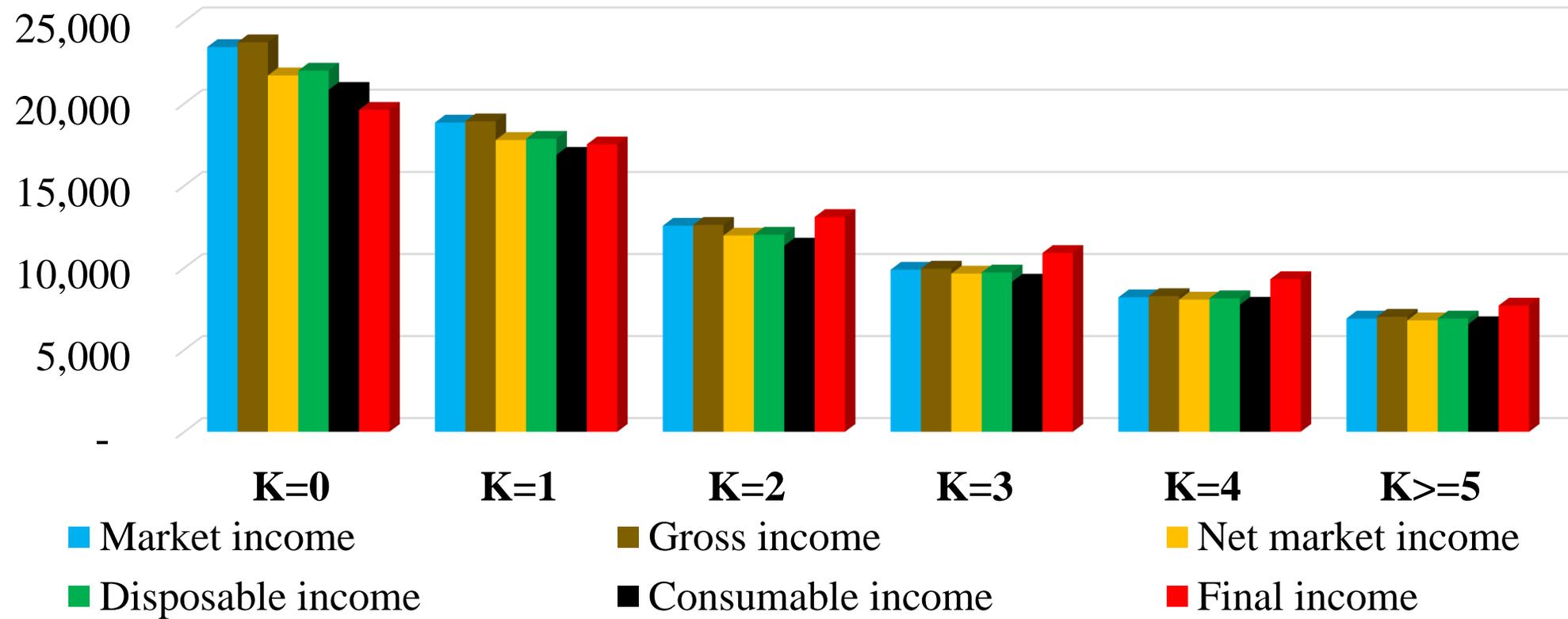
Fiscal incidence (% of market income): Urban



- Direct taxes
- Indirect taxes
- Direct transfers
- Indirect subsidies
- In-kind transfers: Education
- In-kind transfers: Health

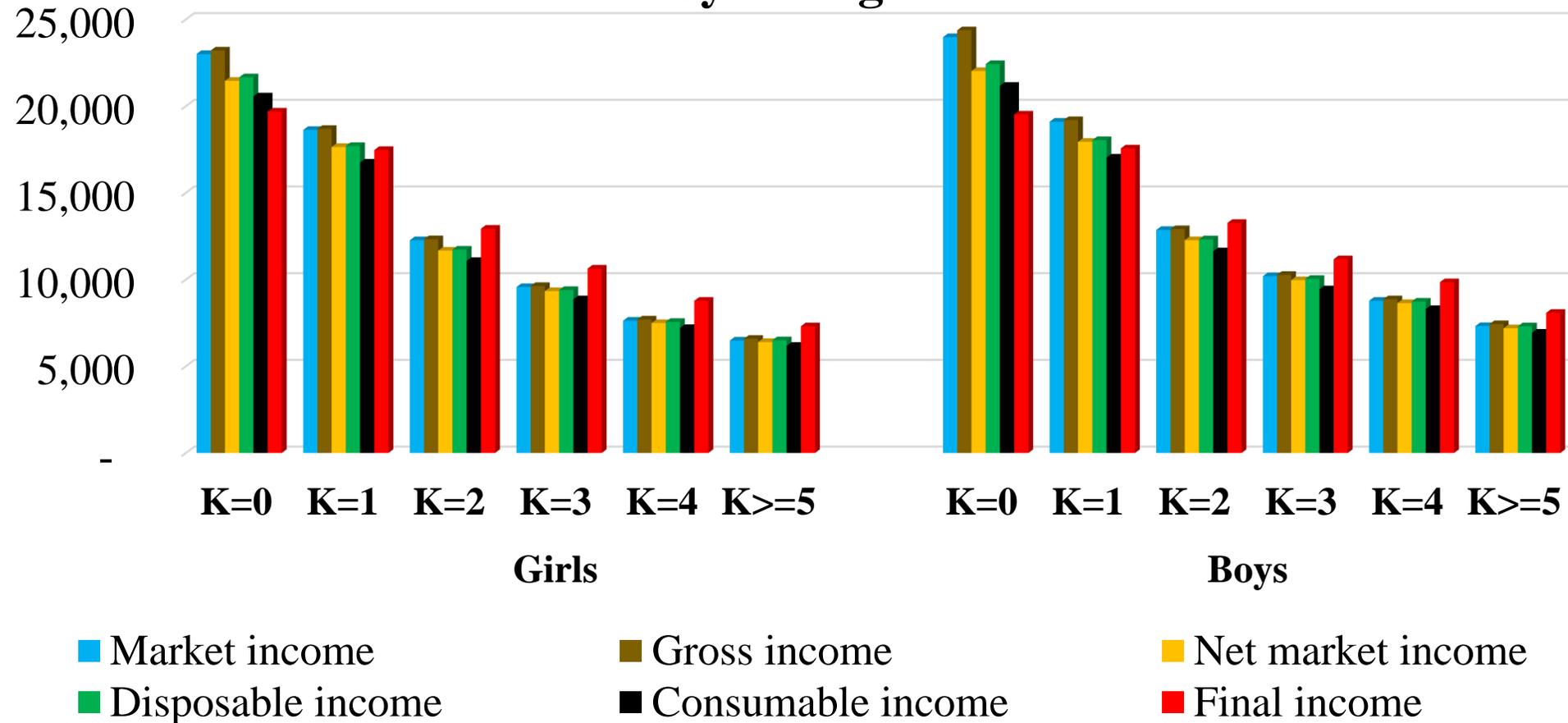
Fiscal incidence across multidimensional child poverty

Income concepts and multiple child deprivations: All children



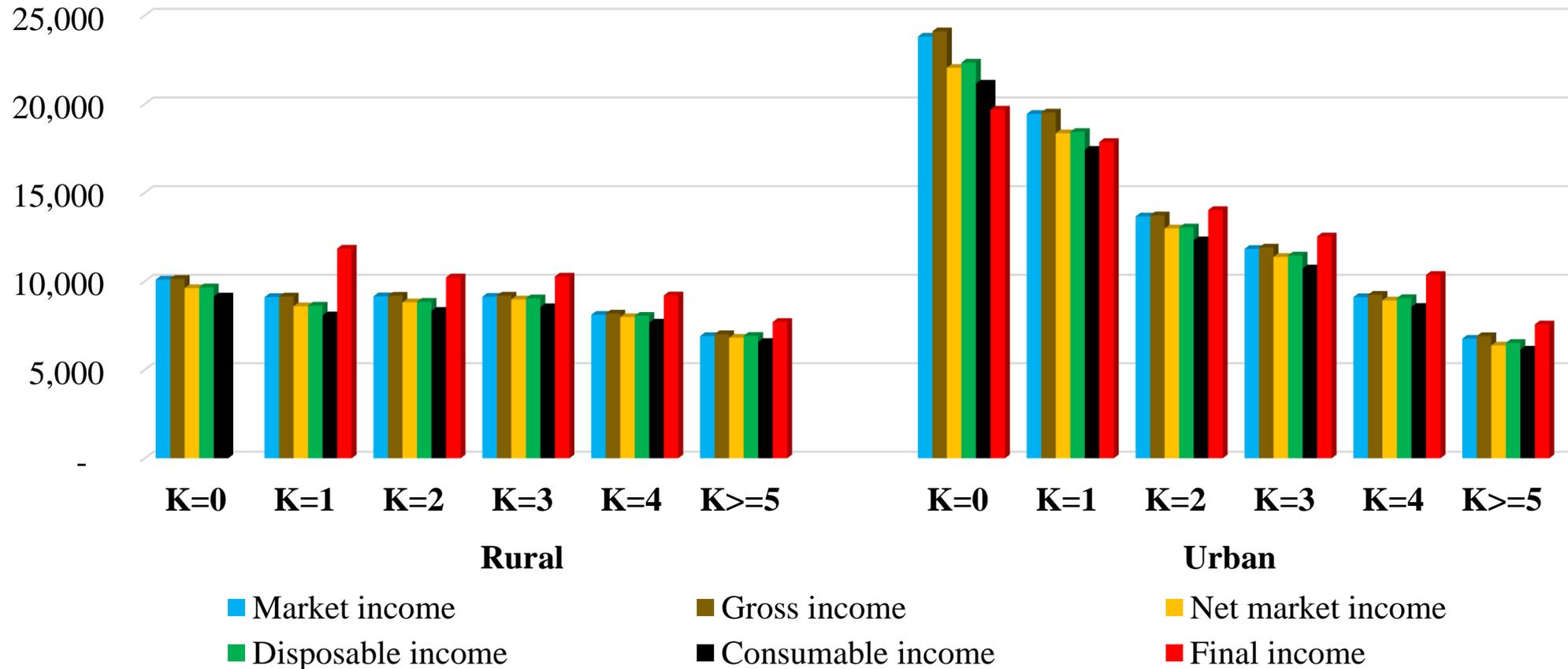
Fiscal incidence across multidimensional child poverty

Income concepts and multiple child deprivations: Boys and girls

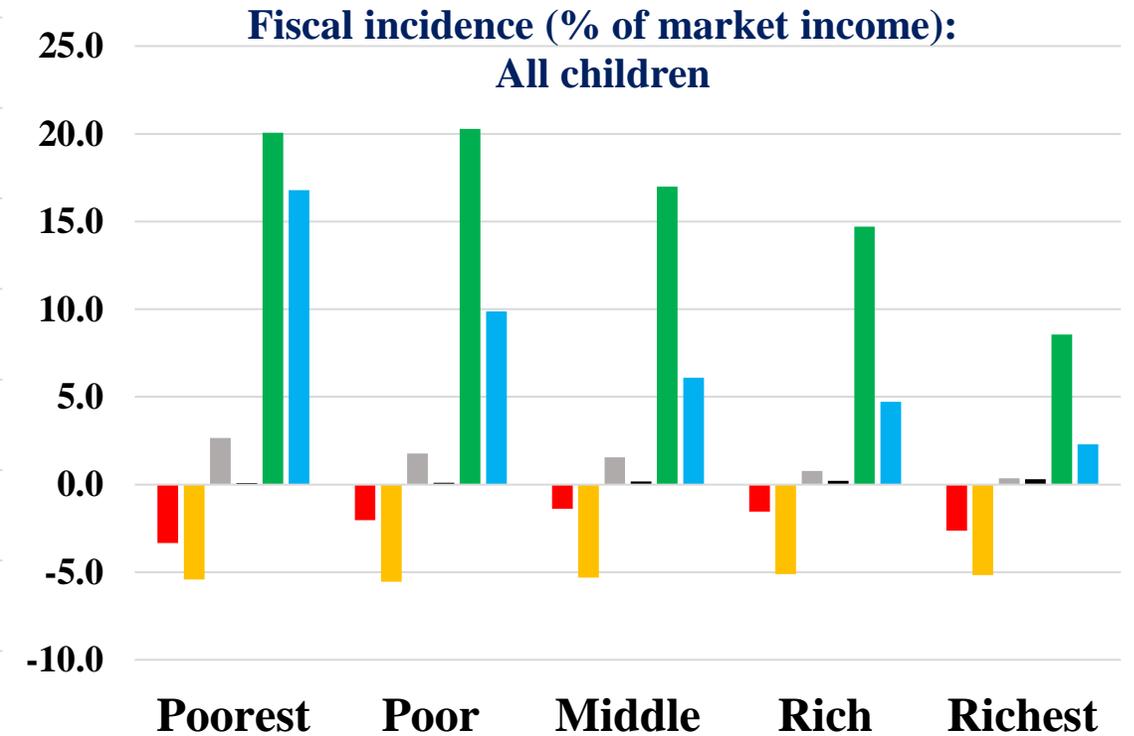
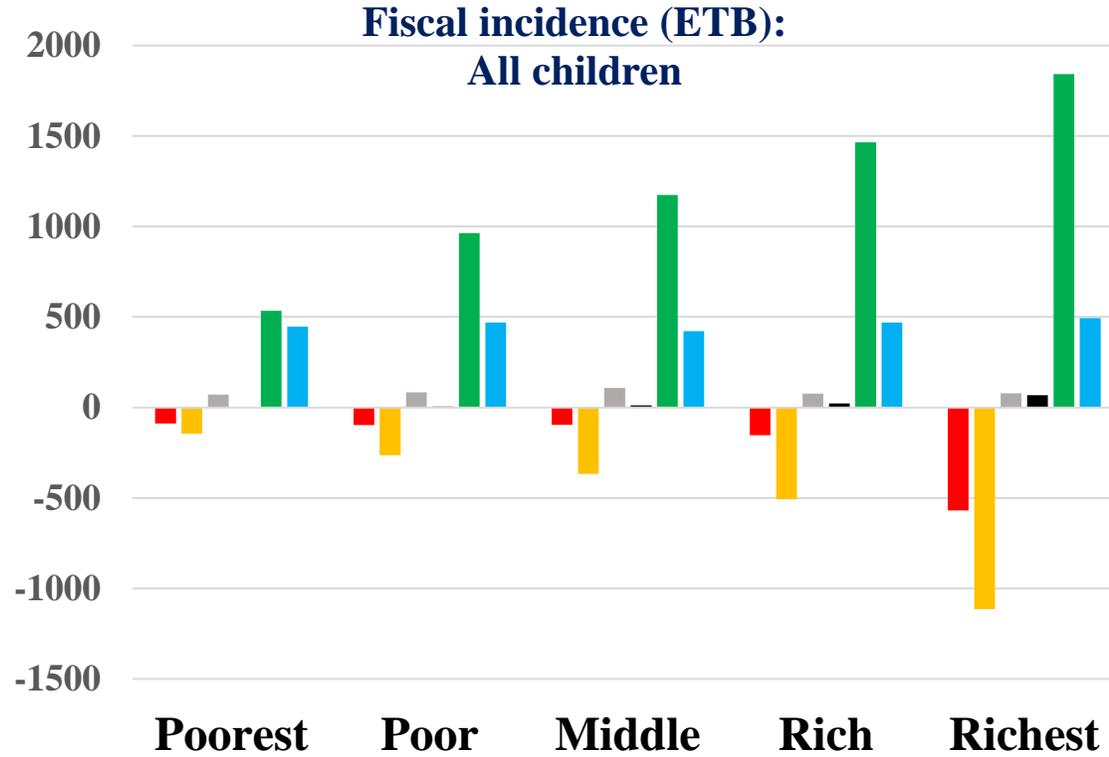


Fiscal incidence across multidimensional child poverty

Income concepts and multiple child deprivations: Rural and urban



Fiscal incidence across relative child monetary poverty

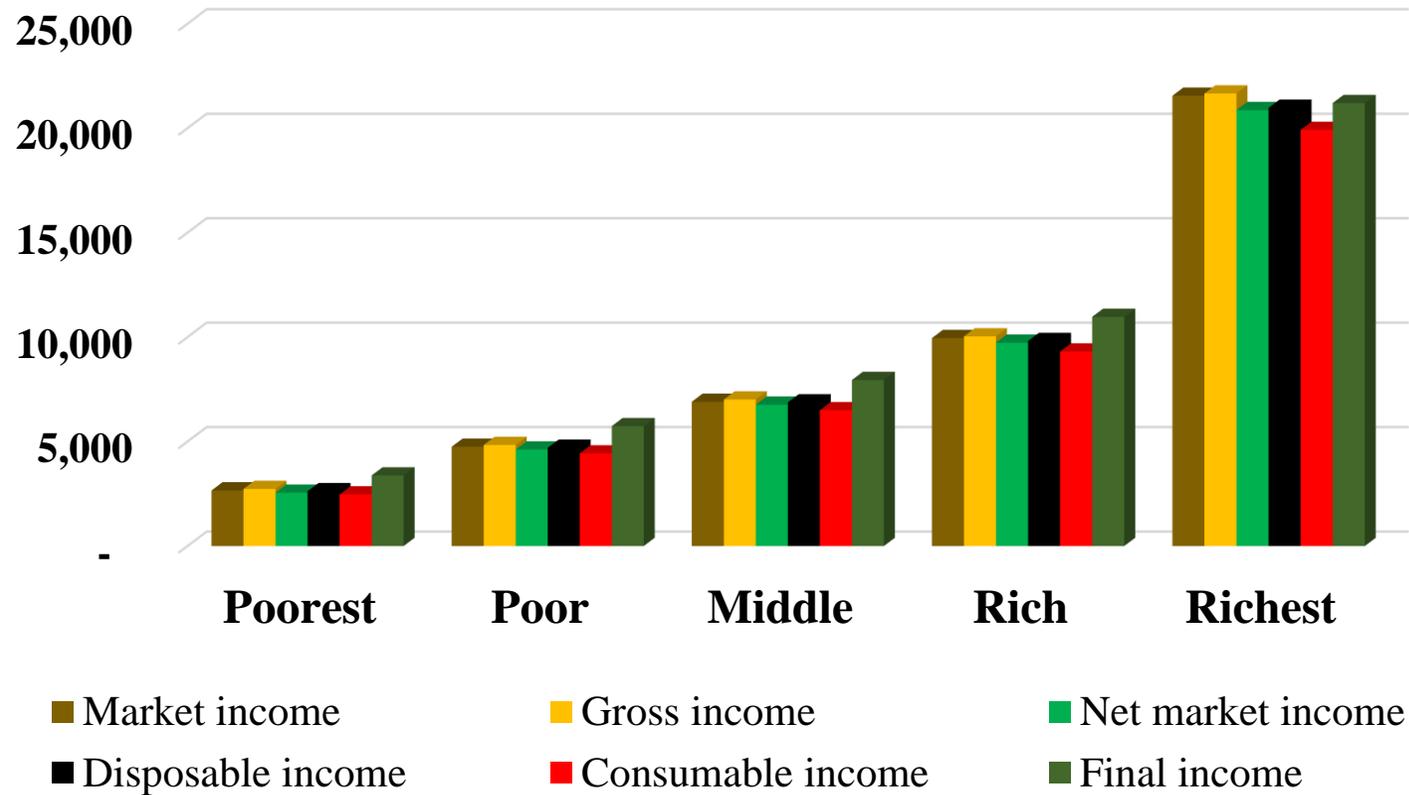


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Fiscal incidence across relative child monetary poverty

**Income concepts across relative child monetary poverty:
All children**

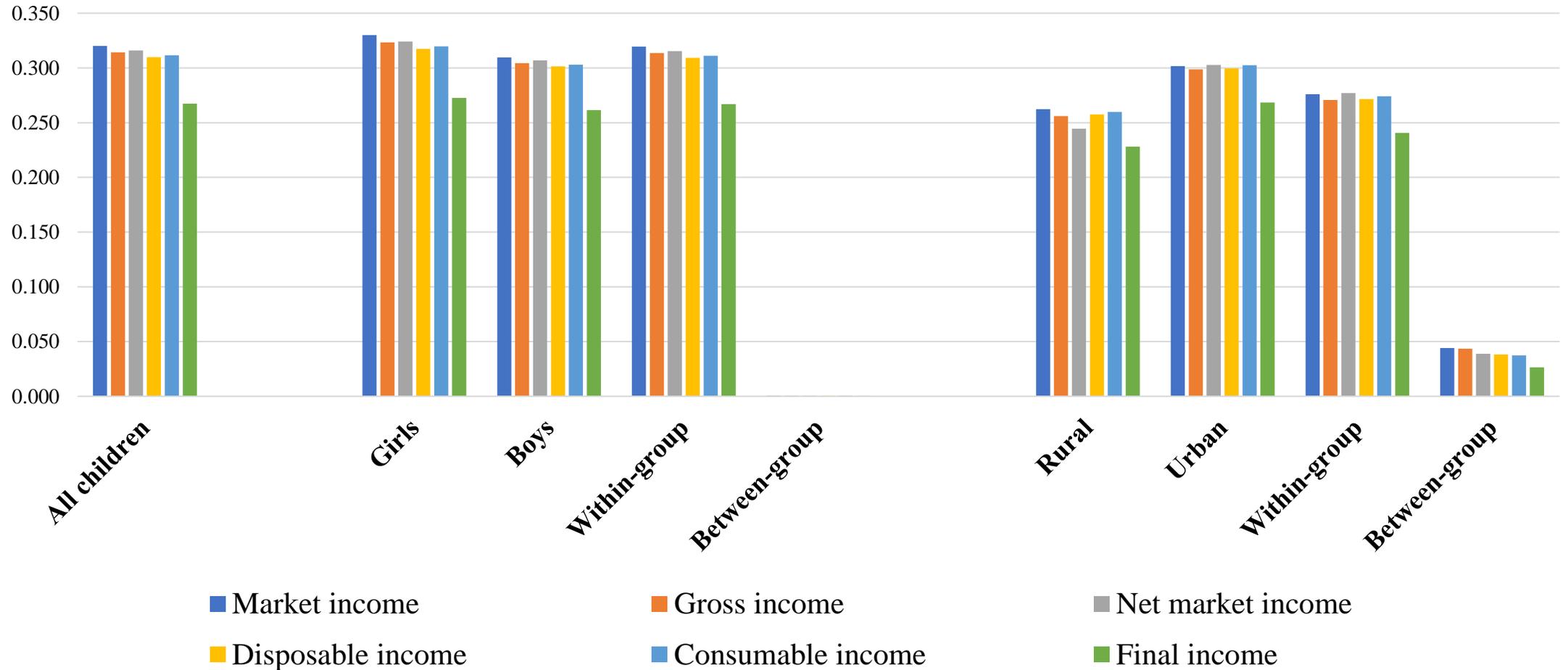


Fiscal incidence across child monetary inequality

Income concept	All children	Child gender			Rural/urban residence				
		Girls	Boys	Within-group	Between-group	Rural	Urban	Within-group	Between-group
Market income	0.320	0.330	0.310	0.320	0.001	0.262	0.302	0.276	0.044
Gross income	0.314	0.323	0.304	0.314	0.001	0.256	0.299	0.271	0.043
Net market income	0.316	0.324	0.307	0.315	0.001	0.244	0.303	0.277	0.039
Disposable income	0.310	0.317	0.301	0.309	0.001	0.257	0.299	0.272	0.038
Consumable income	0.312	0.320	0.303	0.311	0.001	0.260	0.303	0.274	0.037
Final income	0.267	0.273	0.261	0.267	0.000	0.228	0.268	0.241	0.027
*Inequality is computed as a Theil's index.									

Fiscal incidence across child monetary inequality

Inequality: All children, boy/girl and rural/urban



6. Summary of Preliminary Findings

- Child multidimensional poverty is still one of the highest in Ethiopia
 - Rural children are poorer than their urban counterparts.
 - Fiscal policy has an equalizing and poverty-reducing effect.
 - Both multidimensional and monetary measures of poverty provided similar results.
- No significant difference between boys and girls but between income groups- Within-group differences are more important than between-group differences.
- Families with children that are less deprived multidimensionally pay relatively more **direct taxes**, i.e. direct taxes are generally progressive. However, the proportion of **indirect tax** stays the same across the deprivation distribution.

6. Summary of Preliminary Findings

- In **rural** areas, both direct and indirect taxes are low across the multiple deprivations; neither progressive nor regressive.
- However, in **urban** areas, the share of indirect taxes in market income seems to increase with child deprivations, i.e., slightly regressive.
- Direct transfers are progressive, more in rural areas.
- Indirect subsidies are regressive. But, they are slightly progressive in urban areas.
- Spending on primary education are generally progressive

7. Future Work

- Pro-poorness of fiscal instruments.
- Marginal contributions to child multidimensional poverty of fiscal instruments
- Simulation