U.S. Department of Health & Human Services

2019 Annual Survey of Refugees Data File User's Guide

A Technical Research Manual

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Introduction

Since the 1980s, the Office of Refugee Resettlement[1] (ORR) has conducted the Annual Survey of Refugees (ASR), which collects information on refugees during their first five years after arrival in the U.S. The ASR is the only scientifically-collected source of national data on refugees' progress toward self-sufficiency and integration. ORR uses the ASR results alongside other information sources to fulfill its Congressionally-mandated reporting requirement following the Refugee Act of 1980.

In the spring of 2020, ORR completed its 53rd Annual Survey of Refugees (ASR). The data from the ASR offer a window into respondents' first five years in the United States and show the progress that refugee families made towards learning English, participating in the workforce, and establishing permanent residence. This user's guide presents basic information on the 2019 ASR public use data file.

The first section of the user's guide gives an overview of the survey, including descriptions of the sample design and data collection procedures. The next section discusses the structure of the ASR data file and describes the variables included on the data file. Section 3 explains how missing data were coded, and it includes recommendations on how to handle the missing data when conducting analysis. Sections 4 and 5 provide information on how to use the survey weights and procedures for calculating variances and standard errors of survey estimates. Section 6 provides recommendations for users who plan to compare 2019 estimates to earlier ASR estimates or plan to combine the 2019 data with earlier ASR public use data files. The appendices to this guide include data dictionaries that display both weighted and unweighted frequencies and a copy of the English version of the questionnaire.

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[1] The Office of Refugee Resettlement (ORR) at the Administration for Children and Families in the U.S. Department of Health and Human Services (HHS) serves refugees and other humanitarian entrants, including asylees, Cuban and Haitian entrants, Special Immigrant Visa holders, Amerasians, victims of human trafficking, and unaccompanied children. By providing these arrived populations with critical resources, ORR promotes their economic and social well-being. Of these populations, the Annual Survey of Refugees focuses solely on refugees who have come to the U.S. in the past five fiscal years.

The goal of this guide is to provide users with sufficient technical information about the data and the survey to properly access and analyze the public use data. Some subsections are preceded by an icon that informs the reader about the nature of the subsequent material. Three are used, and they appear below along with an explanation:

Indicating critical points that all users should understand

Indicating useful tips, but not essential reading

Indicating sections meant primarily for advanced users

Section 1: Overview of the Design of the Survey

The 2019 ASR design is similar to the 2018, 2017 and 2016 ASR designs[2], which used a full cross-sectional national sample of refugees entering within the past five years. This section documents the research design, data collection and data processing protocols. It also presents outcomes (e.g., sample sizes) and paradata results such as response rates.

The population of interest – the study population – for the 2019 ASR is defined as refugees entering the U.S. between FY 2014 and FY 2018, inclusive, who are at ages 16 and over at the time of the 2019 ASR interview[3]. Because the interviews were conducted in early 2020, the population includes a small number of refugee respondents younger than 16 at the time of arrival to the U.S.

While this covers five distinct fiscal years of refugee entrants, there is special policy/analytic interest in collapsing years into three domains as follows:

- Cohort 1 – Refugees entering FY 2014 and FY 2015,
- Cohort 2 – Refugees entering FY 2016 and FY 2017, and
- Cohort 3 – Refugees entering FY 2018

Table 1 shows the distribution of the study population by fiscal year as well as cohort. Just over 300,000 refugees (of all ages) entered the U.S. in FY2014-FY2018, with roughly equal numbers entering annually in FY2014 and FY2015. In FY2016 there were about 85,000 refugee entrants, while a smaller number entered in FY2017 (about 54,000) and a significantly smaller number were admitted in FY2018 (22,491).

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[2] In ASR surveys prior to 2016, the ASR survey design was longitudinal, consisting of a cross-sectional sample of refugees arriving one year prior to the study and surveyed that year and followed for four subsequent waves, totaling five annual surveys.

[3] Note that the ASR data files include person records of children under 16 at the time of interview, non-refugees, and refugees who entered outside of the FY eligibility window. However, only a small number of demographics (e.g., age, sex) were collected for these cases. The full set of substantive measures (e.g. language proficiency, education, labor force participation, etc.) were collected for eligible refugees age 16 or over at the time of interview.

Table 1: Population Distribution of Refugees Arriving Between FY 2014 and FY 2018

	Fiscal Year of Arrival	Number of Refugees*	% of Refugees
Cohort 3	2018	22,491	7%
Cohort 2	2017	53,716	18%
Cohort 2	2016	84,994	28%
Cohort 1	2015	69,933	23%
Cohort 1	2014	69,987	23%
Total		301,201	100%

* Source: Department of State admissions reports for FY 2014-2018

These refugees represent 114 countries and just over 200 non-English languages.

💡 *"Refugees" are persons, not households. However, when refugees come to the U.S., they often enter with their family members. For an entering refugee family, there is a Principal Applicant (PA) whose refugee case is the basis for admission. This person is often the head of the household. Table 2 shows the distribution of PAs entering the U.S. between FY 2014-2018 by family size at arrival. Half of the roughly 117,158 PAs had families of two or more people.*

Table 2: Principal Applicants — Cohorts 1-3		
Family Size	**%**	**Cum %**
1	49%	49%
2	12%	61%
3	12%	73%
4	11%	84%
5	7%	91%
6	4%	95%
7+	5%	100%
No. of Principal Applicants	**117,158**	

The 2019 ASR targeted 1,500 completed interviews from refugee *households* entering the U.S. between FY 2014-2018. The sample was designed to allow for separate estimates

and analyses from each of the three designated cohorts. Moreover, the design needed to accommodate both household- and person-level analyses.

The sample was drawn as fresh cross sections by cohort; there was no longitudinal component. The survey objectives required that – in addition to primary stratification by cohort – the sample of households (i.e., PAs) be stratified at least by year of entry and geographic region of origin.

The 2019 ASR sampling frame was ORR's Refugee Arrivals Data System (RADS) dataset.

Sample Design

The 2019 ASR employed a stratified probability sample design of refugees. The first stage of selection was the household (PA) and the second stage was the selection of persons within households. Principal features of the sample design are highlighted below.

Sample Allocation to Cohorts.
The ASR design targeted equal numbers of household interviews by cohort. This is depicted in Table 3, which shows an allocation of 500 households per cohort. This means that there was an oversample of households for FY 2018, the most recent year of entry. This allocation prioritizes the statistical precision to cohorts.

Table 3: 2018 ASR Target Number of Household Interviews by Cohort and Year of Arrival

	A	B	C	D
	Cohort Household Population %	2018 Target HH Interviews by Cohort	Expected Interviews by Arrival Fiscal Year	Arrival Fiscal Year
Cohort 3: FY 2018	7%	**500**	500	2018
Cohort 2: FY 2016-2017	46%	**500**	194	2017
			306	2016
Cohort 1: FY 2014-2015	46%	**500**	250	2015
			250	2014
Total	100%	**1,500**	1,500	

Respondent Selection.
The ASR can be used for both household-level and person-level analyses. Although the Principal Applicant represented the household sampling unit, data were collected by proxy from all eligible refugees aged 16+ within each sampled household. Eligible refugees are those PA household residents who entered between FY 2014-2018 and are 16 years old or older on the day of the 2019 ASR interview. Thus, the 2019 ASR sample design featured household-level element

sampling and person-level clustered sampling. The PA served as the proxy informant for all eligible refugees within the household.

Population Coverage and Language Diversity.
Table 4 tabulates primary language spoken by refugees using RADs data. We see that just over 70 percent of refugees speak one of 18 languages (including English) while about 76 percent of refugees speak one of 21 languages. Unfortunately, it takes over 200 languages to fully cover all refugees.

The 2019 ASR was offered in 20 non-English languages (21 including English) identified in Table 4 corresponding to rows 1 to 21, thus achieving an overall coverage of 76 percent of the FY2014-2018 refugee population.

Table 4: Coverage of 2019 ASR Refugees' Primary Languages			
Language Count	Primary Spoken Language	Primary Spoken Language Cum %	Primary Spoken Language %
1	Arabic	22%	22%
2	Somali	32%	10%
3	Nepali	40%	9%
4	Kiswahili	46%	6%
5	Sgaw Karen	50%	4%
6	Spanish	54%	3%
7	Kinyarwanda	57%	3%
8	Farsi, Western	59%	2%
9	Russian	61%	2%
10	Tigrinya	63%	2%
11	Burmese	65%	2%
12	Tedim	66%	1%
13	Chaldean*	67%	1%
14	Lai	68%	1%
15	English	68%	0.5%
16	French	68%	0.4%
17	Amharic	69%	0.3%
18	Ukrainian	71%	2.3%
19	Rohingya	73%	1.9%
20	Armenian	75%	1.6%
21	Dari	76%	1.3%

22-207	Remaining 186 languages	Not Covered for 2019 ASR
Interviewing in Chaldean will only be available via an interpreter.		

Stratification.
Within each of the three cohort strata, the following factors were used for stratification: cohort, year of arrival (for cohorts 1 and 2 only); geographic region, native language, age group, gender, and family size at arrival (1, 2, 3+ persons). Proportionate stratified samples were drawn independently within cohort.

Accounting for Nonresponse.
Past ASR studies have been subject to highly differential survey nonresponse rates due to the compounding effects of following participants from the previous year's study (in addition to newly entering cohorts), the difficulty of tracing, and the inability to conduct surveys in every language. To address this important design issue, we modeled our proposed sample by cohort using 2018 ASR tracing efficacy and nonparticipation rates.

Table 5 shows the sampling strategy expected for 1,500 completed interviews from an original sample of roughly 7,200 refugees, of whom just under 2,000 would be located. On average 7,161/1,500 = 4.8 sampled PA refugees would be needed to produce a completed interview, assuming the 2019 field experience would be similar to that of 2018.

The sampling strategy was to sample 7,200 using the proportional allocations within Cohorts shown in Table 5. Moreover, an additional sample of 3,600 was drawn but held in reserve. The reserve sample was available to be released as needed to supplement the original sample in order to attain the targeted 1,500 completed interviews.

Table 5: Expected Sample Sizes and Dispositions for the 2019 ASR

Cohort	Fiscal Years of Arrival	Expected Tracing Effectiveness	Sample Drawn	Successfully Traced & Contacted	Respondent Participation	Expected Interviews
Cohort 3	2018	32%	2,029	649	80%	500
Cohort 2	2016-17	29%	2,155	625	77%	500
Cohort 1	2014-15	24%	2,977	714	70%	500
Total			7,161	1,989		1,500

Replicated Samples

A replicated sample design was used for the 2019 ASR. A larger sample of 10,800 was drawn and randomly split into equal sized replicates to produce 30 independent sample replicates per cohort. Under this strategy, 20 replicates comprised the 7,200 that were expected to be needed based on the assumptions of tracing and nonparticipation used above. This is illustrated in Table 6 below.

Upon commencement of field operations, 10 of the 30 replicates for each cohort were released into the field and the results monitored by cohort, thus releasing about 3,600 sampled PAs as shown in Column C. During the field process, additional replicates were released by cohort to ensure that our interview targets were met.

Table 6: Replicate Release Strategy for the 2019 ASR

A	B	C	D	E	F
Fiscal Years of Arrival	TOTAL Sample Drawn	Initial Sample Release	Expected 2nd /3rd Releases	Held in Reserve	Sample Size of One Replicate
2018	3,000	1,000	1,000	1,000	100
2016-17	3,300	1,100	1,100	1,100	110
2014-15	4,500	1,500	1,500	1,500	150
Total Sample	10,800	3,600	3,600	3,600	360
Total Replicates	30	10	10	10	1

Design Summary.
Principal features of the final sample design are summarized in Table 7.

Table 7: Summary of 2019 ASR Sample Design Features	
Design Issue	**Description**
Survey Population Definition	**Households**: PAs at ages 16 or over arriving in the U.S. FY2014-2018 **Persons**: Refugees residing in PA HHs who arrived in the U.S. during FY2014-2018 and who are aged 16 or over at the time of the 2019 ASR interview
Cohort Definition	Cohort 1: Refugees arriving FY2014-2015 Cohort 2: Refugees arriving FY2016-2017 Cohort 3: Refugees arriving FY2018
Sampling Frame	RADS data set
Sampling Unit	Refugee Households, achieved by sampling Principal Applicants (PA)
Sample Allocation to Cohorts	Equal allocation of 1,500 households to each Cohort
Population Coverage	Include Refugees in the ASR from only the languages covered by the translations plus Chaldean (interpreter only), yielding a 76% refugee population coverage
Stratification	Cohort, year of arrival; geographic region, native language, age at arrival, gender, and household size (1, 2, 3+ persons)
Accounting for Nonresponse	Expect to use 7,200 households to produce 1,500 completed household interviews
Replicated Sampling	Draw a sample of 10,800 and partition into 30 equal-sized replicates; release replicates by cohort over the field period as needed to achieve sampling targets
Respondent Selection & Interviewing	Use household selection to collect data on the PA, the PA's household, and all eligible adults aged 16+ within a household via proxy reporting by the PA

Survey Administration

The survey administration procedures for the 2019 ASR are detailed in this section.

Sample Management.
The 2019 ASR employed a sample management plan integrating the replicated sample design and field protocols to include locating subjects, contacting them, and conducting telephone interviews.

A sample of 3,650 PAs was released at the start of data collection, representing 10 replicates, which is about half of the expected sample that would be needed to reach our interview targets. The remaining sample replicates were held for later releases. Ultimately, 21 replicates were released for FY2018, representing a sample of 2,128 PAs, and 23 replicates were released for FY2016-17, and 22 replicates were released for FY2014-2015, representing 2,558 PAs for FY2016-2017 and 3,338 PAs for FY2014-2015.

Total sample released was 8,024 PAs. The released sample produced 1,506 completed interviews.

Translation of Materials.
For the ASR 2019, revisions to the 2018 survey instruments and materials were made on the English version and then translated into 19 non-English languages. Additionally, the survey retained an interpreter to conduct interviews in a 21st language, Chaldean. The languages that were translated and available in CATI, available in hard copy (written only), or available only via interpreter appear in Table 8 below.

As described above, these languages cover about 76 percent of the eligible adult refugee population.

Language Count	Primary Spoken Language	Translation Mode	Primary Spoken Language Cum %	Primary Spoken Language %
1	**Arabic**	CATI	22%	22%
2	**Somali**	CATI	32%	10%
3	**Nepali**	CATI	40%	9%
4	**Kiswahili**	CATI	46%	6%
5	**Sgaw Karen**	CATI	50%	4%
6	**Spanish**	CATI	54%	3%
7	**Kinyarwanda**	CATI	57%	3%
8	**Farsi, Western**	CATI	59%	2%
9	**Russian**	Written	61%	2%
10	**Tigrinya**	Written	63%	2%
11	**Burmese**	CATI	65%	2%
12	**Tedim**	Written	66%	1%
13	**Chaldean**	Interpreter	67%	1%
14	**Lai**	Written	68%	1%
15	**English**	CATI	68%	0.5%
16	**French**	Written	68%	0.4%
17	**Amharic**	Written	69%	0.3%
18	**Ukrainian**	CATI	71%	2.3%
19	**Rohingya**	CATI	73%	1.9%
20	**Armenian**	CATI	75%	1.6%
21	**Dari**	CATI	76%	1.3%

Table 8: Coverage of 2019 Refugees – Primary Language Spoken by Refugees

Field Protocols.

In this section, we detail the protocols involved in fielding the Annual Survey of Refugees, beginning with managing the sample using paradata.

Managing the Sample.

During the field period, weekly progress reports were prepared and reported such statistics as:

- Percentage of sample by the amount and type (if any) of updated information obtained;

- Percentage of sample released, pending, and finalized;

- Percentage of sample by all intermediate and final dispositions;

- The sample's net yield (i.e., average number of sampled units per completed interview);

- Number of calls made, refusals incurred, and interviews completed;

- Demographics of completed interviews vs. entire sample; comparisons by respondent demographics (language, sex, country of origin, family size);

- Completed interviews by source of contact information.

Tracing Sampled Subjects.

The RADS data included contact information for most of the sample. The vast majority of the sample had contact information that was 2 to 6 years old. The entire sample underwent tracing to secure as much updated location information as possible.
Our tracing protocol was implemented on the entire sample (i.e., both the initial release and the reserve sample) at the beginning of fielding for the sake of efficiency. This included the use of National Change of Address as well as TransUnion batch updates.

Letters of Introduction.

Upon the release of the sample into the field, an introduction letter was issued via first class postal service. Twenty-one versions of this letter were prepared. The letter sent to each sampled refugee was tailored to their specific primary language spoken as reported in RADS. A research study logo was used to visually "brand" the survey and make it easier for refugees to distinguish ASR letters from junk mail or bills. The introductory letters themselves appeared in two languages — English plus the primary language spoken by the PA — and contained a call-in number to allow the respondent to communicate in their primary spoken language as well as offering call-in options for their likely second and third

languages, when applicable. It also contained an ASR-specific email address so that the refugee could communicate questions and/or updated contact information. The letter also contained a postage-free, mail-back form for updating the refugee's contact telephone number and preferred language. See Appendices B and C for English-language versions.

Outreach to Resettlement Agencies.

Outreach to resettlement service providers was made via email contact. The communications informed State Refugee and Health Coordinators of the fielding of the survey and requested that they share the information with community-based service providers likely to interact with refugees presenting questions about the letter of introduction or phone call inquiries.

CATI Programming & Testing.

The hard copy questionnaire was programmed and tested to ensure proper flow and appropriate skip logic. The CATI program included nine distinct languages as shown under the "Translation Mode Column" of Table 8 (see languages corresponding to rows containing the word "CATI").

Hiring and Training of Interviewers.

ASR interviewers underwent a four-hour study-specific training in addition to the typical generic training undertaken by all interviewers. The study-specific training protocol covered orientation on refugee issues and the U.S. refugee resettlement system. It also covered securing survey participation, asking sensitive questions and averting refusals, topics of cultural sensitivity, refusal aversion techniques, and the intricacies of the survey questionnaire itself. The training included participation in multiple mock interviews in English and non-English languages. Officials from HHS and Urban Institute project staff participated in the first interviewer training.

Quality Control.

Quality control is an important part of ensuring data quality. About 7 percent of interviewer hours were 'live-monitored' to ensure fidelity to the protocol. As needed, interviewers who failed to follow procedures were re-trained or released, depending on the nature of the departure from protocol.

Post-Participation Fulfilment Protocols.

The 2019 ASR provided post-participation incentives (a $25 gift card) via first class mail.

Field Period.
Tracing commenced in early December 2019, letters of introduction were issued early January, and calling began mid-January. The survey data collection period lasted 14 weeks, from January 13 to April 21, 2020.

Conducting Interviews.
The CATI sample management system executed a calling protocol that required ten call attempts across different times of day and different days of the week. For a given sampled subject, calling was deliberately spread over a couple of weeks including a rest for about one week before resuming dialing (as needed after the first five attempts and provided the short field period allows for a full week of "rest"). Also, whenever an updated telephone number was obtained, the calling algorithm was reset to allow a fresh set of ten call attempts. At two points in the field period, decisions were made on the release additional sample to achieve the completed interview target.

A high degree of attention to cultural sensitivity and relevance was integrated into our field protocols. This included matching interviewer and subject gender to prevent male interviewers from calling female subjects. Moreover, religious holidays and other important calendar dates were loaded into the CATI sample management system so that interviewers did not call refugees on solemn religious holidays.

Results
The 2019 ASR field effort resulted in 1,506 completed refugee household/PA interviews. Table 9 presents the final survey dispositions from our sample of 8,024 Primary Applicants. Final completed household interviews from the three cohorts (i.e., FY2018, FY2016-17, FY2014-15) came within 1 percent of the desired target of 1,500. And the individual 500 targets per cohort were met or exceeded.

Response Rates.
Table 9 shows that an overall response rate of 19 percent was achieved. Cohort response rates decreased with time since arrival to the U.S. — from a high of 24 percent for FY2018 refugees to a low of 15 percent for FY2014-15 refugees.

The response rate was driven by the ability to locate and speak to (1,506 + 529) / 8,024 = 26 percent of the sample. Among the (1,506 + 529) = 2,035 refugees who were successfully contacted, 1,506/2,035 = 74 percent agreed to participate in the survey and completed it ("Completed Interview").

The second set of rows in Table 9 ("Screened Refugee, Not Interviewed") presents detailed dispositions among those who were contacted and verified yet did not participate in the survey. Just over a quarter of contacted refugees, 529 / (1506 + 529) = 26 percent, were contacted but did not participate; this rate of noncooperation varied little by cohort.

The middle rows of Table 9 ("Unable to Screen Refugee") reflect the difficulty of contacting refugees even when contact information is available. The field team located but was unable to secure contact with 42 percent of the overall sample. The rate of inability to screen subjects was slightly higher for the longest-resident cohorts.

Finally, the bottom set of rows of Table 9 ("Unable to Find Refugee") shows the difficulty in locating refugees. A third of the overall sample was not locatable (33 percent); as with previous ASRs, the ability to locate refugees was slightly higher for the oldest refugee cohort.

Table 9: 2019 Annual Survey of Refugee Final Dispositions

2019 ASR Final Dispositions	FY 2014-2015		FY 2016-2017		FY 2018		TOTAL	
Disposition:	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Total Sample	*3,338*	*100%*	*2,558*	*100%*	*2,128*	*100%*	*8,024*	*100%*
Completed Interview	**501**	**15%**	**502**	**20%**	**503**	**24%**	**1,506**	**19%**
Screened Refugee, Not Interviewed	**231**	**7%**	**167**	**7%**	**131**	**6%**	**529**	**7%**
Refusal after screener	52	23%	42	25%	26	20%	120	23%
Breakoff	48	21%	54	32%	29	22%	131	25%
Callbacks (Screener Completed)	25	11%	14	8%	7	5%	46	9%
Answering machine	6	3%	3	2%	2	2%	11	2%
Physically or mentally unable/incompetent	0	0%	0	0%	0	0%	0	0%
Language issue (other than ASR languages)	0	0%	0	0%	0	0%	0	0%
Do not call (Final Refusal)	100	43%	54	32%	67	51%	221	42%
Unable to Screen Refugee (Located)	**1464**	**44%**	**1098**	**43%**	**820**	**39%**	**3382**	**42%**
Always busy	6	0%	7	1%	9	1%	22	1%
No answer	252	17%	197	18%	164	20%	613	18%
Answering machine-don't know if household	149	10%	110	10%	82	10%	341	10%
Call blocking	4	0%	1	0%	2	0%	7	0%
Housing unit, unknown if eligible respondent	98	7%	64	6%	47	6%	209	6%
Callbacks (No Screener Completed)	114	8%	116	11%	48	6%	278	8%
No screener completed Other	841	57%	603	55%	468	57%	1912	57%
Unable to Find Refugee (Not Located)	**1142**	**34%**	**791**	**31%**	**674**	**32%**	**2607**	**33%**
Fax/data line	2	0%	0	0%	0	0%	2	0%
Non-working number	157	14%	102	13%	107	16%	366	14%
Business, government office, other	3	0%	1	0%	5	1%	9	0%
No eligible respondent	246	22%	186	24%	126	19%	558	21%
Sample without address and phone number	4	0%	2	0%	0	0%	6	0%
Insufficient contact information	730	64%	500	63%	436	65%	1666	64%

Nonresponse Analysis.

The variation in response rate components across selected demographic variables appears in Figure 1. The bottom of the graph shows the overall response rate in purple across a variety of demographic factors. Rates of 'unable to contact' appear in orange at the top of the graph for these subgroups, and percentages of the sample 'located non-participant' in the middle bars (green). Note that unable to contact means that there ultimately was no number to dial to verify the eligibility and conduct an interview of the sampled PA. It includes 6 cases for which there was no contact information in the RADS (so no tracing could be done) and another 1,666 cases with insufficient information to call (i.e., see the rightmost column of the bottom two rows of Table 9). The label 'located non-participant' denotes all remaining PA nonparticipants and represents those for whom some calling was attempted.
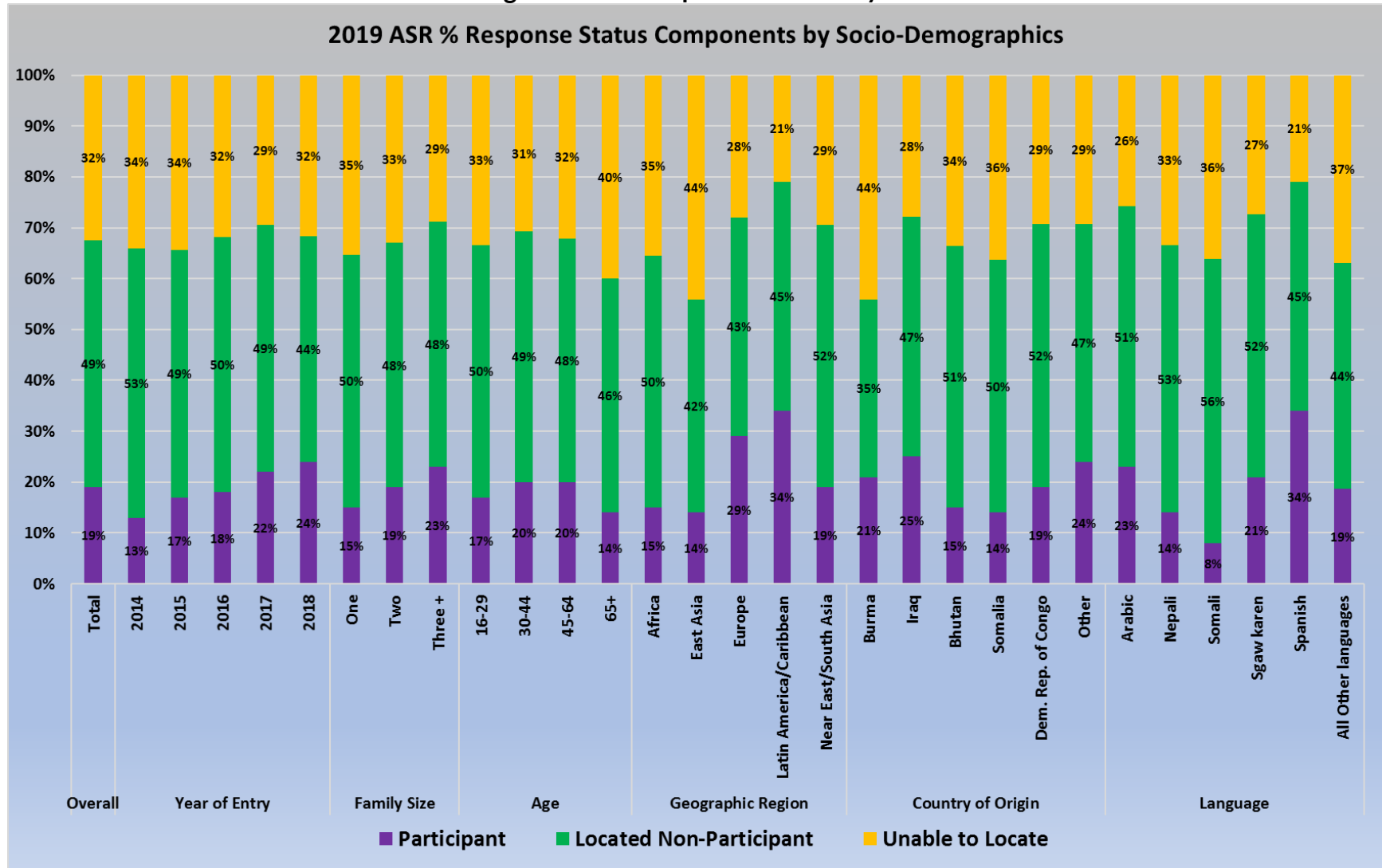
Overall response rates. The leftmost bar shows an overall response rate of 19 percent. Overall response rates across subgroups shown visually reveal a monotonic increase in response rate by recency of arrival. A similar but monotonic trend appears for family size – the larger the household, the more likely it was to locate and interview the sampled refugee. The graph also suggests that response rates were highest among middle aged subjects 30 to 64 years old; lowest response rates occurred for young adults and the elderly. Considerable variation in response rates was seen in terms of the refugee geographic region of origin, country of origin, and language, which are correlated characteristics. Response rates were highest for refugees from Latin America/Caribbean (34%) and Europe (29%) and lowest for refugees from East Asia and Africa (14-15%). Refugees from Bhutan and Somalia experienced the lowest response rates, 15 and 14 percent, respectively.

Turning to the top portion of the graph showing the percentage of the sample 'unable to locate', there is mild variation by recency of arrival (ranging from 29 to 34% percent). There is similar mild variation by family size, as well, with single person households being harder to find. Some demographic subgroups that were particularly difficult to locate included elderly refugees 65 years old or over (40% unable to locate), and refugees from East Asia and Burma (44%).

💡 Section 4 of this manual explains how to properly weight the data to get correct person-level or household-level estimates and provides a few examples.

Figure 1: ASR Response Rate Analysis

2019 ASR % Response Status Components by Socio-Demographics

Legend: ■ Participant ■ Located Non-Participant ■ Unable to Locate

Category	Group	Participant	Located Non-Participant	Unable to Locate
Overall	Total	19%	49%	32%
Year of Entry	2014	13%	53%	34%
	2015	17%	49%	34%
	2016	18%	50%	32%
	2017	22%	49%	29%
	2018	24%	44%	32%
Family Size	One	15%	50%	35%
	Two	19%	48%	33%
	Three +	23%	48%	29%
Age	16-29	17%	50%	33%
	30-44	20%	49%	31%
	45-64	20%	48%	32%
	65+	14%	46%	40%
Geographic Region	Africa	15%	50%	35%
	East Asia	14%	42%	44%
	Europe	29%	43%	28%
	Latin America/Caribbean	34%	45%	21%
	Near East/South Asia	19%	52%	29%
Country of Origin	Burma	21%	35%	44%
	Iraq	25%	47%	28%
	Bhutan	15%	51%	34%
	Somalia	14%	50%	36%
	Dem. Rep. of Congo	19%	52%	29%
	Other	24%	47%	29%
Language	Arabic	23%	51%	26%
	Nepali	14%	53%	33%
	Somali	8%	56%	36%
	Sgaw karen	21%	52%	27%
	Spanish	34%	45%	21%
	All Other languages	19%	44%	37%

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Section 2: Types and Definitions of Variables on the Data File

The ASR data are organized into a person-level file where each person has one record. Household-level and administrative variables have been attached to each person's data record. This data structure was chosen because it is consistent with the way the data are collected in the survey and accommodates both person and household-level analysis.

💡 *It is important to understand that there are 3 types of person records included in the data file: 1) Persons who are not refugees who came to the U.S. during the past five years. These people are included on the data file because they live in the household, but they do not have person-level weights because they are not "eligible refugees" and are generally not included in any of the analyses. 2) Refugee children who are 15 years of age or younger at the time of survey administration. These individuals have person-level weights, but very little data was collected on them, so they are also usually not included in the analyses. 3) Refugees who are 16 or older at the time of survey administration who came to the U.S. during the past five years. These individuals have person-level weights and a full set of person measures that are either self-reported (in the case of respondents) or proxy reported (in the case of respondents' household members).*

The ASR data file contains four types of variables:

1. **Survey variables** store information obtained directly from questions asked on the survey. The variable name for each survey variable begins with the letters "qn" and corresponds with the question number from the survey questionnaire. The questionnaire can be found in Appendix A.

2. **Constructed variables** summarize or combine information from survey variables. We have included in this dataset and user's guide only constructed variables that aggregate information from several survey variables to create more complex measures. Data users should check how constructed variables can meet their analytic needs before going directly to the use of survey variables, especially if they believe that the measure of interest involves multiple survey items. The variable name for each constructed variable begins with the letters "ui." The constructed variables in the data file are all described in this section of the user's guide.

3. **Administrative variables** provide information that was not obtained directly from a respondent, such as their geographic location, or information

about the interviewing process itself, such as language of the interview. Administrative variables include identifier variables, such as person or household ID. The administrative variables in the data file are all described in this section of the user's guide.

4. The variable name for each **weight variable** begins with the word "weight." For more information on weights, see chapter 4 of this guide.

💡 *The ASR has a complex survey design. To produce unbiased estimates from the 2019 ASR data, it is critical that researchers use the survey weights.*

Constructed Variables

ui_lfp: This variable reports individuals' labor force participation status: in the labor force, not in the labor force, or doesn't know or refused to respond. It was created using responses to qn5a and qn13. Individuals are considered "in the labor force" if they report working at a job anytime the week before survey administration (qn5a) or looking for work during the four weeks before survey administration (qn13). Individuals are considered "not in the labor force" if they report not working at a job anytime the week before survey administration (qn5a) and not looking for work during the four weeks before survey administration (qn13) (or answer "don't know" or refuse to respond to qn13). Respondents who either don't know or refuse to respond to both qn5a and qn13 are marked "Don't know and/or refused" for *ui_lfp*.

ui_emprate: This variable reports individuals' employment status: employed, unemployed, not in the labor force, or doesn't know or refused to respond. It was created using responses to qn5a and qn13. Individuals are considered "employed" if they report working at a job anytime the week before survey administration (qn5a), "unemployed" if they report not working at a job anytime the week before survey administration (qn5a) and looking for work during the four weeks before survey administration (qn13), and "not in the labor force" if they report not working at a job anytime the week before survey administration (qn5a) and either report not looking for work during the four weeks before survey administration, don't know, or refuse to respond (qn13). Respondents who either don't know or refuse to respond to qn5a are marked "Don't know and/or refused" for *ui_emprate*.

ui_medicaidrma: This variable reports individuals' receipt of Refugee Medical Assistance (RMA) or Medicaid: receives RMA/Medicaid, doesn't receive RMA/Medicaid, or doesn't know or refused to respond. It was created using responses to qn29c and qn29d. Individuals are designated "Receives RMA/Medicaid" if they select "Medicaid or Refugee Medical Assistance" in

response to qn29d. Individuals are designated "Does not receive RMA/Medicaid" if they select any qn29d response option(s) excluding "Medicaid or Refugee Medical Assistance," or if they answer "Not covered in any month" in response to qn29c. Respondents who either don't know or refuse to respond to both qn29d are marked "Don't know and/or refused" for *ui_medicaidrma*.

ui_lpr: This variable reports individuals' legal permanent residency (LPR) status and plans: has already adjusted LPR status, has not applied to adjust LPR status but plans to, has not applied to adjust LPR status and does not plan to, or doesn't know or refused to respond. It was created using responses to qn27a and qn27c. Individuals are designated "Already adjusted LPR status" if they report having applied to adjust their immigration status to LPR (qn27a) and designated "Plans to adjust LPR status in future" if they report not having applied to adjust their status (qn27a) but planning to in future (qn27c). Individuals are designated "Not applied to adjust, may not" if they report not having applied (qn27a) and not planning to (qn27c); report not having applied (qn27a) and answer "don't know" or refuse to answer (qn27c); or answer "don't know" to qn27a but select a response option for qn27c. Respondents who either don't know or refuse to respond to both qn27a and qn27c are marked "Don't know and/or refused" for *ui_lpr*.

ui_school: This variable reports individuals' educational pursuits in the United States: pursuit of a high school degree, associate's degree, bachelor's degree, master's/doctorate, professional school degree, certificate/license, other form of education, or doesn't know or refused to respond. It was created using responses to qn25a and qn25c. The variable reports responses to qn25c, with the additional step of flagging as "None" individuals who report not attending school in the United States (qn25a) and flagging as "Don't know and/or refused" individuals who answer "don't know" or refuse to answer qn25a or qn25c. Note that "certificate/license" was not a specific option in the questionnaire; the "certificate/license" counts come from coding related "other, specify" responses into a new response option.

ui_agect_arrival: This is a categorical variable that reports individuals' grouped ages at arrival in the United States. It was created using responses to qn1d and qn1jyear. Given that the survey was administered in 2019, the year respondents reported an individual arriving in the U.S. (qn1jyear) was subtracted from 2019 to find years in the U.S. This value was subtracted from individuals' reported ages (qn1d) to find their age at arrival in the U.S. Finally, this value was grouped into categories: less than zero (0), zero to seventeen (1), eighteen to twenty-four (2), twenty-five to thirty-nine (3), forty to fifty-four (4), and fifty-five and up (5). Respondents who either don't know or refuse to respond to qn1d are marked "Don't know and/or refused" for *ui_agect_arrival*.

ui_cashassist: This variable reports households' receipt of cash assistance: receives cash assistance, doesn't receive cash assistance, or doesn't know or refused to respond. It was created using responses to qn31a, qn32a, qn33a, and qn34a. A

respondent's household is designated "Receives cash assistance" if they report one or more persons in their household receiving TANF (qn31a), Refugee Cash Assistance (RCA) (qn32a), Supplemental Security Income (SSI) (q33a), or General Assistance (GA) (qn34a) in the twelve months before survey administration. Households whose respondent either doesn't know or refuses to respond to all four questions (qn31a, qn32a, qn33a, and qn34a) are marked "Don't know and/or refused" for *ui_cashassist*. Remaining households are designated "Does not receive cash assistance."

ui_soi_pubassist: This variable reports households' receipt of public assistance: receives public assistance, doesn't receive public assistance, or doesn't know or refused to respond. It was created using responses to qn30a, qn31a, qn32a, qn33a, qn34a, and qn38a. A respondent's household is designated "Receives public assistance" if they report one or more persons in their household receiving food stamps (qn30a), TANF (qn31a), Refugee Cash Assistance (RCA) (qn32a), Supplemental Security Income (SSI) (q33a), or General Assistance (GA) (qn34a) or residing in public housing (qn38c) in the twelve months before survey administration. Otherwise, if more than two responses to the public assistance questions were missing, households were marked "Don't know and/or refused" for *ui_soi_pubassist*. Households that reported not receiving any of the public assistance programs and had two or fewer missing responses were designated "Doesn't receive public assistance."

ui_soi: This variable reports households' source(s) of income: receives earnings, receives public assistance, receives both, does not receive either, receives public assistance but missing earnings data, receives earnings but missing public assistance data, doesn't receive public assistance but missing earnings data, or doesn't know or refused to respond. The variable was created using responses to qn18c(a-e), qn30a, qn31a, qn32a, qn33a, qn34a, and qn38a. A respondent's household is designated "Receives earnings" if they report one or more household members receiving income of $800 or more (qn18c). A respondent's household is designated "Receives public assistance" if they report one or more household members receiving food stamps (qn30a), TANF (qn31a), Refugee Cash Assistance (RCA) (qn32a), Supplemental Security Income (SSI) (q33a), or General Assistance (GA) (qn34a) or residing in public housing (qn38c) in the twelve months before survey administration. If both are true, households are designated "Receives both;" if neither is true, households are designated "Does not receive earnings or public assistance." If a respondent reports their household receiving either public assistance or earnings, and doesn't know or refuses to answer regarding the other, their household is designated either "Receives public assistance, but earnings missing" or "Receives earnings, but public assistance missing." If a respondent reports their household not receiving public assistance and doesn't know or refuses to answer regarding earnings, their household is designated "Doesn't receive public assistance, but earnings missing." Finally, if a respondent either doesn't know, refuses to answer, or has a missing value for both the earnings and

the public assistance questions, their household is designated "Don't know and/or refused" for *ui_soi*.

ui_qn8a_annual: This variable reports estimated annual earnings from the individual's primary job. It was calculated by converting responses to qn8a (pre-tax earnings from primary job) to annual levels using responses to qn8b (basis on which *qn8a* was computed: weekly, bi-monthly, monthly, or annually). Individuals who answered "weekly" to question 8b were assumed to work fifty weeks in a year. Individuals who answered "bi-monthly" and "monthly" to question 8b were assumed to work twelve months in a year.

ui_qn10a_annual: This variable reports estimated annual earnings from the individual's secondary job. It was calculated by converting responses to qn10a (pre-tax earnings from primary job) to annual levels using responses to *qn10b* (basis on which qn10a was computed: weekly, bi-monthly, monthly, or annually). Individuals who answered "weekly" to question 10b were assumed to work fifty weeks in a year. Individuals who answered "bi-monthly" and "monthly" to question 10b were assumed to work twelve months in a year.

ui_work: This variable reports individuals' present and past work status in the U.S.: working now, not working now but worked in past, not working now and never worked in past, not working now but unsure about working in past, not working now and refused regarding past, don't know for both, and refused for both. It was created using responses to qn5a and qn11a. Individuals are designated "Working now" if they report working at a job anytime the week before survey administration (qn5a). Individuals are designated "Not working now but worked in past" if they report not working at a job anytime the week before survey administration (qn5a) but working at some point since coming to the U.S. (qn11a). They are designated "Not working now and never worked in past" if they responded accordingly to qn5a and qn11a. They are designated "Not working now and unsure about working in past" or "Not working now and refused about past" if they reported not working anytime the week before survey administration (qn5a) and answered qn11a "don't know" or "refused," respectively. Respondents who either don't know or refuse to respond to both qn5a and qn11a are marked "Don't know and/or refused" for *ui_work*.

Administrative Variables

hhid: This number is used to identify which household each person lives in.

numppl: The number of people residing in each household. Respondents could list up to five household members including themselves.

language: The language of survey administration. For sampling and survey administration purposes, language data was borrowed from the RADS. Respondents could request that the survey be administered to them in a different language. The *language* variable reflects these changes.

cohort: For sampling and analysis purposes, respondents were divided into cohorts by year of arrival. The three cohort groups are refugees who arrived in fiscal years 2014 and 2015, fiscal years 2016 and 2017, and fiscal year 2018.

personid: This number uniquely identifies individuals in the dataset. The variable was created by combining *hhid* and *qn1a*.

💡💡 *respondent: This binary variable flags survey respondents as "1" and the household members they listed and reported on as "0." It is important to note that the survey respondents were the Principal Applicant (PA) whose refugee case is the basis for admission. This person is often the head of the household. The PAs provided self-reported data about themselves and proxy reported data for other household residents. **To conduct household-level analysis it is recommended that you select only cases where this flag equals "1."***

Section 3: Dealing with Missing Respondent Data

Often when working with large federal data files such as the American Community Survey (ACS) or the Current Population Survey (CPS) it may seem as though most of the variables have no missing data. As with all surveys, however, some respondents either cannot answer or choose not to answer certain questions. The reason for most of the CPS variables having no missing data is this: when they are not obtained from the respondent, the answers are imputed by the Census Bureau through an elaborate imputation procedure.

Imputation did not occur for ASR questions. Therefore, most ASR questions have some missing data. For instance, if you add together the number of people who said yes or no for any yes/no question, that sum is almost always less than the total number of ASR respondents who were asked the question because of missing data. It is sometimes important to differentiate between two types of missing data: 1) data missing because the respondent does not provide a useable answer and 2) data missing by design because the respondent was purposely not asked the question (i.e., inapplicable).

The data file uses two codes to indicate when a respondent does not provide a useable response. When the answer to the ASR question is a "9" or repeated "9"s, this indicates that the respondent refused to answer the item. This could simply be a "9" or it could be "99", "999", "9999", "99999" depending on the range of response options. For instance, the question that asks how well each person speaks English uses a "9" to indicate a refusal response while the question that asks about number of years of schooling uses a "99" to indicate a refusal. Similarly, when the answer to an ASR question is an "8" or "9"s ending in an "8", this indicates that the respondent said that they don't know the answer. Again, this could simply be an "8" or it could be "98", "998", "9998", "99998" depending on the range of response options.

The data field is left empty or missing for variables that have missing data because the respondent did not get asked the question due to survey skip logic. For example, the 1,360 individuals with a "No" for question 5a ("Did this person work at a job anytime last week?") have an empty or missing response for questions 5b and 5c, since these are follow-up questions asked only of people who answered "Yes" to question 5a (i.e., reported working at a job in the previous week).

Usually, researchers will exclude respondent missing data when calculating percentage estimates. This practice can be thought of as a form of pseudo-imputation—with the assumption that data missing from respondents would likely show a similar response pattern as the non-missing data.

💡 *To match the percentage estimates that are published in the Office of Refugee Resettlement Annual Report to Congress, you should exclude respondents' missing data.*

Information that is missing by design is typically excluded by researchers when producing percentage estimates. For some analyses, however, sometimes the items that are purposely not asked can be interpreted as having a value. For instance, question qn11a asks whether a person has ever worked since coming to the U.S. to stay. If you were to simply exclude all the missing data, you would conclude that the answer would be that 67.3% never worked since coming to the U.S. However, the answer you probably want to report is that only 30.4% of refugees never worked since coming to the U.S. This is because on an earlier question (qn5a) we learned that 1,653 people had a job last week and thus did not get asked about whether they have ever worked in the U.S. In this and many similar situations, it's important to carefully handle missing data.

Hence, when you have a question that has lots of missing data, consider checking the survey instrument (Appendix A) to see if respondents were not asked the question because of their response to a previous question.

Whenever you are doing statistical analysis with variables that have missing data, make sure you either understand how the missing data is being treated or include in your program explicit instructions about how missing data will be handled. Given the large sample size for many of the ASR variables, you may not notice the unintentional impact that values of 8, 9, 98, 99, etc. may have on estimates such as means, medians, and regression coefficients.

The next section of this report will show that when you exclude missing data, your weighted population estimates will no longer sum to the total refugee population and, therefore, will not produce accurate population estimates. The next section also explains, however, that there are acceptable procedures for producing reliable population estimates.

Section 4: Using the Survey Weights

Responses to ASR questions should be weighted to provide approximately unbiased aggregate estimates. The weights should be applied to all survey items to:

- Compensate for differential probabilities of selection for households and persons and
- Reduce biases occurring where non-respondents have different characteristics than respondents.

Household- and person-level analytic weights were developed for the 2019 ASR to allow for valid statistical estimates of the target refugee population. Both sets of weights are comprised of two components – a base weight reflecting the selection probability and an adjustment that corrects for differential nonresponse and aligns the population to known totals from the sampling frame (RADS universe file).

Specifically, analytic weights incorporate:

- A *base (sampling) weight* which reflects the refugee household selection probability. The weight itself is simply the reciprocal of the probability of selection; because the sample allocations of each cohort were managed separately, the selection probabilities varied by the size of the population and the amount of sample released into the field;
- A *post-stratification adjustment* which corrects the sample for differential nonresponse[4] across cohort and demographic subgroups as well as aligning the sample to known population distributions taken from the RADS.

An important technical point is that the selection probability of persons in the ASR is the same as the household selection probability because the household-level respondent (i.e., the PA) served as a proxy for providing data on all eligible household residents.

Household Analytic Weights.
The household analytic weight was formed by taking the product of the base weight and post-stratification adjustment. The post-stratification adjustment was created by applying an iterative proportional fitting algorithm called "raking" to the ASR household-level respondent data. This created weight adjustments that

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[4] It was decided that a separate nonresponse adjustment is not feasible. The reasons were the overwhelming nature of nonresponse stemming from being unable to locate subjects combined with a consistently high level of survey participation when subjects were contacted. There was virtually no useful information for nonresponse adjustment in the sample management system other than that which came from the RADS. Hence the post-stratification adjustment served both purposes of adjusting for nonresponse and aligning to population distributions.

simultaneously align the sample to the refugee population distributions for several factors from the RADS data. Specific household-level post-stratification raking variables included:

- Year of entry
- Origin country collapsed to top 5 and all other
- Family size with 5+ collapsed into one category
- Voluntary agency collapsed to top 5 and all other
- U.S. state originally settled in collapsed to Census regions

Extreme weight adjustments, at both the top and bottom of the distribution of adjusted values, were trimmed to reduce the statistical variance associated with extreme weight values. Diagnostics comparing ASR weighted distributions to their corresponding RADS distributions were produced to verify that the final analytic household weight performed satisfactorily. Table 10 presents the results of that comparison.

Person Analytic Weights.
Similarly, the person-level analytic weight was formed by conducting the post-stratification raking procedure on a set of person-level RADS factors.[5] These included:

- Year of entry
- Origin country collapsed to top 5 and all other
- Family size at arrival with 5+ collapsed into one category
- Voluntary agency collapsed to top 5 and all other
- U.S. state originally settled in collapsed to Census regions
- Age at arrival collapsed into 5 categories [0-15, 16-24, 25-39, 40-54, and 55+]
- Gender
- Ethnicity collapsed to top 7 and all other
- Educational attainment collapsed into 6 categories (none/kindergarten, primary, intermediate, secondary, postsecondary, and unknown/missing)
- Language collapsed into top 5, unknown/missing, and all other.

As with the household analytic weight, extreme adjustments at both the top and bottom of the distribution of adjusted person-level values were trimmed to reduce the statistical variance associated with extreme weight values. Diagnostics comparing person-level ASR weighted distributions to their corresponding RADS distributions were produced to verify that the final analytic household weight performed satisfactorily. Table 11 presents the results of that comparison.

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[5] Since the focus of the survey is on persons 16 years of age or older, the person-level post-stratification weighting was done separately for persons 15 years of age or younger versus persons 16 years of age or older.

Table 10: 2019 ASR Household-level (PA) Distributions Using Analytic Weight Compared to RADS Household (PA) Distributions

Variable	Category	2019 ASR PA weighted	RADS Household Level Universe
Fiscal Year of Arrival	2014	25%	25%
	2015	24%	24%
	2016	26%	26%
	2017	18%	18%
	2018	7%	7%
Origin Country	BURMA	18%	18%
	IRAQ	17%	17%
	BHUTAN	10%	9%
	SOMALIA	11%	11%
	DEM. REP. CONGO	13%	12%
	OTHER	33%	32%
Family Size at Arrival	1	48%	49%
	2	12%	12%
	3	12%	12%
	4	11%	11%
	5+	16%	16%
Region of Placement	Northeast	15%	15%
	Midwest	27%	27%
	South	31%	31%
	West	26%	26%
Resettlement Agency	UNITED STATES CONFERENCE OF CATHOLIC BISHOPS	25%	25%
	LUTHERAN IMMIGRATION AND REFUGEE SERVICE	13%	14%
	INTERNATIONAL RESCUE COMMITTEE	13%	13%
	UNITED STATES COMMITTEE FOR REFUGEES AND IMMIGRANTS	13%	13%
	CHURCH WORLD SERVICES	10%	10%
	OTHER	27%	26%

Table 11: 2019 ASR Person-Level Distributions of Person Aged 16+ Using Analytic Weight Compared to RADS Population Distributions

Variable	Category	2019 ASR Person 16+ Weighted %	RADS Person 16+ Universe %
Fiscal Year of Arrival	2014	25.1	25.7
	2015	23.3	23.9
	2016	26.8	26.7
	2017	17.1	16.9
	2018	7.6	6.8
Origin Country	BURMA	15.0	17.7
	IRAQ	17.8	17.2
	DEM. REP. CONGO	12.4	13.6
	SOMALIA	9.2	10.4
	BHUTAN	10.1	9.0
	ALL OTHERS	35.5	32.1
Family Size	1	27.3	27.1
	2	12.0	11.8
	3	14.8	14.3
	4	14.9	15.0
	5+	30.8	31.7
Region	Northeast	15.7	15.3
	Midwest	27.0	27.6
	South	30.6	31.1
	West	26.7	26.0
Resettlement Agency	UNITED STATES CONFERENCE OF CATHOLIC BISHOPS	24.7	24.8
	LUTHERN IMMIGRATION AND REFUGEE SERVICE	12.9	13.6
	UNITED STATES COMMITTEE FOR REFUGEES AND IMMIGRANTS	12.5	12.8
	INTERNATIONAL RESCUE COMMITTEE	12.3	12.5
	WORLD RELIEF	10.5	10.1
	ALL OTHERS	27.0	26.2
Age at Arrival	0-15	10.8	11.5
	16-24	25.4	25.6
	25-39	36.8	36.7
	40-54	17.6	17.1
	55+	9.4	9.0
Gender	Male	51.9	51.4
	Female	48.1	48.6
Ethnicity	ARAB	19.5	17.7
	LHOTSAMPA	10.0	9.2

	CHIN	4.8	7.2
	KAREN	5.4	5.1
	DAROD	2.9	3.4
	TUTSI	3.5	3.2
	UKRAINIAN	3.6	3.2
	ALL OTHER	49.9	51.0
Native Reading	G	65.1	62.0
	N	18.1	21.0
	S	14.9	14.3
	U and Missing	1.9	2.6
Language	Arabic	23.3	21.1
	Somali	8.9	9.7
	Nepali	10.5	9.6
	Kiswahili	5.0	4.5
	Sgaw Karen	4.6	4.1
	All Other/Missing	47.6	51.0

💡 *Perhaps the most important task and one of the first tasks facing the data user will be determining whether you want to conduct person-level or household-level analysis.*

For person-level analysis you would use the weight variable" Weight_person" or the weight variable "Weight_person_pop". These two person-level weight variables will produce the same estimates. However, when using the "Weight_person" variable the frequency counts will sum to ASR sample size of 3,877 and when using the "Weight_person_pop" variable the frequency counts will sum to the population of 301,121.

💡 *For household-level analysis, you need to filter the data file so that you have one observation per household. The easiest way to do this is to select only observations where the value of the "respondent" variable is equal to 1.*

After selecting the 1,506 observations where the respondent variable equals 1, you would use the weight variable "Weight_household" or the weight variable "Weight_household_pop" to get household-level estimates. These two household-level weight variables will produce the same estimates. However, when using the "Weight_household" variable the frequency counts will sum to the ASR sample size of 1,506 and when using the "Weight_household_pop" variable the frequency counts will sum to the population of 118,403.

The data file also includes 23 replicate weights for each of the four survey weights on the data file ("Weight_person," "Weight_person_pop," "Weight_household,"

"Weight_household_pop"). Replicate weights were created for each replicate sample to make it easier to estimate standard errors and confidence intervals which is covered in the section 5 of this user's guide.

The following table (Table 12) presents an example of basic descriptive analysis using the person-level sample and population main weights. It shows the unweighted and the person-level weighted estimates for the number of refugees (16 years old or older at time of survey administration and entered the U.S. as refugees between FY 2014 and FY 2018) that had English language instruction before coming to the United States. The shaded portion of the table shows unweighted estimates, while the non-shaded region of the table shows the person-level weighted estimates.

TABLE 12			
English language instruction before coming to the United States (qn4c)			
Unweighted Frequency			
Response Option	Frequency	Percent	Percent excluding missing data
1= NO	2,050	67.7	68.3
2= YES	950	31.4	31.7
8= DON'T KNOW	22	0.7	-
9=REFUSAL	7	0.2	-
Total	3,029	100.0	100.0
Weighted Frequency (using the person-level sample weight, Weight_person)			
Response Option	Frequency	Percent	Percent excluding missing data
1= NO	1,778	67.6	68.4
2= YES	822	31.3	31.6
8= DON'T KNOW	21	0.8	-
9=REFUSAL	8	0.3	-
Total	2,629	100.0	100.0
Weighted Frequency (using the person-level population weight, Weight_person_pop)			
Response Option	Frequency	Percent	Percent excluding missing data
1= NO	138,112	67.6	68.4
2= YES	63,810	31.3	31.6
8= DON'T KNOW	1,627	0.8	-
9=REFUSAL	638	0.3	-
Total	204,187	100.0	100.0

The weighted frequency using the sample person-level weight sums to 2,629 rather than the unweighted sample size of 3,029. Differences between the unweighted sample size and the person-level sample size will occur since some individuals who were not found to be eligible refugees did have responses to the question but do not have a person weight. The person-level weight adjusts so that all refugees 16 years old or older at time of survey administration that entered the country between FY 2014 and FY 2018 have the same probability of being in the

sample. Note that the person-level sample and population weights will generate the same percent estimates, but the frequency counts for the person-level population weight sums to the overall population of refugees 16 years old or older at time of survey administration who entered the U.S. as refugees between FY 2014 and FY 2018.

The following table (Table 13) shows the unweighted and the household-level weighted estimates for the number of refugee households in which one or more persons received food stamps in the past 12 months. The shaded portion of the table shows unweighted estimates, while the non-shaded region of the table shows the household-level weighted estimates.

TABLE 13			
The number of refugee households in which			
one or more persons received food stamps in the past 12 months (qn30a)			
Unweighted Frequency (filtering by respondent=1).			
Response Option	Frequency	Percent	Percent excluding missing data
1= YES	724	48.1	48.5
2= NO	769	51.1	51.5
8= DON'T KNOW	12	0.8	-
9=REFUSAL	1	0.1	-
Total	1,506	100.0	100.0
Weighted Frequency (using the household-level sample weight, Weight_household, and filtering the data by respondent=1).			
Response Option	Frequency	Percent	Percent excluding missing data
1= YES	797	52.9	53.3
2= NO	699	46.4	46.7
8= DON'T KNOW	10	0.6	-
9=REFUSAL	1	0.1	-
Total	1,506	100.0	100.0
Weighted Frequency (using the household-level population weight, Weight_household_pop, and filtering the data by respondent=1).			
Response Option	Frequency	Percent	Percent excluding missing data
1= YES	62,671	52.9	53.3
2= NO	54,918	46.4	46.7
8= DON'T KNOW	748	0.6	-
9=REFUSAL	66	0.1	-
Total	118,403	100.0	100.0

By checking the frequency count, you usually can tell that you are looking at a population weighted estimate. A population weighted frequency count will have much larger numbers compared with the sample size.

Although a large frequency count tends to indicate a weighted population estimate, the statistical output is usually not helpful in determining whether the correct survey weight was applied. Table 14 demonstrates how similar the two sets of estimates are when the *wrong* weight is applied. The shaded portion of the table shows the estimate that would have resulted by incorrectly using the household-level population weight (Weight_household_pop) instead of the person-level population weight (Weight_person_pop). The percentage estimates are so similar that even an experienced researcher may be unable to tell just from the statistical output whether the appropriate weight was used.

TABLE 14			
"Within the past 12 months, has this person attended any job training program?" (qn24a)			
Incorrectly Weighted Frequency Using Household-level population weight			
Response Option	Frequency	Percent	Percent excluding missing data
1= YES	193,951	86.9	89.2
2= NO	23,370	10.5	10.8
8= DON'T KNOW	5,205	2.3	-
9=REFUSAL	650	0.3	-
Total	223,176	100.0	100.0
Correctly Weighted Frequency Using Person-level population weight			
Response Option	Frequency	Percent	Percent excluding missing data
1= YES	178,415	87.4	89.5
2= NO	20,969	10.3	10.5
8= DON'T KNOW	3,981	1.9	-
9=REFUSAL	822	0.4	-
Total	204,187	100.0	100.0

Based on the State Department admissions report, there were 301,121 refugees (of all ages) that entered the U.S. in FY 2014-2018, and 204,187 of these would be 16 or older at the time of the survey. The person-level population weights can be used to estimate answers to survey questions like how many of these approximately 204,187 refugees 16 or older received a benefit or were working last week. When doing population estimates, however, you must be careful of how you handle missing data. Missing data typically occur when a person is not asked a question according to survey skip logic, refuses to answer a question, or does not know the answer to the question being asked. These situations are usually lumped together and classified as "missing data." Refer to the previous section of the guide for more information on how missing data for the ASR variables have been coded.

If you don't exclude missing data from frequency estimates, your population counts will total to less than the overall population of 204,187 refugees 16 or older. For instance, in our table 12 example, the estimated total number of refugees who did not have English language instruction before coming to the United States equaled 138,112, or 67.6% of the refugee population. However, these estimates do not

treat as missing those respondents who answered "don't know" or refused to answer, so they don't sum to 100% of the refugee population when combined with refugees who **did** have English instruction before coming to the United States. To avoid this issue, most researchers exclude missing data when reporting estimates. In this case, that means reporting that 68.4% of the refugees 16 or older did not have English language instruction before coming to the United States (the "percent excluding missing data" column in table 12).

If you decide to exclude the missing data, then a more accurate population estimate will be obtained by multiplying the percentage that excludes missing data by the total population. For instance, when we exclude the missing data from the example in table 12, we see that 68.4% of the refugees 16 or older did not have English language instruction before coming to the United States. This proportion translates to approximately 139,663 (.684 x 204,187) refugees 16 or older that did not have English language instruction before coming to the United States as opposed to the estimate of 138,112 shown in table 12. Again, this difference occurs because the population estimates in table 12 do not adjust for the missing data.

Section 5: Procedures for Estimating Standard Errors

The sample of households and persons surveyed for the 2019 ASR is just one of many possible samples that could have been drawn. Sampling error refers to error in survey estimates that arise from the fact that estimates are based on a sample of observations rather than the whole population. This form of error is usually expressed in terms of the sampling variance or standard error of an estimate, which is simply the square root of the sampling variance. Standard errors are required to calculate margins of error (i.e., the half width of a confidence interval) or to conduct hypothesis tests or tests of statistical significance. A clear presentation of estimates from a survey or hypothesis test should include measures of uncertainty associated with using a sample for inference, as opposed to using the entire population.

This section explains the process of obtaining standard errors for the 2019 ASR estimates. The 2019 ASR sample and respondents are subsets of all refugees who entered the country between fiscal years 2014 and 2018. Although survey estimates obtained from the default options in most statistical packages will be correct, the associated standard error estimates will often understate the true standard errors because they do not account for the weighting, clustering of persons within households and survey design (e.g., oversampling and stratification).

Stratification generally leads to a gain in efficiency over simple random sampling. On the other hand, clustering usually leads to deterioration in efficiency. This latter effect arises because of the positive intra-cluster correlation (i.e., similarity) among the subjects within the sampling clusters. For example, respondents from the same household are expected to have a higher likelihood of having the same ethnicity, religion, and country of origin than respondents selected at random from the list of all refugees that arrived during the target period. The cluster effect is larger for larger households because the survey sampled every eligible refugee from the same household, and this clustering effect increases the variance over what would pertain in a simple random sampling of refugees.

To determine the total effect of any complex survey design on the sampling variance, users must first calculate the variance associated with an estimate assuming a complex sample design. Then users calculate the variance expected from a simple random sample design. The ratio of the complex variance estimate over the variance associated with a simple design is what is called the design effect, often referred to as the DEFF, and it measures the overall efficiency of the survey weights and sample design.

In a wide range of situations, the adjusted standard error of a statistic should be calculated by multiplying the usual formula by the square root of the DEFF. Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(deft \times 1.96 \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \right)$$

where *p* is the sample estimate, *n* is the unweighted number of sample cases in the group being considered, and *deft* is the square root of DEFF.

The remainder of this section discusses how to use the replicate weights that are included on the data file to estimate the overall average design effect and to estimate design effect separately for each estimate. Both household-level and person-level replicate weights are included on the data file and can be used to obtain standard errors reflecting the complexity of the ASR sample design. However, for researchers who may not have access to the necessary computer hardware and software or technical ability to use these replicate weights to calculate standard errors appropriately, you should at least use the overall estimated average design effect to obtain approximate standard errors for survey estimates.

The overall square root of the average design effect for household-level analysis is 1.29. For person-level analysis that includes persons of all ages, the overall square root of the average design effect it is 1.52. For persons 16 or older, the square root of the average design effect is 1.25.

Multiplying your standard error estimates by the square root of the overall design effect will provide much more appropriate standard error estimates associated with your ASR estimates than incorrectly using the simple random sample estimates of variance, e.g., using [p x (1-p)] /n as the variance of a proportion p.

Still, it is important to keep in mind that each survey estimate has its own design effect. Therefore, the design effect for receiving food stamps may be higher or lower for, say, families with children compared to families without children or for any other subgroup of the population. If getting more precise standard estimates is a concern, then follow the instructions in the remainder of this section on how to use the replicate weights to estimate standard errors.

We now discuss how to calculate standard errors for the ASR estimates using the 92 replicate weights that are included on the 2019 ASR data files. Table 15 shows the names of the 23 replicate weights for each of the four main survey weights on the data file.

Table 15

	Person-level sample weights	Person-level population weights	Household-level sample weights	Household-level populations weights
Main Weight Variable	Weight_person	Weight_person_pop	Weight_household	Weight_household_pop
Replicate Weight Variables	Weight_person_R1 through Weight_person_R23	Weight_person_pop_R1 through Weight_person_pop_R23	Weight_household_R1 through Weight_household_R23	Weight_household_pop_R1 through Weight_household_pop_R23

The basic idea behind replication is to draw subsamples from the sample, compute the estimate from each of the subsamples, and estimate the variance from the variability of the subsample estimates. Specifically, subsamples of the original full sample are selected to calculate subsample estimates of a parameter for which a full-sample estimate of interest has been generated. The variability of these subsample estimates around the estimate for the full sample provides an estimate of the standard error of the estimate. The subsamples are called replicates and the estimates from the subsamples are called replicate estimates.

Although the logic behind using replicate weights is not unduly complicated, it can be compute-intensive to produce standard errors using the replicate weights. To use the replicate weights, users can either use specialized software designed to make use of replicate weights when generating standard errors— examples include SUDAAN and WesVar— or use specialized advanced sampling modules in software such as Stata, SAS, or SPPS. Below is an example of using Stata survey commands to estimate means:

Survey set:
svyset _n [iweight=Weight_person], jkrweight(Weight_person_R1 Weight_person_R2 Weight_person_R3 Weight_person_R4 Weight_person_R5 Weight_person_R6 Weight_person_R7 Weight_person_R8 Weight_person_R9 Weight_person_R10 Weight_person_R11 Weight_person_R12 Weight_person_R13 Weight_person_R14 Weight_person_R15 Weight_person_R16 Weight_person_R17 Weight_person_R18 Weight_person_R19 Weight_person_R20 Weight_person_R21 Weight_person_R22 Weight_person_R23 vce(linearized)

Estimate mean w/ SE:
svy, vce(jackknife): mean varname

Example:
Below, we calculate the standard error for the mean of *numppl* (number of people in the household) in Stata.

Survey set:
svyset _n [iweight=Weight_person], jkrweight(Weight_person_R1 Weight_person_R2 Weight_person_R3 Weight_person_R4 Weight_person_R5 Weight_person_R6 Weight_person_R7 Weight_person_R8 Weight_person_R9 Weight_person_R10

Weight_person_R11 Weight_person_R12 Weight_person_R13 Weight_person_R14
Weight_person_R15 Weight_person_R16 Weight_person_R17 Weight_person_R18
Weight_person_R19 Weight_person_R20 Weight_person_R21 Weight_person_R22
Weight_person_R23) vce(linearized)

Estimate mean w/ SE:
svy, vce(jackknife): mean numppl

Output:

```
Survey: Mean estimation

Number of strata =        1         Number of obs   =      3,877
                                    Population size = 3,877.0029
                                    Replications    =         23
                                    Design df       =         22
```

		Jackknife		
	Mean	Std. Err.	[95% Conf. Interval]	
numppl	3.877405	.0340137	3.806865	3.947945

Section 6: Comparing 2019 ASR to Earlier ASR Estimates

Although the 2019 ASR is not a longitudinal study, the estimates can be compared with estimates from earlier ASR studies. As with any survey, there are limits to how much a change can be considered "real" and not reflect larger differences in the sampled population or in the methodologies used for each round of data collection. This section of the user's guide will describe key factors that should be considered when comparing the 2019 ASR with earlier ASR studies.

💡 *Due to the considerable differences in survey methodologies, researchers should be cautious when comparing 2019 ASR estimates with ASR estimates prior to 2016. Hence, the discussion and considerations covered in this section are applicable only to comparisons done between the 2019, 2018, 2017, and 2016 ASRs.*

To compare 2019 estimates with prior estimates, you need to obtain a copy of earlier questionnaires and compare the wording of those questions you plan to analyze with the 2019 wording found in Appendix A of this user's guide. Differences in question wording do not necessarily mean that you cannot compare changes in estimates over time. Such changes may have been necessary to improve the questions. Admittedly, the impact of wording changes is a matter for subjective judgment. Even if the perceived impact is minor, it is generally good practice to acknowledge in an endnote or footnote when there are wording differences.

To understand the simplicity of estimating the significance of changes over time, consider estimating a proportion or count at time t — say, t θ_t. Let $v(\theta_t)$ be its estimated variance (the square of the standard error). The estimated change between times t1 and t2 for this proportion or count is $\Delta = \theta_{t1} - \theta_{t2}$. The variance of the difference is the sum of the variances for the two-time periods, which is $v\Delta = (v\theta_{t1} + v\theta_{t2})$. The two variances on the right side of the equation should be computed separately. To get the standard error of the differences between the two estimates you would then take the square root of $v\Delta$. If the difference between the two estimates is greater than 1.96 times the standard error of the differences, then you can say with 95% certainty that the differences between the different ASR estimates are significant.

Table 16 provides a real example of how you would go about determining whether a change in an estimate is significant. In this example, we see that the percentage of households with someone receiving cash assistance decreased by 5.0 percentage points from the 2016 ASR to the 2019 ASR. Is that a statistically significant change?

The first step we need to take to answer this question is to sum the adjusted variances of the two estimates. The sum would be equal to 0.42 (fourth column). The next step is to estimate the standard error of the difference, which is the square root of the adjusted variance, or 0.65. Finally, we can build a confidence interval by multiplying the adjusted standard error by 1.96 (this step gives you a 95% confidence interval), and then adding and subtracting that number to and from the 5.0 percentage point change that occurred between 2016 and 2019.

The answer to our hypothetical question is yes. We are at least 95% confident that there was a decrease in cash assistance from 2016 to 2018, as zero (no change) is not within the confidence interval (4.4 to 5.7).

TABLE 16					
Testing to see if the change in households with someone receiving cash assistance between the 2016 and 2019 ASRs was statistically significant at the 95% confidence interval					
	Percent	Variance	Design Effect	Adjusted Variance	Adjusted Standard Error	95% Confidence Interval
2016	25.2	.19	1.13	.21	.46	24.3 to 26.1
2019	20.2	.16	1.29	.21	.47	21.0 to 22.8
(2016-2019)	5.0		NA	.42	.65	4.4 to 5.7

When comparing responses over time, there are a few other things worth thinking about besides question wording and sampling. For instance, even though the survey weights include a nonresponse adjustment, differences in ASR response rates may explain small changes in the estimates.

Sample sizes for the ASR studies are not always sufficient for producing some estimates. For example, it becomes even more difficult to look at differences by region or country of origin when participation rates are quite small, as in the case of Refugee Cash Assistance (RCA) or Temporary Assistance for Needy Families (TANF). If we were to pool data across ASR years, then we would be able to increase the number of observations. However, to analyze combined responses to the same question across multiple years (pooled data) you need to normalize the population weight variable from each ASR year being pooled. This is effectively the same as averaging the population weight variable across years.