

# Package ‘pwt9’

May 9, 2026

**Version** 9.1-0

**Date** 2019-06-12

**Title** Penn World Table (Version 9.x)

**Description** The Penn World Table 9.x (<http://www.ggd.c.net/pwt/>) provides information on relative levels of income, output, inputs, and productivity for 182 countries between 1950 and 2017.

**LazyData** yes

**LazyDataCompression** xz

**Depends** R (>= 3.0.0)

**License** GPL-2 | GPL-3

**NeedsCompilation** no

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pwt9.0	<i>Penn World Table 9.0</i>
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## Description

Relative levels of income, output, input, and productivity for 182 countries between 1950 and 2014 (base year: 2011).

**Usage**

```
data("pwt9.0")
```

**Format**

A data frame with 11,830 observations of 47 variables.

**country** factor with country name.

**isocode** factor with ISO 3166-1 alpha-3 country code.

**year** year.

**currency** factor with national currency unit.

**rgdpe** Expenditure-side real GDP at chained PPPs (in million 2011 USD).

**rgdpo** Output-side real GDP at chained PPPs (in million 2011 USD).

**pop** Population (in millions).

**emp** Number of persons engaged (in millions).

**avh** Average annual hours worked by persons engaged.

**hc** Index of human capital per person, based on years of schooling and returns to education.

**ccon** Real consumption of households and government, at current PPPs (in million 2011 USD).

**cda** Real domestic absorption, (real consumption plus investment), at current PPPs (in million 2011 USD).

**cgdpe** Expenditure-side real GDP at current PPPs (in million 2011 USD).

**cgdpo** Output-side GDP at current PPPs (in million 2011 USD).

**ck** Capital stock at current PPPs (in million 2011 USD).

**ctfp** TFP level at current PPPs (USA = 1).

**cwtfp** Welfare-relevant TFP levels at current PPPs (USA = 1).

**rgdpna** Real GDP at constant 2011 national prices (in million 2011 USD).

**rconna** Real consumption at constant 2011 national prices (in million 2011 USD).

**rdana** Real domestic absorption at constant 2011 national prices (in million 2011 USD).

**rkna** Capital stock at constant 2011 national prices (in million 2011 USD).

**rtfpna** TFP at constant national prices (2011 = 1).

**rwtfpna** Welfare-relevant TFP at constant national prices (2011 = 1).

**labsh** Share of labour compensation in GDP at current national prices.

**delta** Average depreciation rate of the capital stock.

**xr** Exchange rate, national currency/USD (market and estimated).

**pl\_con** Price level of CCON (PPP/XR, price level of USA GDPo in 2011 = 1).

**pl\_da** Price level of CDA (PPP/XR, price level of USA GDPo in 2011 = 1).

**pl\_gdpo** Price level of CGDPo (PPP/XR, price level of USA GDPo in 2011 = 1).

**i\_cig** Factor indicating whether relative price data for consumption, investment, and government is extrapolated, benchmark, or interpolated.

- i\_xm** Factor indicating whether relative price data for exports and imports is extrapolated, benchmark, or interpolated.
- i\_xr** Factor indicating whether the exchange rate is market-based or estimated.
- i\_outlier** Factor indicating whether the observation on `p1_gdpe` or `p1_gdpo` is an outlier or not.
- cor\_exp** Correlation between expenditure shares of the country and the US (benchmark observations only).
- statcap** Statistical capacity indicator (source: World Bank, developing countries only).
- cs\_h\_c** Share of household consumption at current PPPs.
- cs\_h\_i** Share of gross capital formation at current PPPs.
- cs\_h\_g** Share of government consumption at current PPPs.
- cs\_h\_x** Share of merchandise exports at current PPPs.
- cs\_h\_m** Share of merchandise imports at current PPPs.
- cs\_h\_r** Share of residual trade and GDP statistical discrepancy at current PPPs.
- pl\_c** Price level of household consumption (price level of USA GDPo in 2011 = 1).
- pl\_i** Price level of capital formation (price level of USA GDPo in 2011 = 1).
- pl\_g** Price level of government consumption (price level of USA GDPo in 2011 = 1).
- pl\_x** Price level of exports (price level of USA GDPo in 2011 = 1).
- pl\_m** Price level of imports (price level of USA GDPo in 2011 = 1).
- pl\_k** Price level of the capital stock (price level of USA in 2011 = 1).

## Details

The Penn World Table (version 9.0) is a database with information on relative levels of income, output, input, and productivity, covering 182 countries between 1950 and 2014. For more details see Feenstra, Inklaar, and Timmer (2016, 2015) provided at <http://www.ggd.net/pwt/>. Version 9.0 represents the first substantial change to the *Next Generation of the Penn World Table* of PWT versions 8.0 and 8.1 (see Feenstra, Inklaar, and Timmer 2015). However, Section I of Feenstra et al. (2015) is still the recommended starting point as the main structure of the database and definition of its variables are unchanged in PWT 9.0. Nevertheless Version 9.0 contains important new and revised data.

## Source

Penn World Table 9.0, <https://doi.org/10.15141/S5J01T>.

## References

- Feenstra RC, Inklaar R, Timmer MP (2016). PWT 9.0: A User's Guide. URL <http://www.ggd.net/pwt/>.
- Feenstra RC, Inklaar R, Timmer MP (2015). The Next Generation of the Penn World Table, *American Economic Review*, forthcoming. URL <http://www.ggd.net/pwt/>.

## See Also

[pwt9.1](#)

pwt9.1

*Penn World Table 9.1***Description**

Relative levels of income, output, input, and productivity for 182 countries between 1950 and 2017 (base year: 2011).

**Usage**

```
data("pwt9.1")
```

**Format**

A data frame with 12,376 observations of 52 variables.

**country** factor with country name.

**isocode** factor with ISO 3166-1 alpha-3 country code.

**year** year.

**currency** factor with national currency unit.

**rgdpe** Expenditure-side real GDP at chained PPPs (in million 2011 USD).

**rgdpo** Output-side real GDP at chained PPPs (in million 2011 USD).

**pop** Population (in millions).

**emp** Number of persons engaged (in millions).

**avh** Average annual hours worked by persons engaged.

**hc** Index of human capital per person, based on years of schooling and returns to education.

**ccon** Real consumption of households and government, at current PPPs (in million 2011 USD).

**cda** Real domestic absorption, (real consumption plus investment), at current PPPs (in million 2011 USD).

**cgdpe** Expenditure-side real GDP at current PPPs (in million 2011 USD).

**cgdpo** Output-side GDP at current PPPs (in million 2011 USD).

**cn** Capital stock at current PPPs (in million 2011 USD).

**ck** Capital services levels at current PPPs (USA = 1).

**ctfp** TFP level at current PPPs (USA = 1).

**cwtfp** Welfare-relevant TFP levels at current PPPs (USA = 1).

**rgdpna** Real GDP at constant 2011 national prices (in million 2011 USD).

**reonna** Real consumption at constant 2011 national prices (in million 2011 USD).

**rdana** Real domestic absorption at constant 2011 national prices (in million 2011 USD).

**rnna** Capital stock at constant 2011 national prices (in million 2011 USD).

**rkna** Capital services at constant 2011 national prices (2011 = 1).

- rtfpna** TFP at constant national prices (2011 = 1).
- rwtfpna** Welfare-relevant TFP at constant national prices (2011 = 1).
- labsh** Share of labour compensation in GDP at current national prices.
- irr** Real internal rate of return.
- delta** Average depreciation rate of the capital stock.
- xr** Exchange rate, national currency/USD (market and estimated).
- pl\_con** Price level of CCON (PPP/XR, price level of USA GDPo in 2011 = 1).
- pl\_da** Price level of CDA (PPP/XR, price level of USA GDPo in 2011 = 1).
- pl\_gdpo** Price level of CGDPo (PPP/XR, price level of USA GDPo in 2011 = 1).
- i\_cig** Factor indicating whether relative price data for consumption, investment, and government is extrapolated, benchmark, or interpolated.
- i\_xm** Factor indicating whether relative price data for exports and imports is extrapolated, benchmark, or interpolated.
- i\_xr** Factor indicating whether the exchange rate is market-based or estimated.
- i\_outlier** Factor indicating whether the observation on pl\_gdpe or pl\_gdpo is an outlier or not.
- i\_irr** Factor indicating whether the observation on irr is regular (not an outlier), may be biased due to a low capital share, hit the lower bound of 1 percent, or is an outlier.
- cor\_exp** Correlation between expenditure shares of the country and the US (benchmark observations only).
- statcap** Statistical capacity indicator (source: World Bank, developing countries only).
- csh\_c** Share of household consumption at current PPPs.
- csh\_i** Share of gross capital formation at current PPPs.
- csh\_g** Share of government consumption at current PPPs.
- csh\_x** Share of merchandise exports at current PPPs.
- csh\_m** Share of merchandise imports at current PPPs.
- csh\_r** Share of residual trade and GDP statistical discrepancy at current PPPs.
- pl\_c** Price level of household consumption (price level of USA GDPo in 2011 = 1).
- pl\_i** Price level of capital formation (price level of USA GDPo in 2011 = 1).
- pl\_g** Price level of government consumption (price level of USA GDPo in 2011 = 1).
- pl\_x** Price level of exports (price level of USA GDPo in 2011 = 1).
- pl\_m** Price level of imports (price level of USA GDPo in 2011 = 1).
- pl\_n** Price level of the capital stock (price level of USA in 2011 = 1).
- pl\_k** Price level of the capital services (price level of USA = 1).

## Details

The Penn World Table (version 9.1) is a database with information on relative levels of income, output, input, and productivity, covering 182 countries between 1950 and 2017. For more details see Feenstra, Inklaar, and Timmer (2019, 2015) provided at <http://www.ggd.net/pwt/>. Version 9.x represents the first substantial change to the *Next Generation of the Penn World Table* of PWT versions 8.0 and 8.1 (see Feenstra, Inklaar, and Timmer 2015). However, Section I of Feenstra et al. (2015) is still the recommended starting point as the main structure of the database and definition of its variables are unchanged in PWT 9.1. Nevertheless Version 9.1 contains important new and revised data.

**Source**

Penn World Table 9.1, <https://doi.org/10.15141/S50T0R>.

**References**

Feenstra RC, Inklaar R, Timmer MP (2019). PWT 9.1: A User's Guide. URL <http://www.ggd.net/pwt/>.

Feenstra RC, Inklaar R, Timmer MP (2015). The Next Generation of the Penn World Table, *American Economic Review*, forthcoming. URL <http://www.ggd.net/pwt/>.

**See Also**

[pwt9.0](#)

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