
Use of population estimates in the computation of indicators

Prepared by ESCAP

1. Population estimates are a key element in the estimation of many statistical indicators (including most of the MDG indicators) for 3 distinct reasons. First, a large number of statistical indicators, especially in developing countries, are derived from household surveys which make use of population estimates for designing the sample and for expanding sample estimates to the universe. Second, most indicators are presented as rates, or proportions, or in per capita terms where population estimates are used as denominator of each specific indicator. Third, population data are applied as weights for combining country values into regional or global estimates. Different statistical indicators call for disaggregated population figures according to various age-sex groups.

2. Unfortunately conflicting population estimates exist for the same country both at the national and international levels. The United Nations Population Division (UNPD) is responsible for the production of the UN official population estimates and projections. Globally, however, some International Agencies (like the World Bank and WHO) produce their own population estimates to generate derived statistical indicators, including some MDG indicators of which they are custodian and that they feed into the official MDG database. Moreover, population figures produced by national agencies can differ substantially from those published by the UNPD. Sometimes, inconsistent estimates may even exist within each country between the National Statistical Institute and line Ministries, as different population denominators may be used at national level for different policy areas.

3. Though often neglected, the use of different population figures is one of the main reasons of the existing inconsistencies in the values of the statistical indicators at the national and international levels. As national and international agencies rely on different population estimates for obtaining derived indicators, these differences are often reflected in available indicators in other areas. The size of these inconsistencies varies depending on whether the different estimates are used as denominators or weights of the statistical indicators. Inconsistencies are larger when the denominator's value differs, as any bias in its measurement translates directly into a bias of a similar magnitude for the statistical indicator. A similar deviation in a country weight, instead, will result in a much smaller bias for the regional estimate. When a country rate or proportion is estimated from a survey in which the numerator and denominator of the proportion are highly correlated, the deviations in the numerator and denominator will be in the same direction and the ratio will be relatively unaffected.

4. Large inconsistencies in indicators values generate confusion among the policy makers and the public at large and may lead to conflicting policy conclusions. Different values for the same indicator, therefore, can be challenged by national authorities and lead to a loss of confidence in statistics and statistical Institutions among the users. This is clearly unsatisfactory and when it occurs implies a systemic problem of consistency and quality assurance and a lack of statistical co-ordination within a country and between national and international agencies.

5. Some of the differences between national and international data are unavoidable. Country data may be of poor quality or there may be multiple data sources which provide conflicting population figures. Moreover, when models are applied at national level to produce population estimates, the methodology and definitions used may be not consistent with those applied by UNPD. On the other hand, methodology and data used by UNPD to produce population estimates and projections are not generally shared with the countries. UNPD does not collect national data and has not implemented so far a process of consultation with the NSIs to clarify possible divergence in the data.

6. Inconsistencies between UNPD and the World Bank population estimates are largely due to differences in data sources, timing of updates and definitions. In particular, UNPD population estimates and projections are updated only every two years, often using not the most recent data available in the countries. In fact, new basic data are provided to UNPD by UNSD and rely on the timeliness of UNSD data collections.

7. Recently UNPD has released the latest population data in the 2006 version of the World Population Prospects (WPP2006). The new figures revise sometimes substantially previously released estimates not only in terms of indicators level but also in terms of trend. For the year 2005, 21 countries out of 58 in the ESCAP region (36%) show discrepancies higher than 2% with respect to previous figures and 13 countries (22%) higher than 5%. In particular, the difference between WPP2004 and WPP2006 estimates is around 16% for Afghanistan; 12% for Timor-Leste, 8% for Bangladesh and Sri Lanka and 70% for Bhutan. These large differences in some cases progressively disappear going back to 1990; while in other cases remain more or less constant. Obviously, these changes will have a major impact on levels and trends of many national indicators, where population is used as denominator. Revised population values will also affect the relative weights used in compiling the regional or global aggregates. In the case of MDG indicators, this revision might also lead to changes in the assessment whether targets will be achieved by 2015.

8. This new set of population estimates call for the adoption of an appropriate and synchronized revision policy by all the concerned international agencies. All derived indicators should be revised backward whenever a population value is changed. Any country value that has been imputed should also be revised. Indicator values derived for each country from household surveys may also need to be revised in case the composition of the population is changed and this affects the sample design of the survey. This revision should be adopted preferably during the same time period by all concerned agencies. All the agencies involved in MDG data production, for example,

should adopt a similar approach in updating the MDG indicators for which they are responsible for.

9. The CCSA could include a discussion of the main problems faced using population estimates in the computation of indicators as agenda item at its eleventh session. In preparation for the next session a task team (which includes UN Population Division) could prepare a review of the key problems and a set of guidelines to be adopted by the International agencies.