Ranking Accuracy of Perception

The ranking for each country was calculated from the five factual realities as follows.

For each item that were measured as a percentage (a number out of 100): an accuracy score for each country was calculated as the difference between the mean of the survey estimate and the actual value. The accuracy score was then 'standardised' (adjusted) to acknowledge that a difference for a small (or large) prevalence should be treated differently to the same-sized difference around a prevalence nearer 50%: for example, a difference between 5% and 10% would be considered to be of lower accuracy compared with a difference between 45% and 50%. This standardisation was done by calculating the equivalent accuracy score around an estimate of 50% for each country. For example, for an accuracy score of 5% between 5% and 10%, the equivalent standardised accuracy score around an estimate of 50% was calculated to be 9.5% (i.e. the difference between 45.25% and 54.75%). The countries were then ranked based on the standardised accuracy score.

For the measure of population size, the countries were ranked on the relative accuracy score. As above the accuracy score was calculated as the difference between the mean of the survey estimate and the actual population size. This was then divided by the actual population size to give the relative accuracy score. This means that a difference of 100,000 when the population is 1,000,000 is treated as more accurate than the same difference when the population is 10,000,000.

Each country was ranked for each item as described above: 1 for the most accurate through to 40 for the least accurate perception. The individual ranks for the items were then added together and averaged based on the number of items answered by each country. This average of ranks was then used to rank the countries over all five measures: the country with the lowest average of the ranks having the most accurate perception overall and hence being ranked 1 overall.

Some items are not available for all countries, which means that the rank for the least accurate country is smaller than 40. This means countries who are the least accurate on these items would do better in the overall ranking. Therefore, the ranking for these items get 'stretched': the most accurate country keeps a rank of 1 and the least accurate country's rank becomes 40. Countries in between are adjusted proportionally.

Accuracy Scores

Mean survey measure = P_s
Actual measure = P_a

Accuracy score = $| P_s - P_a |$

Relative accuracy score = $| P_s - P_a | / P_a$

Standardisation Approach

Mid-point of measures = $P_m = (P_s + P_a) / 2$
Spread around mid-point of measures $(sd_m) = \sqrt{P_m \times (100 - P_m)}$
Spread around 50% $(sd_{50\%}) = \sqrt{50 \times (100 - 50)} = 50$

Standardised accuracy score = $| P_s - P_a | \times (sd_{50\%} / sd_m) = | P_s - P_a | \times (50 / sd_m)$

Stretched ranks

Raw rank = R

Countries answering = N
Total number of countries = 40

Stretched rank = $1 + (R - 1) * (40 - 1) / (N - 1)$