

INTERNATIONAL HEALTH POLICY SURVEY

2021

WEIGHTING WRITE-UP

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TABLE OF CONTENTS

Table of Contents	2
WEIGHTING.....	4
TABLE 1: Post-Stratification Variables	4
How to Analyze Data with Oversamples.....	5
Example of Oversample N-Sizes	5
Detailed Weighting Procedures by Country.....	6
Australia	6
TABLE 2: Weighted and Unweighted Distributions and Population Parameters for Australia.....	7
Canada.....	7
TABLE 3: Weighted and Unweighted Distributions and Population Parameters for Newfoundland and Labrador and Prince Edward Island	9
TABLE 4: Weighted and Unweighted Distributions and Population Parameters for Nova Scotia and New Brunswick.....	9
TABLE 5: Weighted and Unweighted Distributions and Population Parameters for Ontario and Quebec	10
TABLE 6: Weighted and Unweighted Distributions and Population Parameters for Manitoba and Saskatchewan.....	10
TABLE 7: Weighted and Unweighted Distributions and Population Parameters for Alberta and British Columbia.....	11
TABLE 8: Weighted and Unweighted Distributions and Population Parameters for Yukon Territory...	11
TABLE 9: Weighted and Unweighted Distributions and Population Parameters for Canada as a whole	12
France.....	13
TABLE 10: Weighted and Unweighted Distributions and Population Parameters for France.....	14
Germany.....	15
TABLE 11: Weighted and Unweighted Distributions and Population Parameters for Germany.....	16
The Netherlands	16
TABLE 12: Weighted and Unweighted Distributions and Population Parameters for the Netherlands	17
New Zealand	18
TABLE 13: Weighted and Unweighted Distributions and Population Parameters for New Zealand	19
Norway	19
TABLE 14: Phone Probability.....	19
TABLE 15: Weighted and Unweighted Distributions and Population Parameters for Norway	20

Sweden.....	21
TABLE 16: Weighted and Unweighted Distributions and Population Parameters for Sweden.....	21
Switzerland.....	22
TABLE 17: Linguistic Region Base Weight	22
TABLE 18: Weighted and Unweighted Distributions and Population Parameters for Switzerland	23
The United Kingdom.....	24
TABLE 19: Weighted and Unweighted Distributions and Population Parameters for Wales and Scotland	25
TABLE 20: Weighted and Unweighted Distributions and Population Parameters for Northern Ireland and the Rest of the UK.....	26
TABLE 21: Weighted and Unweighted Distributions and Population Parameters for the UK	27
The United States.....	27
TABLE 22: US RDD Stratification Adjustment.....	28
TABLE 23: Age 60+ Base Weight.....	29
TABLE 24: Weighted and Unweighted Distributions and Population Parameters for the US	30
Design Effect and Margin of Sampling Error.....	31
TABLE 25: Design Effect and Margin of Error by Country	31

WEIGHTING

Data from each country were weighted to ensure the final outcome was representative of the 65+ (60+ in the US) adult population¹. The weighting procedure accounted for the sample design and probability of selection, as well as systematic non-response across known population parameters. To the extent possible, the weighting procedure replicated the 2017 weighting protocol.²

Survey data in each country were weighted by key demographic variables (e.g., region, age, gender, educational attainment).³⁴ Population parameters were derived, for each country, from the most recent census information available (year of census varied) or from the country's population registry (i.e., Norway, Sweden, and Switzerland).

The following table shows the post-stratification parameters per country and outlines whether any oversampling was put in place.

TABLE 1: Post-Stratification Variables⁵

	Post-stratification Variables	Oversamples
Australia	age by gender, region, education, urban status	None
Canada	age by gender, region, education, knowledge of official language ⁶	At least 250 completes per province except the territories ⁷ , and with larger sample sizes for Ontario and Quebec
France	age by gender, region, education	None
Germany	age by gender, region, education	None
Netherlands	age by gender, region	None
New Zealand	age by gender, region, education	None
Norway	age by gender, region, education	None
Sweden ⁸	age by gender, education	None
Switzerland	age by gender, region, education, linguistic region by phone status	Valais, Basel Stadt, Geneva, Vaud
UK	age by gender, region	Wales, Scotland, Northern Ireland
US	age by gender, region, race, education	Lower income areas oversampled

¹ This is accomplished using SPSSINC RAKE, an SPSS extension module that simultaneously balances the distributions of all variables to known population parameters using a GENLOG procedure. To handle missing data among some of the parameter variables, consistent with prior waves of this study, we employed a technique called hot decking. Hot deck imputation replaces the missing values of a respondent randomly with another similar respondent without missing data. We use an SPSS macro detailed in 'Goodbye, Listwise Deletion: Presenting Hot Deck Imputation as an Easy and Effective Tool for Handling Missing Data' (Myers, 2011).

² Except for the USA where the age 60+ population was surveyed for IHP 2021.

³ Given the overall low expected incidence of cell phone-only status for this age-group and there not being always reliably available data about phone status for this group, phone-status was not used as a weighting parameter.

⁴ Missing data for gender, age and other variables were imputed using a Hot Deck procedure prior to raking.

⁵ Detailed post-stratification variables and distributions are included in the detailed weighting procedures section per country

⁶ Knowledge of Official Language was a benchmark only for Quebec, New Brunswick, and for Canada as a whole

⁷ For Yukon and Northwest Territories, a total of 144 and 14 completed interviews, respectively, were obtained. Nunavut was not oversampled, however.

⁸ Unlike prior IHP waves, Sweden data were not weighted by region upon consultation with Vårdanalys. SSRS checked to ensure that the region distribution was reasonable.

How to Analyze Data with Oversamples

It is a common practice to oversample certain groups of interest to provide larger sample sizes for analysis. When groups are oversampled, weighting will correct for the oversampling by “weighting down” the groups to their proper proportion of the sample.

It is important for researchers to understand the weighting implications of these oversamples. SSRS typically computes “balancing weights” which means that the weights across the entire sample sum to the total number of interviews. If we have oversampled a group, the sum of that group’s balancing weight will then be less than the number of interviews we completed with the group because that group has been weighted down in the aggregate. If such data were analyzed with a basic statistics package like SPSS, the margin of error for the oversample population would reflect the weighted n-size and not the number of interviews, which would lead to an overestimate of the sample variance.

The following table shows an example of population and interview n-sizes when an oversample is used. For this example, a main cross-section sample of 1,000 was combined with an oversample of 800 among some subpopulation of interest. While the researcher did 920 interviews with the oversample population, the statistical software will run statistical tests as though only 216 interviews were completed.

Example of Oversample N-Sizes

	Natural Population Distribution (%)	Example Study Sample Completes:			Weighted N-size
		Main Sample	Over- sample	Total	
Non-oversample population	88%	880 (88%)	0	880 (49%)	1,584 (88%)
Oversample population	12%	120 (12%)	800	920 (51%)	216 (12%)
Total	100%	1,000	800	1,800	1,800

There are two solutions to this problem. The first is to utilize a statistics package that can apply a Taylor Series Linearization to the data. Under this procedure, the researcher would enter a strata variable into the statistics package that indicates the sample selections upon which under/oversampling occurred. In effect, this will allow the statistics package to calculate proper margins of error for estimates based on the true sample sizes of groups. Taylor Series Linearization will also account for the impact of any complex sample design features, such as stratification, on sample variances. The researcher will also attain a margin of error appropriate to the number of interviews rather than the weighted N-size, which can be a problem in some statistical software packages such as SPSS. Statistics packages with the capability to compute linearized variances estimates include SAS with the survey procedures module, R with the *survey* package, Stata, and SPSS with the Complex Samples module.

If one does not have access to such a package, SSRS can provide a secondary weight to be used to conduct analyses within oversampled groups or between oversampled groups and other respondents, as the main weight supplied with the data will be appropriate for analysis of the overall population only.

Researchers should be aware that these two methods will obtain equivalent point estimates; however, they may not obtain equivalent sample variances, meaning that results of statistical tests could differ depending on the method used. In general, when the two methods differ, Taylor Series Linearization will obtain the most accurate sample variances and statistical tests, both overall and within subgroups. Therefore, if the researcher has access to software that can conduct Taylor Series Linearization, this is the preferred method.

Regardless, SSRS can identify the applicable strata variables, so that researchers can properly analyze their data with the correct margins of error.

Below are the detailed procedures by country.

Detailed Weighting Procedures by Country

Australia

The weighting procedure for Australia needed to address several issues:

1. The need to accurately represent the overall 65+ adult Australian population.
2. Differences in the probability of selection by:
 - a. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
 - b. Telephone use: respondents who have both a landline and a cell phones have a greater probability of selection than those who have just one type of phone.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. To address different probabilities of selection:
 - a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1). Since cell phones are treated as personal devices, no within household correct was necessary.
 - b. Dual-Usage Correction: Adults who have both a landline and a cell phone received a weight adjustment of 0.5 while those who have only one kind of phone received no dual-usage correction (i.e., a weight adjustment of 1).
 - c. A base weight was created by taking the product of the within household correction and the dual-usage correction.
2. Post-stratification weighting:
 - a. Parameters used for the Australia sample were age-by-gender, educational attainment, urban status (major city or not), and region. Population parameters were derived from the 2016 Census data via the Australian Bureau of Statistics.
3. Weights were trimmed at the 2.5 and 97.5 percentiles to prevent individual interviews from having too much influence on the final results.

Table 2 compares the distributions of weighted and unweighted data and the population parameters for Australia as a whole.

TABLE 2: Weighted and Unweighted Distributions and Population Parameters for Australia

	AUS Total- Unweighted	AUS Total - Weighted	AUS Total - Adults
Gender by Age			
Male 65-69	8.0%	15.0%	15.8%
Male 70-74	8.2%	11.9%	11.7%
Male 75+	20.6%	19.0%	18.8%
Female 65-69	10.2%	16.6%	16.5%
Female 70-74	16.6%	12.6%	12.4%
Female 75+	36.5%	25.0%	24.7%
Education			
High School or Less	50.5%	59.5%	59.8%
Some Post- Secondary	22.0%	26.4%	26.3%
University Degree or more	27.5%	14.1%	13.9%
Urban Status			
Major City	59.9%	65.3%	65.1%
Not Major City	40.1%	34.7%	34.9%
Region/Strata			
NSW	32.3%	32.6%	33.1%
Victoria	27.9%	25.3%	25.1%
Queensland	18.2%	19.6%	19.5%
Western Australia	11.0%	9.5%	9.4%
South Australia	6.6%	8.4%	8.3%
Tasmania	3.0%	2.7%	2.7%
Australian Capital Territory	0.8%	1.4%	1.4%
Northern Territory	0.2%	0.4%	0.4%

Canada

The weighting procedure for Canada needed to address several issues:

1. Over- and under-representation of provinces as a result of sample design.
2. The need to accurately represent overall 65+ adult Canadian population as well as the overall 65+ adult populations in each of the provinces.
3. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
4. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. Data for each province were weighted separately, so that each subsample (and the country as a whole) accurately represent the corresponding population.
2. To address different probabilities of selection:

- a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1).
 - b. A base weight was created equaling the within household correction.
3. Post-stratification weighting:
 - a. Parameters used for each subsample (each of Canada's 10 provinces, Yukon Territory, and the Northwest Territories) and the entire national sample were age-by-gender, educational attainment, knowledge of official languages (only for Quebec, New Brunswick, and on Canada as a whole). Population parameters were derived from the Canada 2016 Census. SSRS obtained populations estimates from Statistics Canada for the 65+ adult population for each of the provinces and for Canada as a whole.
4. Weights were trimmed at the 2.5 and 97.5 percentiles to prevent individual interviews from having too much influence on the final results.
5. Geographic representation: In the final weighting step, the weights within each province were adjusted to their correct share among Canadian adults 65+.

Three weights were developed for varying analytical purposes:

1. **Weights** is to be used for total country estimates. This weight excludes the territory oversamples.
2. **WeightProvinces** is valid for all Canada cases in the data, including the territory oversamples. This is the weight that should be used for estimates within province or territory (for Yukon, only). This is basically each province weighted within, but not rebalanced at the end to, the distribution each brings to the total.
3. **CAN_WEIGHTPROVINCES2** was developed where the weights within each province were adjusted to sum to the 65+ adult population size. This weight can be used for either total country estimates or those within provinces or territories (for Yukon, only).

Tables 3 through 9 compare the distributions of weighted and unweighted data and the population parameters for each subsample and for Canada as a whole⁹.

⁹The tables per province are populated using the CAN_WEIGHTPROVINCES2 weight variable, while the table for Canada as a whole is populated using the Weights weighting variable.

TABLE 3: Weighted and Unweighted Distributions and Population Parameters for Newfoundland and Labrador and Prince Edward Island

	NL- Unweighted	NL- Weighted	NL- Adults	PEI- Unweighted	PEI- Weighted	PEI- Adults
Gender by Age						
Male 65-69	11.9%	18.1%	18.1%	8.9%	16.3%	17.4%
Male 70-74	12.3%	12.6%	12.6%	6.6%	11.3%	11.4%
Male 75+	11.9%	16.0%	16.0%	15.2%	17.1%	16.8%
Female 65-69	17.5%	19.0%	19.0%	14.8%	18.7%	18.4%
Female 70-74	18.3%	13.3%	13.3%	19.1%	12.7%	12.5%
Female 75+	28.2%	21.0%	21.0%	35.4%	23.9%	23.5%
Education						
High School or Less	40.5%	63.4%	63.4%	34.2%	52.4%	53.2%
Some Post-Secondary	35.3%	27.9%	27.9%	30.0%	34.1%	33.5%
University Degree or more	24.2%	8.7%	8.7%	35.8%	13.5%	13.3%

TABLE 4: Weighted and Unweighted Distributions and Population Parameters for Nova Scotia and New Brunswick

	NS- Unweighted	NS- Weighted	NS- Adults	NB- Unweighted	NB- Weighted	NB- Adults
Gender by Age						
Male 65-69	9.4%	16.6%	16.8%	12.8%	16.8%	17.2%
Male 70-74	10.2%	11.8%	11.7%	12.8%	12.0%	11.9%
Male 75+	15.7%	16.9%	16.9%	14.8%	17.0%	16.9%
Female 65-69	17.7%	17.9%	17.9%	18.0%	18.0%	17.9%
Female 70-74	16.1%	12.8%	12.8%	18.4%	12.4%	12.3%
Female 75+	30.7%	24.0%	23.9%	23.2%	23.7%	23.8%
Education						
High School or Less	46.1%	52.3%	52.5%	43.6%	58.4%	58.8%
Some Post-Secondary	31.5%	33.2%	33.1%	28.0%	29.5%	29.3%
University Degree or more	22.4%	14.5%	14.5%	28.4%	12.0%	11.9%
Language						
English Only	-	-	-	71.2%	60.6%	60.1%
French Only	-	-	-	5.2%	10.7%	10.9%
Both	-	-	-	23.6%	28.7%	29.0%

TABLE 5: Weighted and Unweighted Distributions and Population Parameters for Ontario and Quebec

	QC- Unweighted	QC- Weighted	QC- Adults	ON- Unweighted	ON- Weighted	ON- Adults
Gender by Age						
Male 65-69	11.6%	15.8%	15.8%	9.0%	14.6%	15.7%
Male 70-74	10.4%	11.6%	11.8%	9.2%	11.2%	11.1%
Male 75+	11.6%	17.0%	17.1%	16.1%	18.5%	18.3%
Female 65-69	17.4%	17.0%	16.8%	15.5%	17.3%	17.1%
Female 70-74	19.4%	13.4%	13.2%	17.7%	12.6%	12.4%
Female 75+	29.6%	25.2%	25.2%	32.4%	25.7%	25.4%
Education						
High School or Less	45.2%	57.5%	57.5%	33.0%	54.2%	54.8%
Some Post-Secondary	26.4%	28.4%	28.6%	32.6%	28.0%	27.6%
University Degree or more	28.4%	14.1%	13.9%	34.3%	17.8%	17.6%
Language						
English Only	2.3%	5.1%	5.8%	-	-	-
French Only	54.0%	60.9%	60.6%	-	-	-
Both	43.7%	34.0%	33.6%	-	-	-

TABLE 6: Weighted and Unweighted Distributions and Population Parameters for Manitoba and Saskatchewan

	MB- Unweighted	MB- Weighted	MB- Adults	SK- Unweighted	SK- Weighted	SK- Adults
Gender by Age						
Male 65-69	10.2%	15.0%	15.7%	10.8%	15.2%	15.4%
Male 70-74	9.0%	11.1%	11.0%	8.4%	10.7%	10.7%
Male 75+	16.1%	18.2%	18.0%	15.1%	19.3%	19.2%
Female 65-69	15.3%	17.0%	16.9%	13.9%	15.9%	15.8%
Female 70-74	14.5%	12.2%	12.1%	16.7%	11.5%	11.4%
Female 75+	34.9%	26.5%	26.3%	35.1%	27.5%	27.4%
Education						
High School or Less	37.3%	56.2%	56.6%	33.5%	57.3%	57.4%
Some Post-Secondary	27.5%	29.2%	29.0%	37.8%	30.6%	30.4%
University Degree or more	35.3%	14.6%	14.5%	28.7%	12.2%	12.1%

TABLE 7: Weighted and Unweighted Distributions and Population Parameters for Alberta and British Columbia

	AB- Unweighted	AB- Weighted	AB- Adults	BC- Unweighted	BC- Weighted	BC- Adults
Gender by Age						
Male 65-69	12.4%	16.6%	17.1%	8.8%	15.1%	16.4%
Male 70-74	8.8%	11.4%	11.3%	11.2%	11.7%	11.5%
Male 75+	21.1%	18.0%	17.9%	17.5%	19.0%	18.7%
Female 65-69	15.1%	17.7%	17.6%	12.0%	17.6%	17.4%
Female 70-74	15.1%	12.2%	12.1%	21.1%	12.6%	12.3%
Female 75+	27.5%	24.1%	23.9%	29.5%	24.0%	23.7%
Education						
High School or Less	25.5%	50.5%	50.8%	26.7%	49.1%	49.9%
Some Post-Secondary	44.6%	32.3%	32.1%	36.7%	31.6%	31.1%
University Degree or more	29.9%	17.2%	17.1%	36.7%	19.3%	18.9%

TABLE 8: Weighted and Unweighted Distributions and Population Parameters for Yukon Territory

	YT- Unweighted	YT- Weighted	YT- Adults
Gender by Age			
Male 65-69	17.4%	22.4%	22.9%
Male 70-74	9.7%	14.4%	14.2%
Male 75+	11.8%	14.7%	14.9%
Female 65-69	26.4%	20.7%	20.4%
Female 70-74	11.8%	11.5%	11.4%
Female 75+	22.9%	16.3%	16.1%
Education			
High School or Less	26.4%	43.5%	44.2%
Some Post-Secondary	41.7%	38.0%	37.6%
University Degree or more	31.9%	18.4%	18.2%

TABLE 9: Weighted and Unweighted Distributions and Population Parameters for Canada as a whole

		Canada-Unweighted	Canada-Weighted	Canada-Adults
Gender by Age				
	Male 65-69	10.6%	16.0%	16.1%
	Male 70-74	9.8%	11.3%	11.4%
	Male 75+	14.9%	18.0%	17.9%
	Female 65-69	16.3%	17.2%	17.2%
	Female 70-74	17.8%	12.7%	12.5%
	Female 75+	30.6%	24.9%	24.9%
Education				
	High School or Less	36.8%	54.5%	54.7%
	Some Post-Secondary	32.1%	29.2%	29.1%
	University Degree or more	31.1%	16.3%	16.2%
Language				
	English Only	67.6%	69.4%	69.3%
	French Only	12.5%	16.1%	16.1%
	Both	19.9%	14.5%	14.6%
Region/Strata				
	Newfoundland and Labrador	5.6%	1.7%	1.7%
	Prince Edward Island	5.7%	0.5%	0.5%
	Nova Scotia	5.7%	3.1%	3.1%
	New Brunswick	5.6%	2.5%	2.5%
	Quebec	22.3%	25.0%	25.2%
	Ontario	29.0%	37.5%	37.9%
	Manitoba	5.7%	3.4%	3.4%
	Saskatchewan	5.6%	2.9%	2.9%
	Alberta	5.6%	8.3%	8.4%
	British Columbia	5.6%	14.2%	14.3%
	Territories	3.2%	1.1%	0.1%

France

The weighting procedure for France needed to address several issues:

1. The need to accurately represent the overall 65+ adult French population.
2. Differences in the probability of selection by
 - a. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
 - b. Telephone use: respondents who have both a landline and a cell phones have a greater probability of selection than those who have just one type of phone.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. To address different probabilities of selection:
 - a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1). Since cell phones are treated as personal devices, no within household correct was necessary.
 - b. Dual-Usage Correction: Adults who have both a landline and a cell phone received a weight adjustment of 0.5 while those who have only one kind of phone received no dual-usage correction (i.e., a weight adjustment of 1).
 - c. A base weight was created by taking the product of the within household correction and the dual-usage correction.
2. Post-stratification weighting:
 - a. Parameters used for the France sample were age-by-gender, educational attainment, and region. Population parameters were derived from the following sources:
 - i. Gender and age are based on 2019 data from the Institute of Statistics and Economic Studies (INSEE).
 - ii. Region is based on 2020 data from the INSEE.
 - iii. Education was based on data from the 2017 data from the INSEE for the age 65 plus segment of the population.
3. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 10 compares the distributions of weighted and unweighted data and the population parameters for France as a whole.

TABLE 10: Weighted and Unweighted Distributions and Population Parameters for France

		France-Unweighted	France-Weighted	France-Adults
Gender by Age				
	Male 65-69	10.8%	12.0%	12.1%
	Male 70-74	12.7%	11.9%	11.6%
	Male 75+	15.4%	18.9%	19.8%
	Female 65-69	16.3%	13.9%	13.5%
	Female 70-74	17.0%	13.7%	13.2%
	Female 75+	27.8%	29.7%	29.7%
Education				
	High School or Less / Some Post-Secondary	60.8%	84.4%	85.0%
	University Degree or more	39.2%	15.6%	15.0%
Region/Strata				
	Grand Est	8.7%	8.5%	8.5%
	Nouvelle Aquitaine	11.1%	11.0%	10.9%
	Auvergne-Rhône-Alpes	12.6%	12.1%	12.1%
	Bourgogne-Franche-Comté	6.0%	5.1%	4.9%
	Bretagne	4.6%	5.5%	5.7%
	Centre-Val-de-Loire	3.7%	4.4%	4.4%
	Corse	0.5%	0.6%	0.6%
	Île-de-France	14.1%	13.8%	13.9%
	Occitanie	9.8%	10.1%	10.2%
	Hauts-de-France	8.5%	8.3%	8.3%
	Normandie	5.6%	5.6%	5.5%
	Pays de la Loire	4.6%	5.9%	6.1%
	Provence-Alpes-Côte d'Azur	10.3%	9.1%	8.9%

Germany

The weighting procedure for Germany needed to address several issues:

1. The need to accurately represent the overall 65+ adult German population.
2. Differences in the probability of selection by:
 - a. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
 - b. Telephone use: respondents who have both a landline and a cell phones have a greater probability of selection than those who have just one type of phone.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. To address different probabilities of selection:
 - a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1). Since cell phones are treated as personal devices, no within household correct was necessary.
 - b. Dual-Usage Correction: Adults who have both a landline and a cell phone received a weight adjustment of 0.5 while those who have only one kind of phone received no dual-usage correction (i.e., a weight adjustment of 1).
 - c. A base weight was created by taking the product of the within household correction and the dual-usage correction.
2. Post-stratification weighting:
 - a. Parameters used for the Germany sample were age-by-gender, educational attainment, and region. Population parameters were derived from the following sources:
 - i. Gender, age, and region were based on 2019 estimates from the 2011 Census data via Statistisches Bundesamt.
 - ii. Education was based on the 2019 Microcensus data from Statistisches Bundesamt.
3. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 11 compares the distributions of weighted and unweighted data and the population parameters for Germany as a whole.

TABLE 11: Weighted and Unweighted Distributions and Population Parameters for Germany

	Germany-Unweighted	Germany -Weighted	Germany -Adults
Gender by Age			
Male 65-69	12.9%	13.0%	12.8%
Male 70-74	12.3%	9.8%	9.5%
Male 75+	29.2%	22.2%	21.5%
Female 65-69	12.6%	14.4%	14.1%
Female 70-74	13.1%	11.1%	10.8%
Female 75+	19.9%	29.6%	31.3%
Education			
High School or Less	56.5%	57.4%	57.3%
Some Post-Secondary	21.9%	23.1%	23.5%
University Degree or more	21.6%	19.5%	19.1%
Region/Strata			
Schleswig-Holstein	3.6%	3.7%	3.7%
Hamburg	2.1%	1.9%	1.9%
Bremen	1.0%	0.8%	0.8%
Niedersachsen	12.0%	10.1%	9.8%
Nordrhein-Westfalen	24.6%	21.3%	21.0%
Rheinland-Pfalz	4.6%	5.1%	5.0%
Saarland	1.5%	1.3%	1.3%
Hessen	7.2%	7.3%	7.2%
Baden-Württemberg	9.9%	12.2%	12.5%
Bayern	12.3%	14.4%	14.9%
Berlin	4.5%	3.9%	3.9%
Mecklenburg-Vorpommern	2.1%	2.2%	2.2%
Brandenburg	3.8%	3.5%	3.5%
Sachsen-Anhalt	3.3%	3.2%	3.3%
Thüringen	3.3%	3.2%	3.1%
Sachsen	4.2%	5.8%	6.0%

The Netherlands

The weighting procedure for The Netherlands needed to address several issues:

1. The need to accurately represent the overall 65+ adult Dutch population.
2. Differences in the probability of selection by:
 - a. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
 - b. Telephone use: respondents who have both a landline and a cell phones have a greater probability of selection than those who have just one type of phone.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. To address different probabilities of selection:
 - a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1). Since cell phones are treated as personal devices, no within household correction was necessary.
 - b. Dual-Usage Correction: Adults who have both a landline and a cell phone received a weight adjustment of 0.5 while those who have only one kind of phone received no dual-usage correction (i.e., a weight adjustment of 1).
 - c. A base weight was created by taking the product of the within household correction and the dual-usage correction.
2. Post-stratification weighting:
 - a. Parameters used for the Netherlands sample were age-by-gender and region. Population parameters were derived from 2019 data from the statistical office of the European Union (Eurostat).
3. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 12 compares the distributions of weighted and unweighted data and the population parameters for the Netherlands as a whole.

TABLE 12: Weighted and Unweighted Distributions and Population Parameters for the Netherlands

	Netherlands-Unweighted	Netherlands -Weighted	Netherlands -Adults
Gender by Age			
Male 65-69	11.4%	14.5%	14.5%
Male 70-74	10.0%	13.5%	13.5%
Male 75+	21.0%	18.5%	18.3%
Female 65-69	9.4%	14.2%	14.8%
Female 70-74	14.3%	14.3%	14.2%
Female 75+	34.0%	25.1%	24.6%
Region/Strata			
Drenthe	3.0%	3.4%	3.4%
Flevoland	2.2%	1.8%	1.8%
Friesland	4.6%	4.0%	4.1%
Gelderland	14.8%	12.8%	12.6%
Groningen	2.4%	3.2%	3.4%
Limburg	8.4%	8.0%	7.9%
Noord-Brabant	14.6%	15.3%	15.3%
Noord-Holland	13.5%	15.1%	15.3%
Overijssel	7.1%	6.8%	6.7%
Utrecht	7.1%	6.6%	6.6%
Zeeland	3.7%	2.8%	2.7%
Zuid-Holland	18.6%	19.9%	20.1%

New Zealand

The weighting procedure for New Zealand needed to address several issues:

1. The need to accurately represent the overall 65+ New Zealand adult population.
2. Differences in the probability of selection by:
 - a. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
 - b. Telephone use: respondents who have both a landline and a cell phones have a greater probability of selection than those who have just one type of phone.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. To address different probabilities of selection:
 - a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1). Since cell phones are treated as personal devices, no within household correct was necessary.
 - b. Dual-Usage Correction: Adults who have both a landline and a cell phone received a weight adjustment of 0.5 while those who have only one kind of phone received no dual-usage correction (i.e., a weight adjustment of 1).
 - c. A base weight was created by taking the product of the within household correction and the dual-usage correction.
2. Post-stratification weighting:
 - a. Parameters used for the New Zealand sample were age-by-gender, educational attainment, and region (in 4 groups). Population parameters were derived from the 2018 Census of Population and Dwellings via Statistics New Zealand.
3. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 13 compares the distributions of weighted and unweighted data and the population parameters for New Zealand as a whole.

TABLE 13: Weighted and Unweighted Distributions and Population Parameters for New Zealand

	New Zealand - Unweighted	New Zealand - Weighted	New Zealand -Adults
Gender by Age			
Male 65-69	7.4%	12.9%	15.4%
Male 70-74	8.2%	12.6%	12.6%
Male 75+	19.2%	19.3%	18.5%
Female 65-69	13.2%	16.5%	16.3%
Female 70-74	14.4%	13.8%	13.5%
Female 75+	37.6%	24.9%	23.6%
Education			
Secondary or less (Up to Level 6)	69.0%	84.8%	85.7%
University Degree or more (Levels 7 through post grad)	31.0%	15.2%	14.3%
Region/Strata			
Auckland	31.4%	27.3%	27.8%
North	30.0%	30.6%	30.1%
Central	13.6%	15.8%	15.9%
South	25.0%	26.3%	26.2%

Norway

The weighting procedure for Norway needed to address several issues:

1. The need to accurately represent the overall 65+ adult Norwegian population.
2. Differences in the probability of selection by:
 - a. Telephone use: respondents with more than one phone in the registry have a higher probability of selection than those with one phone.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. To address different probabilities of selection, a phone probability base weight adjustment was added matching the share of respondents, in the final data, that could be reached by more than one phone number to their share in the sample.

TABLE 14: Phone Probability

	Benchmark (%)	Data (%)	Weight
Single telephone number	79.6	77.8	1.02
More than one telephone number	20.4	22.2	0.92

2. Post-stratification weighting:
 - a. Parameters used for the Norway sample were age-by-gender, educational attainment, and region. Population parameters were derived from the following sources:

- i. Gender, age, and region were based on the Norwegian population registry's 2019 data via Statistics Norway.
 - ii. Education was based on the 2019 Population and Housing Census data for adults 60-66 and 67+, with the Norwegian population registry's 2019 data for 65+ adults, via Statistics Norway¹⁰.
3. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 15 compares the distributions of weighted and unweighted data and the population parameters for Norway as a whole.

TABLE 15: Weighted and Unweighted Distributions and Population Parameters for Norway

		Norway- Unweighted	Norway - Weighted	Norway - Adults
Gender by Age				
	Male 65-69	11.6%	13.8%	14.6%
	Male 70-74	13.4%	13.7%	13.5%
	Male 75+	22.2%	18.9%	18.4%
	Female 65-69	12.4%	14.0%	14.7%
	Female 70-74	12.8%	14.2%	14.0%
	Female 75+	27.6%	25.4%	24.8%
Education				
	HS or LESS (Basic + Upper)	36.0%	74.9%	75.6%
	University up to 4 years (tertiary short)	36.8%	18.4%	18.0%
	University more than 4 years (tertiary long)	27.2%	6.6%	6.4%
Region/Strata				
	Agder	5.4%	6.0%	5.8%
	Innlandet	9.4%	8.9%	8.7%
	Møre og Romsdal	3.6%	5.5%	5.6%
	Nordland	3.6%	4.6%	5.3%
	Oslo	11.8%	9.2%	9.3%
	Rogaland	6.2%	7.7%	7.6%
	Troms og Finnmark	4.2%	4.9%	4.8%
	Trøndelag	7.8%	8.9%	8.9%
	Vestfold og Telemark	11.2%	9.3%	9.0%
	Vestland	9.4%	11.4%	11.8%
	Viken	27.4%	23.6%	23.1%

¹⁰ The estimates were adjusted to account for the fact that the data from the 2019 Population and Housing Census were for the 60 and older population, rather than adults 65 and older. The overall share of 65-66 year-olds within the 60-66 year-old demographic was estimated and those cases removed from the estimated population totals.

Sweden

The weighting procedure for Sweden needed to address several issues:

1. The need to accurately represent the overall 65+ adult Swedish population.
2. Sampling rates within sample strata.
3. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. A base weight was incorporated that accounted for sampling rates within strata. The base weight for all cases in stratum i is computed as $BW_i = N_i/n_i$ where N_i is the size of stratum i and n_i is the sample size in stratum i .
2. Post-stratification weighting:
 - a. Parameters used for the Sweden sample were age-by-gender and educational attainment.¹¹ Population parameters were derived from the following sources:
 - i. Gender and age were based on the Swedish Tax Agency's 2020 data on registered persons via Statistics Sweden.
 - ii. Education was based on 2019 data from Statistics Sweden's Register of Education.
3. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 16 compares the distributions of weighted and unweighted data and the population parameters for Sweden as a whole.

TABLE 16: Weighted and Unweighted Distributions and Population Parameters for Sweden

	Sweden - Unweighted	Sweden - Weighted	Sweden - Adults
Gender by Age			
Male 65-69	10.9%	12.7%	12.7%
Male 70-74	15.3%	12.9%	12.8%
Male 75+	22.6%	21.2%	21.2%
Female 65-69	12.7%	13.0%	13.0%
Female 70-74	15.7%	13.5%	13.5%
Female 75+	22.8%	26.9%	26.9%
Education			
High School or Less	59.4%	72.3%	72.3%
Some Post-Secondary	15.4%	11.5%	11.5%
University Degree or more	25.1%	16.2%	16.2%

¹¹ Unlike the IHP 2017 survey, Sweden data were not weighted by region upon consultation with Vårdanalys. SSRS, however, checked to ensure that the region distribution was reasonable relative to the official benchmark (within less than 2% difference from the benchmark).

Switzerland

The weighting procedure for Switzerland needed to address several issues:

1. The need to correctly represent the proportion of respondents with and without a phone number match to the Swiss population registry by linguistic region (German-, French-, and Italian-speaking), excluding the cantons of Valais, Vaud, Geneva, and Zurich, which were adjusted separately¹².
2. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. The sample was weighted to balance the number of completed interviews with and without a phone number match in the registry, according to the sampling stratification plan. Data were weighted to the breakdown in the sample frame (Swiss Federal Statistical Office (SFSO), 2019).

TABLE 17: Linguistic Region Base Weight

Linguistic Region	Statistics Switzerland (%)	Data (%)	Weight ¹³
Phone			
German (NOT Valais, NOT Vaud, NOT Geneva, and NOT Basel-Stadt)	54.3	25.0	2.18
French (NOT Valais, NOT Vaud, NOT Geneva, and NOT Basel-Stadt)	5.0	3.5	1.42
Italian (NOT Valais, NOT Vaud, NOT Geneva, and NOT Basel-Stadt)	3.5	8.8	0.40
Valais	2.8	8.2	0.34
Vaud	6.2	10.1	0.61
Geneva	3.6	9.7	0.37
Basel-Stadt	1.7	10.4	0.17
No Phone			
German (NOT Valais, NOT Vaud, NOT Geneva, and NOT Basel-Stadt)	14.4	5.4	2.65
French (NOT Valais, NOT Vaud, NOT Geneva, and NOT Basel-Stadt)	1.1	1.0	1.13
Italian (NOT Valais, NOT Vaud, NOT Geneva, and NOT Basel-Stadt)	1.5	3.4	0.44
Valais	1.5	3.5	0.42
Vaud	2.2	3.5	0.61
Geneva	1.6	3.9	0.40
Basel-Stadt	0.7	3.7	0.19

¹² Even though outbound dialing was not implemented, for consistency's sake relative to prior waves and for an accurate representation of the registry, this adjustment was kept in similar to what was done in prior IHP waves of this study.

¹³ To avoid extremely large or small weights, the maximum weight-value was capped at 2.

2. Post-stratification weighting:
 - a. Parameters used for the Switzerland sample were age-by-gender, educational attainment, and region (Canton). Population parameters were derived from the Swiss population registry's 2019 data via SFSO.
3. Weights were trimmed at the 2.5 and 97.5 percentiles to prevent individual interviews from having too much influence on the final results.

Table 18 compares the distributions of weighted and unweighted data and the population parameters for Switzerland as a whole.

TABLE 18: Weighted and Unweighted Distributions and Population Parameters for Switzerland

	Switzerland - Unweighted	Switzerland - Weighted	Switzerland - Adults
Gender by Age			
Male 65-69	12.6%	13.0%	12.9%
Male 70-74	13.0%	11.9%	11.8%
Male 75+	20.8%	20.0%	20.0%
Female 65-69	13.1%	14.0%	13.9%
Female 70-74	16.0%	13.2%	13.1%
Female 75+	24.6%	28.0%	28.3%
Education			
High School or Less	67.2%	79.4%	79.2%
Some Post-Secondary	8.0%	11.1%	11.3%
University Degree or more	24.8%	9.5%	9.4%
Region/Strata			
Zürich	7.3%	16.3%	16.3%
Bern / Berne (French speaking)	0.5%	0.7%	0.7%
Bern / Berne (German speaking)	5.9%	13.0%	12.9%
Luzern	1.6%	4.5%	4.6%
Uri	0.2%	0.5%	0.5%
Schwyz	0.7%	1.7%	1.8%
Obwalden	0.1%	0.4%	0.5%
Nidwalden	0.2%	0.6%	0.6%
Glarus	0.2%	0.5%	0.5%
Zug	1.0%	1.4%	1.4%
Fribourg / Freiburg (French speaking)	1.6%	2.3%	2.3%
Fribourg / Freiburg (German speaking)	0.4%	0.9%	0.9%
Solothurn	1.3%	3.4%	3.4%
Basel-Stadt	14.0%	2.4%	2.4%

Basel-Landschaft	2.1%	4.0%	4.0%
Schaffhausen	0.4%	1.1%	1.1%
Appenzell Ausserrhoden	0.4%	0.7%	0.7%
Appenzell Innerrhoden	0.1%	0.2%	0.2%
St. Gallen	2.3%	5.8%	5.9%
Graubünden / Grigioni / Grischun	1.6%	2.7%	2.7%
Aargau	3.6%	7.7%	7.7%
Thurgau	1.5%	3.1%	3.1%
Ticino	11.7%	5.0%	5.0%
Vaud	13.6%	8.3%	8.3%
Valais / Wallis (French speaking)	9.4%	3.2%	3.2%
Valais / Wallis (German speaking)	2.2%	1.1%	1.1%
Neuenburg	1.6%	2.1%	2.1%
Genève	13.6%	5.2%	5.2%
Jura	0.8%	1.0%	1.0%

The United Kingdom

The weighting procedure for the United Kingdom needed to address several issues:

1. The need to accurately represent the overall 65+ adult UK population.
2. Disproportionate sample stratification across Wales, Scotland, and Northern Ireland.
3. Differences in the probability of selection by:
 - a. Household size: Respondents who live with no other 65+ adults have a higher probability of being sampled than respondents who live with other 65+ adults.
 - b. Telephone use: respondents who have both a landline and a cell phones have a greater probability of selection than those who have just one type of phone.
4. Systematic non-response along known geographic and demographic parameters.

To address these points, the following steps were taken:

1. Data for each oversampled country were weighted separately, so that each subsample (and the UK as a whole) accurately represent the corresponding population.
2. To address different probabilities of selection:
 - a. Within Household Correction: Respondents reached by landline phone and living in households with two or more 65+ adults received a weight adjustment of 2 while those living with no other 65+ adults received no within household correction (i.e., a weight adjustment of 1). Since cell phones are treated as personal devices, no within household correct was necessary.
 - b. Dual-Usage Correction: Adults who have both a landline and a cell phone received a weight adjustment of 0.5 while those who have only one kind of phone received no dual-usage correction (i.e., a weight adjustment of 1).

- c. A base weight was created by taking the product of the within household correction and the dual-usage correction.
3. Post-stratification weighting:
 - a. With the base weight applied Parameters used for each subsample (Wales, Scotland, and Northern Ireland) and the entire national sample were age-by-gender and educational attainment. Population parameters were derived from 2019 data from the Office of National Statistics in the UK.
4. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Tables 19 through 21 compare the distributions of weighted and unweighted data and the population parameters for each subsample and for the UK as a whole.

TABLE 19: Weighted and Unweighted Distributions and Population Parameters for Wales and Scotland

	Wales - Unweighted	Wales - Weighted	Wales - Adults	Scotland - Unweighted	Scotland - Weighted	Scotland - Adults
Gender by Age						
Male 65-69	6.7%	13.4%	13.4%	11.5%	14.0%	13.8%
Male 70-74	9.3%	13.1%	13.1%	10.8%	12.1%	12.7%
Male 75+	22.7%	19.8%	19.7%	22.8%	18.6%	18.4%
Female 65-69	8.4%	13.7%	14.1%	9.9%	15.0%	14.8%
Female 70-74	15.3%	14.0%	14.0%	12.0%	13.9%	14.0%
Female 75+	37.7%	25.9%	25.8%	32.9%	26.4%	26.2%

TABLE 20: Weighted and Unweighted Distributions and Population Parameters for Northern Ireland and the Rest of the UK

	N. Ireland - Unweighted	N. Ireland - Weighted	N. Ireland - Adults	Rest of the UK - Unweighted	Rest of the UK - Weighted	Rest of the UK - Adults
Gender by Age						
Male 65-69	10.9%	14.0%	14.1%	8.5%	12.9%	13.1%
Male 70-74	10.9%	12.1%	12.3%	10.1%	12.7%	12.8%
Male 75+	23.0%	19.5%	19.1%	24.1%	19.9%	19.8%
Female 65-69	10.6%	13.8%	14.5%	11.0%	14.0%	13.9%
Female 70-74	11.6%	13.9%	13.6%	12.4%	14.0%	14.0%
Female 75+	33.1%	26.8%	26.4%	34.0%	26.5%	26.3%
Region/Strata						
North East	--	--	--	7.9%	5.1%	5.1%
Yorks & Humber	--	--	--	10.7%	9.9%	10.0%
East Midlands	--	--	--	10.1%	9.1%	9.1%
Eastern	--	--	--	4.4%	12.0%	12.0%
London	--	--	--	7.1%	10.4%	10.4%
South East	--	--	--	23.4%	17.4%	17.3%
South West	--	--	--	16.4%	12.1%	12.1%
West Midlands	--	--	--	9.3%	10.7%	10.7%
North West	--	--	--	10.8%	13.3%	13.3%

TABLE 21: Weighted and Unweighted Distributions and Population Parameters for the UK

	UK - Unweighted	UK - Weighted	UK - Adults
Gender by Age			
Male 65-69	9.3%	12.4%	13.2%
Male 70-74	10.2%	13.1%	12.8%
Male 75+	23.2%	19.1%	19.7%
Female 65-69	10.1%	15.0%	14.0%
Female 70-74	12.8%	12.9%	14.0%
Female 75+	34.4%	27.6%	26.3%
Region/Strata			
Northeast	2.7%	4.3%	4.3%
Yorks & Humber	3.6%	8.3%	8.3%
East Midlands	3.4%	7.6%	7.6%
East	1.5%	10.0%	10.0%
London	2.4%	8.7%	8.7%
South East	7.9%	14.5%	14.5%
South West	5.5%	10.1%	10.1%
West Midlands	3.1%	8.9%	8.9%
North West	3.7%	11.1%	11.1%
Wales	22.3%	5.4%	5.4%
Scotland	22.2%	8.4%	8.4%
Northern Ireland	21.6%	2.5%	2.5%

The United States

The weighting procedure for the United States needed to address several issues:

1. The need to accurately represent the target population of 60+ adult U.S. population.
2. Probabilities of respondent selection within and across sample frame.
3. Overlap of the landline and cellular frames.
4. Disproportionate sampling rates across sample strata.
5. Oversampling of prepaid cell phones from the cell frame.
6. Oversampling of 60+ exclusive listed households.
7. Propensity to respond to recontact interview.

To address these points, the following steps were taken:

1. An adjusted base weight was first computed for each piece of sample using an approach outlined by Buskirk and Best.¹⁴ The base weight accounts for selection probabilities from the landline and cell phone frames, and the sampling of one eligible 60+ adult within households that have a landline. Additionally, this base weight accounts for the overlapping sample frames and each respondent's access to a landline and/or a cell phone.
2. A correction was applied to adjust for the disproportionate sampling across strata in the landline and cell phone frames. The strata were based on income, with lower income strata were sampled at higher rates.

TABLE 22: US RDD Stratification Adjustment

Strata	Population Distribution	Landline frame	Landline screener-completes	Cellphone frame	Cellphone screener-completes
1-Poorest	10.0%	9.4%	16.0%	11.0%	13.6%
2	9.7%	9.8%	17.9%	10.6%	12.1%
3	9.2%	9.9%	12.2%	11.0%	14.4%
4	10.9%	10.6%	14.0%	11.4%	12.1%
5	10.2%	10.1%	12.1%	10.8%	10.6%
6	9.7%	9.4%	7.3%	9.3%	10.5%
7	10.1%	10.1%	8.0%	10.2%	8.4%
8	10.2%	10.3%	3.7%	9.9%	8.5%
9	10.0%	10.0%	3.8%	8.0%	5.5%
10-Richest	10.0%	10.4%	5.1%	7.8%	4.2%

3. A Prepaid Cellphone Adjustment was applied to account for the oversampling of prepaid cell numbers in the cell frame. The prepaid cellphone adjustment corrects for this oversampling by applying an adjustment to balance the proportion of prepaid cell numbers in the sample to match the proportion in the RDD cell sample frame.
4. An Age 60+ Listed Sample Adjustment was applied to correct for the oversampling of 60+ exclusive households. This adjustment matches the proportion of age 60+ listed household in our sample to the estimated proportion in the population.

¹⁴ Buskirk, T. D., & Best, J. (2012). Venn Diagrams, Probability 101 and Sampling Weights Computed for Dual Frame Telephone RDD Designs. *Journal of Statistics and Mathematics*, 15, 3696-3710.

TABLE 23: Age 60+ Base Weight

Age 60+ listed adjustment	Population Estimate (%)	Data (%)	Age 60+ Listed Adjustment
Age 60+ exclusive households	21.7	57.0	0.38
Age 60+ any households	31.0	15.0	2.02
Other	47.3	28.0	1.70

5. A Recontact Propensity Adjustment was applied to cases from pre-screened Omnibus sample completes. This adjustment was applied to the original Omnibus base weight which accounted for sampling probabilities associated with the original Omnibus interview. The propensity weight (PROPWT) was calculated as the inverse of the predicted probability of completing the callback interview in a logistic regression model. Variables used in this model include demographics from the original Omni data (home ownership, marital status [married, or not], employment status [employed, part time, retired], age [60-69, 70 plus], educational attainment [high school or less, college or more], income, and population density) and behavioral items such as voter registration, and cellphone-only usage.
6. Post-stratification weighting:
 - a. Parameters used for the US sample were Census region, age-by-gender, educational attainment, and race/ethnicity. Population parameters were derived from the 2020 U.S. Census Bureau's Current Population Survey (CPS) March supplement.¹⁵
7. Weights were trimmed at the 5th and 95th percentiles to prevent individual interviews from having too much influence on the final results.

Table 24 compares the distributions of weighted and unweighted data and the population parameters for the US as a whole.

¹⁵ Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles and J. Robert Warren. Integrated Public Use Microdata Series, Current Population Survey: Version 7.0 [dataset]. Minneapolis, MN: IPUMS, 2020. <https://doi.org/10.18128/D030.V7.0>

TABLE 24: Weighted and Unweighted Distributions and Population Parameters for the US

		US - Unweighted	US - Weighted	US - Adults
Gender by Age				
	Male 60-64	9.7%	13.6%	13.4%
	Male 65-69	12.1%	11.3%	11.0%
	Male 70-74	10.4%	9.4%	9.1%
	Male 75	15.3%	13.2%	12.8%
	Female 60-64	7.3%	12.9%	14.4%
	Female 65-69	10.4%	12.4%	12.4%
	Female 70-74	8.5%	9.9%	10.2%
	Female 75	26.3%	17.3%	16.7%
Education				
	Less than High School	11.6%	11.1%	10.9%
	High School	27.8%	30.5%	30.6%
	Some Post-Secondary	30.1%	26.1%	25.8%
	University Degree or more	30.6%	32.2%	32.7%
Region/Strata				
	Northeast	18.7%	18.6%	18.2%
	South	38.5%	37.8%	37.8%
	Midwest	21.0%	21.3%	21.4%
	West	21.8%	22.3%	22.5%
Ethnicity				
	White non-Hispanic	72.7%	74.4%	74.5%
	Black non-Hispanic	13.2%	10.2%	9.9%
	Hispanic	9.6%	9.5%	9.3%
	Other non-Hispanic	4.5%	5.9%	6.3%

Design Effect and Margin of Sampling Error

Weighting procedures increase the variance in the data, with larger weights causing greater variance. Complex survey designs and post-data collection statistical adjustments affect variance estimates and, as a result, tests of significance and confidence intervals. These are weight-adjusted margins-of-error for countries and targeted regions. The margins of error reported apply to estimates of 50%; for smaller or larger estimates, the margin of sampling error will be smaller. Sampling error is only one type of error that could affect survey outcomes.

TABLE 25: Design Effect and Margin of Error by Country

	N-Size	Design Effect	Margin of Error
Australia	501	1.52	5.4
Canada ¹⁶	4,332	2.09	2.2
Newfoundland	252	1.56	7.7
Prince Edward Island	257	1.59	7.7
Nova Scotia	254	1.25	6.9
New Brunswick	250	1.44	7.4
Quebec	1000	1.40	3.7
Ontario	1302	1.50	3.3
Manitoba	255	1.53	7.6
Saskatchewan	251	1.54	7.7
Alberta	251	1.54	7.7
British Columbia	251	1.51	7.6
Yukon Territory	144	1.38	9.6
France	1,751	1.43	2.8
Germany	1,163	1.22	3.2
Netherlands	630	1.22	4.3
New Zealand	500	1.47	5.3
Norway	500	1.82	5.9
Sweden	3,018	1.09	1.9
Switzerland	2,597	1.96	2.7
UK	1,876	3.00	3.9
Wales	419	1.34	5.5
Scotland	416	1.20	5.3
Northern Ireland	405	1.18	5.3
Rest of the UK	636	1.42	4.6
US	1,969	1.80	3.0

¹⁶ The design effect and margin of error reported for Canada as a whole are based on the main weight (Weights), while the design effects and margins of error per province are based on the population weight for Canada (CAN_WEIGHTPROVINCES2). Using the population weight, Canada's overall design effect is 1.99, with a margin of error of +/-2.1 percentage points, based on n=4,484 interviews, including the territory oversamples.