AmericasBarometer, 2010

Sample Design

The 2010 AmericasBarometer study is based on interviews with 43,990 respondents in 26 countries. Nationally representative surveys of voting age adults were conducted in all major languages, using face-to-face interviews in Latin America and the Caribbean and web surveys in the United States and Canada. Samples in each country were developed using a multi-stage probabilistic design (with quotas at the household level for most countries), and were stratified by major regions of the country and by urban and rural areas within municipalities.

Table 1: Sample sizes and Sampling errors in the 2010 AmericasBarometer

Country	Sample Size	Sampling Error
Mexico/ Central America		
Mexico	1,562	±2.48%
Guatemala	1,504	±2.50%
El Salvador	1,550	±2.49%
Honduras	1,596	±2.45%
Nicaragua	1,540	±2.50%
Costa Rica	1,500	±2.50%
Panama	1,536	±2.50%
Andean/Southern Cone		
Colombia	1,506	±2.50%
Ecuador	3,000	±1.79%
Peru	1,500	±2.50%
Bolivia	3,018	±1.79%
Paraguay	1,502	±2.50%
Chile	1,965	±2.21%
Uruguay	1,500	±2.53%
Brazil	2,482	±1.79%

Venezuela	1,500	±2.53%
Argentina	1,410	±2.53%
Caribbean		
Belize	1,504	±2.50%
Dominican Republic	1,500	±2.52%
Guyana	1,540	±2.50%
Haiti	1,752	±2.34%
Jamaica	1,504	±2.53%
Suriname	1,516	±2.50%
Trinidad & Tobago	1,503	±2.50%
United States and Canada		
Canada	1,500	±2.50%
United States	1,500	±2.50%
Total	**43,990**	
*Confidence intervals based on unweighted sample sizes. For cross-national analysis purposes, LAPOP weights each sample to 1,500. These sampling errors are based on SRS and not adjusted for stratification and clustering. For information on the impact of the complex sample design on confidence intervals, see section VII of this document.		

LAPOP surveys were based on the 2000 round of national census data so that sample designs are based on the most current population distributions available (by sex and age and also across geographical units within each country).

I. Universe, Population, Unit of Observation

Universe: The surveys provide national coverage of voting age adults. The universe is comprised of the population living in urban and rural areas and it is representative at the national and regional level.

Population: The survey is designed to collect information from a nationally representative sample of the entire voting age population. Only non-institutionalized voting age adults are eligible to participate in the survey. Therefore, the sample excludes people in boarding schools, hospitals, police academies, military barracks, and inmates of the country's jails.

Unit of Observation: Only one respondent is interviewed per household. The questionnaire almost exclusively includes topics focused on that single respondent, but also does include some questions related to other members of the household and the condition of the household itself. Thus, the statistical unit of observation is the household. However, some respondents live in dwellings that are shared with other households. For this reason, it is more appropriate to consider the dwelling as the final unit of analysis. Additionally, the dwelling is an easily identifiable unit in the field, with relative permanence over time, a characteristic that allows it to be considered as the final unit of selection.

II. Sample frame

The sampling frame covers 100% of the eligible voting age population in the surveyed country. This means that every eligible person in the country has an equal and known chance of being included in the survey sample. It also means that no particular ethnic group or geographical areas are excluded from the sampling frame unless the country sample design indicates otherwise. For example, certain Island areas and territories might be excluded. See the country study sample descriptions for such exceptions.

III. Sampling Method

The sampling method chosen takes into consideration a series of elements pre-established by LAPOP.

On the basis of these requirements, the method that is used corresponds to a **stratified multi-stage cluster sampling.** The sample is stratified based on three factors:

1) Urban/Rural areas
2) Regions

The stratified sampling ensures a greater reliability in our sample by reducing the variance of the estimates. Stratification improves the quality of estimates, with the sole condition that the whole sample unit belongs to only one stratum, and the strata in combination cover the total population. Stratification also enables us to ensure the inclusion in the sample of the most important geographic regions in the country while requiring geographic sample dispersion.

IV. Stratification

Stratification is the process by which the population is divided into subgroups. Sampling is then conducted separately in each subgroup. Stratification allows subgroups of interest to be included in the sample whereas in a non-stratified sample some key subgroups may have been left out due to the random nature of the selection process. In an extreme case, samples that are not stratified can, by chance, exclude the nation's capital or largest city. Stratification helps us increase the precision of the sample. It reduces the sampling error. In a stratified sample, the sampling error depends on population variance within strata and not between them.

V. Weighting of individual country datasets

Most of the 2010 AmericasBarometer samples are self-weighted except for Bolivia, Chile, Haiti, Ecuador and Suriname. Each country data set contains a variable called WT which is the "country weight" variable. In countries in which the sample is self-weighted, the value of each case = 1. In addition, in order to give each country in the study an identical weight in the pooled sample, LAPOP reweights each country data set in the merged files so that each country has an N of 1,500. The variable "WEIGHT1500" should be activated to produce representative national results. In SPSS this is done via the "weight" command.

VI. Fieldwork dates

Fieldwork dates for each country for the 2010 round are reported in Table 2.

Table 2: Fieldwork dates by country, 2010 AmericasBarometer

Country	Fieldwork start date	Fieldwork end date
Mexico/ Central America		
Mexico	January 17th	February 22nd
Guatemala	January 30th	March 27th
El Salvador	January 30th	February 14th
Honduras	February 18th	March 26th
Nicaragua	January 14th	February 12th
Costa Rica	January 20th	February 12th
Panama	January 8th	February 3rd
Andean/Southern Cone		
Colombia	April 10th	May 14th
Ecuador	February 2nd	March 19th
Peru	January 21st	February 12th
Bolivia	February 1st	March 27th
Paraguay	January 21st	March 2nd
Chile	April 23rd	June 11th
Uruguay	March 5th	April 4th
Brazil	March 19th	April 10th
Venezuela	January 22nd	February 14th
Argentina	March 1st	April 28th
Caribbean		
Belize	March 2nd	March 25th
Dominican Republic	January 20th	February 9th
Guyana	January 18th	February 13th
Haiti	July 13th	August 11th
Jamaica	February 5th	March 24th
Suriname	April 8th	June 28th
Trinidad & Tobago	January 11th	March 4th
United States and Canada		
Canada	April 30th	May 11th
United States	March 17th	March 29th

VII. Design Effects

Accuracy of the Findings

Two types of errors affect all surveys: non-sampling errors and sampling ones. Non-sampling errors are those that are committed during the data collection and processing. These can be controlled using a good measuring instrument, adequately training the surveyors, supervising the fieldwork, and with appropriate data collection programs. These errors can be controlled but not quantified. However, comparing the sample results with those of the population gives us an idea of whether these errors have generated biases that reduce the representativeness of the sample. The use of handheld computers (palm pilots) probably reduced these errors by carrying out consistency checks of the responses and flow of the interview at the same time and place that it was done. Additionally, by eliminating the process of data entry, we eliminated the errors that this activity generates. With the traditional procedures of paper-based questionnaires, processes of coding and critiquing the data must be carried out in the office (eliminated by using palm pilots), which can also generate errors. With paper questionnaires, computer-based consistency checks can only be run several weeks after the data was collected. Correcting errors detected in the office during the critique or by programs that detect inconsistencies is difficult or impossible given the separation in time and space between the moment of the interview on paper and the detection of these errors.

Sampling errors are a product of chance and from surveying a sample and not the entire population. When a sample is selected, this sample is one of many possible samples that could be selected from the population. The variability that exists between all these possible samples is the sampling error, which we could measure if all these samples were available, obviously an impossible situation. In practice, what is done is to estimate this over the variance obtained from the sample itself. To estimate the sampling error of a statistic (average, percentage, or ratio), we calculate the standard error, which is the square root of the population variance of the statistic. This allows us to measure how close the statistic is to the result that would have been obtained if the entire population were interviewed under the same conditions.

$$DEFT = SE_{complex} / SE_{URS}$$

To calculate this error, it is very important to consider the design with which the sample was selected. The design effect (DEFT –above is DEFT) indicates the efficiency of the design used in relation to an unrestricted random sampling design (URS). A value of 1 indicates that the standard error (SE) obtained for both designs (the complex and the URS) is equal; that is, the complex sampling is as efficient as the URS with the same-sized sample. If the value is greater than 1, the complex sampling produces a SE greater than that obtained with a URS.

Table 3 show the value of the statistic in question (average or percentage) and the design effects (DEFT) of the 2010 round of the AmericasBarometer. The SE were estimated with the Stata 12 computational package. Extreme values come from a high degree of homogeneity within each cluster. In other words, in these cases there is an important spatial segregation of people according to their socioeconomic condition, which reduces the efficiency of cluster sampling to measure these characteristics.

It is worth stating that sampling error is usually 10% to 40% greater than that which would have been obtained with unrestricted random sampling (URS). In general for a well design study, the design effect usually ranges from 1 to 3. For example, in the case of Costa Rica, the Support for Democracy (Ing4r) has a sampling error of 1.61. This means that the 95% confidence interval (1.96 times the SE) for the average of this variable (80.39) goes from 77.20 to 83.54. According to the DEFT of the table, this interval is 31% greater than that which would have been obtained with a URS (see Table 3).

Table 3: Design effects, 2010 AmericasBarometer Survey

País	Ing4r			it1r		
	2010			2010		
	Promedio	Error Estandar	DEFT	Promedio	Error Estandar	DEFT
Mexico	66.84	1.08	1.59	56.15	1.20	1.54
Guatemala	62.78	0.92	1.29	57.37	1.13	1.46
El Salvador	64.12	0.73	1.15	61.88	0.91	1.13
Honduras	62.58	1.17	1.79	63.81	1.03	1.39
Nicaragua	71.25	1.18	1.46	58.65	1.56	1.93
Costa Rica	80.39	1.24	1.61	70.22	1.45	1.85
Panama	75.48	1.30	1.93	59.83	1.23	1.81
Colombia	72.29	0.84	1.29	62.79	1.37	1.92
Ecuador	68.42	0.92	1.36	54.17	0.83	1.07
Bolivia	70.32	1.01	1.71	52.64	1.82	2.59
Peru	60.08	1.09	1.58	46.23	1.13	1.63
Paraguay	63.31	1.18	1.55	61.59	1.63	2.15
Chile	76.10	0.74	1.20	62.94	1.03	1.42
Uruguay	86.24	0.71	1.29	64.08	1.41	1.95
Brazil	73.69	1.90	2.66	55.13	1.53	2.07
Venezuela	74.01	1.50	1.91	56.69	1.84	2.41
Argentina	79.63	1.63	2.31	55.62	1.65	2.43
Dominican R.	68.55	0.83	1.09	57.72	1.11	1.37
Haiti	65.80	0.80	1.22	32.66	0.73	1.22
Jamaica	69.63	1.18	1.58	56.88	1.41	1.99
Guyana	72.89	1.38	1.72	63.73	1.15	1.69
Trinidad & Tobago	69.69	1.03	1.38	63.49	1.11	1.65
Belize	70.88	1.22	1.37	46.56	1.69	2.14
Suriname	78.88	0.71	1.27	57.94	1.29	1.97
United States	77.50	0.68	1.09	68.20	0.64	1.08
Canada	73.52	0.64	1.08	68.98	0.56	1.07

Table 3: Design effects, 2010 AmericasBarometer Survey (cont.)

País	corvic			PSA5		
	2010			2010		
	Promedio	Error Estandar	DEFT	Promedio	Error Estandar	DEFT
Mexico	35.02	1.55	1.33	56.79	0.69	1.31
Guatemala	21.21	1.18	1.19	49.55	0.75	1.38
El Salvador	11.42	0.91	1.18	58.70	0.72	1.55
Honduras	16.23	2.15	2.40	60.42	0.46	1.11
Nicaragua	12.08	1.14	1.44	51.69	0.72	1.26
Costa Rica	10.07	0.97	1.33	63.23	0.84	1.56
Panama	9.44	2.41	3.39	60.17	0.97	2.16
Colombia	10.42	1.00	1.35	60.30	1.08	2.23
Ecuador	21.13	1.13	1.14	48.92	0.69	1.41
Bolivia	32.34	2.05	1.80	53.98	0.84	1.93
Peru	32.00	1.44	1.27	46.82	0.83	1.74
Paraguay	27.10	1.49	1.38	46.28	0.66	1.24
Chile	5.15	0.57	1.06	56.75	0.66	1.30
Uruguay	7.33	0.73	1.15	68.01	0.70	1.43
Brazil	23.60	2.72	2.64	49.96	0.94	1.62
Venezuela	18.47	1.23	1.30	49.03	1.00	1.52
Argentina	23.48	2.26	2.20	45.15	1.39	2.22
Dominican R.	17.53	1.28	1.39	53.91	0.67	1.19
Haiti	53.61	1.46	1.20	31.99	0.54	1.32
Jamaica	7.78	0.78	1.19	48.57	0.92	1.70
Guyana	17.08	1.44	1.57	54.87	1.34	2.44
Trinidad & Tobago	9.05	0.81	1.16	44.02	0.75	1.27
Belize	17.15	1.10	1.20	53.58	0.94	1.74
Suriname	11.78	0.80	1.02	57.14	0.80	1.64
United States	6.26	0.65	1.10	53.54	0.58	1.08
Canada	4.23	0.54	1.10	57.78	0.57	1.08

Table 3: Design effects, 2010 AmericasBarometer Survey (cont.)

País	tol			m1r		
	2010			2010		
	Promedio	Error Estandar	DEFT	Promedio	Error Estandar	DEFT
Mexico	49.25	0.93	1.53	54.11	0.77	1.36
Guatemala	50.24	0.84	1.31	48.18	0.73	1.39
El Salvador	45.10	0.71	1.32	67.13	0.64	1.25
Honduras	47.52	0.79	1.64	66.18	0.58	1.13
Nicaragua	60.02	1.01	1.44	50.15	0.98	1.51
Costa Rica	66.67	1.10	1.40	58.47	0.90	1.64
Panama	50.93	2.08	3.53	61.59	0.62	1.39
Colombia	51.79	0.96	1.46	68.01	0.58	1.07
Ecuador	50.24	0.99	1.61	61.24	0.72	1.32
Bolivia	47.18	0.90	1.67	60.99	1.64	3.33
Peru	47.52	1.19	2.04	44.74	0.69	1.42
Paraguay	48.42	1.03	1.51	62.45	0.71	1.33
Chile	51.86	1.18	1.63	58.77	0.57	1.17
Uruguay	61.36	1.50	2.00	72.83	0.58	1.10
Brazil	59.03	2.45	3.34	70.26	1.40	2.58
Venezuela	63.44	1.92	2.79	48.85	1.15	1.70
Argentina	67.35	2.06	2.94	42.46	1.08	1.81
Dominican R.	49.36	0.93	1.38	57.96	0.78	1.29
Haiti	43.41	0.63	1.27	27.57	0.77	1.43
Jamaica	58.48	1.37	2.14	37.07	1.10	1.72
Guyana	64.53	1.67	2.48	54.88	1.41	2.21
Trinidad & Tobago	66.64	0.98	1.53	39.57	0.87	1.32
Belize	59.02	0.89	1.29	43.74	1.07	1.84
Suriname	60.39	1.08	1.85	45.61	1.14	1.94
United States	70.41	0.66	1.07	45.73	0.96	1.06
Canada	64.58	0.64	1.07	47.22	0.72	1.06

For more information on the sample within each country, please see the country reports and technical information sheets on the AmericasBarometer website, **http://www.AmericasBarometer.org.**