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# MYANMAR HIGH-FREQUENCY PHONE SURVEY – COVID-19

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## Considerations for sampling of household component

May 2020

### 1 Introduction

This note presents the sampling design for Myanmar High-Frequency Phone Survey (HFPS) to monitor to potential negative effects of COVID-19 on households (HH). A separate note is being prepared on the sampling design for the enterprise component. The HFPS is a multi-topic and multi-round survey designed collect information on socioeconomic conditions of households (family composition, education, dwellings), livelihoods (employment and non-labor income), and welfare (consumption and food security). The survey is to be implemented from May 2020 until November 2020 with 6 to 8 rounds spaced by 3 to 4 weeks. The questionnaire will be adapted as situation in Myanmar evolves. This survey combines modules from the Poverty GP/DEC task force on HFPS for COVID-19 and adaption of SWIFT modules to track welfare over time.

In this note, we document various considerations when building the sample to ensure national representativeness of the sample to be surveyed. The note explains how to build weights for each round and for the panel controlling for attrition.

### 2 Project background

The COVID-19 pandemic is expected to have significant and lasting repercussions on the Myanmar economy. The impact of the global and regional economic slowdown is however already tangible, and further risks lie ahead. Myanmar's growth prospects are already affected by disruptions in trade, supply chains and travel. With more than 161 confirmed cases as of 6 May 2020, the health impact of the outbreak on the population may take some time to become visible but an escalating outbreak in Myanmar would also weaken domestic consumption, a key driver of economic growth.

Disruptions in trade and supply chains are already manifesting themselves in a decline in import of inputs (fertilizers, seeds, parts and materials in manufacturing industries). Meanwhile, exports of agricultural and manufacturing products to China and other trading partners have also declined and may remain in low demand. The closing of borders and the suspension of international and national flights, as well as measures of social distancing have resulted in disruptions in employment in all sectors. Loss in labor income also affects those deriving their livelihoods from tourism and allied sectors such as food services, transportation, and recreational activities, as the number of visitors has plummeted, large-scale events have been cancelled, and people follow social distancing measures. These dynamics have already resulted in factories closing in Myanmar, which would lead to declines in labor incomes due to loss of employment and lower returns to productive activities.

The Government of Myanmar has already announced a package of measures aimed at sheltering the economic activities most affected by the supply shocks. Such measures include support to firms through lower interest rates and ensuring access to credit, as well as exemption of income tax and commercial tax. While buffering the impact on firms can help mitigate employment losses and thus declines in household welfare, additional measures may be required to protect a larger segment of Myanmar’s households and labor force.

The data from the household component of the high-frequency phone survey (HFPS) will be used to monitor potential negative effects of COVID-19 on households in urban and rural areas. Through this survey, the following key indicators could be estimated: share of household heads who are employed, share of households who lost income from labor and non-labor sources, food security and poverty. As situation evolves, different indicators will be collected but these key indicators will be collected in all rounds.

This survey will provide data to the government and development partners in near real-time, supporting an evidence-based response to the crisis. Survey data collection for the HFPS could begin in May 2020 with the first round to assess early effects of COVID-19. Households will be tracked over a 6-month period first with possible extension. Selected respondents will complete phone-based interviews every 3 to 4 weeks.

### 3 Demographics

The most recent population census dates to 2014 with recent population projections. Below is a table summarizing projected population numbers in 2020 at the Union Level, States/Regions, and urban/rural levels.

**Table 1 Projected population numbers, 2020**

	<b>Households</b>	<b>Persons</b>	<b>Females</b>	<b>Males</b>
<b>Union</b>		<b>54,817,919</b>	<b>28,565,000</b>	<b>26,253,000</b>
<b>Urban/Rural</b>				
Urban		16,400,992	8,640,000	7,761,000
Rural		38,416,927	19,925,000	18,492,000
<b>States/Regions</b>				
Kachin		1,933,705	928104	1005601
Kayah		330,356	166368	163988
Kayin		1,618,264	830180	788084
Chin		525,062	274612	250450
Sagaing		5,608,752	2967901	2640851
Tanintharyi		1,498,370	756206	742164
Bago		4,948,959	2606566	2342393
Magway		3,932,063	2132419	1799644
Mandalay		6,566,720	3472870	3093850
Mon		1,979,330	1047217	932113
Rakhine		3,349,917	1758845	1591072
Yangon		8,477,923	4469191	4008732
Shan		6,477,329	3251362	3225967
Ayeyawady		6,270,864	3232204	3038660

Nay Pyi Taw		1,300,303	670843	629460
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#### 4 Target population

The target population for the HFPS is all individuals living in conventional households. A household is defined as a person living alone or a group of people, either related or unrelated, who live together as a single unit in the sense that they have common housekeeping arrangements- they share or are supported by a common budget. The target population does not include people living in hotels/motels/guesthouses, military camps, police camps, orphanages/homes for the aged, religious centres, boarding schools/colleges/universities, correctional facilities/prisons, hospitals, camps/hostels for workers, and homeless/other collective quarters.

Households would be the unit of analysis rather than individuals for two main reasons: poverty rate is usually measured at household-level and in phone survey, it is very hard/impossible to know who is responding to the phone (Ballivian, Azevedo and Durbin, 2015).

#### 5 Sampling frame

The sampling frame is a list of all units of analysis within a population. In the present survey, the sample frame is all households (the unit of analysis) within the population of Myanmar. For list-based sampling, samples should be selected with simple random sampling, explicitly or implicitly stratified.

For the HFPS, two sample frames are under consideration: (1) a database of 500,000 phone respondents built by the consultancy firm implementing the survey and collected on a monthly basis to have; and (2) a clustered sample frame from Myanmar Living Conditions Survey 2017 (MLCS 2017) with names of household heads and phone numbers from 13,730 households.

Below is a table summarizing the population distribution from these two sample frames.

**Table 2 Comparisons of two potential sample frames**

	Private database		MLCS 2017	
<b>Gender</b>	<b>Phone users (%)</b>		<b>Household head (%)</b>	<b>Population (%)</b>
Female	41		78.95	54.07
Male	59		21.05	45.93
<b>Rural/Urban</b>	<b>Phone users (%)</b>		<b>HHs (%)</b>	<b>Population (%)</b>
Rural	41		71.17	71.47
Urban	59		28.83	28.53
<b>State/Region</b>	<b>Phone users (%)</b>		<b>HHs (%)</b>	<b>Population (%)</b>
Kachin	3.28		2.92	3.28
Kayah	0.27		0.55	0.6
Kayin	1.51		2.53	2.83
Chin	0.13		0.85	1

Sagaing	7.94		9.61	10.3
Tanintharyi	2.03		2.45	2.8
Bago	8.50		10.51	10.09
Magway	6.97		8	7.52
Mandalay	16.17		11.85	11.84
Mon	3.14		3.56	3.62
Rakhine	2.80		5.35	5.65
Yangon	29.72		15.61	14.98
Shan	6.18		10.73	11.12
Ayeyarwady	9.22		13.15	12.19
Nay Pyi Taw	2.12		2.35	2.17
PROS	Up-to-date database with recent contacts with users. Better gender balance (although we are looking at hh level, there is interest to have evidence on gender).		Coverage is not perfect but closer to census data. This sample frame has numbers for non-Burmese speaker (20% of interviews were done in other languages). Won't need reweighting (TBC?)	
CONS	Large urban areas tend to have on average relatively more respondents. They don't have numbers for non-Burmese speakers.		Outdated and no certainty that phone numbers are still connected. Costly to make sure that numbers work. Non-Burmese speakers.	

### 6 Simple random sampling

The final sample size has been dictated by the available budget although sample size requirement depends on analytical objectives. We are interested in measuring changes in employment opportunities and food security when surveying households. The number of observations to detect changes over time may be more than those usually required for reliable for point estimates. We have assumed that budget would be available to collect data on 1500 households to have sufficiently precise estimates. Each round will target 1500 interviews. If the respondent fails to carry forward from round 1, then they should be replaced.

The HFPS could follow a simple random sampling using the frame provided by the firm. This consists of randomly selecting the 1,500 respondents from the list frame provided by the firm which is not clustered.

### 7 Stratified random sampling

Typically, stratifying a sample frame is done along lines that group relatively homogeneous units of analysis together. The criteria for grouping in national household surveys is typically based on geographic and administrative boundaries but can be on any criteria that clearly define a unit of analysis into one, and only one, of the groups; urban rural for example. When stratified correctly, we expect units of analysis to be somewhat similar within a stratum and to be generally different between strata. This allows for the tailoring

of a sample to each unique group rather than a one size fits all approach. In so doing, it is possible to more precisely allocate limited resource to minimize sampling error and ensure all groups are appropriately represented in the sample.

Stratification of the sampling frame is where the population under study is divided into mutually exclusive sub-groups; call “strata”. These groups can then be assessed independently and allows for greater control over the allocation of the sample across groups. Stratifying a sample frame is done along lines that group relatively homogeneous units of analysis together. The criteria for grouping in national household surveys is typically based on geographic and administrative boundaries, or on any criteria that clearly define a unit of analysis into one, and only one, of the groups.

Explicit stratification for the HFPS is first classified by the primary domain of inference: Union territory. We can create design strata (States/Regions and urban/rural) to ensure full coverage of the survey.

**Table 3 Proposed Stratification with projected population (Census data)**

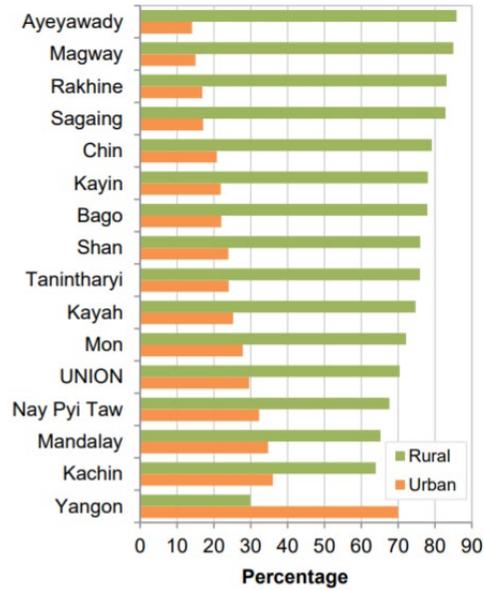
	<b>Population</b>	<b>Percent of total</b>
<b>Union</b>	54,817,919	
<b>Urban/Rural</b>		
Urban	16,400,992	29.9%
Rural	38,416,927	70.1%
<b>States/Regions</b>		
Kachin	1,933,705	3.5%
Kayah	330,356	0.6%
Kayin	1,618,264	3.0%
Chin	525,062	1.0%
Sagaing	5,608,752	10.2%
Tanintharyi	1,498,370	2.7%
Bago	4,948,959	9.0%
Magway	3,932,063	7.2%
Mandalay	6,566,720	12.0%
Mon	1,979,330	3.6%
Rakhine	3,349,917	6.1%
Yangon	8,477,923	15.5%
Shan	6,477,329	11.8%
Ayeyarwady	6,270,864	11.4%
Nay Pyi Taw	1,300,303	2.4%

Considering both the sample size and the latest population census data in Table 3, Table 4 shows a possible sample allocation if we decide to use stratified random sampling. The overall sample aims to be representative at the national level and none of the strata can be used to make further inferences.

The stratified random sampling could be privileged to reduce the bias towards large urban centers (Yangon region) for which the firm has more phone numbers. In the 2019 projections, there is no estimation of

urban/rural population share. However, using the 2014 figure below, we can come up with a distribution of the sample in urban/rural

Figure 1 Urban and Rural share of total population, 2014



Source: Myanmar Census Atlas, 2014

Based on this distribution, the sample can be allocated as illustrated in Table 4.

Table 4 Sample allocation if using stratified random sampling

	Urban	Rural	Total
<b>Union</b>	456	1044	1500
<b>States/Regions</b>			
Kachin	19	34	53
Kayah	3	7	9
Kayin	10	35	44
Chin	3	11	14
Sagaing	26	127	153
Tanintharyi	11	30	41
Bago	30	106	135
Magway	17	90	108
Mandalay	63	117	180
Mon	15	39	54
Rakhine	16	75	92
Yangon	162	70	232
Shan	48	129	177
Ayeyarwady	22	149	172
Nay Pyi Taw	11	24	36

