

PROJTFR32

Version 5.20

Description

This workbook calculates consistent projected total fertility rates (TFRs) for up to 32 subnational areas given initial levels of subnational TFR and national TFR trends. The projection calculation uses the relative complements of TFRs in relation to a user-provided limit TFR.¹

Data Required

- (1) Base year of the projection
- (2) Limit (lower asymptote) TFR value
- (3) National-level base year estimate and estimates or projections of TFRs for 25 years following base year, from TFR extrapolations
- (4) Subnational area base year estimates of the TFR

Assumptions

The TFR trajectory in relation to the TFR target level for all subnational areas follows that at the national level. For each projected year, the relative change in the complement of the TFR for each subarea is the same as for the country.

Procedures

The projection calculation is in two steps:

- (1) A ratio is formed of the complements of the national TFR for base year t and future year $t+n$, representing the extent to which the national TFR approaches the limit over the t to $t+n$ period:

$$(K - \text{National TFR}_{t+n}) / (K - \text{National TFR}_t)$$

where:

t = base year

$t+n$ = future year

K = limit TFR value

K -TFR = complement of TFR

¹ The relative complement of an estimated TFR relative to a limit TFR is the difference between the two TFRs, or K -TFR at some time t , where K is that limit TFR. For a discussion of fertility projection as part of the larger process of population projection, see Arriaga (1994).

- (2) This ratio is multiplied by the complement of the subnational TFR for year t . The product is an estimate of the reduction in the complement of the subnational TFR from t to $t+n$ and represents the extent to which the subnational area TFR approaches the limit over the t to $t+n$ period. This complement is then subtracted from K to give an estimated TFR for the province for year $t+n$:

$$K - \{(K - \text{Subnational area TFR}) * [(K - \text{National TFR}_{t+n}) / (K - \text{National TFR}_t)]\}$$

Advantages

The workbook provides a means of establishing consistency between national and subnational area projected TFR trends and consistency across subnational area projected TFR trends.

Limitations

The PROJTFR32 procedure implicitly assumes that the national-level TFR estimates and projections are more reliable than those that could be generated using subnational-area estimates alone. This may not be the case, especially for later projection years, if some subnational areas have aberrant growth patterns that will likely influence demographic change at the national level.

References

Arriaga, Eduardo E. 1994. *Population Analysis with Microcomputers*. With Peter D. Johnson and Ellen Jamison. Washington, D.C.: U.S. Bureau of the Census, U.S. Agency for International Development, and United Nations Population Fund. Volume 1, Chapter VIII.

Note

For access to all Subnational Projections Toolkit workbooks and documentation, go to:
<http://www.census.gov/population/international/software/sptoolkit/>