Children and the Fiscal Space in Ethiopia

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Abstract

This study investigates the effects of public transfers and taxes on children's well-being in Ethiopia. It applies the Commitment to Equity (CEQ) methodology to examine the burdens of taxation and the benefits from government transfers and spending and their differential well-being impacts on children living in rural and urban settings, boys and girls, as well as poorer and richer children. Measuring its distribution by child monetary and multidimensional well-being, the study finds that, on average, a progressive, poverty-reducing and equalizing fiscal system. However, there are important differences in the distribution of some of its elements. For example, indirect taxes, comprising of VAT and excise taxes, are regressive. Similarly, primary education spending, the largest of in-kind transfers, is progressive only in urban areas. On poverty and inequality, the fiscal system reduced the monetary child poverty headcount by 21% and the poverty gap by 33%. The effect is stronger for girls and children in rural areas than boys and children in urban areas, therefore reducing inequalities in poverty rates. However, this is only the case when the significant in-kind transfers for education and health are considered. Without the inclusion of in-kind transfers, the study finds that the fiscal system is not well calibrated to reduce poverty, with poverty rates increasing for all groups between market income and consumable income. This highlights the essential role of public services not only in delivering fundamental child rights but also in reducing poverty amongst children. Finally, the study provides context to guide the use of fiscal policy instruments and improve the well-being of different groups of children in developing countries.

Key Words: Child Poverty; Fiscal Incidence; Commitment to Equity; Ethiopia
JEL Codes: H22, I32, J13

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[1] Disclaimer: The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank and its affiliated organizations or those of the Executive Directors of the World Bank or the governments they represent.

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1. Introduction

Taxes, government spending, and public transfers play a crucial role in advancing child rights and welfare and in reducing poverty and inequality. While there is increasing empirical evidence on the distributional effects of public finance in low- and middle-income income countries, data and insights on the impacts on children are very limited.

However, it is essential to understand the specific impacts of public finance decisions on children. Children have different demands and consumption patterns than adults and hence fiscal interventions may impact them differently. For example, children could be disproportionately affected if taxes add to the cost of goods and services particularly relevant for children. This is besides the indirect effects of consumption taxes such as value-added taxes (VAT) and excises through their parents. Direct income taxes paid by adults could also have indirect effects on children's welfare. Direct public transfers could have both direct and indirect effects on children's well-being. Similarly, in-kind public transfers (spending on health and education) affect children's school enrollment and access to basic health services.

Moreover, household-level analyses often do not provide a full picture of the distributional effect of fiscal policy, and children may fare poorly in intrahousehold allocation (Dunbar et al., 2013). Recent evidence also suggests that many poor individuals do not necessarily live in poor households (Brown, Ravallion & Van de Walle 2017; Belete 2021).

Finally, children experience poverty differently from adults: their experience of poverty is determined by material deprivations in the realization of child rights (e.g., health, education) rather than financial means (Alkire & Santos 2013; Gordon et al. 2003). This would require understanding and measuring poverty and wellbeing multidimensionally in addition to monetary poverty. It also highlights the essential role public spending on health and education could have in affecting children's schooling and health access.

The Ethiopia case study offers an opportunity to examine the fiscal space in an environment with high child poverty and high child undernutrition. Approximately 88 percent or 36.2 million children were multidimensionally poor in Ethiopia in 2016, meaning they were deprived of the fulfillment of multiple rights or needs for basic food or services (CSA & UNICEF Ethiopia 2018). And despite progress over the previous decades, the most recent Demographic and Health Survey shows that childhood stunting is still at 37 percent, among the highest in the world (EDHS 2019).

This study investigates the effects of public transfers, services, and taxes on children's well-being in the context of a sub-Saharan Africa country. Specifically, the study answers the following questions: (i) How do the burdens of taxation and the benefits from government transfers and spending differ between children living in rural and urban settings, boys and girls, as well as

between poorer and richer children? (ii) What do government transfers, spending, and taxes contribute to the reduction of child monetary and multidimensional poverty, and inequality?

The study conducts a fiscal incidence analysis using the Commitment to Equity (CEQ) methodology. The CEQ approach involves assigning public transfer benefits and tax burdens to the consumer. The methodology compares welfare indicators before (pre-fiscal) and after taxes and/or transfers (post-fiscal) and ultimately evaluates the distributional effects of fiscal policy (Inchauste & Lustig 2017; Lustig 2018). The empirical literature has been growing and documenting inconclusive findings (Ajwad & Wodon 2007; Davoodi, Tiongson & Asawanuchit 2010; Gafar 2006; Lassibille & Tan 2007).

Furthermore, this study examines specifically how children in Ethiopia are affected by fiscal actions following a recent cohort of studies that extend the CEQ method to children (Cuesta et al. 2021; Save the Children 2021; Bornukova et al. 2020). As a result, in this study individual children are the unit of analysis, instead of households, as is often the case in fiscal incidence analyses. Moreover, the methodology adds multidimensional child poverty metrics to broaden the measurement of poverty and to make it more relevant to children.

The study analyzes the distribution of taxes and transfers by child monetary and multidimensional poverty status and finds that the fiscal system is progressive, poverty-reducing and equalizing. However, those results vary when further disaggregating the available information. An analysis by tax type shows that direct taxes are progressive while indirect taxes are regressive. Moreover, indirect taxes account for more than two-thirds of taxes relevant to children. On the transfer side, direct and indirect in-kind transfers are progressive. Transfers are predominantly indirect in-kind transfers, with education spending being by far the largest in-kind transfer. Primary education spending is progressive, while secondary education spending is regressive across levels of child deprivation. Public spending on health is progressive as well. The study does not find significant differences in incidence by gender, however in rural areas primary education spending and health spending are neutral, not showing the progressivity seen in urban areas or overall.

Combining both taxes and transfers, the study finds a 21% decrease in the poverty headcount from market income to final income, a 33% decrease in the poverty gap, and a 17% decrease in monetary inequality. The poverty effect is stronger for girls than boys. Similarly, poverty rates decline relatively more significantly for children in rural areas than those in urban areas. Those findings show that the overall fiscal system (including in-kind benefits) reduced inequalities in poverty rates between boys and girls as well as rural and urban children. However, all this decrease is driven by in-kind fiscal transfers, mainly government spending on education and health. Excluding these in-kind transfers shows that the fiscal system is not well calibrated to reduce poverty, with poverty rates increasing for all groups between market income and consumable income. Only the significant in-kind transfers for education and health result in a decrease in the poverty headcount at final income. This highlights not only the essential role of those public services to deliver on fundamental child rights but also the importance of investments in education and health in their role to reduce poverty.

This study contributes to the existing literature in multiple ways. Recent studies on fiscal policy and wellbeing in Ethiopia looked at the distributional effects of taxes and transfers at the household level (Hill, Inchauste, Lustig Tsehaye & Woldehanna 2017; Mogues 2013; Tesfaye and Gao 2020). Most recently, Ambel, Tesfaye & Yonis (2022) used individual-level data to investigate differences in the welfare impact of taxes and government spending on men and women in Ethiopia. However, this study is the first of its kind which analyzes fiscal incidence specifically for children in Ethiopia, contributing essential insights into a country with a high prevalence of child poverty. By identifying and assigning public transfers and spending associated specifically with children (such as education, vaccinations, and cash transfers), a child-specific CEQ assessment also gives precise impact estimates.

Second, it adds important empirical evidence to the limited research on fiscal incidence for children in low- and middle-income countries. To the knowledge of the authors, there are currently only three published child-specific CEQ assessments, covering Uganda, Belarus, and Kenya (Cuesta et al. 2021; Save the Children 2021; Bornukova et al. 2020).[5] In those existing studies, child-relevant benefits have been generally found to be progressive both when measured against household income (they typically decrease as households are getting richer) as well as against multidimensional poverty (they increase for children with more deprivations). While direct taxes were progressive in all countries, the picture was more mixed when analyzing indirect taxation. In both Uganda and Kenya, fiscal policies ultimately contributed to a decrease in monetary poverty amongst children, with the largest contribution to poverty reduction resulting from in-kind benefits from public services in healthcare and education (Cuesta et al. 2021; Save the Children 2021).

As mentioned previously, a child-specific assessment requires measures of nonmonetary dimensions of child wellbeing (Alkire & Santos 2013; Gordon et al. 2003). While different studies have created different measures of multidimensional poverty (depending on individual preferences, available data, or existing definitions), the widest divergence is not between different multidimensional measures but rather between monetary and multidimensional poverty (Cuesta et al. 2021; Save the Children 2021; Bornukova et al. 2020). The findings in this study confirm this overall observation and highlight the importance of using a multidimensional measurement of poverty and well-being when assessing fiscal equity for children.

Third, this study applies an intersectional approach when analyzing the effects on children, systematically highlighting differences between boys and girls, children in rural and urban areas, as well as the intersection between both. By doing so, it aims to contribute to the literature on intrahousehold allocation between children.

Insights from this study are directly relevant for policymakers, development practitioners, and civil society organizations in Ethiopia and beyond. The study examines the current impact of public finance on children and highlights areas where government spending has the largest impact on

[5] A fourth assessment for Indonesia is forthcoming.

reductions in child poverty and inequality. Furthermore, the findings build the basis to analyze the distributional effects of future fiscal policies on children.

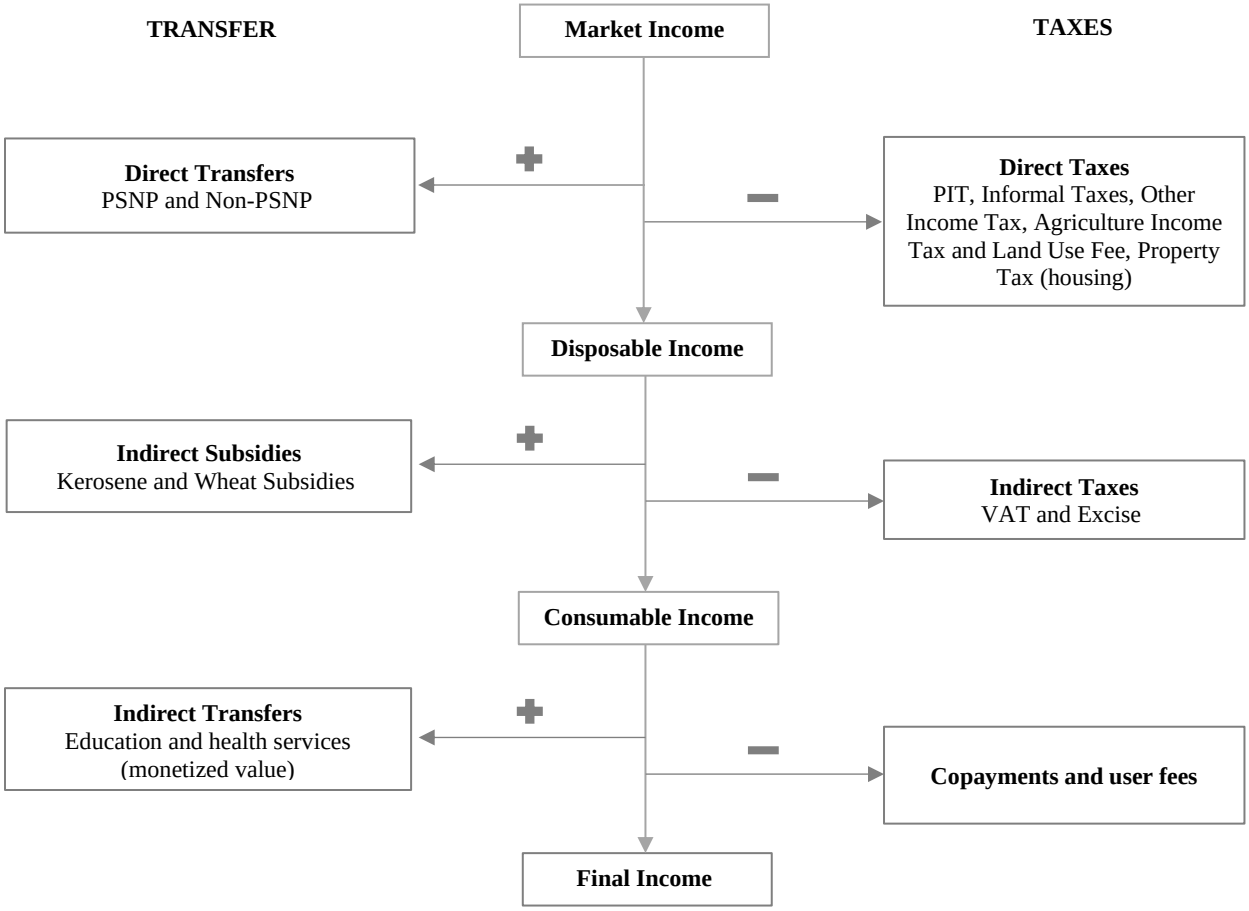
This paper is organized as follows: Chapter 2 introduces the methodology, especially the analytical framework of CEQ methodology as well as the methods used to calculate child poverty and inequality. Chapter 3 describes the data used in this study. Chapter 4 presents and discusses the results, showing the incidence of taxes, spending and public transfers for children in Ethiopia. Chapter 5 summarizes key insights and indicates further areas of research.

2. Methodology

2.1. Measuring fiscal incidence

The analytical framework follows the CEQ methodology (Lustig 2018) as well as its child-specific version (Cuesta et al. 2021) to estimate the distributional impact of fiscal policy on children's wellbeing. The CEQ approach begins with calculating pre-fiscal and post-fiscal income concepts by assigning public transfers, spending, and taxes. Four income concepts are considered: market income, disposable income, consumable income, and final income (Figure 1). The analysis then estimates monetary and multidimensional child poverty and inequality at different income concepts.

Figure 1: Income concepts of the commitment to equity method



Source: Adapted from Lustig (2018)

In this study, the individual child is the unit of analysis (Cuesta et al. 2021). The construction of most other variables and income concepts follows closely those described in Ambel, Tesfaye & Yonis (2022). Disposable income is proxied by consumption expenditure in the underlying household survey data. Other income concepts are therefore computed by backward and forward calculations. Individual level expenditure is estimated based on intra-household resource allocation (Belete, Menon & Perali 2019; Calvi et al. 2020) and equivalence scales (Browning, Chiappori & Lewbel 2013). The allocation approach of expenditures to household members is based on consumption patterns and the availability of individual-specific information in the data. For example, the 2018/19 Ethiopia Socioeconomic Survey (ESS) collects clothing expenditures for boys and girls as well as individual expenditures on education and health. Some expenditures, such as alcoholic drinks and cigarettes, are assignable only to adults. Non-assignable expenditures are allocated to each child based on equivalence scales.

Various assumptions are needed when assessing the fiscal incidence for children, following those made in Ambel, Tesfaye & Yonis (2022). The study assumes that each student enrolled in a public school in each region receives the education benefit per-pupil education costs for each region are calculated by dividing total spending by the number of primary and secondary students enrolled.

We exclude spending on tertiary education as they generally serve the non-child population. For health spending, the per-beneficiary benefit is obtained by dividing total health spending by the number of public health service users. We use household survey data to estimate the population of public health service beneficiaries by region and national level. Total government spending on education and health is used to monetize in-kind transfers. Where available, copayments are deducted when the beneficiary paid any fee or contribution to use them. The 2016/17 regional and federal spending data are used to estimate the cost of providing primary and secondary education, and health services. Deflating the 2016/17 data using the average annual growth rate of spending for each region, we get missing data for 2018/19[6].

Tax burdens borne by parents, or the household are passed on to children. Indirect taxes on purchased consumption items identified in the household survey are simulated using the social accounting matrix (SAM) framework. Once the price burden of all goods and services is calculated using their effective tax rate, the price burden on consumers resulting from indirect taxes paid for inputs of production is computed to estimate how taxes on petroleum and coal affect the prices of final goods and services. Second-round tax effects are estimated for exempt items from VAT. With regards to indirect subsidies, those on wheat in urban areas and kerosene nationally[7] are estimated based on the household's expenditures on these items[8].

The study has the following limitations that are relevant to fiscal incidence analysis. First, not all fiscal instruments are included in this study due to either lack of data or difficulties to assign to individuals. Corporate taxes and government spending on infrastructure are not included. Second, the analysis does not consider differences in service quality. However, the quality of schools, clinics, hospitals as well as their staff varies in rural and urban areas and small and big towns.

2.1.Measuring monetary and multidimensional poverty impacts on children

The impact of the fiscal policy instruments on poverty is assessed by analyzing the changes in child monetary and multidimensional poverty indices at the different income concepts. Monetary poverty is measured according to the FGT family (Foster, Greer, & Thorbecke, 1984),

$$P_{\propto} = \frac{1}{N}\sum_{n=1}^{M}\left(\frac{z - Y_i}{z}\right)^{\propto}$$

[6] The average annual growth rate per annum of education and health spending is estimated using nine years of spending data.

[7] As it is difficult to identify which household in which area benefits from the wheat subsidy, we assume that it targets the entire urban population. This assumption is based on evidence that indicates subsidized wheat is available in most urban centers (see World Bank 2016).

[8] One data gap in wheat subsidy allocation is the lack of disaggregated consumption items for wheat products. Hence, we calculate the subsidy based on wheat consumption value in any form.

where $\propto$ measures poverty aversion so that P_0, P_1 and P_2 provide poverty headcount, gap, and severity respectively; N is the total number of children; M is the number of poor children; Y_i represents any of the six income concepts; and z is the poverty line.

However, as discussed above, measuring child well-being using only monetary indicators is deficient. The multidimensionality of well-being is nowhere more appropriate than to children, which requires non-monetary indicators that measure child well-being both in the short- and long-run. Multidimensional poverty can be measured in different ways, each involving challenging decisions on included dimensions, weights, aggregation of dimensions, and cut-offs. In fact, all previous child-focused CEQ assessments have used different multidimensional poverty measurements, depending on individual preferences, available data in the country, or existing definitions already used by governments (Cuesta et al. 2021; Save the Children 2021; Bornukova et al. 2020).

This study adapts the AF methods (Alkire & Foster, 2011; Alkire & Santos, 2014) to measure multidimensional child poverty. Based on the literature and data availability, three dimensions (education, health and living standards) and ten indicators are used to construct the multidimensional child poverty index (Table 1). Indicators of education and health dimensions are specific to each child while those of the living standards dimensions are common to household members but have implications for children. Indicators within each dimension are equally weighted (Alkire & Santos, 2014; Apablaza & Yalonetzky, 2012; Belete, 2021).

For identification of the multidimensionally-poor children, the AF dual cut-off approach is pursued. The first, called deprivation cut-offs for each indicator, are based on national and international standards). The second cut-off, called multidimensional cut-off, is being deprived in at least 33% of the weighted deprivations (Alkire & Santos, 2014; Belete, 2021; Bruck & Kebede, 2013).

Table 1: Dimensions, indicators, and deprivation thresholds of multidimensional child poverty

Dimension (weight)	Indicator (weight)	Deprivation threshold
Child education (2/10)	Child (0-17 years) enrollment (1/10)	School-age child is not currently attending school.
	Child (0-17 years) formal education (1/10)	School-age child has no formal education.
Child health (2/10)	Child sickness (1/10)	Child faced serious illness in last 2 months.
	Child (6-59 months old) stunting (1/10)	Child is stunted (height-for-age z-score<-2) (WHO).
Living standards (6/10)		*The child lives in a household with...*
	Safe water (1/10)	Unsafe source of drinking water (WHO).

Sanitation (1/10)	Unimproved toilet facility (WHO).
Electricity (1/18)	No access to electricity.
Overcrowding (1/10)	Four or more people per room in the HH
Floor (1/10)	Floor: natural, non-permanent material.
Information (1/10)	No television/ radio/mobile phone/ fixed phone.

Aggregating into multidimensional poverty indices then follows. The deprivation count or sum of weighted deprivations I 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, and D is the total number of indicators. A child is identified as multidimensionally-poor if she is deprived in at least 33% of the weighted deprivations, i.e., $C_i \geq 0.33$. Using 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 weighted deprivations as a proportion of the maximum of the weighted deprivations suffered by the multidimensionally-poor children gives the average intensity of deprivations as

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

Finally, the adjusted multidimensional poverty index is given as $M = H * A$.

2.2. Measuring inequality impacts

For gauging inequality, the study uses the Theil index which is a family of the generalized entropy inequality measures. The Theil index is given by

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

where Y_i is the income of child i; $\bar{Y}$ is the average income; and N is the number of children. I varies from 0 (perfect equality) to $ln(N)$ (maximum inequality). One advantage of the Theil index is that it has the property of additive decomposability into inequality within and between subgroups. For gender, the total inequality is the sum of within-child-gender inequality and between-child-gender

inequality. The within-child-gender inequality is $I_w = \sum_{g=1}^{h} S_g\, I_g$, and the between-child-gender inequality is $I_b = \sum_{g=1}^{2} S_g \left(ln\left(\frac{S_g}{P_g}\right)\right)$, 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. The same applies to children's residence (rural/urban).

3. Data

Fiscal incidence analyses such as those presented in this study rely mainly on two sources of data. First, administrative data mainly provide key insights into public revenues and expenditures, but can also provide other information on subsidy schemes, transfer systems and users of public services. Second, household survey data is crucial in identifying individuals both as taxpayers for different kinds of taxes as well as users of publicly funded services. The following section introduces more in detail the data used in this assessment for Ethiopia.

3.1. Administrative data: taxes and the child-relevant budget in Ethiopia

Administrative data used in this study include the following: (i) public revenue and expenditure data for the 2018/19 fiscal year and regional education and health spending from the Ministry of Finance, (ii) school enrollment information from the Ministry of Education, (iii) kerosene subsidy from the Ethiopian Petroleum Supply, and (iv) wheat subsidy from the Ethiopian Trading Businesses Corporation.

Table 2 shows Ethiopia's tax revenues in 2018/19. Revenue collection was equivalent to 13.5% of GDP, 43% of those through direct taxes (mainly business profit tax followed by personal income tax) and 57% through indirect taxation. The last two columns in Table-2 are for tax burden per child. Domestic indirect taxes are the most important followed by personal income taxes and business profit tax.

Table 2: Annual tax revenues, share of GDP and per child burden, 2018/19

Tax category	Government tax revenue			Tax burden per child	
	ETB (in millions)	Share of tax revenue (%)	Share of GDP (%)	ETB	Share of tax burden (%)
Total taxes	268,457	100.0	13.5	680	100.0
Direct taxes	115,858	43.2	5.8	208	30.6
Personal income tax	41,203	15.3	2.1	149	21.9
Business profit tax	59,407	22.1	3	24	3.5
Land use fee and agriculture income tax	708	0.3	0	23	3.4
Rental income tax	2,138	0.8	0.1	5	0.7
Other direct taxes	12,403	4.6	0.6	7	1.1
Indirect taxes	152,600	56.8	7.7	472	69.4
Domestic indirect taxes	77,774	29.0	3.9	414	60.9
Import duties	74,826	27.9	3.8	58	8.5

Source: Authors' calculations; Ministry of Finance data.
Note: Import duties include customs, surtax, VAT, and excise on imports. ETB = Ethiopian Birr.

Ethiopia's 2018/19 public spending with child-relevant components is shown in Table 3. 39% of government spending goes towards social development, followed by economic development (33%) and general services.

Table 3: Annual government spending, share of GDP and child benefits, 2018/19

Spending category	Government spending			Child relevant spending considered?
	ETB (millions)	Share of government spending (%)	Share of GDP (%)	
Total spending	413,106	100.0	20.8	
General services	74,660	18.1	3.8	
Economic development	137,751	33.3	6.9	Yes
Agriculture	62,975	15.2	3.2	Yes
PSNP [a]	5,690	1.4	0.3	Yes
Food security [b]	1,666	0.4	0.1	Yes
Urban development and construction	16,094	3.9	0.8	
Road	41,318	10.0	2.1	
Other	17,364	4.2	0.9	
Social development	160,407	38.8	8.1	Yes
Education	102,816	24.9	5.2	Yes
Health	38,382	9.3	1.9	Yes
Labor and social welfare	3,821	0.9	0.2	Yes
Other	15,388	3.7	0.8	Yes
Indirect subsidies (off-budget) [c]	2,714	0.7	0.9	Yes
Others	40,288	9.8	2	Yes

Source: Authors' calculations; data from the Ministry of Finance, the Ethiopian Petroleum Supply Enterprise, the Ethiopian Trading Businesses Corporation, and ESS. [a] The value of PSNP for 2018/19 is derived from the ESS data, which has information about PSNP transfers for the previous 12 months. [b]Food security value is also estimated from the ESS data. [c] Sources for data on subsidies are the Ethiopian Petroleum Supply Enterprise and the Ethiopian Trading Businesses Corporation.
Note: ETB = Ethiopian Birr.

3.2. Survey data: consumption, utilization of services and child poverty

The survey data are from the 2018/19 Ethiopia Socioeconomic Survey (ESS). ESS is a nationally representative survey implemented by the Central Statistics Agency in collaboration with the World Bank under the LSMS-ISA project. The survey interviewed 6,700 households out of which 4,992 households had at least one household member between 0-17 years old at the time of the interview. A total of 13,820 members in this age group are included in the analyses.

Table 4 presents the descriptive statistics of the profile of children included in this study. The profile shows that both boys and girls have similar demographic and socioeconomic characteristics. The average age is about 8 and a half years. The household size is over the national average because this sub-sample of households includes only those with children. About one in

five children live in urban areas. This is slightly higher for girls. The profile, however, differs by place of residence. For example, children in rural areas are way more deprived than those in urban areas. The difference is strongly associated with child deprivations in housing conditions including water and sanitation facilities, access to electricity, number of rooms per household member, and access to information.

Table 4: Descriptive statistics of the sample

	All children (N=13,820)		Girls (N=6,895)		Boys (N=6,925)		Rural (N=8,082)		Urban (N=5,738)	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Socio-demographics										
Female	0.51	0.500	-	-	-	-	0.50	0.500	0.53	0.499
Age	8.48	4.923	8.46	4.966	8.51	4.878	8.49	4.840	8.47	5.210
Household size	6.12	2.109	6.10	2.156	6.13	2.060	6.30	2.042	5.46	2.215
Number of women	1.20	0.573	1.21	0.596	1.19	0.549	1.17	0.533	1.30	0.690
Number of girls in the household	1.90	1.347	2.40	1.285	1.39	1.209	1.98	1.365	1.63	1.244
Number of boys in the household	1.89	1.354	1.36	1.230	2.43	1.262	2.00	1.357	1.48	1.260
Years of education	3.55	2.441	3.67	2.473	3.43	2.403	3.32	2.227	4.26	2.899
Child lives in urban area	0.22	0.412	0.23	0.420	0.20	0.403	-	-	-	-
Quintiles of consumption expenditure:										
Poorest	0.20	0.400	0.21	0.408	0.19	0.392	0.23	0.423	0.08	0.274
Poor	0.20	0.400	0.22	0.411	0.19	0.388	0.23	0.418	0.11	0.309
Middle	0.20	0.400	0.21	0.404	0.19	0.396	0.21	0.409	0.15	0.360
Rich	0.20	0.400	0.18	0.387	0.22	0.412	0.19	0.393	0.23	0.422
Richest	0.20	0.400	0.19	0.388	0.21	0.411	0.14	0.344	0.43	0.495
Deprivations										
Child not attending school	0.06	0.242	0.06	0.245	0.06	0.238	0.06	0.244	0.06	0.234
Child has no formal education	0.003	0.059	0.002	0.048	0.005	0.068	0.004	0.060	0.003	0.053
Child faced illness in last 2 months	0.01	0.104	0.01	0.107	0.01	0.101	0.01	0.113	0.00	0.059
Child is stunted	0.07	0.262	0.07	0.251	0.08	0.273	0.08	0.266	0.07	0.251
Unsafe source of drinking water	0.32	0.468	0.32	0.468	0.32	0.467	0.40	0.490	0.04	0.206
Unimproved toilet facility	0.56	0.496	0.56	0.497	0.57	0.495	0.65	0.476	0.24	0.428
No access to electricity	0.76	0.424	0.75	0.431	0.78	0.418	0.93	0.255	0.16	0.370
Four or more people per room	0.42	0.493	0.41	0.492	0.42	0.494	0.46	0.498	0.25	0.435
Floor: natural, non-permanent material	0.86	0.344	0.86	0.350	0.87	0.338	0.96	0.200	0.52	0.500
No television/ radio/mobile phone/ fixed phone	0.42	0.493	0.43	0.495	0.41	0.491	0.49	0.500	0.16	0.371

In this study, survey data are not only used to estimate the incidence of spending and revenue raising activities but are also the basis to estimate poverty and inequality amongst children. Table 5 shows the results of multidimensional child poverty and monetary poverty and inequality indices. On average, children are deprived in about 3.5 out of 10 measures of multidimensional deprivations included in this study. The indicator is similar for both boys and girls. Urban children are deprived on average in 1.5 measures, which is more than double (about 4) for rural children. Over half of children are multidimensionally poor with no boy-girl differences. This incidence reaches as high as 66 percent for rural children. 1 in 10 urban children is multidimensionally poor. Over a third of children are monetarily poor with girls slightly poorer than boys. Though inequality is generally low, within-group inequalities outweigh between-group inequalities. Monetary child poverty and inequality profiles show substantial rural-urban differences.

Table 5: Overall estimates of child poverty and inequality, by gender and location

Welfare measure	***Type of index***	***All children***	***Girls***	***Boys***	***Rural***	***Urban***
Multidimensional child poverty	Number of deprivations (C)	3.50 (0.014)	3.47 (0.021)	3.52 (0.020)	4.04 (0.002)	1.52 (0.019)
	Poverty incidence (H)	0.54 (0.025)	0.54 (0.026)	0.54 (0.025)	0.66 (0.027)	0.11 (0.022)
	Poverty intensity (A)	0.48 (0.004)	0.48 (0.005)	0.48 (0.005)	0.48 (0.005)	0.45 (0.008)
	Adjusted (MPI=H*A)	0.26 (0.013)	0.26 (0.014)	0.26 (0.013)	0.32 (0.015)	0.05 (0.011)
Monetary child poverty*	Poverty headcount	0.34 (0.004)	0.36 (0.006)	0.31 (0.006)	0.39 (0.005)	0.15 (0.005)
	Poverty gap	0.11 (0.002)	0.12 (0.002)	0.11 (0.002)	0.13 (0.002)	0.05 (0.002)
	Poverty severity	0.05 (0.001)	0.06 (0.002)	0.05 (0.001)	0.06 (0.001)	0.02 (0.001)
Monetary child inequality	Overall	0.31	0.32	0.30	0.26	0.30
	Within-group		0.31		0.27	
	Between-group		0.01		0.04	

**FGT poverty indices based on disposable income and using a calibrated poverty line (ETB 5050/yr/ad.eq.) that gives a similar headcount as the official ratio.*
***Inequality is computed as a Theil's index based on disposable income*
Standard errors in parenthesis.

4. Results and Discussion

The results are presented in two sections. First, section 4.1 presents findings on the incidence of public finance decisions, i.e., how income concepts, tax burdens or benefits from public transfers vary across different levels of multidimensional and monetary poverty. Second, section 4.2 presents the results of the impact of the overall fiscal system (combining both taxes and public spending) on poverty and inequality.

4.1. Fiscal Incidence

Incidence across child multidimensional poverty

Tables 6 and 7 present various income concepts and the incidence of taxes and transfers (in local currency values) across different measures of child multidimensional poverty. The results are presented for all children and disaggregated by sex (Table 6) as well as by place of residence (Table 7). In all cases, the pre-fiscal income (market income) is higher than the disposable and consumable income. However, this changes when indirect in-kind transfers (government spending on education and health care services) are considered. Comparing the pre-fiscal income (market income) and final income, the incidence is negative only for children without any deprivations, i.e., post-fiscal income is less than pre-fiscal income. In all other scenarios, where there is at least one deprivation, a child received more transfers and subsidies than paid in taxes and copayments (Table 7). This holds for both boys and girls and for children in rural and urban areas. An exception is in rural areas where final income is always greater than market income including the scenario of no deprivation (C=0) (Table 7).

Fiscal incidence results in Annex-1 report distributions of taxes and transfers as percent of market income by child multidimensional deprivation counts. The results are presented for all children (**Figure A1*a***), for boys and girls (Figure A1b), and for children in rural and urban areas (Figure A1c). In all scenarios, direct taxes are progressive, i.e., they increase with the average number of child deprivations. For example, direct taxes constitute 6% of market income among households of non-deprived children while this is only 1% when child deprivations reach five or more. Indirect taxes, comprising of VAT and excise taxes, are regressive. There are also differences by gender. The share of both direct and indirect taxes (VAT and excise) relative to market income is slightly higher for girls with one or two deprivations than for boys in the same situation. However, this observation swaps for children with four or five deprivations. Rural-urban differences also exist. In rural areas, we find that both direct and indirect taxes are low across the multiple child deprivations, i.e., they are neither progressive nor regressive. For urban children, VAT and excise taxes are regressive.

Transfers are almost completely in the form of indirect in-kind transfers, with direct transfers accounting for only 0.3% (in the case of no deprivations) to 1.9% (in the case of five or more deprivations) of market income. Direct transfers are relatively equal across the various disaggregation groups, although slightly higher for urban children with four or more deprivations than equally deprived children in rural areas. Primary education is the largest in-kind transfer and is progressive overall, constituting about 3.9% of market income of non-deprived children and rising to 13.2% with four deprivations. Though no differences exist between boys and girls, public spending on primary education is progressive in urban areas while neutral in rural areas. On the other hand, secondary education is regressive overall and in all disaggregation groups. These findings are in line with recent studies in Kenya (Save the Children, 2021) and Uganda (Cuesta et al., 2021). We also find that healthcare is generally progressive, more so among rural children, but neutral among their rural counterparts.

Table 6. Fiscal incidence analysis across child multidimensional poverty by gender, 2018/19

	Multidimensional poverty: All children						Multidimensional poverty: Girls						Multidimensional poverty: Boys					
	C=0	**C=1**	**C=2**	**C=3**	**C=4**	**C>=5**	**C=0**	**C=1**	**C=2**	**C=3**	**C=4**	**C>=5**	**C=0**	**C=1**	**C=2**	**C=3**	**C=4**	**C>=5**
CEQ income concepts																		
Market income	20,157	13,987	9,999	8,960	7,387	6,729	19,834	14,066	10,108	8,304	6,813	6,338	20,547	13,907	9,884	9,600	7,963	7,126
Disposable income	19,025	13,323	9,769	8,884	7,360	6,751	18,755	13,405	9,879	8,204	6,805	6,371	19,351	13,239	9,654	9,547	7,917	7,139
Consumable income	18,033	12,546	9,225	8,412	7,012	6,409	17,815	12,608	9,322	7,793	6,484	6,050	18,297	12,484	9,123	9,015	7,542	6,775
Final income	17,999	14,378	10,945	10,017	8,450	7,473	18,018	14,399	11,113	9,400	7,890	7,134	17,977	14,356	10,770	10,618	9,012	7,817
Taxes																		
Direct taxes	-1139	-625	-198	-86	-64	-69	-1058	-631	-210	-88	-48	-52	-1238	-619	-185	-83	-79	-85
Direct taxes, incl. informal tax	-1252	-720	-277	-149	-108	-103	-1170	-730	-283	-154	-92	-85	-1350	-710	-270	-145	-125	-121
Personal income tax	-824	-525	-152	-38	-30	-40	-731	-519	-163	-41	-16	-26	-937	-531	-139	-36	-44	-55
Business profit tax	-218	-62	-19	-10	-2	0	-247	-77	-22	-12	-2	0	-183	-46	-15	-8	-1	0
Land use fee & agri income tax	0	-3	-19	-32	-30	-27	-1	-2	-17	-31	-29	-25	0	-4	-21	-33	-32	-29
Rental income tax	-36	-19	-5	-1	-1	0	-33	-21	-5	-1	-1	0	-40	-18	-5	-1	0	0
Informal tax	-61	-15	-3	-5	-1	-1	-47	-12	-2	-4	-1	-2	-77	-19	-5	-5	-2	-1
Other direct taxes	-112	-95	-79	-64	-45	-34	-112	-99	-74	-65	-43	-33	-113	-91	-85	-62	-46	-35
Indirect taxes	-1062	-828	-557	-477	-347	-336	-1031	-863	-581	-421	-321	-314	-1100	-791	-532	-531	-374	-357
VAT	-958	-748	-498	-427	-299	-284	-934	-782	-525	-376	-279	-267	-988	-713	-469	-477	-320	-300
Excise	-104	-80	-59	-50	-48	-52	-97	-82	-55	-45	-42	-47	-112	-78	-63	-54	-53	-57
Transfers																		
Direct transfers	55	43	42	71	81	125	49	46	47	52	83	118	63	39	36	90	79	133
PSNP	34	32	33	62	67	100	44	37	35	44	71	95	23	28	31	79	64	105
Other transfers	21	10	9	10	14	25	5	9	12	8	12	23	40	11	5	12	16	27
Indirect subsidies	123	75	22	11	8	3	116	79	30	13	9	2	132	71	14	9	8	3
Kerosene subsidy	0.3	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.4	0.3	0.2
Wheat subsidy	123	75	22	11	8	2	115	78	30	13	8	2	132	71	14	8	8	3
In-kind transfers	2,111	2,441	2,006	1,820	1,591	1,170	2,219	2,429	2,087	1,830	1,557	1,184	1,981	2,453	1,921	1,810	1,624	1,156
Education	1,634	1,896	1,494	1,362	1,133	752	1,768	1,910	1,609	1,389	1,110	775	1,473	1,883	1,373	1,337	1,156	729
Primary school	785	946	1,126	1,086	974	704	804	981	1,137	1,050	937	703	762	910	1,115	1,120	1,011	705
Secondary school	849	951	368	276	159	48	964	928	473	338	173	72	710	973	258	216	145	24
Education copayments	-2083	-660	-259	-159	-121	-72	-2004	-590	-288	-164	-124	-73	-2178	-730	-229	-154	-118	-72
Health	477	545	513	458	457	418	451	519	478	442	447	409	508	570	549	474	468	427
Health copayments	-234	-84	-70	-58	-36	-37	-207	-69	-71	-61	-35	-32	-267	-99	-69	-55	-38	-42
Child budget	**2,166**	**2,484**	**2,048**	**1,892**	**1,672**	**1,295**	**2,267**	**2,475**	**2,135**	**1,882**	**1,640**	**1,302**	**2,044**	**2,492**	**1,957**	**1,901**	**1,703**	**1,289**

Table 7. Fiscal incidence analysis across child multidimensional poverty by location, 2018/19

	Multidimensional poverty: Rural						Multidimensional poverty: Urban					
	C=0	**C=1**	**C=2**	**C=3**	**C=4**	**C>=5**	**C=0**	**C=1**	**C=2**	**C=3**	**C=4**	**C>=5**
CEQ income concepts												
Market income	7,887	9,154	8,759	8,947	7,327	6,758	20,468	15,290	12,399	9,047	8,378	5,864
Disposable income	7,566	8,786	8,611	8,878	7,293	6,794	19,316	14,546	12,010	8,920	8,459	5,520
Consumable income	7,137	8,234	8,194	8,413	6,949	6,450	18,310	13,709	11,221	8,406	8,039	5,229
Final income	10,154	10,647	9,914	9,996	8,371	7,505	18,199	15,384	12,942	10,155	9,743	6,525
Taxes												
Direct taxes	-321	-321	-91	-76	-63	-56	-1160	-707	-404	-148	-78	-446
Direct taxes, incl. informal tax	-395	-404	-175	-142	-107	-90	-1273	-805	-475	-199	-130	-474
Personal income tax	-229	-287	-47	-28	-28	-27	-839	-589	-355	-107	-52	-432
Business profit tax	-65	-12	-11	-9	-1	0	-222	-76	-33	-17	-15	0
Land use fee & agri income tax	-18	-15	-29	-36	-32	-28	0	0	0	0	0	0
Rental income tax	0	0	0	0	0	0	-37	-25	-15	-8	-9	-12
Informal tax	-8	-7	-4	-3	-1	-1	-62	-18	-2	-16	-2	-2
Other direct taxes	-74	-83	-84	-65	-44	-34	-113	-98	-71	-51	-52	-29
Indirect taxes	-406	-532	-423	-464	-336	-335	-1079	-907	-816	-562	-529	-339
VAT	-368	-460	-371	-415	-289	-284	-973	-825	-745	-508	-467	-284
Excise	-38	-72	-53	-49	-47	-52	-106	-82	-71	-54	-62	-55
Transfers												
Direct transfers	54	32	24	72	73	125	55	46	75	69	206	128
PSNP	44	28	20	64	63	100	34	34	59	47	138	90
Other transfers	10	4	5	8	11	25	21	12	16	22	67	38
Indirect subsidies	0	0	0	0	0	0	126	95	65	81	141	75
Kerosene subsidy	0.0	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.4	0.4
Wheat subsidy	-	-	-	-	-	-	126	95	65	81	141	74
In-kind transfers	3,315	2,212	1,932	1,766	1,567	1,160	2,080	2,503	2,150	2,176	1,972	1,454
Education	2,787	1,767	1,464	1,335	1,118	745	1,605	1,931	1,552	1,543	1,373	970
Primary school	391	1,137	1,217	1,097	963	699	795	894	949	1,010	1,154	841
Secondary school	2,396	630	246	237	155	45	810	1,037	603	533	220	129
Education copayments	-221	-260	-181	-147	-117	-69	-2130	-768	-409	-237	-185	-167
Health	527	444	468	431	449	416	475	572	598	633	599	484
Health copayments	-108	-50	-35	-37	-30	-37	-237	-93	-139	-195	-135	-48
Child budget	**3,369**	**2,243**	**1,957**	**1,838**	**1,641**	**1,286**	**2,136**	**2,549**	**2,225**	**2,245**	**2,178**	**1,582**

Incidence across child monetary poverty

Table 8 and Table 9 present fiscal incidence results across relative monetary poverty measures– consumption expenditure quintiles. The results parallel that of the multidimensional poverty measures presented in Table 6 and Table 7. In all scenarios, disposable and consumable income are lower than that of the pre-fiscal or market income, i.e., direct transfers and consumption subsidies did not fully compensate the effect of direct and indirect taxes. However, when in-kind transfers (government spending on education and health) are added, income increases across the board for all but children in the richest quintile.

Table 8. Fiscal incidence analysis across child monetary poverty by gender, 2018/19

	Relative monetary poverty: All children					Relative monetary poverty: Girls					Relative monetary poverty: Boys				
	Poorest	**Poor**	**Middle**	**Rich**	**Richest**	**Poorest**	**Poor**	**Middle**	**Rich**	**Richest**	**Poorest**	**Poor**	**Middle**	**Rich**	**Richest**
CEQ income concepts															
Market income	2,662	4,751	6,906	9,955	21,552	2,639	4,668	6,927	9,918	21,839	2,689	4,850	6,884	9,987	21,300
Disposable income	2,623	4,703	6,875	9,810	20,974	2,630	4,655	6,874	9,762	21,174	2,615	4,760	6,876	9,852	20,799
Consumable income	2,471	4,433	6,502	9,312	19,917	2,484	4,383	6,504	9,293	20,111	2,457	4,492	6,499	9,327	19,746
Final income	3,378	5,741	7,947	10,968	21,211	3,441	5,680	7,967	10,981	21,432	3,306	5,813	7,924	10,957	21,017
Taxes															
Direct taxes	-89	-96	-96	-153	-568	-59	-66	-105	-155	-636	-123	-133	-86	-151	-508
Direct taxes, incl. informal tax	-110	-133	-140	-222	-686	-80	-102	-149	-225	-761	-144	-170	-130	-219	-619
Personal income tax	-69	-68	-58	-94	-414	-39	-40	-64	-96	-456	-103	-101	-50	-92	-377
Business profit tax	0	-3	-8	-15	-91	0	-2	-13	-23	-118	0	-5	-4	-9	-68
Land use fee & agri income tax	-18	-23	-25	-28	-27	-18	-22	-24	-25	-23	-18	-24	-25	-31	-30
Rental income tax	-1	-1	-2	-6	-15	0	-1	-2	-6	-16	-1	-1	-2	-6	-13
Informal tax	-1	-1	-3	-10	-21	-1	-2	-1	-5	-23	-1	-1	-5	-13	-20
Other direct taxes	-21	-37	-44	-69	-118	-21	-36	-44	-70	-125	-22	-37	-44	-68	-111
Indirect taxes	-144	-263	-367	-508	-1114	-138	-265	-368	-491	-1139	-151	-261	-366	-522	-1092
VAT	-119	-221	-311	-445	-1015	-116	-225	-317	-432	-1041	-123	-217	-305	-456	-991
Excise	-25	-42	-56	-63	-100	-22	-40	-51	-59	-98	-28	-44	-60	-66	-101
Transfers															
Direct transfers	71	84	107	76	79	71	88	93	69	66	70	79	122	83	90
PSNP	54	72	88	59	64	57	77	72	55	58	51	66	105	62	69
Other transfers	16	12	19	18	15	14	12	22	14	8	19	12	17	21	21
Indirect subsidies	2	5	12	21	67	2	5	16	26	75	3	5	9	17	60
Kerosene subsidy	0.1	0.2	0.2	0.3	0.5	0.1	0.2	0.3	0.4	0.5	0.2	0.2	0.2	0.3	0.5
Wheat subsidy	2	5	12	21	67	2	5	15	25	74	3	5	8	17	60
In-kind transfers	981	1,433	1,594	1,934	2,335	1,025	1,416	1,674	2,016	2,368	931	1,453	1,507	1,863	2,306
Education	534	964	1,173	1,464	1,842	577	995	1,250	1,562	1,891	486	926	1,089	1,380	1,800
Primary school	517	850	940	1,116	1,153	560	859	904	1,092	1,159	467	840	979	1,137	1,147
Secondary school	17	113	233	348	690	16	136	346	470	731	19	87	111	243	653
Education copayments	-39	-87	-143	-237	-999	-43	-84	-163	-296	-1031	-34	-90	-122	-186	-970
Health	447	469	421	469	493	448	421	424	454	478	445	526	418	483	507
Health copayments	-36	-42	-53	-56	-120	-26	-41	-55	-51	-125	-49	-43	-51	-60	-116
Child budget	***1,052***	***1,517***	***1,701***	***2,010***	***2,414***	***1,097***	***1,504***	***1,768***	***2,086***	***2,434***	***1,002***	***1,532***	***1,630***	***1,945***	***2,397***

Table 9. Fiscal incidence analysis across child monetary poverty by location, 2018/19

	Relative monetary poverty: Rural					Relative monetary poverty: Urban				
	Poorest	**Poor**	**Middle**	**Rich**	**Richest**	**Poorest**	**Poor**	**Middle**	**Rich**	**Richest**
CEQ income concepts										
Market income	2,619	4,706	6,849	9,824	19,223	3,109	5,095	7,197	10,348	24,262
Disposable income	2,621	4,691	6,856	9,755	19,083	2,648	4,795	6,970	9,977	23,175
Consumable income	2,469	4,423	6,486	9,286	18,222	2,489	4,508	6,584	9,389	21,889
Final income	3,371	5,710	7,899	10,928	20,075	3,442	5,979	8,185	11,088	22,533
Taxes										
Direct taxes	-48	-69	-65	-82	-113	-508	-307	-251	-365	-1098
Direct taxes, incl. informal tax	-70	-105	-107	-149	-223	-530	-348	-305	-441	-1224
Personal income tax	-27	-40	-28	-33	-56	-500	-278	-205	-276	-831
Business profit tax	0	-2	-6	-6	-5	-1	-14	-21	-43	-191
Land use fee & agri income tax	-20	-26	-30	-38	-49	0	0	0	0	0
Rental income tax	0	0	0	0	0	-6	-12	-12	-24	-32
Informal tax	-1	-1	-1	-5	-2	-1	-3	-13	-23	-43
Other direct taxes	-21	-36	-43	-66	-110	-22	-42	-54	-75	-126
Indirect taxes	-142	-257	-354	-464	-887	-170	-310	-430	-639	-1378
VAT	-117	-215	-297	-403	-806	-142	-270	-383	-572	-1257
Excise	-25	-42	-57	-62	-81	-28	-39	-47	-67	-122
Transfers										
Direct transfers	71	89	114	78	82	65	49	74	71	75
PSNP	55	76	95	62	74	48	38	51	47	52
Other transfers	16	12	19	16	9	17	11	23	24	22
Indirect subsidies	0	0	0	0	1	25	42	72	84	145
Kerosene subsidy	0.1	0.2	0.2	0.4	0.7	0.3	0.2	0.1	0.2	0.3
Wheat subsidy	-	-	-	-	-	25	42	72	83	144
In-kind transfers	968	1,401	1,520	1,840	2,117	1,121	1,675	1,964	2,217	2,589
Education	529	951	1,125	1,390	1,677	590	1,057	1,414	1,687	2,035
Primary school	525	854	958	1,159	1,297	428	825	850	988	984
Secondary school	4	98	167	232	380	161	232	564	699	1,050
Education copayments	-36	-83	-127	-154	-229	-67	-121	-226	-486	-1895
Health	439	449	395	449	441	531	619	550	530	554
Health copayments	-30	-33	-33	-44	-38	-102	-109	-151	-93	-216
Child budget	***1,039***	***1,489***	***1,634***	***1,918***	***2,200***	***1,185***	***1,725***	***2,039***	***2,288***	***2,664***

4.2. The effect of the fiscal system on poverty and inequality

Understanding fully how fiscal policies affect poverty and inequality requires an analysis of the distributional effects of the full fiscal system, i.e., combining revenue-raising activities and public spending and transfers. Following the CEQ methodology, this can be achieved by determining poverty and inequality at different income categories (Lustig 2018), following individuals through the various steps the fiscal system (see also Figure 1). Table 10 and Table 11 show key statistics on monetary poverty and inequality for all four income concepts.

First, market income (pre-fiscal income) includes private market or non-market earnings – for instance, what families earn through employment (before tax), any pensions, or other income they may receive (remittances, interests on savings etc.). At this stage, we find 33% of children to live in monetary poverty, with poverty rates somewhat higher for girls than boys (36% versus 31%). Children in rural areas are significantly more likely to be poor than those in urban areas, with

poverty headcounts of 39% and 14%, respectively. Monetary inequality (as measured by the Theil index) is 0.32 for all children. Inequality is higher for girls and children in urban locations.

Second, disposable income can be derived by adding direct transfers (PSNP and Non-PSNP) and subtracting direct taxes (e.g., income tax, agriculture income tax and land use fee, property tax) from market income. Poverty headcounts remain broadly constant to those at market income, increasing by one percentage point for all children and those living in urban areas. This is partly due to the lack of progressivity in direct transfers: while direct taxes are overall progressive (tax burden increases as households are getting richer), direct transfers are the lowest for the poorest 20% of children and peak in the middle quintile. Monetary inequality decreases only slightly between market and disposable income.

Table 10: Monetary child poverty across income concepts, by gender and location, 2018/19

	Income concept	***All children***	***Girls***	***Boys***	***Rural***	***Urban***
Poverty headcount	Market income	0.33	0.36	0.31	0.39	0.14
		(0.004)	(0.006)	(0.006)	(0.005)	(0.005)
	Disposable income	0.34	0.36	0.31	0.39	0.15
		(0.004)	(0.006)	(0.006)	(0.005)	(0.005)
	Consumable income	0.36	0.39	0.34	0.42	0.17
		(0.004)	(0.006)	(0.006)	(0.005)	(0.005)
	Final income	0.26	0.27	0.24	0.30	0.12
		(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Poverty gap	Market income	0.12	0.12	0.11	0.14	0.04
		(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
	Disposable income	0.11	0.12	0.11	0.13	0.05
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
	Consumable income	0.13	0.14	0.12	0.15	0.05
		(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
	Final income	0.08	0.09	0.08	0.10	0.04
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Poverty severity	Market income	0.06	0.06	0.05	0.06	0.02
		(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
	Disposable income	0.05	0.06	0.05	0.06	0.02
		(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
	Consumable income	0.06	0.06	0.06	0.07	0.03
		(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
	Final income	0.04	0.04	0.04	0.04	0.02
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Note: Standard errors in parenthesis.

Third, consumable income adds indirect subsidies (kerosene and wheat subsidies) and subtract indirect taxes (VAT and excise). With indirect taxes significantly higher than direct taxes (although progressive), and indirect subsidies being both small as well as benefiting mostly richer households, the fiscal system up to this point leads to an increase in poverty headcounts across all groups included in this analysis. This results in a 9% increase of poverty headcounts (and 8% increase in the poverty gap) between market and consumable income. This increase is slightly more pronounced for boys than girls (10% vs. 8%). The highest increase in relative terms can be found in urban areas, where the poverty headcount increases by 21% and the poverty gap by 25% between market and consumable income. Also noteworthy is a significant increase of the poverty gap for girls (17% increase between market and consumable income). This contrasts to small decreases in monetary inequality for almost all groups, with an average decrease of the Theil index of 2.5%.

In other words, the combined effect of fiscal policies in Ethiopia (taxes and direct transfers) increases poverty among children when comparing market and consumable income. While this finding is similar to the observation made for the Kenya (Save the Children 2021), it is different in its effect on consumable income.[9]

Table 11*: Monetary child inequality across income concepts, by gender and location, 2018/19*

Income concept	***All children***	***Child sex***				***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
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.*

Finally, these combined effects do not incorporate benefits from education or healthcare, as those cannot be directly used to reduce monetary poverty. However, if we monetize the value of in-kind services in education and health and subtract co-payments and user fees (as done when computing the final income), those amount to the largest contributed to monetary child poverty, reducing the poverty headcount to 26% for all children. This represents a 21% decrease in the poverty headcount from market income to final income, and a 33% decrease of the poverty gap. The effect is even stronger for girls than boys (a decrease of 25% between market income and final income for girls,

[9] While comparable data for children is missing, we see a similar pattern for the whole population in only a small number of countries where CEQ assessments have been conduct (eg, Tanzania, Ghana). In contrast, the vast majority of CEQ assessments show poverty rates decreasing between market income and consumable income (see Commitment to Equity 2022)

compared to a 23% decrease for boys). Similarly, poverty rates decline relatively more significantly for children in rural areas (-23%) than those in urban areas (-14%). Those findings suggest that the overall fiscal system (including in-kind benefits) lead to convergence, i.e., reducing inequalities in poverty rates between boys and girls as well as rural and urban children. This is somewhat mirrored in the fiscal system's impact on monetary inequality: while monetary inequality for all children is decreasing between market income and final income by 17%, those decreases are more pronounced for girls over boys and rural children over their urban peers. As inequality was more pronounced between urban children, this slightly increases the relative gap between inequality in rural and urban areas.

In summary, this analysis suggests that the overall fiscal system is not well calibrated to reduce monetary poverty, with poverty rates increasing for all groups between market income and consumable income. Only the significant in-kind transfers for education and health result in a decrease in the poverty headcount at final income. This highlights not only the essential role of those public services to deliver on fundamental child rights, but also the importance of investments in education and health in their role to reduce poverty.

5. Conclusion

The study investigates children and the fiscal space in Ethiopia using the Commitment-to-Equity (CEQ) methodology. The analysis is based on 13,820 children (0-17 years old) from the 2018/19 Ethiopia Socioeconomic Survey. Individual and household level information collected from the survey is combined with budget figures and administrative data on programs and subsidies. The study then examines the burdens of taxation and the benefits from government transfers and spending in rural and urban settings, boys and girls, as well as poorer and richer children as well as the effect of these taxes and transfers on poverty and inequality.

The incidence analyses shows that the fiscal system the fiscal system on average is progressive mainly driven by direct taxes and indirect in-kind transfers. However, important differences in the distribution of some of the elements of taxes and transfers exist. For example, indirect taxes are regressive while public spending on primary education is by far the largest in-kind transfer and overall progressive across levels of child deprivation. Similarly, secondary education spending is regressive, while public spending on health care is progressive across all children. However, in rural areas spending on primary education and health is neutral, in sharp contrast to strong progressivity in urban areas. Regarding impacts on poverty and inequality, the fiscal system reduces poverty by 21% from market income to final income and poverty gap 33%. The effects are stronger for girls and children in rural areas than for boys and those living in urban areas. However, this is only the case once the significant in-kind transfers for education and health are considered. Poverty rates increase between market income and consumable income, meaning the overall fiscal system up to this point impoverishes both boys and girls. The findings in this study highlight that public services are not only essential in delivering fundamental child rights, but also in reducing poverty amongst children.

Child-focused fiscal incidence analyses provide essential insights on the distribution of taxes, direct transfers and public spending, and allow to better understand the impact of fiscal policies on poverty and inequality amongst children. These insights are relevant for a wide range of decision makers, including policy makers in local and national governments, international financing facilities and other multilateral organisation, as well as civil society organisations. Furthermore, indicators on both pro-poor public spending on social services as well as the distributive impacts of fiscal policies are now part of the global indicator framework for the Sustainable Development Goals (United Nations 2022). Finally, while this study offers an analysis of fiscal incidence in 2018/19, CEQ assessments can be used to simulate the effects of potential policy interventions, offer an important toolkit to assess the poverty and inequality effects of new policy proposals.

References

Ajwad, M. I., & Wodon, Q. (2007). Do local Governments maximize access rates to public services across areas?. A test based on marginal benefit incidence analysis. *Quarterly Review of Economics and Finance*, *47*(2), 242–260. https://doi.org/10.1016/j.qref.2006.05.005

Alkire, S., & Foster, J. (2011). Counting and Multidimensional Poverty Measurement. *Journal of Public Economics*, *95*, 476–487.

Alkire, S., & Santos, M. E. (2013). A Multidimensional Approach: Poverty Measurement and Beyond. *Social Indicators Research*, *112*(2), 239–257. https://doi.org/10.1007/s11205-013-0257-3

Alkire, S., & Santos, M. E. (2014). Measuring Acute Poverty in the Developing World: Robustness and Scope of the Multidimensional Poverty Index. *World Development*, *59*, 251–274. https://doi.org/10.1016/j.worlddev.2014.01.026

Ambel, A.A., Tesfaye, W.M. &Yonis, M.B. (2022). A Gendered Fiscal Incidence Analysis for Ethiopia : Evidence from Individual-Level Data (English). Policy Research working paper ; no. WPS 10130 Washington, D.C. : World Bank Group http://documents.worldbank.org/curated/en/099455107262215691/IDU0d077d06b03a97049080ae2b0107c93e09591

Apablaza, M., & Yalonetzky, G. (2012). Measuring the dynamics of multiple deprivations among children: the cases of Andhra Pradesh, Ethiopia, Peru and Vietnam. *OPHI Research Paper 26a, Oxford University*.

Belete, G. Y. (2021). Children's multidimensional deprivation, monetary poverty and undernutrition in Ethiopia. *Review of Economics of the Household*. https://doi.org/10.1007/s11150-021-09568-5

Belete, G. Y., Menon, M., & Perali, F. (2019). Children's Resources and Welfare in Male-headed and Single-mother Households: A Collective Consumption Evidence from Ethiopia. *Paper Presented at the Special IARIW-World Bank Conference "New Approaches to Defining and Measuring Poverty in a Growing World" Washington, DC, November 7-8*.

Brown, C., Ravallion, M., & Van de Walle, D. (2017). Are Poor Individuals Mainly Found in Poor Households? Evidence Using Nutrition Data for Africa. *NBER Working Paper No. 24047*. https://doi.org/doi:10.1596/1813-9450-8001

Browning, M., Chiappori, P.-A., & Lewbel, A. (2013). Estimating consumption economies of scale, adult equivalence scales, and household bargaining power. *Review of Economic Studies*, *80*(4), 1267–1303. https://doi.org/10.1093/restud/rdt019

Bruck, T., & Kebede, S. W. (2013). Dynamics and Drivers of Consumption and Multidimensional Poverty: Evidence from Rural Ethiopia. *DIW Berlin Discussion Papers No. 1287*.

Calvi, R., Penglase, J., Tommasi, D., & Wolf, A. (2020). The More the Poorer? Resource Sharing and Scale Economies in Large Families. *IZA Discussion Paper No. 13948*.

Cuesta, J., Jellema, J., & Ferrone, L. (2021). *Fiscal Policy, Multidimensional Poverty, and Equity in Uganda: A Child-Lens Analysis*. *European Journal of Development Research* (Vol. 33). Palgrave Macmillan UK. https://doi.org/10.1057/s41287-020-00283-y

Davoodi, H. R., Tiongson, E. R., & Asawanuchit, S. S. (2010). Benefit Incidence of Public Education and Health Spending Worldwide: Evidence From A New Database. *Poverty & Public Policy*, *2*(2), 191–238. https://doi.org/10.2202/1944-2858.1055

Dunbar, B. G. R., Lewbel, A., Pendakur, K., Dunbar, G. R., Lewbel, A., Pendakur, K., & College, B. (2013). Children's Resources in Collective Households: Identification, Estimation, and an Application to Child Poverty in Malawi. *American Economic Review*, *103*(1), 438–471.

Foster, J., Greer, J., & Thorbecke, E. (1984). A class of decomposable poverty measures. *Econometrica*, *52*(3), 761–766.

Gafar, J. (2006). The benefit-incidence of public spending: The Caribbean experience. *Journal of International Development*, *18*(4), 449–468. https://doi.org/10.1002/jid.1233

Gordon, D., Nandy, S., Pantazis, C., Pemberton, S., & Townsend, P. (2003). *Child Poverty in the Developing World*. Bristol: The Policy Press and Townsend Centre for International Poverty Research.

Hill, R., Inchauste, G., Lustig, N., Tsehaye, E., & Woldehanna, T. (2017). A Fiscal Incidence Analysis for Ethiopia. *CEQ Working Paper 41*.

Inchauste, G., & Lustig, N. (2017). *The Distributional Impact of Taxes and Transfers: Evidence From Eight Developing Countries*. (G. Nchauste & N. Lustig, Eds.). Washington, D.C.: The World Bank. https://doi.org/10.1596/978-1-4648-1091-6

Lassibille, G., & Tan, J. (2007). Benefit Incidence Analysis in Education. *Journal of Education Finance*, *33*(2), 170–182.

Lustig, N. (2018). *Commitment to Equity Handbook: Estimating the Impact of Fiscal Policy on In equality and Poverty*. (N. Lustig, Ed.). Washington, D.C.: The Brookings Institution.

Mogues, T. (2013). The reach of rural services in Ethiopia: An asset and gender-based public expenditure benefit incidence analysis. *European Journal of Development Research*, *25*(2), 230–251. https://doi.org/10.1057/ejdr.2013.2

Save. (2021). *Fairs shares? Fiscal equity for children in Kenya*. *The Save the Children Fund*. London. https://doi.org/10.7765/9781847792198.00011

Annex 1: Fiscal incidence: taxes and transfers as percent of market income by child deprivation status

Figure A1a. Fiscal incidence: All children

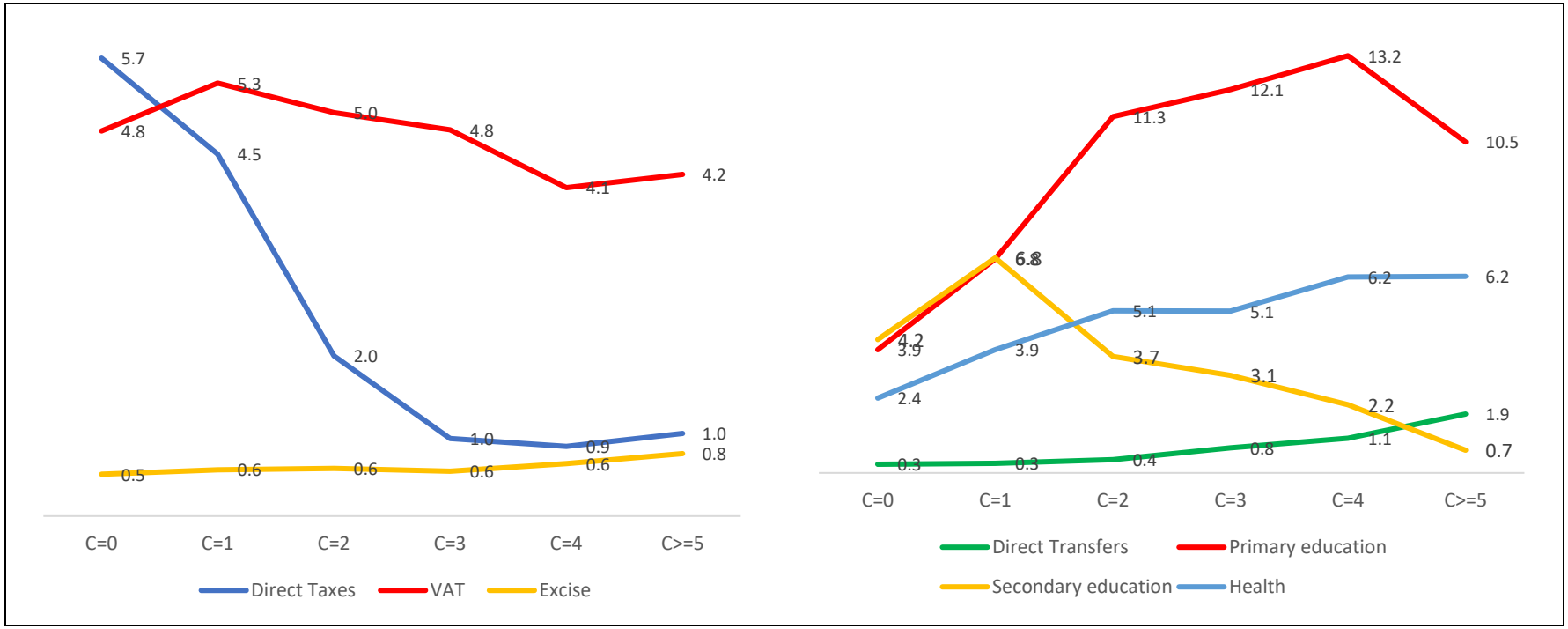


Figure A1b. Fiscal incidence: Boys Vs. Girls

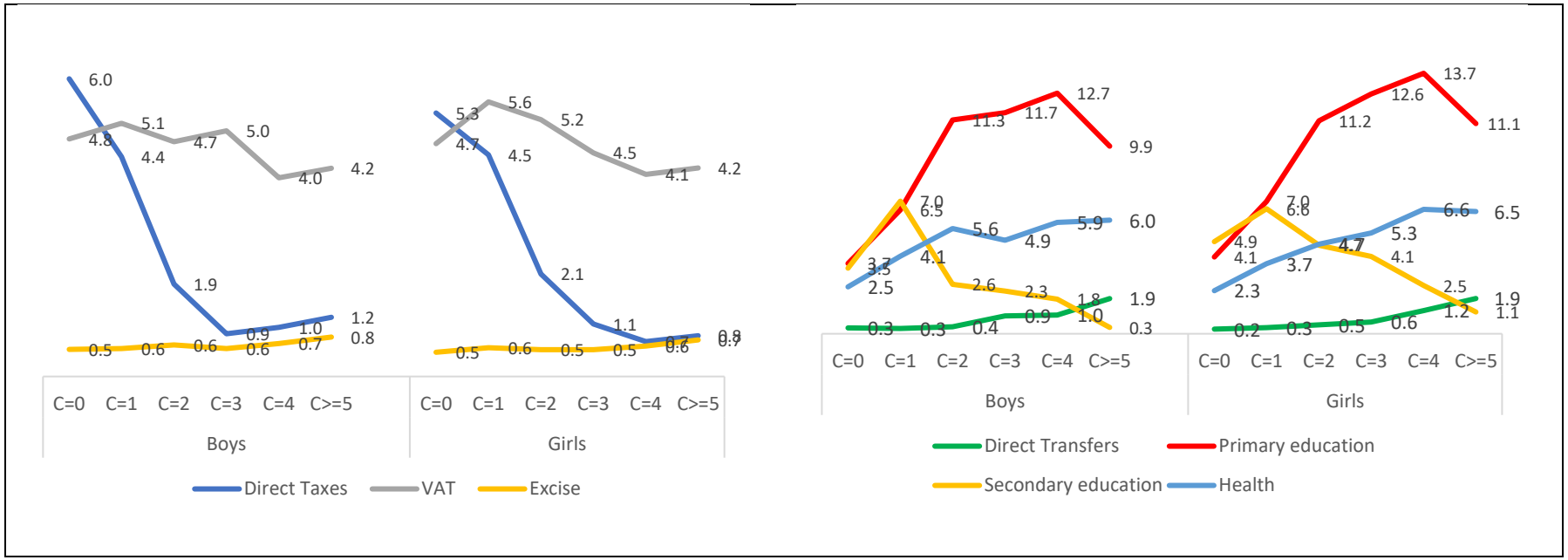


Figure A1c. Fiscal incidence: Rural Vs. Urban