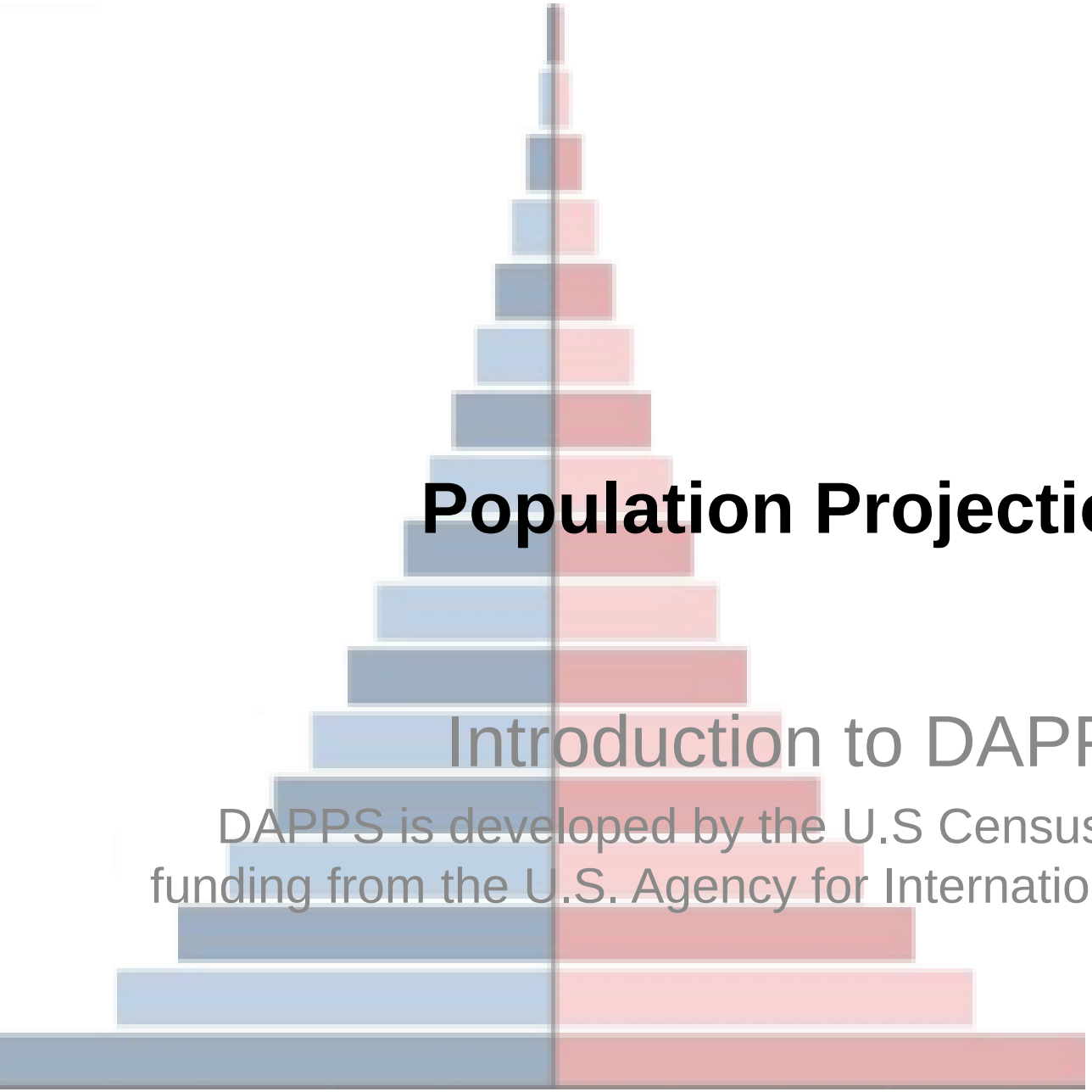


Population Projections

Introduction to DAPPS

DAPPS is developed by the U.S Census Bureau, with funding from the U.S. Agency for International Development

What is DAPPS?

- **D**emographic **A**nalysis and **P**opulation **P**rojection **S**ystem
- User-friendly system for creating population projections
- Ultimate goal is to combine the demographic analysis and population projection work into one integrated system

What is DAPPS?

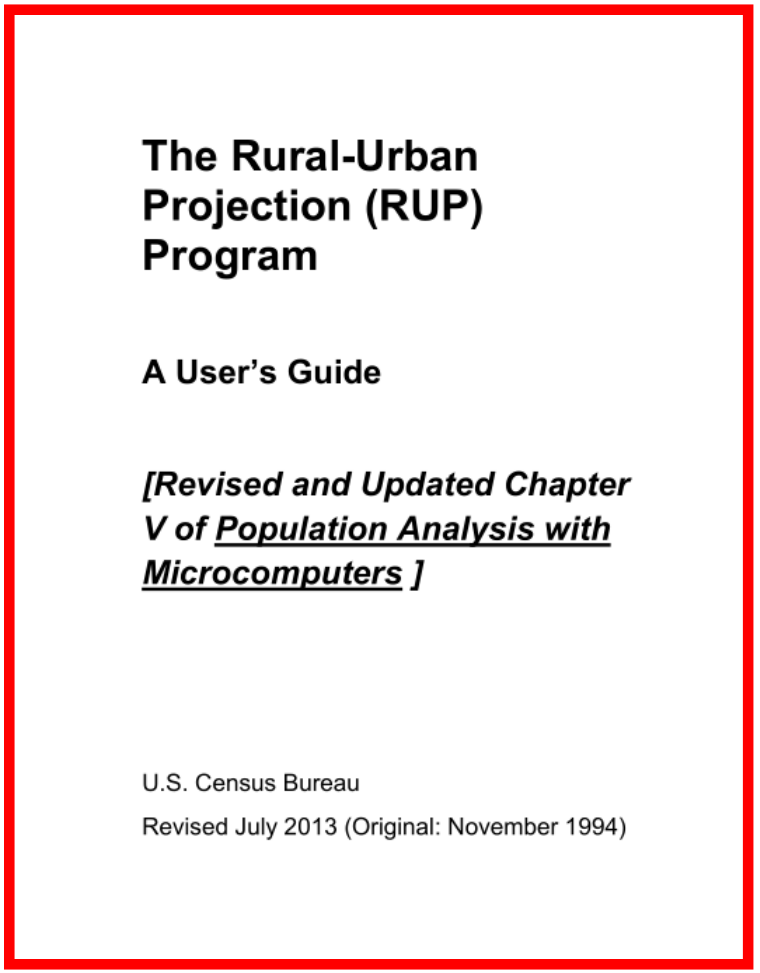
- Currently DAPPS is a user-friendly system for entering data for population projections
- Currently uses RUP in the background to create projections
- In the process of integrating the functionality of some of the Population Analysis System workbooks
- Ultimately, the projection engine will be rewritten as an integral part of the system
- Subnational capabilities will also be integrated

RUP History

- Created in 1980s
- Uses “card-image” inputs
- Less user-friendly than other programs
  - Inputs must be properly formatted
  - Inputs must be in proper sequence
- Formatting inflexibility offset by
  - Input types and quantities allowed
  - Generated output types and quantities

RUP User's Guide

- For more information on the projection methodologies of DAPPS and RUP, see the RUP User's Guide


The Rural-Urban Projection (RUP) Program

A User's Guide

[Revised and Updated Chapter V of Population Analysis with Microcomputers]

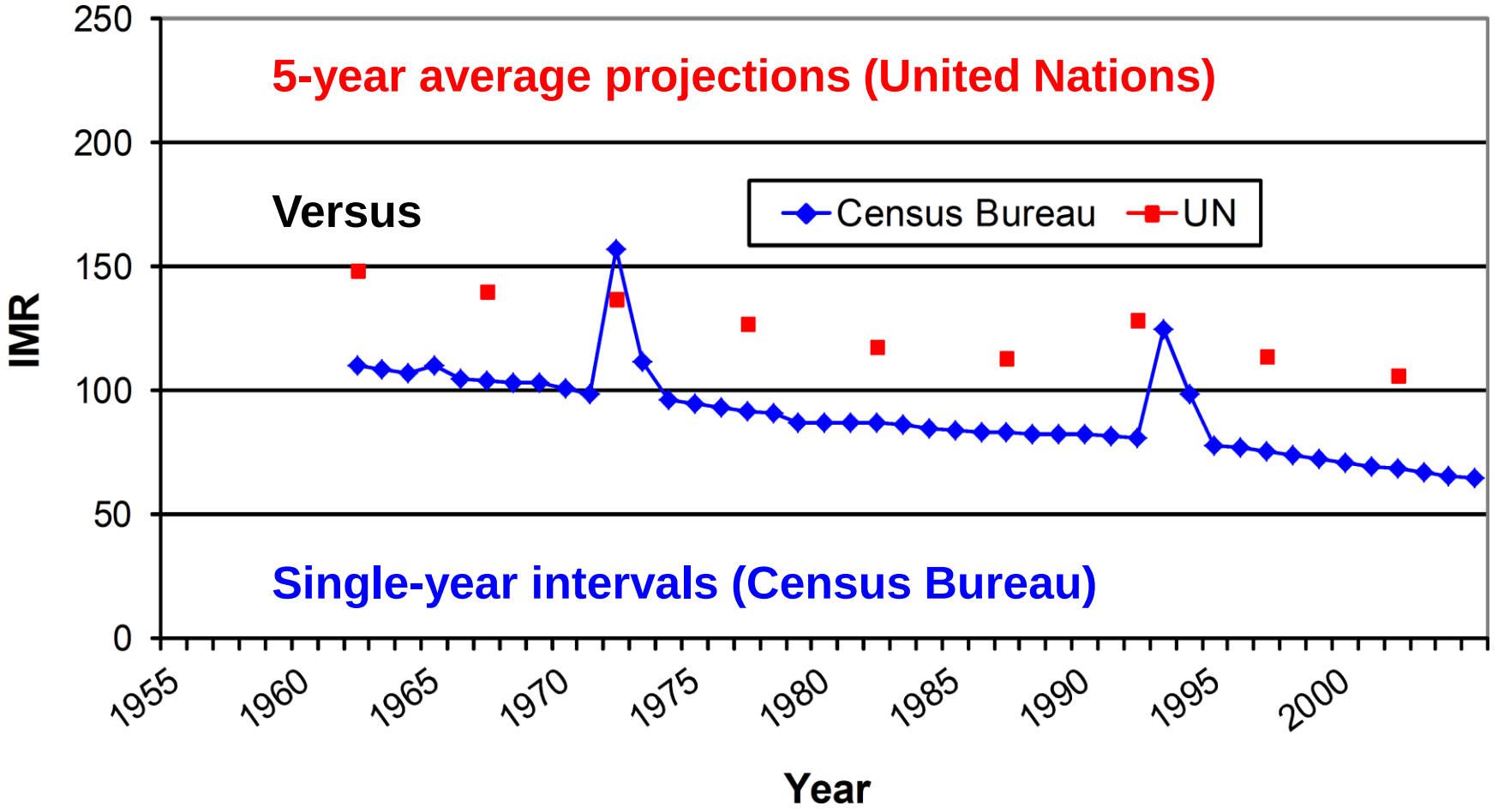
U.S. Census Bureau

Revised July 2013 (Original: November 1994)

DAPPS/RUP is a One-One Projection Program

- One-one cohort-component projection moves population defined by single years of age forward one year at a time. Inputs may be for 5-year or single-year age groups.
- In contrast:
  - Five-five projection moves population defined by 5-year age groups forward 5 years at a time. Inputs are for 5-year age groups.
  - Five-one projection also moves population defined by 5-year age groups forward 5 years at a time then splits the projected population's age groups into single years.

Comparison of USCB and UN estimates of Burundi IMR



DAPPS/RUP Input Requirements

- To create a projection, DAPPS/RUP requires at least 3 components:
  - A base population, by age and sex (usually based on a census or estimate);
  - A mortality structure, by age and sex (usually a life table or deaths, by age and sex); and
  - A fertility structure, by age of mother (births or age-specific fertility rates).
- Since populations likely experience inflow and outflow of persons, a fourth component is optional but recommended:
  - A pattern of net migration (by age and sex of migrant).
- A projection can be completed without migration; net migration is assumed to be zero.

DAPPS/RUP Input Requirements

- DAPPS/RUP assumptions
  - Projection: midyear to midyear
  - Rates and Events are for calendar years.
- Base year population
  - Single years of age or 5-year age groups
  - If 5-year age groups, RUP splits into single years
- Inputs NOT required for each year of projection
- Levels interpolated or held constant for years without inputs

DAPPS/RUP Input Requirements

- Inputs must be accurately dated
- Inputs must refer to single calendar years rather than to periods of 5 years

DAPPS/RUP Allocates Calendar Year Events Evenly Over the Year

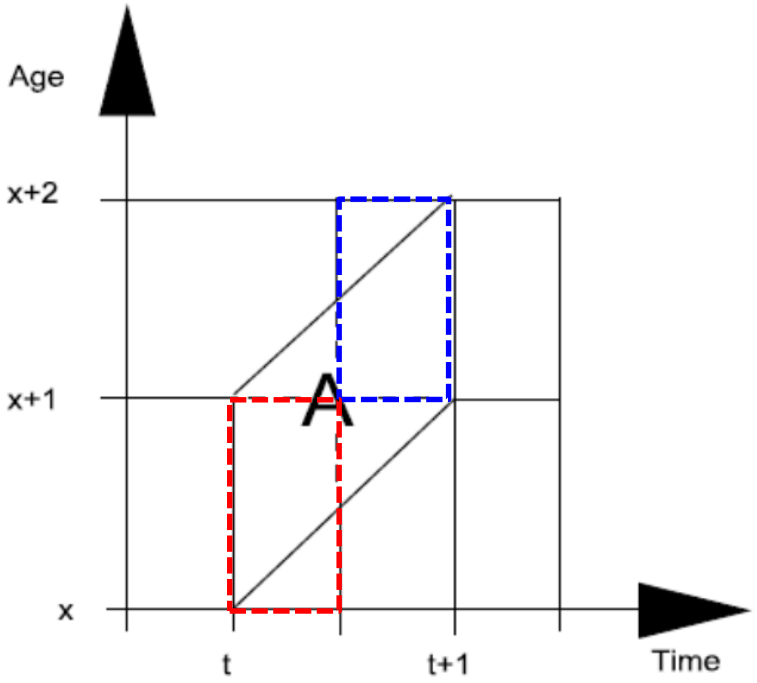


Figure 1. Projected Cohort Events

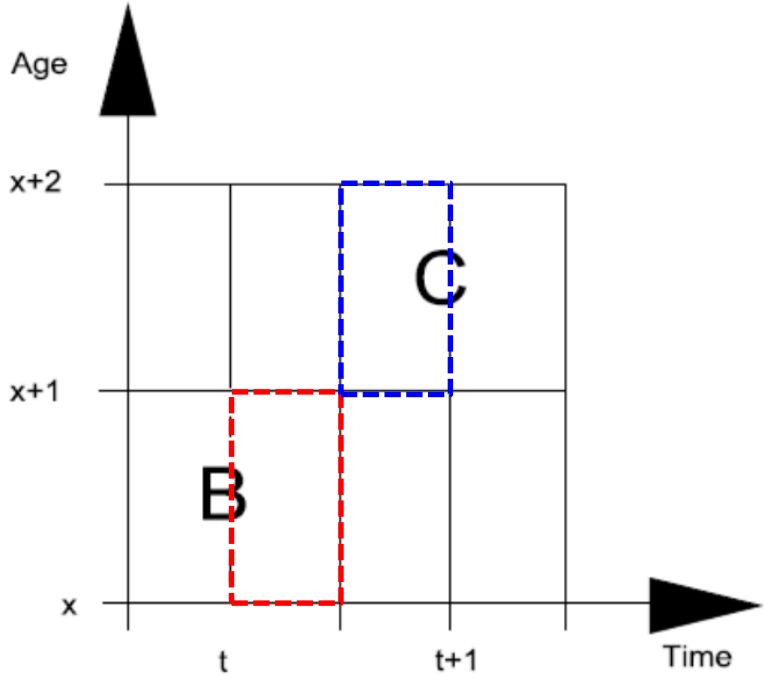
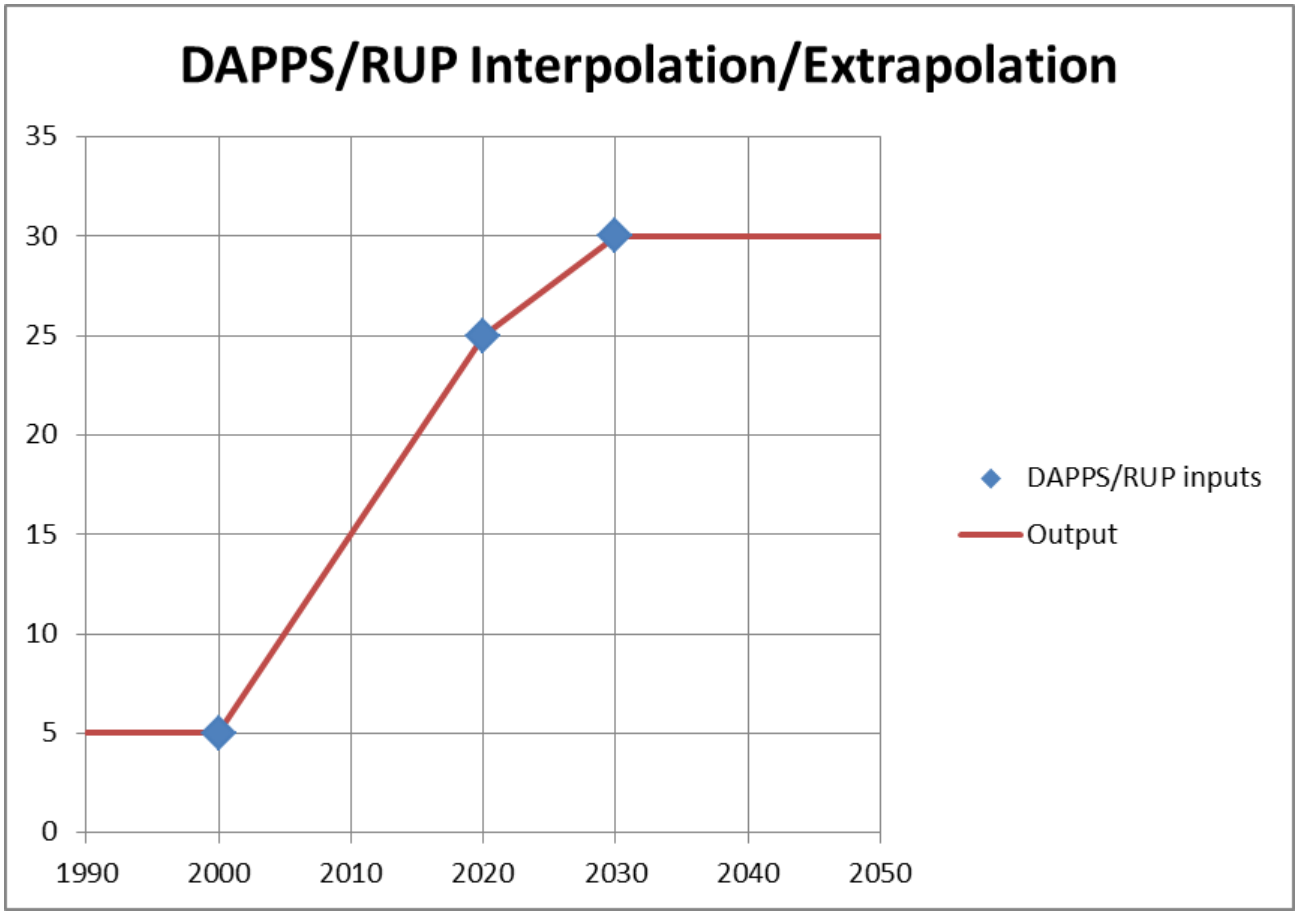


Figure 2. Calendar Year Events

The Rural-Urban Projection Program (RUP): A User's Guide, page 69.

DAPPS/RUP Interpolation/Extrapolation of Input Data



The Rural-Urban Projection Program (RUP): A User's Guide, page 73.

DAPPS/RUP Output

- Output population is for midyear
- Output measures of fertility, mortality, migration are for calendar year
- Available output:
  - Single-year, five-year, and irregular age groups for population, migration, and deaths
  - Single-year and five-year age-specific fertility rates
  - Abridged and unabridged life tables

DAPPS/RUP Output

- Outputs match inputs
- Parameters controlled by user:
  - Number of projection years
- Progressive rounding maintains consistency among values created by the program
  - Rounding to integer values occurs in:
    - Population, deaths, and migrants by single years of age and sex
    - Births by single years of age of mother
  - See RUP User's Guide, p. 85

DAPPS Projection Inputs

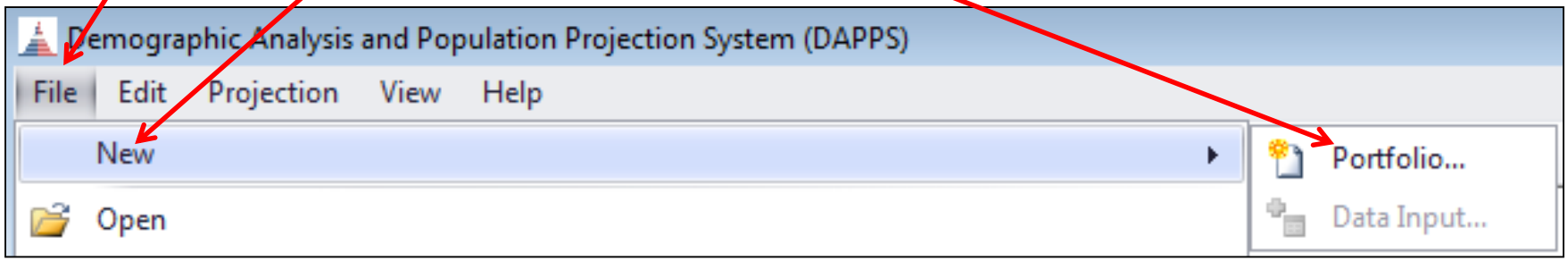
- The data for these components can come from one of two places:
  - A RUP input file or,
  - A spreadsheet-based program, like Microsoft Excel or MortPak for Windows.
- To create your own projection, you first need to create a new Portfolio or open an existing one.

DAPPS Portfolios

- The DAPPS “portfolio” is a directory that contains subdirectories and all the files needed by DAPPS for storing data and doing projections.
- The portfolio name is also used for the DAPPS file that is used to identify a portfolio. So the portfolio named “TEST” would be a directory called “TEST” and would include the file TEST.dapps.xml.

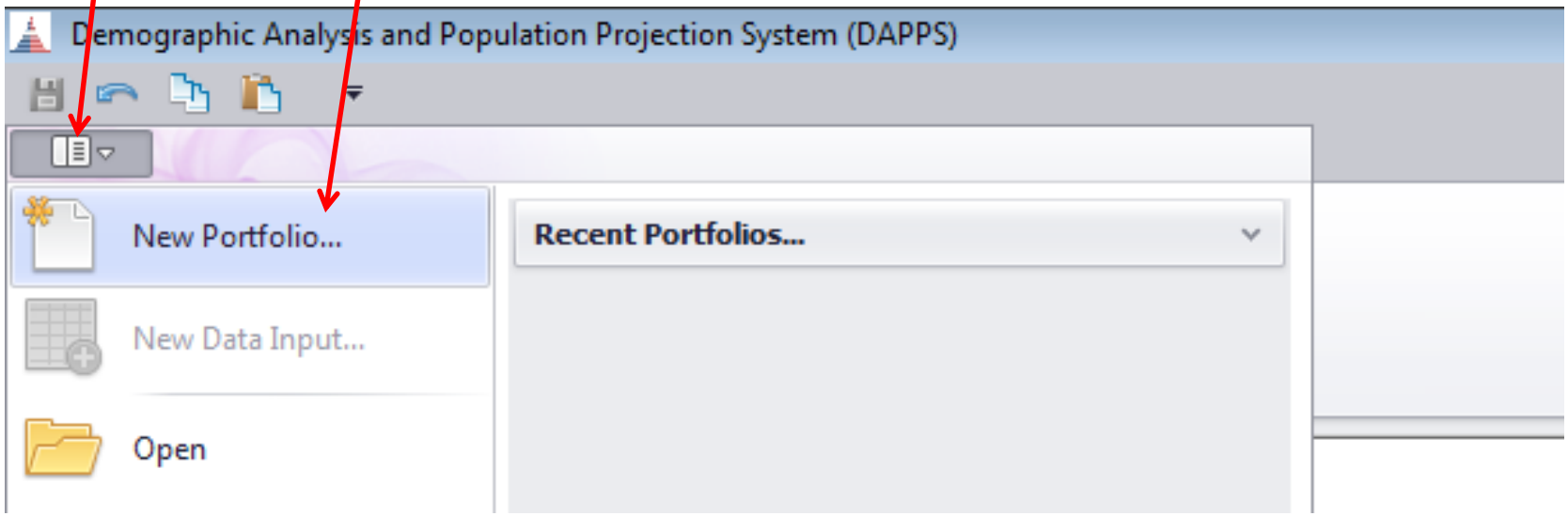
Create a New Portfolio: DAPPS 2.0

- File → New → Portfolio



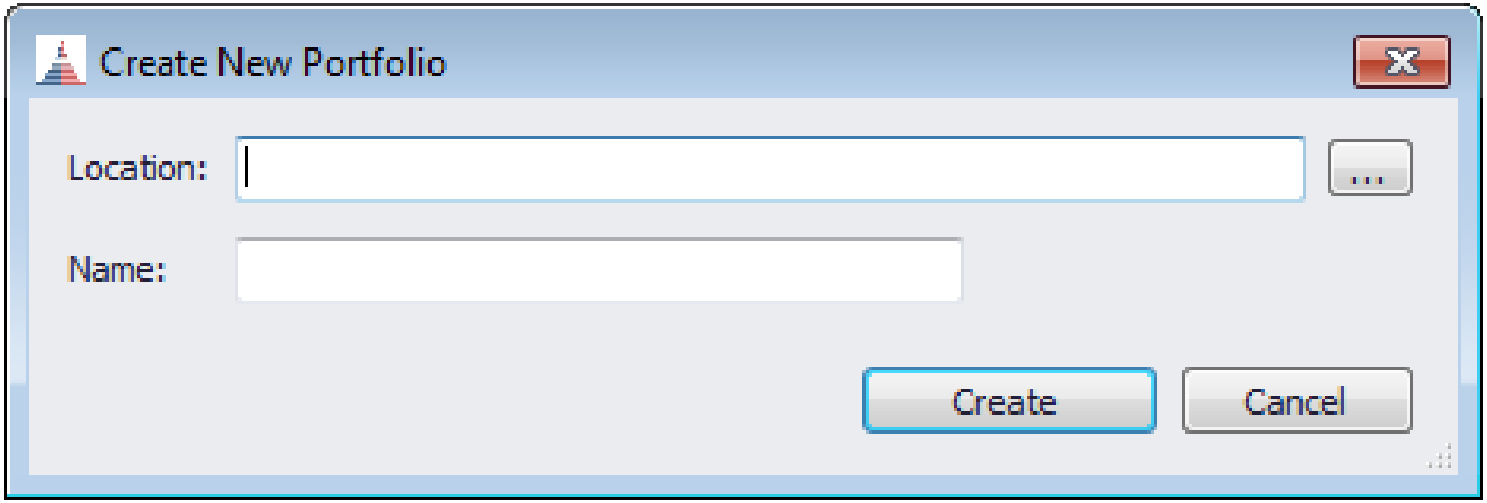
Create a New Portfolio: DAPPS 3.0

- File → New Portfolio

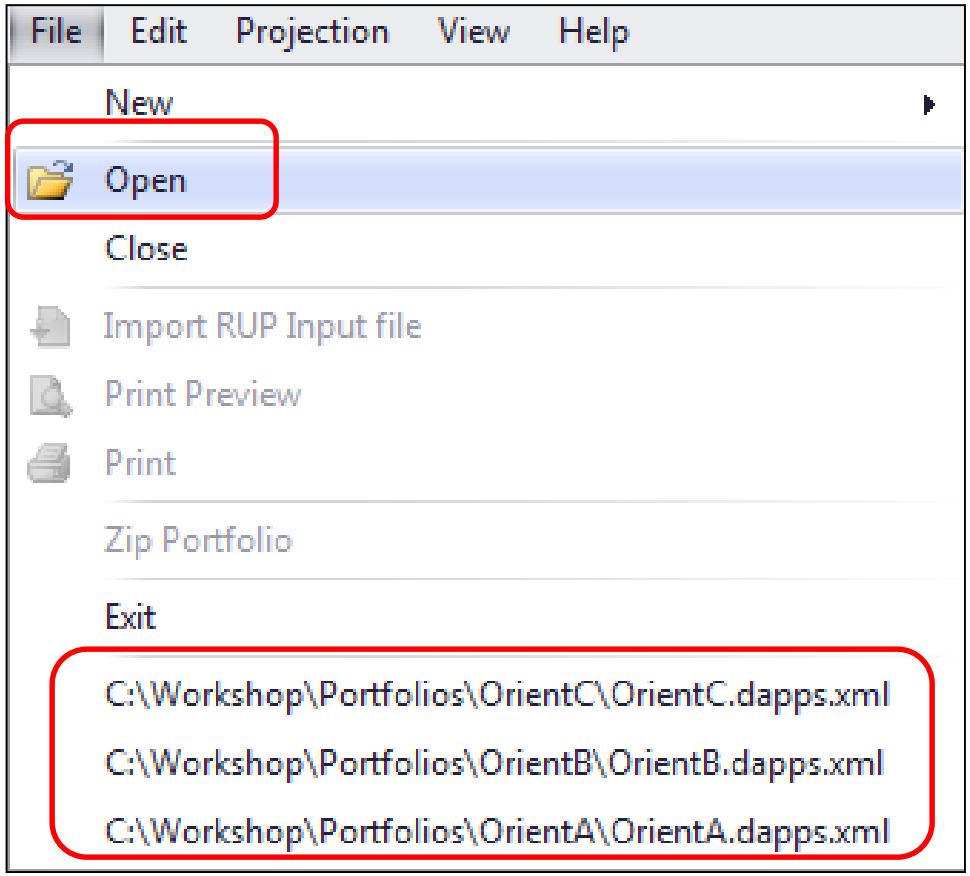


Create a New Portfolio

- Choose a Location
- Enter a Name (this will become a subdirectory under Location)
- Click on the “Create” button

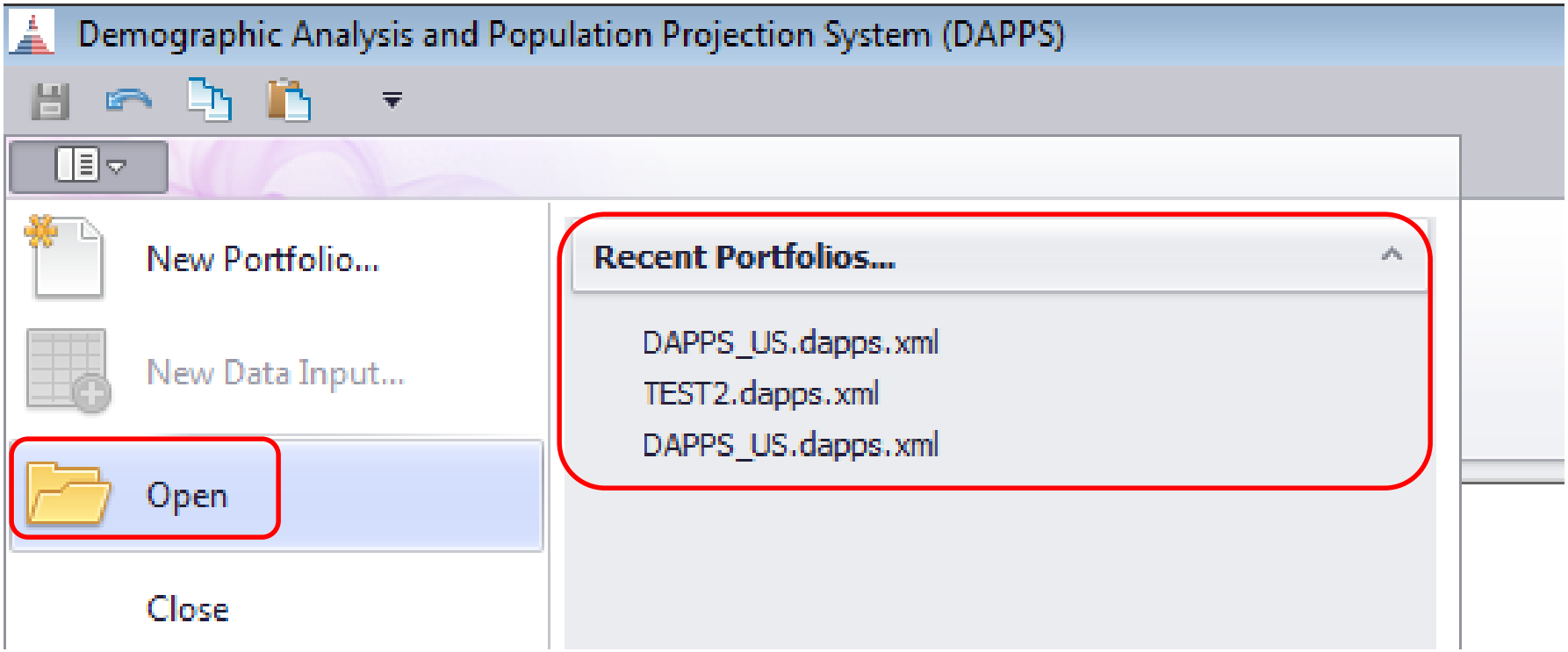


Open Portfolio: DAPPS 2.0



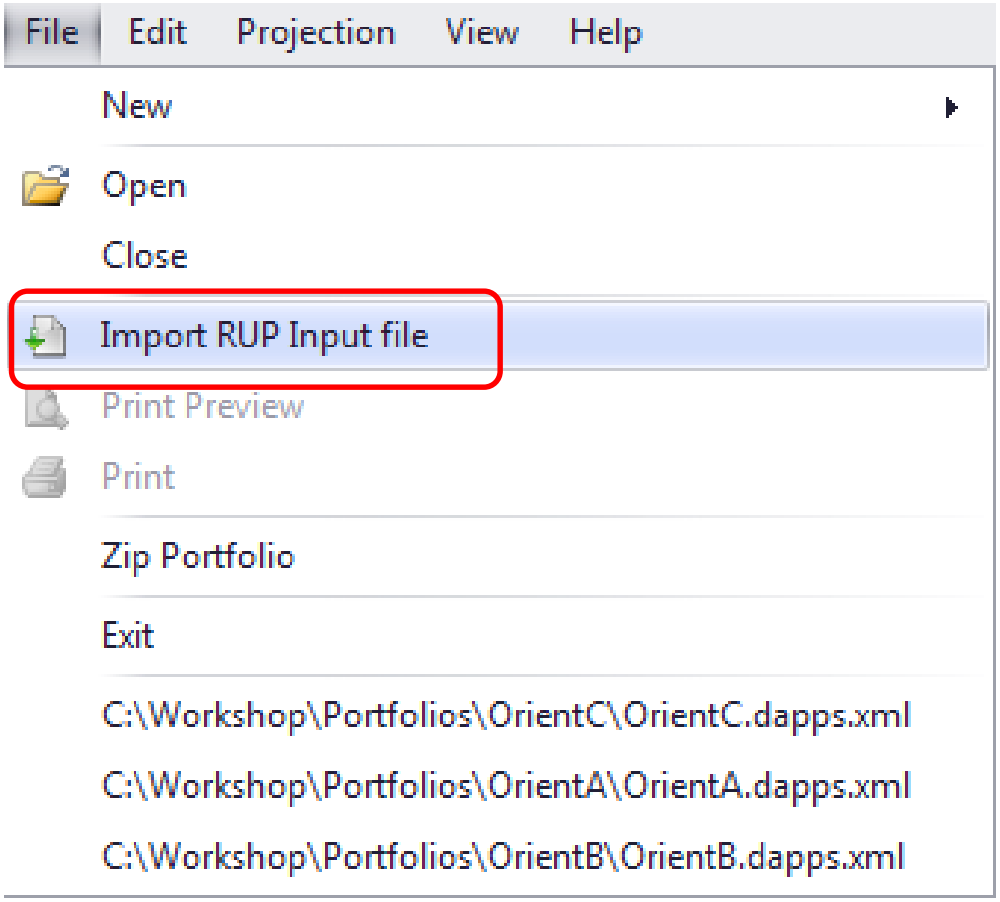
To open an existing portfolio, select “Open” from the File menu and navigate to portfolio, or select one of your recently-created portfolios from the bottom of the file menu.

Open Portfolio: DAPPS 3.0

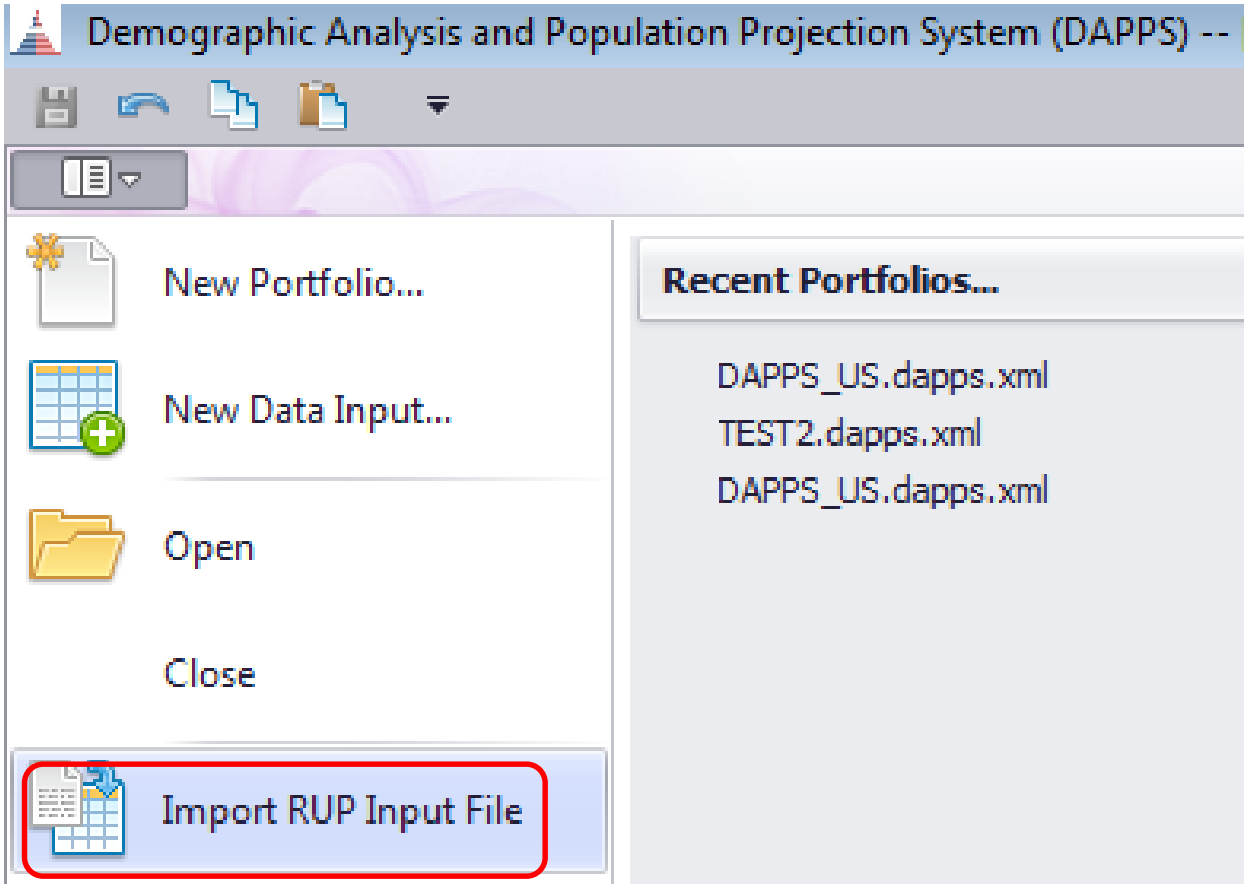


To open an existing portfolio, select “Open” from the File menu and navigate to portfolio, or select one of your recently-created portfolios from the side of the file menu.

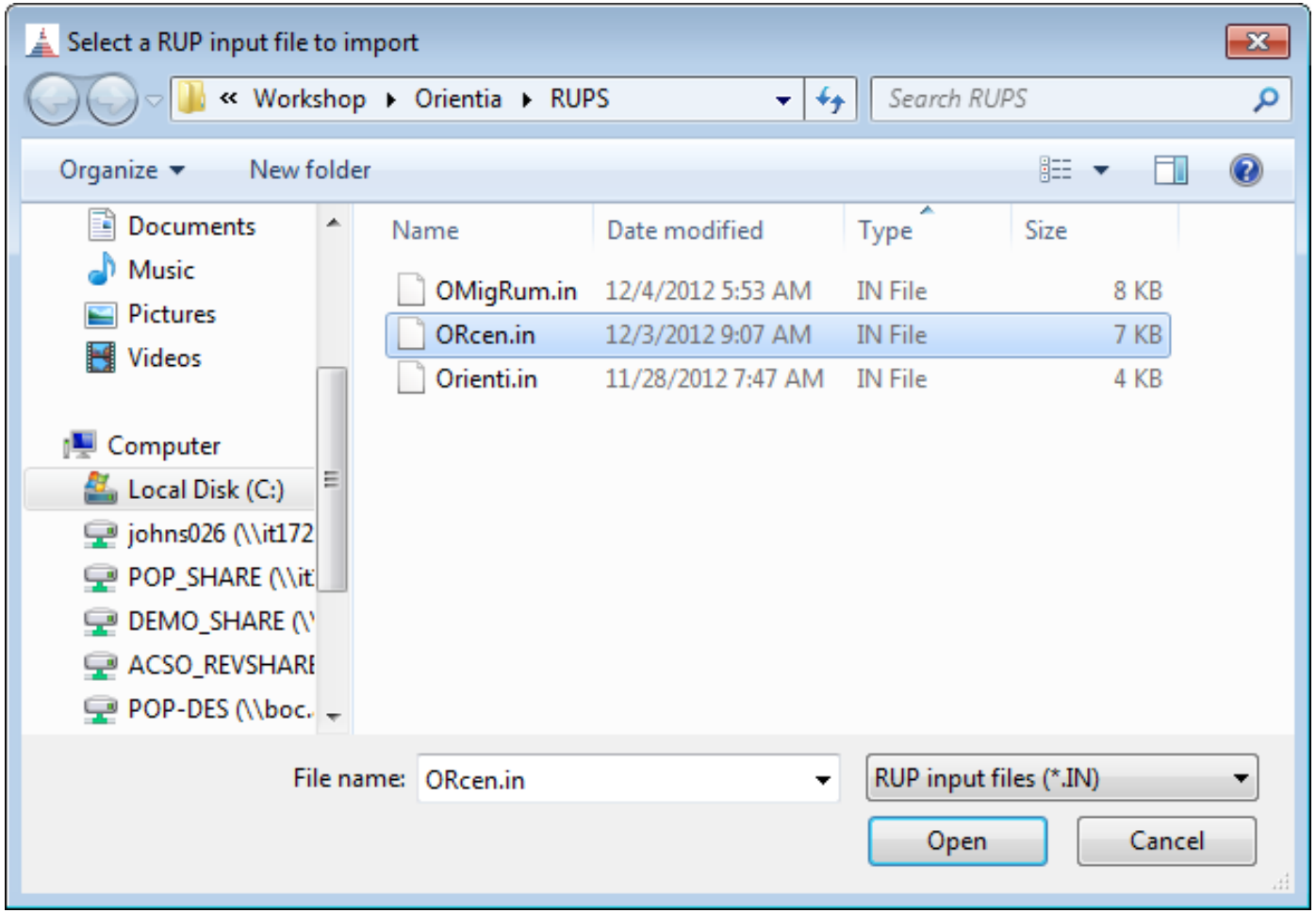
Import from RUP: DAPPS 2.0



Import from RUP: DAPPS 3.0

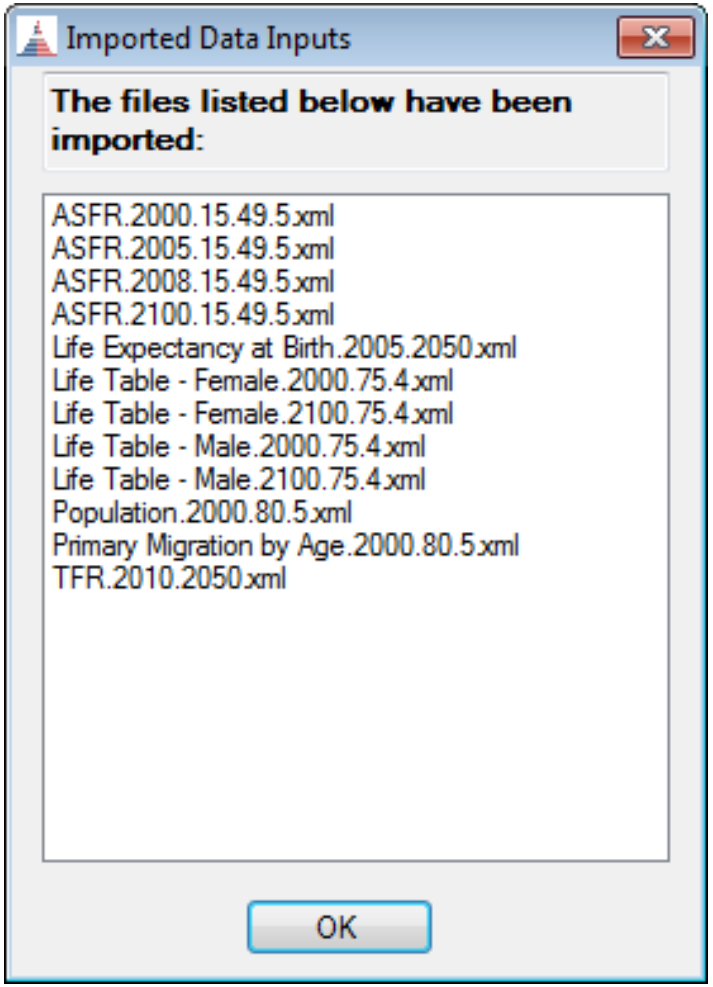


Import from RUP



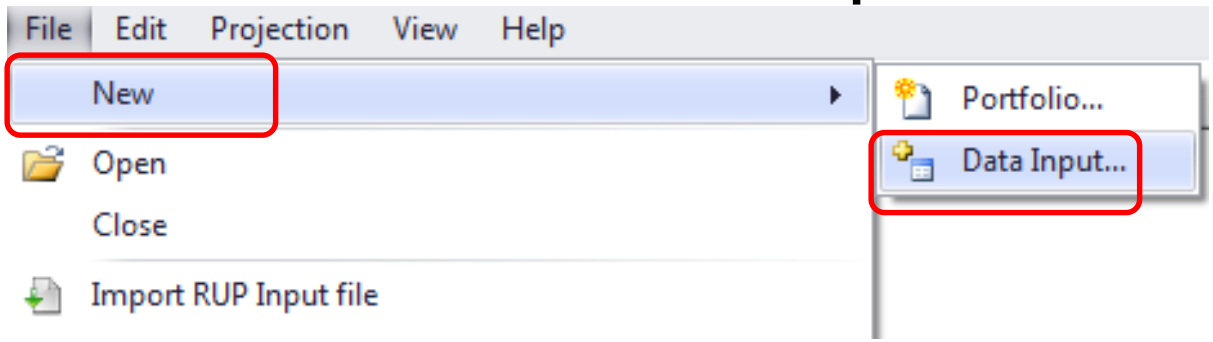
Import from RUP

- If one or more data components were not imported, please check your input file for formatting errors and try again.

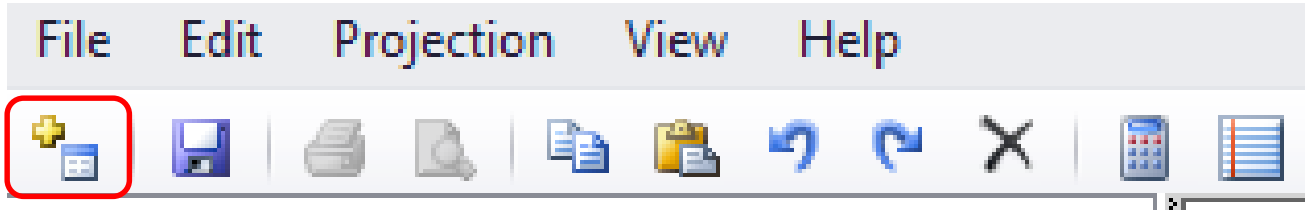


Add New Data: DAPPS 2.0

- File → New → Data Input…

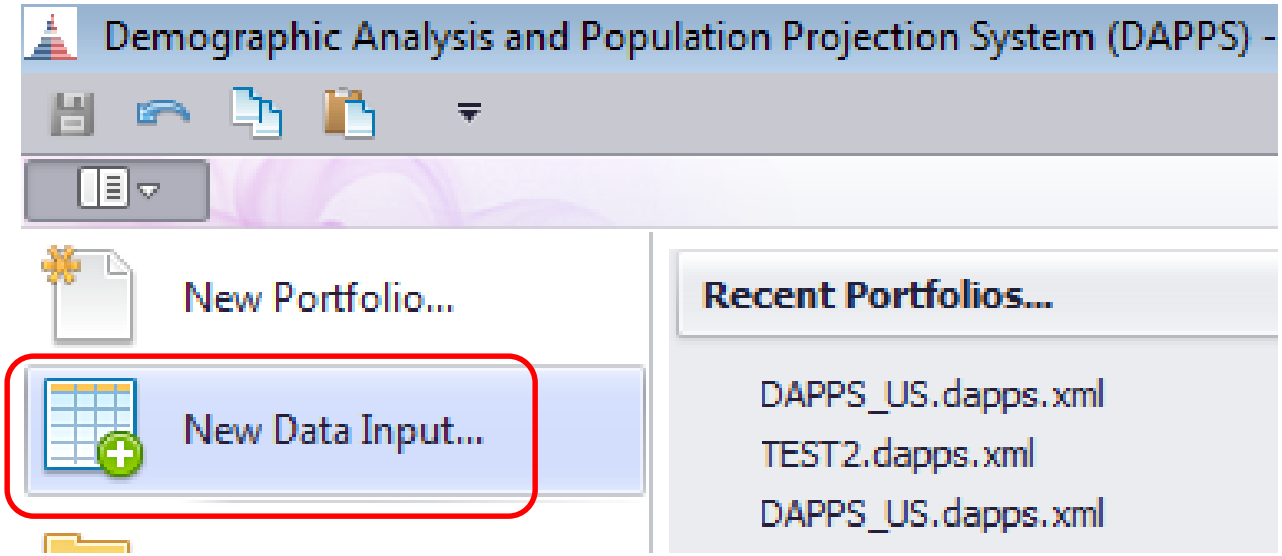


- Or  on the toolbar



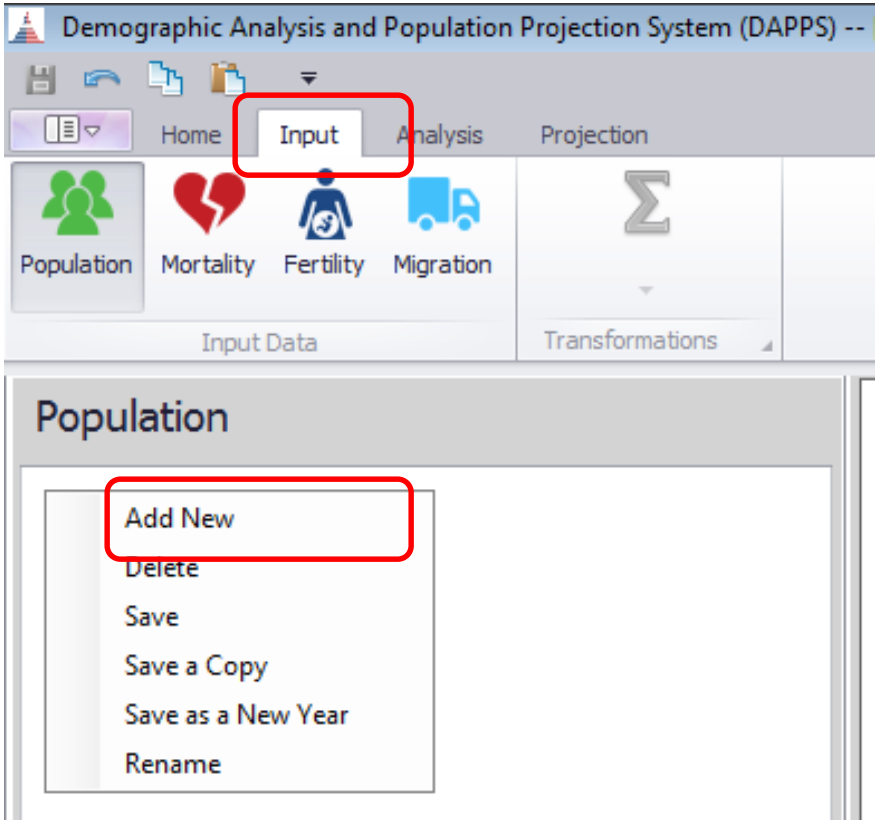
Add New Data: DAPPS 3.0

- File → New Data Input…



Add New Data: DAPPS 3.0

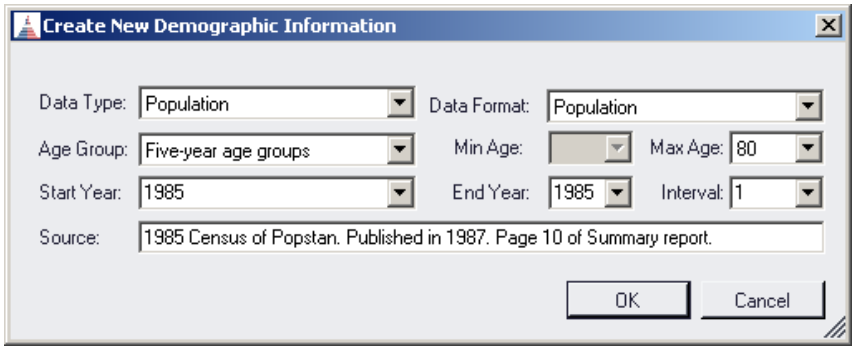
- Or, Input → Right click → Add New



Add New Data: Population Example

- Select
  - Data Type
  - Data Format
  - Age Grouping
  - Max Age
  - Start Year
  - End Year (default is Start Year)
  - Interval (years between input values)
  - Source
- Click “OK” to create blank data input shell
- You cannot proceed unless all items have been entered

Add New Data: Population Example



- Data Type: Population
- Data Format: Population
- Age Group: Five-year
- Min Age: N/A; Max Age: 80
- Start Year 1985; End Year: 1985
- Interval: 1
- Source: 1985 Census of Popstan. Published in 1987. Page 10 of Summary report.

Add New Data:
Population Example

Population by Age and Sex			
	Midyear population		
Age	Both sexes	Male	Female
All ages	10,715,302	6,012,966	4,702,336
0-4	1,390,000	710,000	680,000
5-9	1,201,500	601,552	599,948
10-14	1,056,706	531,057	525,649
15-19	1,089,985	613,793	476,192
20-24	1,159,947	703,468	456,479
25-29	1,067,926	654,624	413,302
30-34	875,358	531,398	343,960
35-39	695,354	416,520	278,834
40-44	553,724	328,363	225,361
45-49	457,630	270,353	187,277
50-54	359,908	213,639	146,269
55-59	274,485	166,875	107,610
60-64	195,279	121,324	73,955
65-69	180,000	80,000	100,000
70-74	90,000	40,000	50,000
75-79	45,000	20,000	25,000
80+	22,500	10,000	12,500
0	298,000	152,000	146,000
1-4	1,092,000	558,000	534,000

Copy/Paste

Population 1985 Ages 0 to 80 (5-Year)			
Age	Male	Female	Total
0 - 4	0	0	0
5 - 9	0	0	0
10 - 14	0	0	0
15 - 19	0	0	0
20 - 24	0	0	0
25 - 29	0	0	0
30 - 34	0	0	0
35 - 39	0	0	0
40 - 44	0	0	0
45 - 49	0	0	0
50 - 54	0	0	0
55 - 59	0	0	0
60 - 64	0	0	0
65 - 69	0	0	0
70 - 74	0	0	0
75 - 79	0	0	0
80+	0	0	0
Total	0	0	0

Source: 1985 Census of Popstan. Published in 1987. Page 10 of Summary Report.

United States Census Bureau | U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

USAID FROM THE AMERICAN PEOPLE

Add New Data: Population Example

- Repeat for all inputs
- Population
  - Only one is needed for a projection
- Mortality
  - One or more, at least one with data for all age groups
- Fertility
  - One or more, at least one with data for all age groups of women of reproductive age
- Migration
  - Optional, but recommended. At least one input by age.

Population 1985 Ages 0 to 80 (5-Year)			
Age	Male	Female	Total
0 - 4	710,000	680,000	1,390,000
5 - 9	601,552	599,948	1,201,500
10 - 14	531,057	525,649	1,056,706
15 - 19	613,793	476,192	1,089,985
20 - 24	703,468	456,479	1,159,947
25 - 29	654,624	413,302	1,067,926
30 - 34	531,398	343,960	875,358
35 - 39	416,520	278,834	695,354
40 - 44	328,363	225,361	553,724
45 - 49	270,353	187,277	457,630
50 - 54	213,639	146,269	359,908
55 - 59	166,875	107,610	274,485
60 - 64	121,324	73,955	195,279
65 - 69	80,000	100,000	180,000
70 - 74	40,000	50,000	90,000
75 - 79	20,000	25,000	45,000
80+	10,000	12,500	22,500
Total	6,012,966	4,702,336	10,715,302

Source: 1985 Census of Popstan. Published in 1987. Page 10 of Summary report.