

TECHNICAL NOTES

Updating Population Projections based on 2015 Census of Population

The updating of the 2010 Census – based population projections (2010 CBPP) using the results of the 2015 Census of Population (POPCEN 2015) is in accordance with the Philippine Statistics Authority (PSA) Board Resolution No. 11 Series of 2015. The resolution underscores the importance of updating the population projections using the results of the POPCEN 2015 to reflect the most recent data on the country's male and female population by five-year age group and by province. A task force (TF) on base population and updating of population projections was created for the purpose per Interagency Committee on Population and Housing Statistics (IACPHS) Memorandum No. 13 dated 25 January 2018.

It is to be recalled that the 2010 CBPP was computed using the Cohort Component Method¹ and included estimates for 2020 and 2025 national, regional and provincial population.

The procedure in updating the 2020 and 2025 population projections using the POPCEN 2015 is described as follows:

Data inputs:

- 1) 2010 CBPP national level midyear population projections for 2020 and 2025 (Low Assumption); and
- 2) population growth rates (PGRs) from past censuses.

The population projections using the low assumption were utilized as inputs instead of the medium assumption-based estimates because the 2015 population census count is closer to the former than to the latter. It is to be noted that the 2015 actual census count is even lower compared to the low assumption estimates.

Table 1. Mid-Year Population Projections by Assumption Levels and Population Census Counts: Philippines

	2015	2020	2025
2010 CBPP Mid-Year Population Projections			
Low Assumption	101,264,000	108,772,000	115,378,000
Medium Assumption	101,562,300	109,947,900	117,959,400
High Assumption	101,690,000	110,474,000	119,151,000
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2015 POPCEN	100,981,437		

Sources: PSA, 2015 Census of Population

PSA, 2010 Census-Based National, Regional, and Provincial Population Projections

The Low Assumption is based on the premise of a fast-paced fertility decline where the replacement fertility level² will be achieved by 2025. The fast-paced fertility decline

¹ The cohort-component method takes into account the changes taking place among the three demographic processes namely: fertility, mortality and migration. The methodology involves separately projecting the fertility rates by reproductive age of women, i.e., 15 to 49 years, and the survival ratios and net migration rates (both internal and international)

² Replacement fertility level corresponds to a total fertility rate (TFR) of about 2.1 children per woman. This value represents the average number of children a woman would need to have to reproduce herself by bearing a daughter who survives to childbearing age.

presumes improvement in current government policies and programs, particularly on reproductive health.

The population estimates using the low assumption were adopted as the controlled national totals. The first consideration was the trend in the provincial PGRs between census periods 1990 to 2000, 2000 to 2010, and 2010 to 2015. Each province was classified in any of the four groups below depending on the trend in PGR as exhibited by the province across the census periods:

Type 1 – PGR is continuously increasing;

Type 2 - PGR is continuously decreasing;

Type 3 – PGR increased then decreased; and

Type 4 – PGR decreased then increased;

Majority (55) of provinces showed a Type 2 PGR trend, which means the growth rates of population is continuously decreasing, 14 provinces were of Type 3, 12 provinces of Type 4, and 2 provinces under Type 1.

To project the 2020 population for each province, an assumed PGR for the province for 2015-2020 was determined using the criteria below:

1. For Type 1 or Type 4 provinces, the Assumed PGR for 2015-2020 is the 2010-2015 PGR.
2. For Type 2 provinces, the Assumed PGR for 2015-2020 is an adjusted 2010-2015 PGR, in which the adjustment is based on the computed ratios of the PGRs in the three intercensal periods. The ratios were computed as:

- a. $\text{Ratio 1} = \frac{2000-2010 \text{ PGR}_x}{1990-2000 \text{ PGR}_x}$, where x pertains to province.

- b. $\text{Ratio 2} = \frac{2010-2015 \text{ PGR}_x}{2000-2010 \text{ PGR}_x}$

If Ratio 2 is higher than Ratio 1, Ratio 2 is used to adjust the 2010-2015 PGR. If Ratio 2 is lower than Ratio 1, the average of Ratio 1 and Ratio 2 is used to adjust the 2010-2015 PGR. The adjusted 2010-2015 PGR is the Assumed PGR for 2015-2020 and is used to project the 2020 population.

3. For a Type 3 provinces, the Assumed 2015-2020 PGR is equal to 2010-2015 PGR multiplied by Ratio 2.

In the adoption of the procedure in determining the Assumed PGR for 2015-2020, some exceptions were applied, particularly in 16 provinces. Some provinces of Type 2 PGR trend were deemed more appropriate to adopt the 2010-2015 PGR while provinces of Type 4 trend were regarded more fit to use the average of the 2000-2010 PGR and 2010-2015 PGR.

To estimate the Assumed 2020-2025 PGR by province, the following were considered:

1. For Type 2 and Type 3 provinces, the Assumed 2020-2025 PGR is equal to the assumed 2015-2020 multiplied by the ratio of PGRs of national projected mid-year for 2015-2020 and 2020-2025; and

2. For Type 1 and Type 4 provinces, the Assumed 2020-2025 PGR is the 2015-2020 PGR.

Moreover, the ratio of national PGRs were utilized to smooth the Assumed PGR for 2015-2020 and Assumed PGR for 2020-2025 to make the national sum of the provincial population estimates for 2020 and 2025 very close to the national low-assumption-based 2010 CBPP population estimates.

Given the population counts of POPCEN 2015 and the determined Assumed PGRs by province, the provincial mid-year population projections for 2020 and 2025 were computed using the exponential population projection formula. Further adjustments were effected on the resulting computed provincial mid-year population projection to conform to the national level mid-year projections for 2020 and 2025. The regional estimates were derived simply as the sum of the provincial estimates per region.