WORLD VALUES SURVEY 7: REPORT ON SAMPLING

Submitted by
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Ms. Kseniya Kizilova
Head of the World Values Survey Association Secretariat
Vienna 1040, Austria

Subject: World Values Survey 7: Report on Sampling

Dear Ms. Kizilova,

We are pleased to submit the **Report on Sampling** for the implementation of World Values Survey Wave 7 in the Philippines.

Also attached are the list of sampling points. Please note that as we proposed, there will be ten (10) interviews each in 120 PSUs within 21 provinces in the Philippines.

Should you have need for any clarification, please do not hesitate to contact us.

Sincerely yours,

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Vice-President and Technical Team Leader

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Annex

1. Background of the Report

Social Weather Stations (SWS, www.sws.org.ph) was awarded funds by the World Values Survey Association and the University of Southampton (TrustGov research project) to implement the World Values Survey (WVS) Wave 7 in the Philippines for 2019.

SWS joined WVS in 1995 and implemented its first round in 1996 (Wave 3); and continued on in 2001 (Wave 4); and 2012 (Wave 6).

As part of its activity documentation for Wave 7, this report discusses the sampling scheme, annexing the sample spots (PSUs) generated.

2. Sampling Scheme

2.1. Target Population/Coverage

The target population for WVS-7 are Filipino voting-age adults (18 years old and above) living in private accommodation.

The survey will have a sample size of 1,200 statistically representative adults nationwide.

The population data used in developing the sample design is based on the 2015 Census of Population and Housing (2015 CPH) conducted by the Philippine Statistics Authority (PSA).

2.2. Stratification Sample

The Philippines is geographically divided into 3 main island groups: Luzon, Visayas and Mindanao. The three island groups are divided into regions for administrative purposes; regional groupings are based on geographical proximity and ethnolinguistic characteristics. As of 2019, there are 17 regions: 16 administrative regions and 1 autonomous region (BARMM). The National Capital Region (NCR), one of the 16 administrative regions and the capital region of the Philippines, is located in Luzon.

Based on these geographic and administrative divisions, the Philippines is stratified into the four study areas: 1) NCR; 2) Balance of Luzon (areas in Luzon outside of NCR); 3) Visayas; and, 4) Mindanao.

NCR is composed of 16 independent cities and 1 independent municipality (Pateros), which are further divided into barangays (villages). The barangay is the smallest administrative government unit and political unit in the Philippines. Classified either as urban or rural by the PSA, the barangay serves as the primary sampling unit (PSU) for the survey.

Balance Luzon, Visayas and Mindanao are divided into 81 provinces. Provinces are the primary political and administrative unit, except in BARMM (Bangsamoro Autonomous Region in Muslim Mindanao) and in independent component cities. The 81 provinces are administratively divided into cities or municipalities, which are in turn divided into barangays (villages).[1]

2.3. Sampling Method

Sample Sizes and Error Margins. An indicator of data quality is the standard error of the estimate, on which the margin for sampling error is based. As survey statistics are mostly proportions, the key measure of data precision is the standard error of a proportion taken from a sample. It is computed as follows:

$$\pm Z * \sqrt{\frac{p(1-p)}{n}}$$

Where *Z*, at 95% confidence level is 1.96; *p* is the sample proportion estimate and *n* is the sample size. The overall target sample size of 1,200 voting-age adults gives a maximum error margin of ±2.83% at the 95% confidence level, assuming a simple random sampling design. The sampling error is at its highest when the true proportion being estimated is close to 50%.

The following approximate 95%-confidence margins for sampling error will be made when aggregating data at various levels:

	Sample Size	Error margin
Philippines	1,200	±3%
National Capital Region	300	±6%
Balance Luzon	300	±6%
Visayas	300	±6%
Mindanao	300	±6%

However, somewhat higher error margins should be expected since multi-stage sampling is used; this design-effect is not readily measurable through established statistical software.

[1] **Balance Luzon** is divided into 7 regions: Region I (Ilocos Region), Region XIV (Cordillera Administrative Region or CAR), Region II (Cagayan Valley), Region III (Central Luzon), Region IV-A (Calabarzon), Region IV-B (Mimaropa) and Region V (Bicol); **Visayas** into 3 regions: Region VI (Western Visayas), Region VII (Central Visayas) and Region VIII (Eastern Visayas); and **Mindanao** into 6 regions; Region IX (Zamboanga Peninsula), Region X (Northern Mindanao), Region XI (Davao Region), Region XII (Soccsksargen), Region XIII (Caraga), and Region XV (Bangsamoro Autonomous Region in Muslim Mindanao or BARMM; BARMM is autonomous). As of September 30, 2019, there are 146 cities, 1,488 municipalities and 42,045 barangays in the Philippines.

Sampling scheme. Multi-stage probability sampling is used in the selection of sample spots. The allocation of sample units in each stage is as follows:

	Sample Prov.	Sample Spots	Probability Respondents
National Capital Region	--	30	300
Balance Luzon	10	30	300
Visayas	5	30	300
Mindanao	6	30	300
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	21	120	1200

For the National Capital Region

Stage 1. Selection of Sample Spots (Barangays/villages)

For NCR's first stage, 30 spots are selected from all the barangays in the 17 NCR cities and municipalities. Each spot is selected with probability proportional to size (PPS).

To select barangays using PPS, cumulative counts are computed among barangays. Random numbers, ranging from 1 to the maximum cumulative count, are drawn and the barangay whose range of cumulative counts covers the random number is the one selected. To illustrate, if Barangay A has a population of 100, its cumulative count is 1-100, then if the next barangay, Barangay B, has a population of 150, its cumulative count is 101-250, and if the next barangay, Barangay C, has a population of 50, its cumulative count is 251-300. A random number is then drawn from 1-300; if the random number drawn is 185, it falls within the range of cumulative counts of Barangay B, making it the barangay selected using PPS.

Stage 2. Selection of Sample Households

In each sample barangay, ten households are established by systematic sampling. Designated starting points are randomly assigned - it is either: 1) a municipal/barangay hall, 2) a school, 3) the barangay captain's house, 4) a church/chapel/mosque, 5) a health facility, or 6) a basketball court. A random start from 1-6 is also randomly generated for each spot. Thus, if a particular spot has a random start of 4, the first sample household will be the 4th household from the designated starting point. Subsequent sample households are chosen using a fixed interval of 5 households in between the sampled ones; i.e. every 6th household is sampled.

Annex A (WVS 2019 - NCR Sampling=300) contains the selection of barangays in NCR, and the starting point and random start randomly selected for each barangay.

Stage 3. Selection of Sample Adult

For the third stage, a respondent is randomly chosen from among the voting-age adults in each selected household using a probability respondent selection table. A respondent not contacted during the first attempt is visited for a second time. If the respondent remains unavailable, or in cases where there is no qualified probability respondent of a given gender, the interval sampling of households continues until ten sample respondents are identified.

For the rest of the Philippines

Stage 1. Allocation and Selection of Sample Provinces

Balance Luzon is further divided into 6 regions: Region I, CAR+Region II, Region III, Region IV-A, Region IV-B and Region V; Visayas into 3 regions: Region VI, Region VII and Region VIII; and Mindanao into 6 regions; Region IX, Region X, Caraga, Region XI, Region XII and ARMM.

Using probability proportional to population size (PPS) of the region, the allocation of 10 provinces in Balance Luzon, 5 in Visayas and 6 in Mindanao are as follows:

BALANCE LUZON		**VISAYAS**		**MINDANAO**	
Region I	1	Region VI	1	Region IX	1
CAR+Region II	1	Region VII	2	Region X	1
Region III	3	Region VIII	2	CARAGA	1
Region IV-A	3			Region XI	1
Region IV-B	1			Region XII	1
Region V	1			BARMM	1
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TOTAL	10		5		6

The non-quota provinces are selected without replacement using probability proportional to their remainders. The remainders are fractions derived when the proportion of the regions (based on their respective study area) are multiplied by 10 for Balance Luzon, 5 for Visayas and 6 for Mindanao. For instance, if 1.28 is obtained for Region I, then 1 province is assigned to this region and remaining fraction of 0.28 is included for the allocation of the non-quota province.

Given the target number of provinces for each region, sample provinces are then selected by PPS, without replacement. Selection of provinces using PPS is similar to the procedure in selecting barangays using PPS discussed above for NCR. An additional provision is that each region must receive at least one province.

Stage 2. Allocation and Selection of Sample Spots (Barangays/villages)

Within the study areas of Balance Luzon, Visayas, Mindanao, 30 spots are selected within each region with probability proportional to population size, without replacement.

BALANCE LUZON		**VISAYAS**		**MINDANAO**	
Region I	4	Region VI	11	Region IX	4
CAR+Region II	4	Region VII	12	Region X	6
Region III	7	Region VIII	7	CARAGA	4
Region IV-A	10			Region XI	6
Region IV-B	2			Region XII	5
Region V	3			BARMM	5
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TOTAL	30		30		30

Selection of barangays using PPS is similar to the procedure in selecting barangays using PPS discussed above for NCR.

Sample barangays are then classified as urban or rural based on the latest National Statistics Office classification (2015).

Stage 3. Selection of Sample Households

For the third stage, within each sample spot, ten households are established by systematic sampling. In urban barangays as well as in rural barangays, designated starting points are randomly assigned - it is either: 1) a municipal/barangay hall, 2) a school, 3) the barangay captain's house, 4) a church/chapel/mosque, 5) a health facility, or 6) a basketball court. A random start from 1-6 is also randomly generated for each spot. Thus, if a particular spot has a random start of 4, the first sample household will be the 4th household from the designated starting point. The sampling interval for urban barangays is six, while for rural barangays, it is two.

Annex A (WVS 2019 – Luzon Sampling=300, Visayas Sampling=300 and Mindanao Sampling=300) contain the selection of provinces and barangays per study area, and the starting point and random start randomly selected for each barangay.

Stage 4. Selection of Sample Respondents

For the fourth and final stage, a respondent is randomly chosen from among the voting-age adults in each selected household using a probability respondent selection table. A respondent not contacted during the first attempt is visited for a second time. If the respondent remains unavailable, or in cases where there is no qualified probability respondent of a given gender, the interval sampling of households continues until five sample respondents are identified.

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