United Nations Workshop on the Production of Population Estimates
and Demographic Indicators
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Hands-on Exercise – Fertility

1. **Children Ever Born (CEB)**
   Using data on the number of children ever born from the two latest censuses of your country:
   a. Calculate the proportion missing, proportion childless, and average parity (average CEB) for each age group;
   b. Create a figure with these mean CEB by age group for both data sources;
   c. Using the average parity for women age 40-44 and over (cohort fertility) from these two censuses, realize a time-plot graph of these cohort fertility estimates using an average age at childbearing of 28 years;
   d. What can you say about the fertility change and data quality?

2. **Recent births**
   Using the census data on the number of births during the last 12 months:
   a. Calculate the sex ratio at birth by age group of mother for births in the last 12 months.
   b. Create a figure of the sex ratio at birth by age group of mother;
   c. Calculate the ASFRs. Plot the ASFRs and calculate the TFR;
   d. What can you tell about fertility change and data quality?

3. **Reverse survival method of fertility estimation**
   Using the spreadsheet provided ("FE_reverse_9.xlsx), implement the reverse survival method for the estimation of fertility using the census data:
   a. Select WPP2015 as input parameters on the "Introduction" worksheet;
   b. Enter the enumerated populations of children under age 15 (in single years) and women aged 10-64 (in 5-year age groups) in the "Method" worksheet;
   c. What are your conclusions about the fertility estimates (presented in the "Method" and "Chart" worksheets).

4. **P/F method (*if time permits*)**
   Using the application FERTPF in MortPak and data on CEB and recent births for all the women from the census data:
   a. Enter the data in FERTPF in MortPak and run the application;
   b. Examine the results for different age-groups;
   c. Compare the TFR derived from this exercise (using the adjustment factor you deem most appropriate), the TFR derived in point (2) above, and TFR obtained from an outside source (see UN Population Division);
   d. What are your conclusions about the quality of fertility data?

5. **Discussion/Conclusion**
   Create a time-plot graph including all fertility estimates computed above.
   What can you tell about fertility change and data quality?