

Readme Replication for “The Equity of Tax Systems in Low- and Middle-Income Countries” By Pierre Bachas, Lucie Gadenne and Anders Jensen

Overview

The code in this replication package uses Stata and consists of do-files.

The code structure and all outputs are detailed in “Master.do”. It allows the replication of all exhibits in the paper, with the exception of Figure 3 which is directly taken from an existing paper.

Data Availability and Provenance Statement

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.

Summary of Availability

- The data and code that support the findings of this study are available in the AEA Data and Code Repository, openicpsr-194851. The data were derived from the open sources listed below.

Details on each Data Source

Data.Name	Variable	Year	Source	Short Citation	Notes & Data.Files
World Development Indicators	Country level GDP per capita (2010 USD current) PPP Conversion Factor	2018	online	World Bank (2018)	The data were derived from the World Bank's WDI: https://databank.worldbank.org/source/world-development-indicators . Data can be freely downloaded, copied and shared with third parties according to the terms of use available here: https://www.worldbank.org/en/about/legal/terms-of-use-for-datasets . From this website, the whole sample of countries (266) and years (1960 to 2020) is selected. Country level GDP per capita (constant and current LCU) is derived from three variables available at this website: GDP in 2010USD (<i>gdp_2010usd</i>), GDP in current USD (<i>gdp_currentusd</i>) and population (<i>pop</i>). GDP per capita (USD) is the ratio of <i>gdp_2010usd</i> over <i>pop</i> and GDP per capita (current) is the result of <i>gdp_currentusd</i> over <i>pop</i> . Notes: i) not all GDP/population observations were available for all 266 countries since 1960; ii) notice GDP in 2010USD is not available in the current link (2020), but it was available in the version from 2018. Data.Files: “data/gdp_population_WDI.dta”
Oil and Gas Data 1932-2014	Country level oil and gas resources	2014	online	Ross and Mahdavi (2015)	The dataset was downloaded from https://doi.org/10.7910/DVN/ZTPW0Y . Data.Files: “data/ross_mahdavi.dta”
Global Effective Tax Rates	Country level tax revenues, total and by type of tax	2018	online	Bachas, Fisher-Post, Jensen, Zucman (2022)	The data comes from the paper by Bachas, Fisher-Post, Jensen, Zucman (2022) (https://doi.org/10.3386/w29819) and it is freely downloaded from the companion website: https://globaltaxation.world . Data.Files: “data/globalETR_bfjz.dta”
World Bank Income Classification	World Bank Income Classification	2023	online	World Bank (2023a)	The data was derived from the World Bank's WDI: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groupscountry_frame.dta using their current classification of income (as of 2023). Data can be freely downloaded, copied and shared with third parties according to the terms of use available here: https://www.worldbank.org/en/about/legal/terms-of-use-for-datasets . The website includes a link to download an Excel sheet on the income classifications for each country/economy: CLASS.xlsx (live.com) . This Excel sheet includes income group category (column D: low income, low middle income, upper middle income or high income) for each country/economy (column A). Data.Files: “data/country_frame.dta”
International Labor Organization	Share of self-employed among total workforce	2021	online	ILO (2021)	International Labour Organization. “ILO modelled estimates database” ILOSTAT. Accessed January 2021. ilostat.ilo.org/data . Accessed at: https://data.worldbank.org/indicator/SL.EMP.SELF.ZS Data.Files: “data/API_SL.EMP.SELF.ZS_DS2_en_csv_v2_5560396.csv”

Informal Consumption	Share of household consumption that occurs informally	Various	online	Bachas, Gadenne Jensen (2023)	Dataset from Bachas, Gadenne, Jensen (Review of Economic Studies 2023), https://doi.org/10.1093/restud/rdad095 . All data and replication available at the link: https://doi.org/10.5281/ZENODO.8284123 . Data.Files: - data/regressions_output_central.dta - data/Country_information.xlsx
Data on Personal Income Tax Thresholds	Country level Location of exemption threshold	Various	online	Jensen (2021)	The dataset was obtained from Anders Jensen and part of the AER (2022) paper: https://www.aeaweb.org/articles?id=10.1257/aer.20191528 . The data used for this paper is downloaded from the companion replication package for Jensen (2021), available at https://doi.org/10.3886/E143801V1 . Data.Files: "data/PIT_parameters_AJ.dta"
Top personal Income taxes	Country level top marginal tax rate of PIT	2022	Bachas, Gadenne & Jensen (2023)	-	Collected by the authors, based on reports by international consulting firms (each country's source is detailed in the dataset). These reports are open-access PDF's available online on a per country basis, and their sources is listed as part of PIT_Top_Rates.csv Data.Files: "data/PIT_Top_Rates.csv"
incidence of direct taxation	Country-decile level effective direct taxes	Various	Shared by World Bank upon request	World Bank (2023b)	Data from Chapter 5 of World Bank Poverty and Shared Prosperity "Correcting Course" (2022), based on the work of the Commitment for Equity Institute and the World Bank. Shared by World Bank upon request. https://piq.worldbank.org/home is the page of the poverty and inequality team at the World Bank that shared the data. On this page there is contact us box for queries. Data.Files: "data/PSPR_incidence_dirtax_2023.dta"

Dataset list

Data.File	Source	Short citation	Provided
data/gdp_population_WDI.dta	online	World Bank (2018)	Yes
data/ross_mahdavi.dta	online	Ross and Mahdavi (2015)	Yes
data/globalETR_bfjz.dta	online	Bachas, Fisher-Post, Jensen, Zucman (2022)	Yes
data/country_frame.dta	online	World Bank (2023a)	Yes
data/API_SL.EMP.SELF.ZS_DS2_en_csv_v2_5560396.csv	online	ILO (2021)	Yes
data/regressions_output_central.dta	online	Bachas, Gadenne Jensen (2023)	Yes
data/Country_information.xlsx	online	Bachas, Gadenne Jensen (2023)	Yes
data/PIT_parameters_AJ.dta	online	Jensen (2021)	Yes
data/PIT_Top_Rates.csv	coded by authors	Bachas, Gadenne Jensen (2023)	Yes
data/PSPR_incidence_dirtax_2023.dta	Shared by World Bank upon request	World Bank (2023b)	Yes

Computational requirements

Software Requirements

- Stata (code was last run with version 18.0)
 - The "Master.do" installs all dependencies locally including the required packages "nicelabels, asdoc, palettes colspace"

Controlled Randomness

- Not applicable

Memory and runtime Requirements

Approximate time needed to reproduce the analyses on a standard 2023 desktop machine:

- 5 minutes

Details

The code was last run on an **Apple M1 Pro Chip based laptop with MacOS version 13.0.1**

Instructions to Replicators

- File Fig1_Tax_ratios.do runs the command that creates Figure 1 on the tax systems across the development path.
- File Fig2_Informality.do runs the command that creates Figure 2 on the informality Engel curves in Rwanda and Mexico.
- File Fig4_CEQDirectTaxes_PITFeatures.do runs the command that creates Figure 4 on the tax incidence of the Personal Income Tax.
- File do/Tab1.do runs the command that creates Table 1 on tax systems and informality by country income group.

List of tables and programs

Figure/Table	Program	Output file	Notes
Figure 1	do/Fig1_Tax_ratios.do	graphs/Figure1.pdf	
Figure 2	do/Fig2_Informality.do	graphs/Figure2.pdf	
Figure 3	-	-	This figure is Figure 1 from Bachas, Gadenne, Jensen "Informality, Consumption Taxes, and Redistribution" The Review of Economic Studies, 2023; rdad095, https://doi.org/10.1093/restud/rdad095 . Replication files available at: https://doi.org/10.5281/zenodo.8284123
Figure 4	do/ Fig4_CEQDirectTaxes_PITFeatures.do	graphs/Figure4.pdf	
Table 1	do/Tab1.do	do/Tab1.do	

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