

Purpose

The tool helps generate tables and charts of population and employment data - both historical and projected. Users can apply population projections from UN data, or add their own projections. In the projection sheet, indicators and charts guide users in developing consistent projections not only in terms of population, but also in terms of working age population, dependent population, labor force, and employment. Where possible, the data and projections are split between male and female to highlight any gender gaps. Output charts include population pyramids.

Data

The tool uses value added, population, and employment data from the World Development Indicators (WDI) database. Users can also manually enter their own data.

World DataBank: <http://databank.worldbank.org/data/home.aspx> Accessed 03 Oct 2019

In the Projection-feature, users can apply population projection data from the UN:

UN Projected Data: <http://esa.un.org/unpd/wpp/DVD/> File version: POP/DB/WPP/Rev.2019/POP/F07-2. Last accessed 24 Sep 2019.

Step-by-Step

Follow the Step-by-Step instructions from sheet to sheet:

Step 1	Select Country
Step 2	Select Data
Step 3	Select Period
Step 4	Select Projection Assumptions
Step 5	Review Results
Step 6	Country Comparison
Export	Export Results

Color coding

123-ABC Cells filled by the tool and can be modified by the user

All other cells filled by the tool and CANNOT be modified by the user

123-ABC	Do not modify	123-ABC	Do not modify
123-ABC	Do not modify	123-ABC	Do not modify
123-ABC	Do not modify	123-ABC	Do not modify
123-ABC	Do not modify	123-ABC	Do not modify
123-ABC	Do not modify	123-ABC	Do not modify

Password Protection

To prevent the user from inadvertently overwriting formulas, a password is used protect all sheets.

If it becomes necessary to revise the structure of the file, use these buttons:

NB! The password is 'GROWTH' and must not be changed as it is included in macros.

All sheets: Unprotect
All sheets: Protect

Contact Details

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Documentation

No errors in reported in structural check

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Definitions & Concepts

Compound Annual Growth Rate (CAGR)

Growth rate is calculated as a geometric average growth rate between the beginning and end year (t, t+T) using the compound average growth rate (CAGR) formula. For example, for value added growth (Y):

$$g_{t,t+T} = (Y_{t+T}/Y_t)^{\frac{1}{T}} - 1 \tag{Eq. 1}$$

where

$g_{t,t+T}$ = Period average growth rate of value added between year t and t+T

Y_t = Value added in year t

Y_{t+T} = Value added in year t+T

Projection

In Step 4 a the user can run analyses to project the value added, demographics, and employment for a selected period. Projected growth rates can include:

- * Growth rates for the currently selected country (Total period, or Period 1, 2, or 3)
- * Projected growth rates from UN data included in this current tool.
UN data version: File version: POP/DB/WPP/Rev.2019/POP/F07-2. Last accessed 24 Sep 2019.
File POP/7-2: Male & Female population by five-year age group, major area, region and country, 1950-2100 (thousands)
- * Manually added growth rates

Data Consistency and Combining Data Sources

On the 'Main Menu' sheet, the user can select which data source to use - 'Manual' or 'DataBank'. If a mix of data sources is used, the following approach is used to establish a consistent data set:

- * Consistency rule 1: Population (N) > Working Age Population (A) > Labor Force (L) > Employment (E)
- * Consistency rule 2: Population (N) = Working Age Population (A) + Dependents (D)
- * Consistency rule 3: Working Age Population (A) = Labor Force (L) + Outside Labor Force (O)
- * Consistency rule 4: Labor Force (L) = Employed (E) + Unemployed (U)
- * Consistency rule 5: Dependents (D) = Youth (<15 yrs) + Old Age. Depending on WAP definition, D = ages <15 and + 64, or just <15.
- * Consistency rule 6: In each category, Total = Male (M) + Female (F)

[Click to jump to overall consistency test](#)

To meet these consistency rules the following prorating approaches are used:

* Using DataBank data to prorate Manual data:

$$WAP_{Manual} = \frac{WAP_{DataBank}}{N_{DataBank}} N_{Manual}$$

$$LF_{Manual} = \frac{LF_{DataBank}}{WAP_{DataBank}} WAP_{Manual}$$

$$E_{Manual} = \frac{E_{DataBank}}{LF_{DataBank}} LF_{Manual}$$

* Using DataBank data to prorate Manual data:

$$WAP_{DataBank} = \frac{WAP_{Manual}}{N_{Manual}} N_{DataBank}$$

$$LF_{DataBank} = \frac{LF_{Manual}}{WAP_{Manual}} WAP_{DataBank}$$

$$E_{DataBank} = \frac{E_{Manual}}{LF_{Manual}} LF_{DataBank}$$

* For data disaggregated by gender **no proration** is used to ensure that "Male + Female = Total":

- Population data by gender are used directly if available in the selected source.
- WAP data by gender are used directly from selected source ONLY if the same source is used for Population data.
- LF data by gender are used directly from selected source ONLY if the same source is used for both Population and WAP data.
- Employment data by gender are used directly from selected source ONLY if the same source is used for Population, WAP, and LF data.
- Unemployment data by gender are calculated as: Labor Force less Employment by gender.
- Outside Labor Force data by gender are calculated as: WAP less Labor Force by gender.
- Youth Dependents data by gender are used directly from selected source ONLY if the same source is used for Population data.
- Old Age Dependents data by gender are calculated as: Population less WAP less Youth Dependents by gender.

Documentation

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Data Requirements

Total Value Added Data

In the case of WDI data, 'Total Value Added' is obtained from the data series 'GDP' measured in million constant 2010 USD. Data points are excluded for years and countries where no GDP data exist.

WDI Data:

<http://databank.worldbank.org/data/home.aspx>

[Click to jump to selection cell](#)

[Click to jump to country list](#)

Employment and Population Data

This file includes population, working age population, labor force, and employment, data from DataBank measured in 1,000 people. The population aged 15-64 is selected as the working age population in this tool. One can also select to use population aged 15+. Data points are excluded for specific years if population, working age population, labor force, and total employment data are not available. WDI, and Health, Nutrition, and Population Data: <http://databank.worldbank.org/data/home.aspx>

This file includes projected population data from UN at the following scenarios: Low Fertility, Medium Fertility, and High Fertility.

File POP/7-2: Male & Female population by five-year age group, major area, region and country, 1950-2100 (thousands)

UN Data: <http://esa.un.org/unpd/wpp/DVD/>

The user may elect to enter their own data for Value Added, population and employment ensuring that they use million constant 2010 USD terms to enable country comparisons. Employment data entered manually by the user should be measured in thousands or millions of people to enable comparisons with DataBank data. Units for manual data can be selected on the "Manual Data" sheet. If necessary, the user can also add up to 5 new countries on the "Manual Data" sheet. These countries are then added to the drop-down menu on the "Main Menu" and "Country Comparison" sheets.

Country Naming Convention

Note that many data sources use different notations for the same country or region. In this tool, country names and 3-letter country codes are standardized to follow WDI's notations for individual countries and aggregates. Some additional countries and aggregates were added to cover UN data. The table starting Row 316 also includes WDI's SNA Price Valuation by country (VAB or VAP).

[Click to jump to list](#)

This tool does not aggregate any data. All aggregated data are downloaded "as is" from WDI and UN. Here are weblinks listing which countries are included in the different WDI and UN aggregates:

<http://data.worldbank.org/about/country-classifications/country-and-le>

<http://esa.un.org/unpd/wpp/Download/Other/Documentation/>

Excel File Structure

This Excel file includes the following sheets, and the arrows illustrate the main flow of data between them.

