

# Reproducibility package for Equality of Opportunity for Sexual and Gender Minorities 2024

## README file

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### Purpose of this README

The purpose of this README is to guide users through the files and steps required to replicate the analysis and outputs presented in the Equality of Opportunity for Sexual and Gender Minorities 2024 report. This document details the structure of the replicability package, including dependencies, data sources, and instructions for executing the scripts and spreadsheets.

### About the EQOSOGI 2024 Report

By assessing discrimination in laws, regulations, and policies, the Equality of Opportunity for Sexual and Gender Minorities (EQOSOGI) initiative examines institutionalized challenges encountered by sexual and gender minorities. This second edition of the EQOSOGI report expands its coverage from 16 to 64 countries<sup>1</sup>, representing different geographic areas, income levels, legal traditions, and inclusiveness of sexual and gender minorities, ensuring a diverse and holistic representation of the issues. EQOSOGI presents indicators to identify differences in the legal and policy environment for sexual and gender minorities in six areas: Decriminalization, Access to Education, Access to Labor Markets, Access to Services and Social Protection, Civil and Political Inclusion, and Protection from Hate Crimes. The indicators are also disaggregated into the three dimensions of sexual orientation, gender identity and expression, and sex characteristics.

The EQOSOGI report is a product of the Social Sustainability and Inclusion Global Practice of the World Bank Group. The project was led by Clifton Cortez and Julia Constanze Braunmiller. Samreen Shahbaz assisted in coordination of the project and supervised the legal data collection and analysis. Paola Ballon led and supervised the economic analysis. Other members of the core research team were Omar Alburqueque Chavez, Lucia Arnal Rodriguez, Jessica Chilin Hernandez, Christian de la Medina Soto, Gudrun Jevne, Hicham Kantar, Sontia Sophie Nkenkeu Keck, and Stephen Winkler. The team was assisted by Elizabeth Acul, John (Ioannis) Arzinos, Ben Bakalovic, Aieshwarya Davis, Alessandro Di Rosa, Karolina Ordon, and Razilya Shakirova.

### Dependencies

To ensure that the scripts run smoothly, it is necessary to install the `wbopendata` package in Stata. This package allows the scripts to access and integrate external indicators, such as those from the World Development Indicators, directly from within Stata. To install the package, run the following command in Stata:

```
ssc install wbopendata
```

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<sup>1</sup>Algeria, Argentina, Armenia, Bangladesh, Bhutan, Brazil, Cambodia, Cameroon, Canada, Chile, China, Costa Rica, Côte d'Ivoire, Djibouti, Ecuador, Egypt, Ethiopia, Fiji, France, Georgia, Germany, Ghana, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iraq, Israel, Jamaica, Japan, Jordan, Kenya, Korea Rep., Kosovo, Kyrgyz Republic, Lebanon, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Nepal, New Zealand, Nigeria, Norway, Pakistan, Papua New Guinea, Philippines, Serbia, South Africa, Spain, Sri Lanka, Sudan, Tanzania, Thailand, Timor-Leste, Tunisia, Türkiye, Ukraine, Uruguay, Viet Nam, and Zimbabwe.

Make sure that this package is installed before executing any of the master do-files to avoid errors during the replication process.

## Contents of the Package

The replication package includes the following key components:

- **Master Files:** Located in the `master files` folder.
  - `f1.user_profile.do`: Allows the user to set the working directory. This step is crucial for running the other master files.
  - `f2.inputs.do`: Runs scripts to assemble the EQOSOGI 2024 dataset, integrating external indicators from Worldwide Governance Indicators, World Development Indicators, and Women Business and the Law.
  - `f3.outputs.do`: Generates the report's tables and figures in a clear, organized manner.
- **Scripts:** Located in the `scripts` folder.
  - `EQOSOGI_database_ensembling.do`
  - `EQOSOGI_external_indicators.do`
- **Inputs:** All inputs required to run the master files and scripts are included in this package.
  - Coding sheets for the 64 EQOSOGI 2024 countries.
  - Intermediate databases:
    - \* `EQOSOGI 2_List of Countries_FY24 Classification.xlsx`
    - \* `country_risk_ratings_Allianz_2023.xlsx`
    - \* `ssgd_v_2.0.dta`
    - \* `WBL1971-2023.dta`
- **Outputs:** Once the `f2.inputs.do` file is run, the EQOSOGI 2024 dataset will be generated and stored in the `outputs` folder.
- **Reproducibility in Excel:** Contains all elements of the EQOSOGI 2024 report that can be replicated using Excel. This folder includes the following files:
  - `EQOSOGI_ch1_outputs.xlsx`
  - `EQOSOGI_ch2_outputs.xlsx`
  - `EQOSOGI_ch3_outputs.xlsx`
  - `EQOSOGI_online_appendix_outputs.xlsx`

## Replication Instructions

To replicate the analysis, follow these steps:

1. Open the `f1.user_profile.do` file and set the working directory to the path where the replication package is extracted.
2. Run the `f2.inputs.do` file to process the data and assemble the EQOSOGI 2024 dataset.
3. Execute the `f3.outputs.do` file to produce the report's tables and figures. The outputs are organized clearly within this script.

**Important:** The master files must be run in the specified order: `f1.user_profile.do` first, followed by `f2.inputs.do`, and finally `f3.outputs.do`. After completing step 3, examine the contents of the `Reproducibility in Excel` folder to review the elements of the report that have been replicated.

## Output Details

The EQOSOGI 2024 report includes a variety of outputs, all of which are ultimately edited in Excel. However, some of the values used in the tables and figures are first processed and generated using Stata. Specifically, the data required for constructing the following items is produced within Stata:

- **Tables:** 1.2, 1.3, 3.1
- **Figures:** 1.1, 1.2, 1.3, 1.4, 1.5
- **Online Appendix:**
  - EQOSOGI dataset
  - Descriptive statistics for all binary responses
  - Overall and indicator-set scores summary statistics, by SOGIESC group
  - EQOSOGI 2024 Country Rankings, Overall and by SOGIESC Group
  - EQOSOGI 2024 Country Rankings, Overall and by Indicator Set
  - Boxplot: EQOSOGI 2024 Scores, by SOGIESC Group and Indicator Set
  - EQOSOGI 2024 Scores, Sensitivity Analysis

Figures 2.1 through 2.13 are directly generated in Excel, and all replicable elements of the report are stored in the `Reproducibility in Excel` folder.

## Technology Environment

The reproducibility package was tested in the following environment:

- **OS:** Windows 10 Pro 64-bit (10.0 Build 19045)
- **Processor:** AMD Ryzen 7 5700X 8-Core Processor 3.4GHz 16 CPUs
- **Available RAM:** 48.0GB
- **Software:** Stata 16 MP, Microsoft Excel
- **Runtime:** Less than 1 minute per script file

## Additional Data Sources

The following external data sources were used to complement the EQOSOGI 2024 dataset:

- **World Development Indicators (World Bank)**
  - GDP (constant 2015 USD)
  - GDP per capita (constant 2015 USD)
  - GDP PPP (constant 2017 international USD)
  - GDP per capita PPP (constant 2017 international USD)
  - GDP growth (annual)
  - GDP per capita growth (annual)
  - Human Capital Index (HCI) (scale 0-1)
  - Labor force participation rate, total (% of total population ages 15+)
  - GDP per person employed (constant 2017 PPP USD)
  - Patent applications, residents
  - Patent applications, nonresidents
  - Trade (% of GDP)

- Gross capital formation (% of GDP)
- Population ages 0-14, total
- Population ages 15-64, total
- Population ages 65 and above, total
- Research and development expenditure (% of GDP)
- Gini coefficient
- **Worldwide Governance Indicators (World Bank)**
  - Control of Corruption: Estimate
  - Government Effectiveness: Estimate
  - Political Stability and Absence of Violence/Terrorism: Estimate
  - Regulatory Quality: Estimate
  - Rule of Law: Estimate
  - Voice and Accountability: Estimate
- **Doing Business Indicators (World Bank)**
  - Ease of doing business score (DB17-20 methodology)
- **Women Business and the Law (World Bank)**
  - WBL: overall score
  - WBL: mobility score
  - WBL: workplace score
  - WBL: pay score
  - WBL: marriage score
  - WBL: parenthood score
  - WBL: entrepreneurship score
  - WBL: assets score
  - WBL: pension score
- **Allianz Country Risk Rating (Allianz)**
  - Medium-term rating (country grade)
  - Short-term rating (country risk level)
- **Social Sustainability Global Database (SSGD) (World Bank)**
  - Percentage of people that says they have confidence in the Police
  - Percentage of people that says they have confidence in the Justice System
  - Percentage of people that says they have confidence in the elections
  - Percentage of people that says they have confidence in the government
  - Percentage of people that says most people can be trusted
  - Percentage of people that feels insecure living in their area/neighborhood

## Data Statement

All data used in this study are publicly available and included in the reproducibility package. The data sources, including the World Development Indicators (WDI), Worldwide Governance Indicators (WGI), Doing Business Indicators, Women Business and the Law (WBL), Allianz Country Risk Rating, and Social Sustainability Global Database (SSGD), are fully accessible to the public. Additionally, the coding sheets provided for the 64 EQOSOGI 2024 countries are open to the public, subject to compliance with the data access and usage policies outlined in the "Access and Rights" section below.

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## Contact

Any questions on the replicability or the EQOSOGI database, please contact Paola Ballon (pballon@worldbank.org) and Omar Alburqueque (oalburquequechav@worldbank.org).