

# Package ‘genderstat’

July 22, 2025

**Type** Package

**Title** Quantitative Analysis Tools for Gender Studies

**Version** 0.1.5

## Description

Provides tools for quantitative analysis in gender studies, including functions to calculate various gender inequality metrics such as the Gender Pay Gap, Gender Inequality Index (GII), Gender Development Index (GDI), and Gender Empowerment Measure (GEM). Also includes extracted secondary example datasets for practice and learning purposes, which were obtained from the UNDP Human Development Reports Data Center and the World Bank Gender Data Portal by the author the dataset is available on [doi:10.34740/kaggle/dsv/6359326](https://doi.org/10.34740/kaggle/dsv/6359326). References: Miller, Kevin; Vagins, Deborah J. (2021) <https://eric.ed.gov/?id=ED596219>. Jacques Charmes & Saskia Wieringa (2003) [doi:10.1080/1464988032000125773](https://doi.org/10.1080/1464988032000125773). Gaëlle Ferrant (2010) <https://shs.hal.science/halshs-00462463/>.

**License** MIT + file LICENSE

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.3.2

**Suggests** testthat (>= 3.0.0), knitr, rmarkdown

**Config/testthat/edition** 3

**VignetteBuilder** knitr

**Depends** R (>= 3.5.0)

**NeedsCompilation** no

**Author** S M Mashrur Arafin Ayon [aut, cre] (ORCID:  
<https://orcid.org/0000-0002-3659-2891>)

**Maintainer** S M Mashrur Arafin Ayon <mashrur399@gmail.com>

**Repository** CRAN

**Date/Publication** 2024-07-07 19:40:02 UTC

## Contents

gender_development_index . . . . .	2
gender_empowerment_measure . . . . .	3
gender_inequality_index . . . . .	3
gender_pay_gap . . . . .	4
real_data_GDI . . . . .	5
real_data_GEM . . . . .	5
real_data_GII . . . . .	6
real_data_GPG . . . . .	7
<b>Index</b>	<b>8</b>

---

gender\_development\_index  
*Gender Development Index (GDI)*

---

## Description

Computes the Gender Development Index (GDI) based on the given dataset. The GDI measures gender disparities in three dimensions of human development: health, education, and standard of living.

## Usage

```
gender_development_index(data)
```

## Arguments

**data** A data frame containing the required metrics for GDI computation. The data frame must include the following columns: `female_life_expectancy`, `male_life_expectancy`, `female_mean_schooling`, `male_mean_schooling`, `female_gni_per_capita`, and `male_gni_per_capita`.

## Value

A data frame containing the GDI values for each country, along with the individual HDI values for females and males.

## Examples

```
data(real_data_GDI) # Load example dataset
gdi_results <- gender_development_index(real_data_GDI)
print(gdi_results)
```

---

`gender_empowerment_measure`*Gender Empowerment Measure (GEM)*

---

**Description**

Computes the Gender Empowerment Measure (GEM) based on the provided dataset. The GEM measures gender inequality in political representation, professional positions, and income.

**Usage**

```
gender_empowerment_measure(data)
```

**Arguments**

`data` A data frame containing the required metrics for GEM computation. The data frame must include the following columns: `female_parliament_seats`, `female_professional_posit`, and `female_to_male_earned_income_ratio`.

**Value**

A data frame with two columns: `country` and `GEM`, representing the GEM values for each country.

**Examples**

```
data(real_data_GEM) # Load example dataset
gem_results <- gender_empowerment_measure(real_data_GEM)
print(gem_results)
```

---

`gender_inequality_index`*Gender Inequality Index (GII)*

---

**Description**

Computes the Gender Inequality Index (GII) based on the provided dataset. The GII measures gender disparities in reproductive health, empowerment, and labor market participation.

**Usage**

```
gender_inequality_index(data)
```

**Arguments**

`data` A data frame containing the required metrics for GII computation. The data frame must include the following columns: `maternal_mortality_ratio`, `adolescent_birth_rate`, `female_parliament_seats`, `female_secondary_education`, `male_secondary_education`, `female_labor_force`, and `male_labor_force`.

**Value**

A data frame with two columns: `country` and `GII`, representing the GII values for each country.

**Examples**

```
data(real_data_GII) # Load example dataset
gii_results <- gender_inequality_index(real_data_GII)
print(gii_results)
```

---

<code>gender_pay_gap</code>	<i>Gender Pay Gap (GPG)</i>
-----------------------------	-----------------------------

---

**Description**

Computes the Gender Pay Gap (GPG) based on the provided dataset. The GPG is calculated as the percentage difference between male and female incomes, providing insight into income disparities between genders.

**Usage**

```
gender_pay_gap(data)
```

**Arguments**

`data` A data frame containing the required metrics for GPG computation. The data frame must include the columns: `female_income` and `male_income`.

**Value**

A data frame with two columns: `country` and `gpg`, representing the GPG values for each country.

**Examples**

```
data(real_data_GPG) # Load example dataset
gpg_results <- gender_pay_gap(real_data_GPG)
print(gpg_results)
```

---

real_data_GDI	<i>Original Data of GDI (Gender Development Index)</i>
---------------	--

---

### Description

A dataset containing observed values for the GDI analysis. This data includes metrics for evaluating gender disparities in health, education, and economic resources across different countries.

### Usage

```
data(real_data_GDI)
```

### Format

A data frame with 191 rows and 7 columns:

**country** A character vector representing the name of the country.

**female\_life\_expectancy** A numeric vector representing the life expectancy of females in the respective country, measured in years.

**male\_life\_expectancy** A numeric vector representing the life expectancy of males in the respective country, measured in years.

**female\_mean\_schooling** A numeric vector representing the average number of schooling years for females in the respective country.

**male\_mean\_schooling** A numeric vector representing the average number of schooling years for males in the respective country.

**female\_gni\_per\_capita** A numeric vector representing the Gross National Income per capita for females in the respective country, measured in international dollars.

**male\_gni\_per\_capita** A numeric vector representing the Gross National Income per capita for males in the respective country, measured in international dollars.

### Source

Data obtained from [Kaggle](#).

---

real_data_GEM	<i>Original Data for Gender Empowerment Measure (GEM)</i>
---------------	---

---

### Description

A dataset containing observed values for the GEM analysis. This data includes metrics for evaluating gender disparities in political representation, professional positions, and income across different countries.

**Usage**

```
data(real_data_GEM)
```

**Format**

A data frame with 191 rows and 4 columns:

**country** A character vector representing the name of the country.

**female\_parliament\_seats** A numeric vector representing the ratio of parliamentary seats occupied by females in the respective country. Measured as a proportion (0-1).

**female\_professional\_positions** A numeric vector representing the ratio of professional and technical job roles occupied by females in the respective country. Measured as a proportion (0-1).

**female\_to\_male\_earned\_income\_ratio** A numeric vector representing the income ratio for females in the respective country in comparison to males. Measured as a proportion (0-1), where 1 indicates equal income with males.

**Source**

Data obtained from [Kaggle](#).

---

```
real_data_GII
```

*Original Data for Gender Inequality Index (GII)*

---

**Description**

A dataset containing observed values for the GII analysis. This data includes metrics for evaluating gender disparities in reproductive health, empowerment, and labor market participation across different countries.

**Usage**

```
data(real_data_GII)
```

**Format**

A data frame with 191 rows and 8 columns:

**country** A character vector representing the name of the country.

**maternal\_mortality\_ratio** A numeric vector representing the maternal mortality ratio.

**adolescent\_birth\_rate** A numeric vector representing the adolescent birth rate.

**female\_parliament\_seats** A numeric vector representing the proportion of parliamentary seats occupied by females in the respective country. Measured as a proportion (0-1).

**female\_secondary\_education** A numeric vector representing the proportion of females with secondary education in the respective country. Measured as a proportion (0-1).

**male\_secondary\_education** A numeric vector representing the proportion of males with secondary education in the respective country. Measured as a proportion (0-1).

**female\_labor\_force** A numeric vector representing the proportion of females in the labor force in the respective country. Measured as a proportion (0-1).

**male\_labor\_force** A numeric vector representing the proportion of males in the labor force in the respective country. Measured as a proportion (0-1).

### Source

Data obtained from [Kaggle](#).

---

real_data_GPG	<i>Original Data for Gender Pay Gap (GPG)</i>
---------------	---

---

### Description

A dataset containing observed values for the GPG analysis. This data includes metrics for evaluating income disparities between genders across different countries.

### Usage

```
data(real_data_GPG)
```

### Format

A data frame with 191 rows and 3 columns:

**country** A character vector representing the name of the country.

**female\_income** A numeric vector representing the per capita female National Income in the respective country.

**male\_income** A numeric vector representing the per capita male National Income in the respective country.

### Source

Data obtained from [Kaggle](#).

# Index

gender\_development\_index, [2](#)  
gender\_empowerment\_measure, [3](#)  
gender\_inequality\_index, [3](#)  
gender\_pay\_gap, [4](#)

real\_data\_GDI, [5](#)  
real\_data\_GEM, [5](#)  
real\_data\_GII, [6](#)  
real\_data\_GPG, [7](#)