README for the Reproducibility Package for *Fiscal Policy and Gender Equity: Insights from Multi-Country Fiscal Incidence Analysis*

Overview

Fiscal policy is often treated as gender-neutral, yet its effects are deeply gendered. This paper synthesizes engendered CEQ studies from sixteen countries and applies a new harmonized typology to three countries to show how tax and transfer systems interact with women's work, care responsibilities, and household structures. The goal is to move beyond gender labels in budgets and identify which fiscal mechanisms reduce gendered poverty risks, and which reinforce them. This paper reveals systematic mechanisms and insights through which fiscal systems shape gender gaps in poverty. These patterns arise not only from the design of tax and transfer instruments but also from who interacts with them and who is excluded. The following key findings emerge.

- Finding 1: Taxes and transfers rarely close gender gaps in poverty and often maintain or widen them. Across the studies, female-led households consistently start with higher pre-fiscal poverty than male-led households, reflecting lower labor-force participation, higher informality, and weaker earnings. In many cases, taxes and transfers either leave these gaps broadly unchanged or widen them. Where gaps narrow, it is often because both household types become poorer, with male-led households losing slightly more. Existing tax and transfer systems rarely close pre-fiscal gender gaps in poverty.
- Finding 2: Women's lighter direct tax burdens reflect exclusion from formal economic opportunities and contributory systems, not protection. Women frequently pay less PIT and social security contributions than men, but this is primarily because they are absent from the formal tax base. High informality, irregular employment, and concentration in low-wage or unpaid care roles keep many women outside the jobs that deliver contributory pensions and insurance. Women may appear better off in the short term by not paying PIT, but they lose much more over the lifecycle by not accumulating social insurance entitlements.
- Finding 3: The joint incidence of indirect taxes and subsidies disproportionally affect women. To offset this burden, the composition and scale of fiscal spending matter more than the effectiveness of targeting rules. Indirect taxes tend to place a higher burden on households with children and other dependents, which have higher consumption needs relative to income and are more likely to be sustained by women. To offset this burden, governments typically use direct transfers. To reduce poverty for women-led and care-intensive households, transfers need to be sizable in spending and aligned with lifecycle risks, not necessarily those with the most precise targeting formulas. Small, well-targeted programs deliver modest aggregate impacts when they are dominated by indirect taxes. The harmonized typology confirms that transfers can reduce poverty for the most vulnerable single-adult caregivers, but their effect is often offset by indirect taxes for larger working-age households.
- Finding 4: Households with elderly members tend to be better protected than households with children. In countries with substantial non-contributory pensions, elderly-only households tend to have less negative net cash positions and stronger poverty reduction than child-centered households. The latter face higher consumption needs subject to indirect taxes, reduced earnings due to care responsibilities, and relatively small benefits. This configuration

reinforces gender inequalities because women shoulder most unpaid care and are overrepresented in households with young dependents that receive limited fiscal support.

- Finding 5: Household structure, not headship, is the critical determinant of gendered fiscal incidence. Earner configuration, formality, and the presence and type of dependents generate larger differences in fiscal outcomes than whether a household is labeled female- or male-headed. The harmonized typology shows that single-adult caregivers, especially women with no earners, face the greatest vulnerability but also gain most from modest, well-designed transfers in the countries studied. Multi-adult households are differentiated more by the mix of formal and informal earners and the presence of children or elderly members than by the gender of the dominant earner, suggesting that social protection design could more explicitly incorporate household structure and care roles.

Data Availability Statement

Dataset Name	File Name(s)	Observations	Access Date	Data Access
Kenya CEQ output based on Continuous Household Survey (KCHS) 2022	KCHS2022_KEN_FIA.dta	The original raw data is publicly available (https://statistics.knbs.or.ke/nada/index.php/catalog/131).[1] The processed dataset, included in the reproducibility package was generated by a World Bank team. The complete set of variables is included in variable_list_kenya.csv	February, 2025	Limited
Bulgaria CEQ output based on SILC Bulgaria 2020	BGR20WBN_childp_Aug9_2023.dta	Restricted data. The datasets used in this analysis are not publicly available due to data privacy restrictions. These data were specifically processed for the study: *Robayo-Abril, M., & Cabrera, M. (2024)*. All the results in the paper use confidential microdata from the Bulgaria National SILC 2020 and HBS data 2021. The Bulgaria Poverty team has an existing agreement with the Bulgaria NSI for restricted data access for members included in specific research proposals and who have signed confidentiality declarations. Access to the national SILC and HBS data is based on an approval process, a detailed research proposal, confidentiality agreements signed by each team member, and some standard forms sent by the NSI. License terms are covered here: https://www.nsi.bg/en/content/14843/basic-page/license-use-statistical-information-produced-and-disseminated-national-statistical-institute. Access will be granted to all those with a valid research agreement and removed at the end of the agreement unless the user sends an extension or revised agreement. More details on microdata access can be found here: • **https://www.nsi.bg/en/content/3168/households-income-expenditure-and-consumption** • **https://www.nsi.bg/en/content/8252/social-inclusion-and-living-conditions** Access to microdata can be requested from Desislava Mancheva or Svilen Skateliev. The complete set of variables is included in variable_list_bulgaria.csv	2025	Limited

[1] To access the data, users must register with the Kenya National Data Archive (KeNADA).

Peru CEQ 2019 output based on ENAHO	CEQ_PER 19.dta	The original raw data is publicly available (https://proyectos.inei.gob.pe/microdatos/)[2]. The processed dataset, included in the reproducibility package was provided by a World Bank team. The full list of variables used is included in variable_list_peru.csv	July 2025	Limited

Statement about Rights

I certify that the author(s) of the manuscript have legitimate access to and permission to use the data used in this manuscript.

Software and memory requirements

Software Requirements

Stata 18

Memory, Storage Requirements, and Processing Time.

- All of the code were last run on an 8-core Intel(R) Core(TM) i7-10870H CPU @ 2.20GHz (2.21 GHz), with 16GB of RAM.
- The necessary storage is approximately 300 MB.
- Computation took 10 minutes.

Instructions to replicators

This package contains the complete datasets and code required to replicate the paper's findings. The repository is organized by workflow stage; each directory includes a master script for data preparation and analysis.

To execute the code, download the package to your local drive and follow the instructions below. It is essential to retain the original directory structure. Additionally, please copy the ado files specified below to the 'ado' directory indicated below.

1. Change the path in the "`_Master.do`" – line 23
2. Run the Master do-file. This will execute the following sequence with one master file for each country
    a. `BGR_0_master.do`
    b. `KEN_0_master.do`

[2] To access the Peruvian raw data, first select the "Consula por Encuestas" tab. After that, select "ENAHO ACTUALIZADA" under "Encuesta", select "Condiciones de Vida y Pobreza - ENAHO", then choose 2019 as year and "Annual (Ene-Dic)" as frequency.

c. `PER_0_master.do`

d. `Figure3.1.do`

e. `All_Figures.do`

3. All outputs (figures and tables) will be saved in the `4.Output` folder

Dependencies

The analysis was conducted using Stata 18. The following Stata packages must be installed and copied to the folder `2.Do/ado` before running the code

- groupfunction
- sp_groupfunction
- tabstatmat
- unique

Folder Structure

Define the main path of the work, and copy the folders from the reproducibility package as follows:

```
2.Do
 ¦
 °--ado
3.Data
 ¦--BGR
 ¦   ¦--input
 ¦   ¦--log
 ¦   ¦--proc
 ¦--KEN
 ¦   ¦--input
 ¦   ¦--log
 ¦   ¦--proc
 ¦--PER
 ¦   ¦--input
 ¦   ¦--log
 ¦   ¦--proc
 ¦--Other_sources
4.Output
 ¦--Figures
 ¦--Tables
```

Code Description (Stata)

- `_Master.do`. Main master do-file for all analysis.
- `BGR_0_master.do`. Master do-file for Bulgaria

- `BGR_1_gdr_typology.do.` Cleans the harmonized dataset from CEQ Bulgaria 2020. Prepare categories according to the gender typology used for the analysis.
- `BGR_2_gdr_papertables.do.` Produces data for Bulgaria in figures 4.1, 4.2, 4.3, and 4.4.
- `BGR_category_changes.do.` Auxiliary files that help to clean the Bulgaria dataset.
- `KEN_0_master.do.` Master do-file for Kenya
- `KEN_1_gdr_typology.do.` Cleans the harmonized dataset from CEQ Kenya 2022. Prepare categories according to the gender typology used for the analysis.
- `KEN_2_gdr_papertables.do.` Produces data for Kenya in figures 4.1, 4.2, 4.3, and 4.4.
- `PER_0_master.do.` Master do-file for Peru
- `PER_1_gdr_typology.do.` Cleans the harmonized dataset from CEQ Peru 2019. Prepare categories according to the gender typology used for the analysis.
- `PER_2_gdr_papertables.do.` Produces data for Peru in figures 4.1, 4.2, 4.3, and 4.4. For the latter three figures, the results are output directly into the Excel file *"4.Output\Figures\eCEQ PER_figures.xlsx"* to the sheets labeled *"... - raw"*, which are hidden for clarity; and the tables in the corresponding sheet will automatically update once the results are exported from Stata. For Figure 4.1, the results are directly exported from Stata to the "Figure 4.1" sheet.
- `All_figures.do.` Gather information for all countries and compile it into a master Excel file called "_Master.xlsx."

List of Exhibits

The code provided reproduces:

☐ All numbers provided in text in the paper

☐ All tables and figures in the paper

☑ Selected tables and figures in the paper, as explained below.

Figures and tables production

Stata produced tables and figures

Figure / table	Program	Line number	Output file	Note
Figure 3.1	See below excel sources, tables and figures			
Table 3.1	See below excel sources, tables and figures			
Figure 4.1	Bulgaria: BGR_2_gdr_papertables.do	657	4.Output\Figures\eCEQ BGR_figures.xlsx	

	Kenya: KEN_2_gdr_papertables.do	46	4.Output\Figures\eCEQ KEN_figures.xlsx	
	Peru: PER_2_gdr_papertables.do	66	4.Output\Figures\eCEQ PER_figures.xlsx	
Figure 4.2 (a)	Bulgaria: BGR_2_gdr_papertables.do	658	4.Output\Figures\eCEQ BGR_figures.xlsx	
Figure 4.2 (a)	Kenya: KEN _2_gdr_papertables.do	84	4.Output\Figures\eCEQ KEN_figures.xlsx	
Figure 4.2 (c)	Peru: PER_2_gdr_papertables.do	88	4.Output\Figures\eCEQ PER_figures.xlsx	
Figure 4.3 (a)	Bulgaria: BGR_2_gdr_papertables.do	705	4.Output\Figures\eCEQ BGR_figures.xlsx	
Figure 4.3 (b)	Kenya: KEN _2_gdr_papertables.do	119	4.Output\Figures\eCEQ KEN_figures.xlsx	
Figure 4.3 (c)	Peru: PER_2_gdr_papertables.do	109	4.Output\Figures\eCEQ PER_figures.xlsx	
Figure 4.4 (a)	Bulgaria: BGR_2_gdr_papertables.do	724	4.Output\Figures\eCEQ BGR_figures.xlsx	
Figure 4.4 (b)	Kenya: KEN _2_gdr_papertables.do	159	4.Output\Figures\eCEQ KEN_figures.xlsx	
Figure 4.4 (c)	Peru: PER_2_gdr_papertables.do	167 / 174 / 217 / 224	4.Output\Figures\eCEQ PER_figures.xlsx	

Excel tables sources [Figure 3.1 and Table 3.1]

Country	File location	Source (reference)
Kenya	3.Data/Other data sources	Reference #12. Table 5.6. numbers taken from results for "female-headed" and "male-headed" households categories - specifically, poverty rate for MI+P (pre-fiscal) and CI (post-fiscal).
Guinea	3.Data/Other data sources	Reference #13. Figure 5.5, right hand panel. Poverty rates at market income and consumable income are read off the bars, for female and male-sustained HHs, respectively.
Togo	3.Data/Other data sources	Reference #7. Figure 5.5 and paragraph right below. Poverty rates at MI and CI for female and male-sustained households.
Romania	3.Data/Other data sources	Reference #8. Figure 3.15. Poverty rates at market income and consumable income are read off the bars, for female and male-headed HHs, respectively

Bulgaria	3.Data/Other data sources	Reference #1. Figure 16, right panel. Poverty rates at MI+P and CI for lone male and lone female parent HHs.
El Salvador	3.Data/Other data sources	Reference #9. Appendix 2. Table 2A. Panel B. (l) and (m). Poverty rates at MI+P and CI for Female-headed, sole provider with no remittances & male-headed, sole provider with no remittances
Nigeria	3.Data/Other data sources	Reference #14. Slide 9. left hand side figure. Poverty rates at gross market income and consumable income for HHs where earners are male vs female majority.
Peru	3.Data/Other data sources	Reference #2. Pre- and post-fiscal poverty rate for single mother vs single adult HHs.
Brazil	3.Data/Other data sources	Reference #4. Table 6. Pre- and post-fiscal poverty rate for female and male headed HHs.
Uruguay	3.Data/Other data sources	Reference #6. Figure 7. Pre- and post-fiscal poverty rate for single-woman with individuals under 25 vs couple with individuals under 25 only man works
Jordan	3.Data/Other data sources	Reference #11. Figure 10. Poverty rates at market income and consumable income are read off the bars, for female and male-earner majority HHs, respectively
West Bank and Gaza	3.Data/Other data sources	Reference #15. Slide 25. Poverty rates at market income and consumable income are read off the bars, for HHs where (Labor) earners are a male vs female majority, respectively

Report's figures and table's location in files

Figure / table	Folder location	File name	Details
Figure 3.1	4.Output\Figures\	gender_poverty_gaps.png	Prepared using the do-file "figure 3.1.do"
Table 3.1	4.Output\Figures\	_Master.xlsx, tab "Figure 4.1"	Author's compilation, see above
Table 4.1	4.Output\Figures\	_Master.xlsx, tab "Tab 4.1"	
Table 4.2	4.Output\Figures\	_Master.xlsx, tab "Tab 4.2"	

Figure 4.1	4.Output\Figures\	_Master.xlsx, tab “Fig 4.1”	Figure 4.1 consolidates the results found in the country-specific Excel files for Bulgaria, Kenya, and Peru (referenced above). Results were copied using do-file “All_figures.do”.
Figure 4.2	4.Output\Figures\	_Master.xlsx, tab “Fig 4.2”	Figure 4.2 consolidates the results found in the country-specific Excel files for Bulgaria, Kenya, and Peru (referenced above). Results were copied using do-file “All_figures.do”
Figure 4.3	4.Output\Figures\	_Master.xlsx, tab “Fig 4.3”	Figure 4.3 consolidates the results found in the country-specific Excel files for Bulgaria, Kenya, and Peru (referenced above). Results were copied using do-file “All_figures.do”
Figure 4.4	4.Output\Figures\	_Master.xlsx, tab “Fig 4.4”	_Master.xlsx, tab “Fig 4.1” Figure 4.4 consolidates the results found in the country-specific Excel files for Bulgaria, Kenya, and Peru (referenced above). Results were copied using do-file “All_figures.do”

References

1. Robayo-Abril, M., & Cabrera, M. (2024). Reassessing welfare impacts of Bulgarian fiscal policy through a child poverty perspective (Policy Research Working Paper No. 10657). World Bank Group.
2. Buitrago Hernandez, P., de la Flor Giuffra, L., Rivera, G., & Rubiano-Matulevich, E. (2025). Unequal burdens, uneven benefits: Applying a gender lens to the analysis of Peru’s fiscal system. World Bank Group.
3. Fuchs Tarlovsky, A., & Gonzalez Icaza, M. F. (2023). Assessing the effects of the fiscal system on gender disparities in Armenia: Pilot-study for the Engendered CEQ methodology. World Bank Group, Poverty & Equity.
4. Lara Ibarra, G., Cabrera, M., Conceição, O., & Vale, R. C. (2023). Poverty and inequality implications of fiscal policies: The case of Brazil (Policy Research Working Paper No. 10495). World Bank Group.
5. Jellema, J., Grown, C., Fuchs, A., Wai-Poi, M., Tiwari, S., & Sosa, M. (2024). Gender and fiscal policy: A methodological proposal and its application to Jordan and Armenia (Policy Research Working Paper No. 10733). World Bank Group.
6. Tuzman, D., Llovet Montanes, R., & Rodriguez-Chamussy, L. (2023). Incidence analysis of direct fiscal interventions on gender-relevant typology of households in Uruguay. Mimeo.
7. Ouedraogo, A., Coulibaly, M., Koné, F. F., Amonle, S., Nayihouba, K., Dieng, F., & Koné, K. K. (2025). Evaluating how fiscal policy shapes gender disparities in Togo: A pilot study in West Africa. Poverty, Equity and Gender Global Practice (EAWPV).
8. Robayo-Abril, M., & Militaru, E. (2024). Chapter 3. The role of fiscal policy in poverty and equity in Romania. In Romania Macro Poverty Outlook (MPO) 2024. World Bank.
9. Robayo-Abril, M., Tribin, A. M., & Oliva, J. A. (2023). Fiscal policy as a tool for gender equity in El Salvador (Policy Research Working Paper No. 10547). World Bank Group.

10. Rodriguez, L., & Wai-Poi, M. (2024). Fiscal policy and equity in Viet Nam 2018-2022: Building blocks for a more equitable fiscal system (Draft for DM). World Bank.
11. Rodriguez, L., Wai-Poi, M., & Woodham, J. (2024). Taxes, transfers, and gender: Fiscal policy incidence across fiscal and care categories in Jordan (Policy Research Working Paper No. 10745). World Bank Group.
12. World Bank 2025a. Poverty and Distributional Impacts of Fiscal Policy in Kenya: A Commitment to Equity (CEQ) Assessment with Extensions to Gender and Children.
13. Ouedraogo, A., Coulibaly, M., Koné, F. F., & Koné, K. K. (2025). Assessing the Impact of Fiscal Policy on Gender Disparities in Guinea. Mimeo.
14. World Bank. 2025. Engendered CEQ Nigeria 2019. PowerPoint presentation. Poverty and Equity Global Practice. Washington, DC.
15. Amjad, B. and Finn, A. 2025. West Bank and Gaza: Fiscal Equity and Gender. PowerPoint presentation. Poverty and Equity Global Practice. Washington, DC.
16. World Bank Group. (2025). Navigating fiscal realities for equitable growth in Georgia. World Bank.

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