

Portugal 2023 Technical Document - CATI

Sampling

A dual frame (landline and mobile phone frames) was used to complete 803 telephone surveys. About 75% of the completes were from the mobile phone sample whereas landline completes accounted for the remaining 25%.

Target Population/Coverage:

Adult population (15 years of age or older) who have mobile phones for personal calls or live in households with landline. It excludes business phone numbers. The coverage error (percentage of target population not accessible for sampling) is expected to be negligible (less than 1%).

Stratification: The landline sampling frame was explicitly stratified by the seven NUTS 2 (Nomenclature of Territorial Units for Statistics) regions of Portugal. The mobile sampling frame was explicitly stratified by the three mobile service providers in the market. For the landline sample, allocation across strata was proportional to the 15+ population size in each stratum. For mobile sample, allocation across the strata was proportional to their market shares.

Sample Selection: A simple stratified sample design was used for selection of landline phone samples. In the case of landline, a sample of specified size was drawn using list-assisted Random Digit Dial (RDD) procedures independently within each explicit stratum. In the case of mobile, sample of specified size was drawn using pure Random Digit Dial (RDD) procedures independently within each explicit stratum. All sampled landline and mobile phone numbers were pre-screened for working status.

For respondents contacted by landline telephone, random respondent selection within the household was done by asking for the person aged 15 or older who will have the next birthday. For respondents reached on mobile, there was no random selection, just confirmation that they were 15 or older to participate in the survey.

For the purpose of data collection, the total initial sample was split into random subsamples (replicate samples) and released sequentially based on the progress of interviewing in different strata. The goal was to release an optimum amount of sample each time to achieve a high response rate while completing the targeted number of interviews within the field period.

Data Collection: March 20, 2023 – April 21, 2023

AAPOR3 response rate: 13%

Weighting: The sample data were weighted to minimize bias in survey-based estimates. The weighting procedure was formulated based on the sample design and was carried out in multiple stages. A probability weight factor (base weight) was constructed to account for selection of telephone numbers from the respective frames and correct for unequal selection

probabilities as a result of selecting one adult in landline households and those reached via mobile and for dual-users coming from both the landline and mobile frames. At the next step, the base weights were post-stratified to adjust for non-response and to match the weighted sample totals to known target population totals obtained from country-level census data. The standard demographic variables used for post-stratification are: age, gender, education, and region.

Design Effect: 1.59

Margin of error: $\pm 4.4\%$ (95% confidence level)

Population sources used for constructing weights were based on the following:

Age, Gender, Education, Region: Census 2021 - Instituto Nacional De Estatistica (Portugal Statistics Office)

Age	SAMPLE_UNWTD	SAMPLE_WTD	TARGET
15-24	8.8	12.2	12.1
25-34	13.0	14.3	14.2
35-44	18.3	16.1	15.9
45-54	21.3	15.1	14.8
55-64	17.1	16.3	16.1
65+	21.5	26.0	26.9
Education	SAMPLE_UNWTD	SAMPLE_WTD	TARGET
3rd Cycle Primary or Less	29.8	54.8	55.5
Secondary	32.0	24.9	24.7
University or higher	38.2	20.3	19.8
Sex	SAMPLE_UNWTD	SAMPLE_WTD	TARGET
Male	45.5	47.5	47.0
Female	54.5	52.5	53.0

Region	SAMPLE_UNWTD	SAMPLE_WTD	TARGET
Norte	31.5	34.0	34.9
Algarve	4.4	4.5	4.5
Centro	21.3	22.0	21.8
Lisboa	22.4	27.5	27.3
Alentejo	15.4	7.2	6.9
R.A.Acores	2.6	2.3	2.2
R.A.Madeira	2.4	2.5	2.4