

Policy Brief

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Fiscal Interventions and Welfare in Ghana: A CEQ Assessment using Ghana Living Standards Survey (round 7)

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Introduction

Ghana experienced a relatively high and steady economic growth of over 6% on average from 2005 to 2017 (World Development Indicators, 2022). However, the benefits from this high growth have not been equitably distributed (Ankomah *et al.*, 2020; GSS, 2018; Cooke, Hague, and McKay, 2016). This situation has the potential to undermine the extent of poverty reduction and welfare improvement that could result from the high economic growth (GSS, 2018). Indeed, the trend in poverty rates shows a declining rate of poverty reduction while inequality has been rising (GSS, 2018; Atta-Ankomah *et al.* 2020).

The fact that any government is a major (or the most important) agent in ensuring that economic growth yields significant welfare gains in terms of improvement in income distribution and poverty reduction cannot be overemphasized. This is because governments exert enormous control in any economy particularly through fiscal (tax and spending) policy measures. The nature of these policy measures can undermine inclusive growth and can directly or indirectly lead to major changes in welfare outcomes both in the short and long term (Estrada *et al.* 2014; Lustig, 2016; Aguilar *et al.* 2017). This brings to the fore the need to investigate in a comprehensive manner, the extent to which various government's spending and taxation instruments independently or together impact on poverty and inequality. An analysis such as is done in this study, provides evidence on key factors that promote or limit the redistribution and poverty reduction effect of government's fiscals. Ultimately, the evidence from the analysis can be utilized to ensure that government's policy decisions and interventions are not only efficient and effective but also prioritize equity across the various population segments within the country.

By applying the Commitment to Equity (CEQ) framework for incidence analyses of government fiscals, developed by the CEQ Institute, this study examines and quantifies the extent to which a range of taxes (both direct and indirect), government subsidies and social spending affect poverty and inequality in Ghana.

In particular, this study sheds light on three important issues, namely: (1) How much income redistribution and poverty reduction were accomplished in 2016/17 through fiscal policy? (2) How pro-poor were specific taxes and government spending in 2016/17? (3) To what extent do recent fiscal reforms programmes like the free secondary school policy (Free SHS policy) and the COVID-19 relief interventions on electricity and water impact poverty and inequality?

Methodology

The analysis in this study follows the CEQ assessment framework, developed by the CEQ Institute and presented in the CEQ Handbook (Lustig, 2018). Unlike other approaches for fiscal incidence analysis which are only amenable for conducting incidence analysis for a specific tax or expenditure, the CEQ assessment framework can accommodate as many fiscal policy elements as possible at the same time and provide a comprehensive analysis of their redistributive impact (Lustig, 2018). This is made possible by allotting the benefits from the various fiscal interventions and government programmes to individuals and/or households enlisted in a micro-level socio economic survey and comparing various income concepts in the CEQ building blocks of fiscal incidence analysis.

The CEQ approach deals with several income concepts beginning with market income. Each successive income concept is generated by adding or subtracting an element of the fiscal system in a stepwise manner, and after each step, the measures of poverty, inequality and progressivity are computed to determine the influence of the relevant fiscal instrument(s) on welfare as well as the incidence of the policy instrument(s). The concepts are defined or derived as follows:

- **Market income** includes all earned and unearned income before government transfers and receipts from contributory pensions; thus, it is income before any government influence through taxes and expenditures.
- **Net market income** refers to the cash income available after the government has deducted direct

taxes such as personal income tax from pre-fiscal (i.e. market) income.

- **Disposable income** is constructed by adding direct transfers (e.g. LEAP) to net market income.
- To consider the independent influence of direct transfers, we construct **gross income** by adding direct transfers to the pre-fiscal (i.e. market) income.
- **Consumable income** is constructed by adding indirect subsidies to disposable income and then deducting indirect taxes such as value added tax (VAT), import duties, and excise taxes.
- Lastly, adding the value of in-kind government transfers in the form of free or subsidized services (such as health and education), less any user fees paid for those services, to consumable income leads to **final income**.

The seventh and most recent round of the GLSS conducted in 2016/17, as well as administrative tax and expenditure data from 2017 fiscal year were used. These data sources enabled us to compute values for the various tax and expenditure items and attribute them to the beneficiary households.

We used the concentration index to explore the incidence of each fiscal policy instrument. The concentration index ranges from -1 to 1 with '-1' indicating that a tax or expenditure falls only on the poorest person. Zero (0) means that a tax or expenditure is distributed evenly across the population whereas '1' indicates that a tax or expenditure falls only on the richest person. For the poor to benefit, government expenditure should have more negative concentration coefficients while taxes have more positive concentration coefficients.

Limitations of the Methodology

Although CEQ methodology is considered robust for fiscal incidence analysis when compared to other existing methods, some important limitations must be borne in mind when interpreting results from a CEQ assessment:

First, the analysis excludes some important categories of taxes and spending such as spending on infrastructure, defence, other public goods, and corporate income taxes. This is because, the existing methodology does not allow one to assign benefits from these interventions to individuals or households.

Second, CEQ assessment provides a point-in-time analysis of the fiscal effects and hence, it does not

incorporate behavioural or general equilibrium effects. This limits the analysis in three main ways: (1) It cannot inform trade-offs between spending on transfers to alleviate poverty in the present and investments in physical and human capital that could translate into positive welfare outcomes in the future through higher economic growth; (2) The analysis cannot measure the redistributive role of pensions in an intertemporal framework – this is important to determine the true redistributive impact of pensions; (3) The analysis ignores the behavioural responses that taxes and transfers trigger. In other words, it does not capture the distributional impact of behavioural changes induced by any specific tax or spending policy. This may have important implications for trade-offs in terms of efficiency, effectiveness and sustainability of the fiscal redistribution impacts.

Third, in CEQ assessments, in-kind benefits from free government services in education and health are valued at the average cost of provision, ignoring the cost associated with poor quality services and waste.

Lastly, a CEQ assessment does not necessarily offer a comprehensive analysis of whether some specific taxes or expenditures are desirable. Thus, the fact that a CEQ assessment indicates that a given tax or expenditure is more progressive than another does not necessarily suggest that the former is preferable to the latter. The results of the assessment are only one input into public policymaking and must be weighed against other evidence before deciding on whether a tax or transfer is desirable.

Key Findings

The following are the main findings from the study.

- *Overall fiscal policy in 2017 was skewed towards reducing poverty, but this was mainly driven by in-kind benefits associated with public spending on health and more so education.*

Moving across the various income types has different effects on headcount and the poverty gap indices in the 2017 fiscal year (see Table 1). For example, the headcount ratios and poverty gap indices at disposable income were slightly lower than those at market income for both the upper and lower national poverty lines. This reflects the importance of direct transfers through the LEAP and the school feeding programs. From disposable income to consumable income, one observes higher poverty rates mainly due to

indirect taxes. The increasing effect of indirect taxes on 2017 was only 0.1 percentage points higher than in

Income concept	Gini (%)	Poverty line at GHC 984.16 per year		Poverty line at GHC 1760.76 per year		US\$1.25	US\$2.50	US\$4.00
		Headcount Index (%)	Poverty Gap (%)	Headcount Index (%)	Poverty Gap (%)	per day at PPP	per day at PPP	per day at PPP
				Headcount Index (%)	Poverty Gap (%)	Headcount Index (%)	Headcount Index (%)	Headcount Index (%)
Market Income + Pensions	43.63	8.67	3.16	23.56	8.77	9.82	29.80	51.75
Market Income	44.99	8.89	3.31	23.75	8.95	10.02	30.02	51.88
Gross Income	43.32	8.17	2.73	23.10	8.29	9.15	29.43	51.62
Net Market Income	41.96	8.70	3.18	23.89	8.85	9.86	30.27	52.97
Disposable Income	41.64	8.19	2.75	23.41	8.37	9.19	29.89	52.83
Disposable Income + Indirect Subsidies	41.55	7.82	2.61	22.76	8.06	8.92	29.20	51.91
Disposal income - Indirect Taxes	41.29	9.11	3.11	25.70	9.28	10.51	32.22	55.77
Consumable Income	41.20	8.77	2.96	24.82	8.94	10.04	31.40	54.84
Consumable Income + In-Kind Education	39.12	5.53	1.52	20.20	6.29	6.67	27.20	51.94
Final Income	39.05	4.29	1.13	16.69	5.02	5.13	22.65	45.89

Note: Data in the columns with US\$ poverty lines at PPP are for per capita incomes to be comparable to other CEQ analyses; those in the columns with cedi poverty lines are per adult equivalent to be comparable to GSS publications.

poverty rates is even higher at the international poverty lines: They increased poverty rate by 1.32 percentage points, 2.33 percentage points and 2.9 percentage points at the US\$1.25/day, US\$2.50/day and US\$4.00/day poverty lines. However, transition from consumable to final income shows a substantial reduction in the poverty rates at the national poverty lines and at all the international poverty lines. Poverty rates reduced by 4.48 percentage points and 8.13 percentage points at the lower and upper poverty lines. Without this, poverty rates would have increased when compared to the rates at the pre-fiscal income.

- *There was less reduction in extreme poverty (i.e. poverty rates at lower poverty line) than the rates at the upper poverty line across the various income concepts between 2013 and 2017.*

The overall impact of fiscal policy on poverty in Ghana in 2017 fiscal year was slightly better than that of the overall fiscal policy in 2013 (reported by Younger *et al.* 2017). For the upper poverty line, for example, there was about 2 percentage points further reduction in 2017 than what was reported in 2013. However, reduction in poverty at the lower poverty line was negligible compared to the reduction in 2013 (The reduction in

2013).

Table 1: Gini Coefficients and Poverty indices

- *The extent to which government's fiscal policies together benefit "the poor" compared to "the rich" has increased between 2012/2013 and 2016/2017.*

Final income has a Gini of 39.05 percent, 4.6 percentage points lower than the Gini for market income plus pensions, indicating that the government fiscal policies together had a decreasing effect on inequality. The overall redistributive effect was even higher when considering movement from market income to final income, with Gini decreasing by 5.94 percentage points. This is close to the average difference (6.3 percentage points) we computed for 23 CEQ assessments in 20 lower-middle income countries including the previous assessment for Ghana, conducted by Younger *et al.* (2017). Results for 16 African countries in 19 CEQ assessments show an average difference of around 8.59 percentage points, and this is over 2 percentage points higher than the result for Ghana in 2017. Ghana's last CEQ assessment using the 2012/13 GLSS-6 survey reported a 3.5 percentage points reduction in Gini over the same income concepts (Younger *et al.* 2017).

- *Consistent with the decrease in Gini between market income (plus pensions) and final income,*

all the other income concepts portray a decreasing (but generally marginal) effect of government taxation and expenditure on inequality.

The transition from consumable income to final income (where the distributional impact of subsidized in-kind education and health services are dealt with) rather showed a relatively high reduction in inequality, with in-kind education being the main driver of this decrease. We obtained a 2.08 percentage point decrease, nearly same in magnitude as what was reported by Younger et al. (2017). The next higher reduction in inequality is observed by transitioning from market income to gross income, where the Gini coefficient reduces by 1.67 percentage points. This implies that direct transfers (in particular, LEAP and school feeding) have a decreasing effect on inequality. Furthermore, the tiered structure of direct tax rates in Ghana (particularly, those relating to PAYE) seems to have a reducing effect on inequality as the Gini coefficient is observed to decrease by 1.36 percentage points due to transition from gross income to net income. Also, the transition from disposable income to consumable income further reduces inequality but very marginally (by 0.44 percentage points). A disaggregation of this effect by indirect taxes and indirect subsidies, as observed in Table 1, shows that the decrease in Gini from disposable income to consumable income is largely driven by indirect taxes rather than indirect subsidies (which comprises of electricity and fertilizer subsidies).

Cui Bono – The Incidence of Specific Tax and Expenditure Items

To explore the incidence of the various fiscal instruments, the concentration coefficients were computed over the pre-fiscal income (i.e., market income plus pensions). As already indicated, for the poor to benefit, fiscal instruments in the form of expenditures must have more negative concentration coefficients while the reverse is true for taxes. In what follows, we present a summary of the incidence of the major fiscal measures.

- *Pensions including retirement benefits are regressive but other transfers such as LEAP and school feeding programme are progressive.*

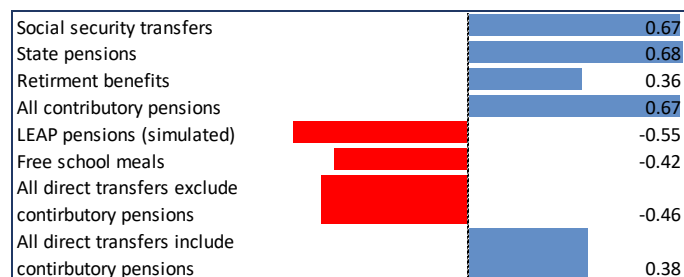


Figure 1: Concentration coefficients for pensions and direct transfers over market income plus pensions

While pensions are regressive, LEAP transfers and school feeding programme are found to be progressive (Figure 1). The regressiveness of pensions is not surprising given that pensions and SSNIT are mainly for formal sector workers who on average receive higher pay than those in the informal sector. Ghana's concentration index for all contributory pensions (0.67) is very close to the average for lower-middle income countries and has reduced by only 0.04 from what was reported by Younger et al. (2017) using the GLSS 6 survey.

Interestingly, comparison between a concentration index of negative 0.55 for LEAP as reported in this study and the negative 0.29 obtained by Younger et al. (2017) using GLSS 6 indicates that the incidence of LEAP on the poor has deepened recently while a similar comparison for school feeding program shows virtually no improvement. However, an earlier study (Joseph and Wodon, 2012) on school feeding which utilized the GLSS 5 found a concentration coefficient of 0.126, compared to the negative 0.42 reported for this study. The results from the recent GLSS therefore indicate that the programme has significantly improved on its coverage in recent years, and it is important for government to resolve perennial challenge of late and irregular payment to caterers who provide the meals (Sanogo and Lee, 2019).

- *Direct taxes are highly progressive.*

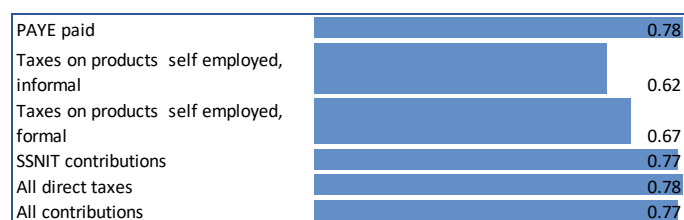


Figure 2: Concentration coefficients for direct taxes over market income plus pensions

Ghana's personal income tax (PAYE) system is highly progressive with a concentration index of 0.78 (Figure 2). This is partly due to the progressive nature of the tax structure coupled with the fact that only those in the formal sector usually pay this tax. Also, taxes on products of the self-employed in both formal and informal sector enterprises are also highly progressive with a concentrated index of 0.62 and 0.67 respectively. The study by Younger *et al.* (2017) also reported a positive concentration index for tax on products of self-employment but with slightly higher indices (0.796 and 0.664 for products for formal and informal sector enterprises, respectively).

- *Subsidies on electricity are regressive but fertilizers are almost evenly distributed*

Fertilizer subsidy appears to be almost evenly distributed with a near zero concentration coefficient.

Although Ghana operates a tiered electricity tariff structure, which is intended to offer relatively higher subsidies to poor (or lifeline) consumers, subsidies on electricity have a positive concentration coefficient of 0.42, making them regressive (Figure 3). While the current result for Ghana's electricity subsidy is slightly less regressive, compared to its last CEQ assessment (which reported a positive 0.47), it comes second after Tanzania (which has a concentration coefficient of 0.68), among 11 lower-middle income countries that provide data on the electricity subsidies for their CEQ assessments. A potentially good reason for why electricity subsidies are regressive in Ghana is that many poor households in Ghana live in shared compound houses where access to electricity is based on shared metering. Consequently, although each household's consumption may be within the lifeline band, the aggregated units of consumption recorded on the shared meter could be way above the lifeline bands. This situation culminates in poor households paying more for electricity and losing out on critical government subsidies.

Electricity subsidy	0.42
Fertilizer subsidy	-0.05
All direct subsidies	0.36

Figure 3: Concentration coefficients for electricity and fertilizer subsidies over market income plus pensions

- *Indirect taxes especially those relating to excise taxes are unusually progressive except for tobacco products*

VAT direct effect	0.48
VAT indirect effect	0.42
Import duties direct effect	0.44
Import duties indirect effect	0.44
Diesel excise direct effect	0.79
Petrol excise direct effect	0.68
Petrol excise indirect effect	0.47
Kerosine excise	0.21
Soda excise	0.55
Malt excise	0.57
Beer excise	0.59
Spirit excise	0.43
Tobacco excise	-0.22
Communication service excise	0.51
All indirect taxes	0.47

Figure 4: Concentration coefficients for indirect taxes over market income plus pensions

An unexpected result is the progressivity of a number of excise taxes including those on petroleum products (especially, diesel and petrol); beverages (soda, non-alcoholic malt drinks and beer), and communication services (Figure 4). Here, it is important to reiterate the point that this analysis does not capture the distributional impact of any cascading effects that the indirect taxes (example, on petroleum taxes) may have on prices of goods and services such as transportation and food. This means that for items such as petroleum products, of which many poor households do not consume directly, the actual burden of taxes on them may have direr consequences for poor households than non-poor households, if one is able to capture the indirect or cascading effects driven behavioural changes in the analysis.

Indirect taxes in the form of import duties, excise on spirits are less progressive, but that on tobacco is clearly regressive (Figure 4).

- *The combined net benefits of public education expenditure is progressive but that for health appears evenly distributed.*

Both in-patient and out-patient health expenditures have nearly zero concentration coefficient, making them quite equitable (Figure 5).

On the other hand, public expenditure on education is progressive at the pre-school, primary school and junior secondary or junior high school (JSS/JHS) levels

while expenditure on senior secondary/senior high school (SSS/JSS) is relatively less progressive (Figure 5). However, tertiary education is concentrated far more among the rich than the poor. Our results on the progressiveness of education at the lower levels can be attributed to the high patronage of private basic schools by richer households, probably due to relatively low investment and poor-quality service delivery in the public schools, leaving the benefits of public education expenditure to be concentrated among the poor.

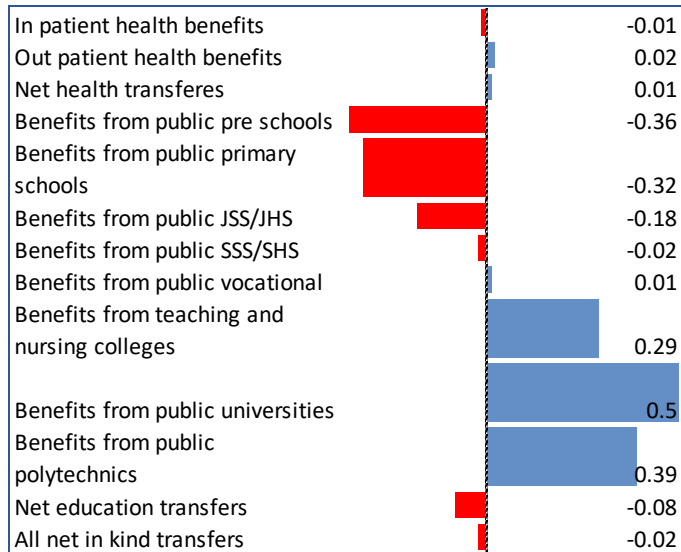


Figure 5: Concentration coefficients for public education expenditures over market income plus pensions

While similar results were obtained for Ghana by Younger *et al.* (2017) in a CEQ assessment using the GLSS 6 survey, it is important to note that the current estimates show that higher levels of education are now relatively less regressive, suggesting a marginal increase in access to higher education by the poor.

Policy simulations

Here, we present summary results from simulation analysis on the ‘morning-after’ effects (i.e. when behavioural changes are ignored) of the COVID-19 related utility subsidies and free SHS policy. To provide context, we first provide a brief description of each policy, followed by the key results from the simulation analysis.

■ Distributional effect of Free SHS policy

To provide equal opportunities for all students through the removal of cost barriers, the Free SHS was

implemented in 2017/2018 academic year. In particular, students in SHS were to benefit from free fees relating to tuition, PTA dues, uniforms, books, boarding and lodging. By the 2020/2021 academic year, all students in SHS were fully covered. In assigning benefits, we allocated to each SHS student in the GLSS-7 a benefit which equals the average expenditure made by government per student.

The key results from the simulations are as follows:

- *The Free SHS Policy has a reducing effect on both poverty and inequality, but it is less progressive compared to when there is no free SHS policy.*

The results of the simulation using the Free SHS policy indicate that in the short term (and without incorporating any behavioural response to the policy) poverty rates reduced marginally by 0.07 percentage points and 0.22 percentage points at the national lower and upper poverty lines respectively while the Gini Coefficient reduced by 0.10 percentage points compared to when households bore some education expenses. However, the Free-SHS policy is less progressive, compared to when there is no Free SHS. This is to be expected given the universal nature of the policy, where no form of targeting is considered, coupled with the fact that richer households may have higher access to secondary education than the poor at the time the policy started. This result, however, comes with a strong caveat that the analysis is static and does not incorporate behavioural responses which may reflect in increased access or enrolment rates for the poor.

■ Distributional effect of COVID-19 utility subsidies

At the peak of the covid 19 pandemic, life-line consumers of electricity paid no bills for 9 months while all other consumers enjoyed 50% absorption of their electricity bills for 3 months. Water subsidies were at 100% absorption for all domestic and commercial consumers for 6 months. Among other things, these subsidies were meant to provide relief for households for lost income. In assigning benefits to households, we assumed that these subsidies went to only households which had access to and/or were paying for piped water and electricity as of 2017 when the GLSS 7 data was collected.

- *The combined effect of the water and electricity subsidies during the COVID reduced poverty rates. However, they appear to have virtually no effect on inequality and are both regressive.*

Both the water and electricity subsidy are found to reduce the headcount poverty. However, inequality increases after the water subsidy and reduces marginally after the electricity subsidy leaving the net effect to be nearly neutral.

The increased inequality effect for water is likely due to its blanket implementation without any targeting. In terms of progressivity, not much seems to have been achieved: the covid-19 electricity and water interventions were not progressive, with that of water being slightly more regressive. This seems to corroborate the idea that the rich tend to have higher access to basic household utilities (such as water and electricity) which allow them to benefit more from the subsidies.

Conclusion and Policy Implications

Generally, direct taxes and transfers reduce inequality and have near zero effect on poverty. Indirect taxes reduce inequality, but increase poverty, while public spending on education is pro-poor.

Based on the findings, we provide the key recommendations by the different types of taxes and expenditures:

Finding 1 – Indirect subsidies on electricity are regressive

- A revision of the tariff structure based on a comprehensive profiling of consumers might be helpful.
- Alternatively, a greater redistribution of welfare through electricity subsidy can be achieved by making electricity meters available to individual households who live in shared compound dwellings.
- In addition, government should increase the pace of rural electrification exercise to ensure greater access for poor households in rural communities.

Finding 2 – Except for some excise taxes, direct taxes are more progressive than indirect taxes.

- This lends support to the need to expand the tax net for direct taxes by significantly reducing the large size of Ghana's informal economy.

Finding 3 – The existing social policies such as LEAP and school feeding are pro-poor

- We recommend the continuous expansion of these social protection policies to cover more beneficiaries.

Finding 4 – Expenditure at the post-secondary levels tend to be more regressive while expenditure at secondary level is highly less progressive than at the basic level

- Government should continue with subsidies or expenditure on basic education while ensuring high quality service provision at all levels.
- Also, given that the current estimates suggest that higher levels of education are now less regressive (suggesting a broadly increased access to higher education), it is important that while increasing access to basic education for all, we need to start recalibrating the thinking with respect to higher education.
- Generally, expenditure on educational levels beyond basic education should be well targeted.

Finding 5 – Transfers and subsidy programs that have some elements of targeting (e.g., LEAP, and to some extent Covid-19 electricity subsidy) are more progressive compared to those without any form of targeting (e.g., our simulated Free-SHS benefits and Covid-19 water subsidy)

- As much as possible, every government subsidy on the provision of social services should incorporate a targeting framework to allow the poor to benefit more and help improve income distribution, especially if the existing institutional

structure by which the subsidy or expenditure is administered would allow the nonpoor to appropriate more of the benefits.

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