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IAB-BAMF-SOEP Survey of Refugees – 2023: Sampling, Nonresponse, and Weighting of the Sample M9

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Abstract
This paper outlines the sampling and weighting process for the M9 sample, an augmentation sample for the IAB-BAMF-SOEP Survey of Refugees. It augments the samples M3, M4, M5, and M6 with refugees entering Germany between January 1, 2017, and the August 31, 2022. It also adds refugees from Ukraine by including those who entered Germany in the period from June 9, 2022 up to and including August 31, 2022. The sample is drawn from the Central Register of Foreigners (Ausländerzentralregister; AZR) in a stratified two-stage design. At the first stage clusters of districts are sampled and at the second stage refugees are sampled as anchor persons for the household. Design weights are adjusted to correct for nonresponse and coverage. Nonresponse adjustments make use of design information, interviewer characteristics, area-level and regional information, as well as information from the AZR. The marginal distributions we use for post-stratification are derived from the AZR as well. The M9 sample and its weights are seamlessly integrated into the IAB-BAMF-SOEP Survey of Refugees and the SOEP.

1. Introduction

Together with the Institute for Employment Research (IAB) and the Research Center of the Federal Office for Migration and Refugees (BAMF-FZ) the Socio-Economic Panel (SOEP) at the German Institute for Economic Research in Berlin (DIW Berlin) surveys households of refugees in Germany in a longitudinal study. The cooperation conducting the IAB-BAMF-SOEP Survey of Refugees started in 2016 and is designed as a panel study of refugee households, see Brücker et al. (accepted). It is incorporated into the SOEP as subsamples M3, M4, M5, and M6. These subsamples cover mainly refugees from Syria, Iraq, Afghanistan and Africa.

In March 2022, the SOEP together with the IAB, the German Family Demography Panel Study (FReDA) at the Federal Institute for Population Research (BiB) and the BAMF set up the IAB-BiB/FReDA-BAMF-SOEP Survey to address the need for data on Ukrainian refugees in Germany; see Steinhauer, Décieux, Siegert, Ette, and Zinn (2024). Ukrainians who entered Germany in the period from February 24, 2022 up to June 8, 2022 were interviewed. Interviews were conducted from August to October 2022 (online and paper questionnaire) and a second wave took place between January and March 2023. After the second wave, half of the participants of the IAB-BiB/FReDA-BAMF-SOEP-Survey became part of the IAB-BAMF-SOEP-Survey of Refugees.

The IAB-BAMF-SOEP-Survey of Refugees was augmented in 2023 by two groups: Ukrainian refugees who entered Germany in the period from June 9 to August 31, 2022 (UKR 2023) and refugees from the rest of the world who entered Germany from January 2017 to August 31, 2022 (ROW 2023). Together with the Ukrainian refugees from the IAB-BiB/FReDA-BAMF-SOEP survey (UKR 2022), the two newly drawn groups form the M9 sample.

This paper documents the sampling design for the UKR 2023 and ROW 2023 and the weighting strategy for the 2023 sample M9 of the IAB-BAMF-SOEP Survey of Refugees. Therefore, Section 2 provides details on the population. Sampling is described in Section 3. Section 4 provides information on the fieldwork and its results. Weighting adjustments are presented in Section 5. Finally, Section 6 gives a brief summary.

2. Target Population and Sampling Frame

The target population of sample M9 consists of three main groups. The first group, *UKR 2022*, consists of persons with a Ukrainian Nationality arriving in Germany between February 24, 2022, and June 8, 2022 (cp. Steinhauer et al., 2024, p. 86f). The second group, *UKR 2023*, is formed by persons with a Ukrainian Nationality arriving in Germany between June 9, 2022, and August 31, 2022. The third group, *ROW 2023*, covers persons who entered Germany between January 2017 and end of August 2022 and filing an asylum application (excluding the previous groups UKR 2022 and UKR 2023). Note that, Ukrainian refugees arriving in Germany before the Russian invasion are included in the group ROW 2023. Hence, the previous refugee samples M3, M4, M5 and M6 are extended to include persons with entry between January 2017 and August 2022 by the group ROW 2023. The IAB-BAMF-SOEP survey also includes refugees from Ukraine by the two groups UKR 2022 and UKR 2023.

To sample from this population, we utilized the Central Register of Foreigners (Ausländerzentralregister, AZR), an official dataset provided by the Federal Office for Migration

and Refugees (Bundesamt für Migration und Flüchtlinge, BAMF). The AZR records all foreign nationals who have resided in Germany for a minimum of three months, thereby encompassing the target refugee population. Further details on the register are provided by Babka von Gostomski and Pupeter (2008). For the registration process of the Ukrainian refugee population and its peculiarities, see Steinhauer et al. (2024). We filtered this register to identify individuals meeting our population criteria. Overall, the AZR included 483,290 individuals who met these conditions, see Table 1.

Table 1: Numbers of adult refugees by Nationality and immigration year.

	Immigration year						
Nationality	2017	2018	2019	2020	2021	2022[1]	Total
Syria	21,676	13,287	11,231	11,404	22,441	13,227	93,266
Afghanistan	3,832	3,970	4,768	5,755	14,495	8,972	41,792
Iraq	8,545	6,036	5,262	4,113	9,637	4,168	37,761
Iran	4,565	7,270	5,476	1,992	2,054	1,903	23,260
Ukraine[2]	187	323	320	143	359	117,317	118,649
Turkey	4,573	6,472	6,609	3,730	5,943	6,599	33,926
West-Africa	7,146	7,012	6,067	3,270	3,015	2,708	29,218
East-Africa	8,872	4,900	2,991	2,012	3,407	2,053	24,235
Others	12,860	11,945	12,513	9,083	16,978	17,804	81,183
Total	72,256	61,215	55,237	41,502	78,329	174,751	483,290

Notes: [1] Covers only January until August. [2] Refugees arriving in Germany before 2022 will be added to the ROW 2023.

In total, the population consists of 483,290 refugees. Table 1 presents the number of immigrants from specific nationalities over the years 2017 through the end of August 2022. Overall immigration numbers fluctuated significantly during this period. Starting off with 72,256 refugees in 2017 dropping to 41,502 in 2020. After the corona lockdowns and travel restrictions in 2020 the numbers rose again in 2021. The sharp increase in 2022 reflects only refugees who arrived in Germany until August. It is mostly driven by Ukrainians who arrived in Germany after the war started. Before 2022 only few Ukrainians are registered in the AZR each year. Among the other nationalities, Syria shows consistently high numbers but with a dip around 2018-2020. Afghanistan shows a steady increase until 2021. Other regions and countries like Iraq, Iran, West Africa, and East Africa exhibit varying levels but generally lower than Syria. Of the 483,290 refugees listed above, 87% are registered with regular immigration authorities (Ausländerbehörden, ABH). The remaining part is registered through, for example, police or border patrol.

3. Sampling Design

To sample from the desired population, we filter the AZR for refugees registered with regular immigration authorities. Thus, we mainly exclude refugees from initial reception facilities. Further, there are some regional peculiarities. In Saarland there is only one central authority located in Saarlouis. Further, the district Spree-Neiße and the city of Cottbus are joined to a cluster as well as the district and the city of Kassel. Except

for these peculiarities the jurisdiction of the ABH and the district boarders coincide. So in a first step we create primary sampling units (PSU) from the authorities regionally coinciding with cities and districts. The creation of PSU aims to create clusters that are more similar in terms of their size. First, cities and districts with at least 2,000 refugees form a PSU on their own. This mainly concerns city states Berlin, Hamburg, and Bremen, but also Saarlouis (as explained above), Leipzig, Cologne, Frankfurt am Main or Munich. Next we join cities not yet forming a PSU having only one district surrounding it. In subsequent steps we allow for more neighboring districts to be joined yielding the desired size of 2,000 refuges. When these joins become to large in terms of area, we lower the minimum number of refugees per PSU to 1,000. For a detailed description of the clustering see Jacobsen et al. (2019) Note that, refugees are usually distributed according to „Königssteiner Schlüssel". This holds for the group of ROW 2023. Ukrainian refugees, on the other hand, can choose their place of residence themselves under certain conditions; see Steinhauer et al. (2024). For this reason the clustering is done separately for the two strata.

This procedure results in a total of 190 PSUs for both strata (groups). Of these, 90 PSUs are sampled at the first stage with probability proportional to size in each stratum. Within the sampled PSUs we randomly select a fixed number of refugees at the second stage. The number of refugees to be sampled at the second stage is computed in a way that the sampling design in total yields roughly equal inclusion probabilities for refugees at the second stage. This holds for both strata covering the distinct groups of UKR 2023 and ROW 2023. Thus, the design can be summarized as stratified two-stage sampling design. For details of the sampling design of UKR 2022, see Steinhauer et al. (2024).

4. Fieldwork Results and Response Rates

The M9 sample covers the two groups of UKR 2023 and ROW 2023 which are surveyed for the first time. The group UKR 2022 was already surveyed before. For details of the field work results and response rates of UKR 2022, see Steinhauer et al. (2024). The BAMF delivered the addresses to infas Institute for Applied Social Science, the field work agency, to be validated. During the fieldwork a total of 33,766 addresses was validated. Of these 1,559 addresses were not used. All valid addresses were sent a pre-contact form via mail. It provided details on the survey, access to a CAWI and PAPI short questionnaire, and asked for interest in participation. All 9,251 households responding to the pre-contact were deployed to field. Of those households from the ROW group who did not respond to the pre-contact a random sample of 5,000 households was drawn and also deployed to the CAPI field. A total of 7,388 pre-contact forms were returned due to false address information. Also, 375 individuals actively refused to participate in the pre-contact phase of the survey. Figure 1 in Appendix A details the processes leading to being interviewed in the survey. The interviews were conducted between June and December 2023. All households started in CAPI mode with the possibility to switch to another mode.

Table 2: Fieldwork results on the household-level according to American Association for Public Opinion Research (2023).

Final Disposition Code	UKR 2022		ROW 2023		UKR 2023		Total
	Number	Proportion	Number	Proportion	Number	Proportion	Number
1. Interview							
(1.10) Complete	1,276	0.271	1,880	0.084	594	0.088	3,750
(1.20) Partial	276	0.059	702	0.031	141	0.021	1,119
2. Eligible, Non-Interview							
(2.10) Refusal	122	0.026	704	0.032	58	0.009	884
(2.12) Break-off	55	0.012	326	0.015	39	0.006	420
(2.20) Non-contact	171	0.036	902	0.040	63	0.009	1,136
(2.31) Dead	2	0.000	6	0.000	5	0.001	13
(2.32) Physically / mentally unable	16	0.003	57	0.003	11	0.002	84
(2.33) Language problems	29	0.006	286	0.013	15	0.002	330
(2.36) Miscellaneous	662	0.140	3,360	0.150	429	0.064	4,451
3. Unknown eligibility, non-interview							
(3.11) Not attempted or worked	0	0.000	1,587	0.071	0	0.000	1,587
(3.22) Nothing ever returned	1,363	0.289	8,191	0.367	3,525	0.525	13,079
4. Not Eligible							
(4.10) Out of sample / screened out	0	0.000	0	0.000	2	0.000	2
(4.20) Moved abroad	62	0.013	13	0.001	25	0.004	100
(4.40) Untraceable	669	0.142	4,158	0.186	1,803	0.268	6,630
(4.50) Non-residential building	12	0.003	159	0.007	10	0.001	181
Total	4,715	1.000	22,331	1.000	6,720	1.000	33,766

Notes: [1] Category includes M9-ROW not participating in pre-contact. Proportions might not add up to one due to rounding errors.

Table 2 provides details on the final disposition outcomes for sampled households across three groups, using classification codes defined by the American Association for Public Opinion Research (2023). For each group, the table lists the number of households falling into each AAPOR disposition category: those that resulted in an interview (complete or partial), eligible but not interviewed, households with unknown eligibility, and those who were not eligible. The proportions represent the percentage of contacted households within each specific survey period that resulted in these final categories. In total, there were 4,882 (UKR 2022: 1,552, UKR 2023: 735, ROW 2023: 2,582) complete or partial interviews, resulting in a response rate on the household-level, calculated according to American Association for Public Opinion Research (2023), of $RR2 = \frac{4,869}{26,853} = 0.181$ (UKR 2022: $\frac{1,552}{3,972} = 0.391$, UKR 2023: $\frac{735}{4,880} = 0.151$, ROW 2023: $\frac{2,582}{18,001} = 0.143$). The response rates are higher for Ukrainian refugees (regardless of the group 2022 and 2023) and for ROW 2023 comparable to M6, see Steinhauer, Siegers, Siegert, Jacobsen, and Zinn (2022). The refusal rate is $REF1 = \frac{1,304}{26,853} = 0.049$ (UKR 2022: $\frac{177}{3,972} = 0.045$, UKR 2023: $\frac{97}{4,880} = 0.020$, ROW 2023: $\frac{1,030}{18,001} = 0.057$) and, thus, is similar to other samples / studies for Ukrainian refugees. For refugees from other countries (ROW 2023) the refusal rate is higher compared to previous refugee samples of the IAB-BAMF-SOEP Survey of Refugees. The proportions for non-contact as well as for untraceable households are notably lower than the earlier samples M3, M4, M5, and M6.

5. Cross-sectional Weighting

The computation of survey weights consists of three steps (Brick & Kalton, 1996). In a first step, design weights are derived as inverse of the inclusion probability. Design weights are adjusted to correct for unit nonresponse in a second step. This step is referred to as sample weighting adjustment by Kalton and Kasprzyk (1986). Finally, nonresponse adjusted weights are calibrated so that estimates conform to known population parameters or to meet specific distributions. Kalton and Kasprzyk (1986) refer to this step as population weighting adjustment. For details on the general weighting strategy of the SOEP and the integration of new samples, see Kroh, Siegers, and Kühne (2015).

Please note that the AZR lists individuals without providing information about their household context. However, the IAB-BAMF-SOEP Survey of Refugees is a household panel survey in which all adults are interviewed. Consequently, a household with two individuals, for example, has a higher probability of selection compared to a single-person household. To determine a household's sampling probability, we assign sampling probabilities to all members of existing households, even though these individuals were not initially sampled as anchor persons. This involves accounting for various characteristics used in stratifying and clustering the sample. Once the sampling probabilities for each household member are identified, we calculate the joint probability the household to be part of the sample. For formal documentation of this procedure, see Kroh, Kühne, Jacobsen, Siegert, and Siegers (2017).

To address potential selectivity resulting from fieldwork and nonresponse, we employ three models that capture the success of (pre-)contacting a household as well as the decision-making process of households regarding participation. The models incorporate information on:

a) all households that have been pre-contacted and did not fall outside the population,

b) all households that have been deployed to the field and have been approached / contacted, and

c) both participating and nonparticipating households.

The first model estimates the probability of successfully pre-contacting a household in the pre-contact phase of the survey. The following model estimates the probability of successfully contacting a household via the interviewer. Given a successful contact, the last model estimates the probability of the household participating in the panel. Because of the limited availability of data on households in the initial sample, we utilize area-level information regarding the residential environment provided by infas360 (see https://datenkatalog.infas360.de/). Additionally, we use design information such as stratification variables and data on fieldwork processes such as interviewer characteristics and information on the initial contact. Finally, information provided by the AZR can be used in the analysis. This information includes sex, age group, nationality, residence status (aufenthaltsrechtlicher Status), and asylum status (Asylstatus).

5.1. Sample Weighting Adjustment

In the second step of adjusting the design weights, it is essential to identify strong predictors of nonresponse. To accomplish this, we conduct an iterative process that involves examining information listed above. We select variables demonstrating significant influence on the participation decision through bivariate regression analysis. Subsequently, we remove variables from this set of significant variables if their absolute correlation value with each other is greater than or equal to 0.95. This step ensures that highly correlated variables are not duplicated in the analysis. The remaining variables then form the basis for a preparatory nonresponse model. To obtain the final model, we employ a variable selection procedure in both, forward and backward, directions, using the Bayesian Information Criterion (BIC) as the selection criterion. This approach allows us to arrive at a more parsimonious model, retaining only the most relevant variables. The resulting models estimating the probability to be successfully (pre-)contacted as well as the participation propensities used for deriving weighting adjustments, are presented in Table 3.

5.1.1. Pre-contact

At the first stage of contacting the households, we mainly find effects on the area level and for the group ROW 2023 several attributes of the anchor person to affect the successful contact. For the group of refugees from other countries than Ukraine (ROW 2023), we find addresses located at the border region of municipalities to be less likely to have a successful pre-contact. The same holds for addresses located in blocks of buildings with a low population density, a low share of inhabitants of either young (6 up to 10 years) or old (65 and older) age. Also, the unemployment rate in the neighborhood is predictive for a successful pre-contact. A low rate has a positive impact and a high rate has a negative one. Finally, some attributes of the anchor person have an effect, too. Anchor persons with a nationality from Eritrea, Somalia, and Iraq have lower propensities for successful pre-contact. In contrast, anchor persons with a nationality from Turkey, Nigeria, and Iran are more likely to be pre-contacted successfully. Anchor persons who applied for asylum as well as persons aged between 30 and 50 years have a higher likelihood for successful pre-contact.

For Ukrainian refugees (UKR 2023) we only find area level attributes to influence the success of the pre-contact phase. Houses without a garden as well as a low share of inhabitants aged 65 years or older lower the chances for successfully pre-contact in this group.

5.1.2. Contact

For the non-Ukrainian refugees the pre-contact stage had a positive effect on the contactability for the interviewers. However, the first contact attempt in-person was rarely successful. The same holds for first contact attempts in morning hours. In terms of interviewer characteristics, older interviewers were less successful in contacting the households. When the interviewer had another occupation than pensioner, student, or working they were more likely to establish contact. A high share of foreigners and a low share of young people (aged 6 up to 10 years) in the residential area lowers the probability for a successful contact. If the household is located in a neighborhood in a rural district it is less likely to be contacted successfully. The same is true for neighborhoods in the lowest decile of the German Index for Socio-economic deprivation. In contrast, households in neighborhoods in the 9^{th} decile of the German Index for Socio-economic deprivation are more likely to be contacted successfully. Finally, having a protection status and being female are the characteristics of the anchor persons that have a positive influence on the contactability.

For Ukrainian refugees we find less characteristics influencing a successful contact. When the residence's quality is very basic interviewers were less likely to establish contact with the household. When the household is located in a neighborhood with a low share of persons with a migration background other than Turkish, Polish, Italian, Soviet, Yugoslavian, or Muslim there was a higher likelihood to establish a successful contact.

5.1.3. Participation

Looking at the decision to participate in the panel study, we find for the non-Ukrainian refugees, that having a successful pre-contact also positively influences their decision. Moreover, an initial contact in the evening hours increases the probability to participate. Concerning the attributes of the interviewer, being able to communicate in different languages positively affects the likelihood to participate. This holds for interviewer being able to communicate in Persian / Farsi, Arabic or Kurdish language. In both groups, ROW 2023 and UKR 2023, having a female interviewer increases the participation propensity. Interviewers having a primary or secondary education also influence the propensity to participate positively. Moreover, interviewers who are students can influence the participation decision positively. Finally, interviewers who are 65 or older increase the likelihood to participate in the panel. In terms of area level information, we find that households located in blocks of buildings with a low share of inhabitants aged 30 up to 45 have a lower participation propensity. Households located in neighborhoods with a high share of people having another migration background than Turkish, Polish, Italian, Soviet, Yugoslavian, or Muslim there was a higher likelihood to participate. A high unemployment rate also increases the likelihood to participate. And households in urban districts are more likely to join the panel. Finally, households in neighborhoods with a socio-economic deprivation index ranging in the 5^{th} and 6^{th} decile have higher participation propensities.

Looking at the attributes of the anchor persons, we see that households with anchor persons having a nationality from Eritrea or Iraq have a lower participation propensity. In contrast, if the anchor person has a nationality from Syria, the household has a higher likelihood to participate in the panel study.

For the Ukrainian refugees, we find (besides the effect of a female interviewer mentioned earlier) that households living in a residence with basic quality have a lower propensity of participation.

Table 3: Models estimating the probability to be successfully (pre-)contacted as well as the participation propensities used for deriving weighting adjustments.

	Pre-contact		Contact		Participation	
	ROW 2023	UKR 2023	ROW 2023	UKR 2023	ROW 2023	UKR 2023
(Intercept)	−1.405***	−1.433***	1.182***	0.803***	−2.911***	−0.223***
	(0.030)	(0.031)	(0.039)	(0.042)	(0.069)	(0.060)
1. Attributes of first contact attempt						
Pre-contact			0.406***		1.399***	
yes			(0.028)		(0.053)	
Contact			−0.541***			
in person			(0.020)			
Contact time			−0.561***			
morning			(0.037)			
Contact time					0.165***	
evening					(0.045)	
2. Attributes of the interviewer						
Language					0.838***	
Persian / Farsi					(0.110)	
Language					0.789***	
Arabic					(0.046)	
Language					0.497***	
Kurdish					(0.122)	
Sex					0.556***	0.667***
female					(0.052)	(0.078)
Education					0.844***	
basic / primary					(0.098)	
Education					0.462***	
secondary					(0.046)	
Occupation					0.185***	
student					(0.056)	
Occupation			0.519***			
other			(0.066)			
Age group			−0.174***		0.654***	
65 or older			(0.040)		(0.058)	
3. Attributes of the residential (address)						
Quality of the residence				−0.420**		
very basic				(0.145)		
Quality of the residence						−0.445**
basic						(0.168)
Location within municipality	−0.412***					
border of town	(0.106)					
Garden area		−0.518**				
no garden		(0.182)				
4. Attributes of the residential area (block of buildings; SB)						
Share of foreigners			−0.112***			
highest quarter			(0.032)			
Population density	−0.262**					
lowest quarter	(0.084)					
Inhabitants aged 6-10	−0.201***		−0.153***			
lowest quarter	(0.038)		(0.033)			
Inhabitants aged 30-45					−0.192***	
lowest quarter					(0.053)	

Table 3 continued.

	Pre-contact		Contact		Participation	
	ROW 2023	UKR 2023	ROW 2023	UKR 2023	ROW 2023	UKR 2023
Inhabitants aged 65+	−0.177***	−0.314***				
lowest quarter	(0.037)	(0.070)				
5. Attributes of the residential area (neighborhood; OT)						
Persons other mig. back.				0.283**		
lowest quarter				(0.088)		
Persons other mig. back.					0.152**	
highest quarter					(0.048)	
Unemployment rate	0.143***					−0.235**
lowest quarter	(0.033)					(0.088)
Unemployment rate	−0.114**				0.186***	
highest quarter	(0.035)				(0.050)	
District type					0.287***	
ubran					(0.044)	
District type			−0.104**			
rural			(0.033)			
Socio-economic deprivation			−0.186***			
lowest decile			(0.048)			
Socio-economic deprivation					0.247***	
5^{th} decile					(0.070)	
Socio-economic deprivation					0.259***	
6^{th} decile					(0.073)	
Socio-economic deprivation			0.305***			
9^{th} decile			(0.061)			
6. Attributes of the anchor person from the AZR						
Nationality	−0.802***				−0.745***	
Eritrea	(0.110)				(0.197)	
Nationality	−0.418***					
Somalia	(0.092)					
Nationality	−0.289***				−0.309***	
Iraq	(0.047)				(0.073)	
Nationality	0.380***					
Turkey	(0.039)					
Nationality	0.380***					
Nigeria	(0.058)					
Nationality	0.245***					
Iran	(0.046)					
Nationality					0.272***	
Syria					(0.052)	
Age group	0.226***					
30 up to 40	(0.031)					
Age group	0.275***					
40 up to 50	(0.040)					
Residence permit	0.158***					
Asylum applicant	(0.029)					
Residence permit			0.106***			
Protection status			(0.029)			
Sex			0.115***			
female			(0.028)			
N	22,352	6,720	10,329	1,321	8,411	1,189

Notes: Dependent variables: (Pre-)Contactability / Participation of the household (1 = yes, 0 = no). Significance indicated by $***\equiv p < 0.001$, $**\equiv p < 0.01$, and $*\equiv p < 0.05$. The model is estimated using the function `glm()` with a cloglog link function in R (R Core Team, 2025).

For nonresponse analysis of the UKR 2022 group please see Torregroza et al. (2022) and Steinhauer et al. (2024).

5.2. Population Weighting Adjustment

In the last step of the weighting process, we use raking to adjust the weights from the previous step to meet different joint and marginal distributions. The weights resulting from

this step are the basis for cross-sectional and longitudinal weights derived for wave 2 and beyond. The population parameters and distributions used in the population weighting adjustments were provided by the Federal Office for Migration and Refugees based a special analysis of the Central Register of Foreigners. At the individual level, the following marginal and joint distributions have been used:

- Number of persons by federal state
- Number of persons by date of immigration
- Number of persons by age group and gender
- Number of persons by nationality (only for ROW 2023)

5.3. Characteristics of Weights

Table 4 provides an overview of the distribution of weights calculated at three distinct stages: Design Weighting (DW), Sample Weighting Adjustment (SWA), and Population Weighting Adjustment (PWA). This table details key summary measures, including quantiles, minimum (Min.), maximum (Max.), mean, and standard deviation (SD) for each stage. The values illustrate how the distribution of weights changes throughout the weighting process.

Table 4: Characteristics of weights after the steps of the weighting process.

		Quantiles							
Step	Min.	10%	25%	50%	75%	90%	Max.	Mean	SD
DW	2.08	6.44	7.80	15.08	20.51	35.28	107.20	17.51	14.17
SWA	3.79	33.70	50.34	86.85	161.52	309.01	6,089.84	149.94	219.62
PWA	3.19	18.02	33.55	69.60	137.09	239.17	2,567.92	109.45	131.33

Abbreviations: Min. = minimum, Max. = maximum, SD = standard deviation, DW = design weighting, SWA = sample weighting adjustment, PWA = population weighting adjustment.

Due to the sampling design, especially the subsampling in the ROW group, there is some variation in the design weights. The weighting process results in a clear increase in magnitude of weights. This is when comparing design weighting to sample adjustments as well as for design weighting and population adjustments. Multiplying design weights with the inverse of estimated participation probabilities increases variation in the second weighting step; compare Table 4. The additional pre-contact phase and its adjustment add to this variation. The standard deviation shows that variability increases most between the design weighting (DW) and the sample weighting adjustment (SWA). Weights reduce in magnitude again after the population weighting adjustment (PWA) is performed. This implies that the population weighting adjustments reduce the inflation of the multiple adjustments performed in the earlier stage. Resulting weights are provided in the variable `hhrf0` included in the data set `hpathl` and in `bnhhrfm9` in the data set `hhrf`.

6. Summary

M9 augments the existing samples M3, M4, M5, and M6 of the IAB-BAMF-SOEP Survey of Refugees. Sampling the refugees from the AZR is similar in design and in line with the previous samples of the IAB-BAMF-SOEP Survey of Refugees. Looking at the potential selectivities in the distinct groups, we find only very few regional characteristics influencing contactability and participation in the panel among the UKR 2023 group. In contrast, we find some potential selectivities among the ROW 2023 group; mainly characteristics of the anchor persons as well as some socio-economic variables of the residential area influence their contactability and panel participation propensity. Finally, interviewer characteristics (mainly them matching the language preferences of the household) have a positive impact on the participation propensities in the panel study. The resulting weights show variation because of the design, subsampling in the ROW 2023 group, but mainly because of the three adjustments for pre-contact phase, contact via the interviewer, panel participation. By including M9 to the IAB-BAMF-SOEP survey, we add refugees entering Germany between January 1, 2017, and end of August 2022, filing an asylum application. Moreover, we extend the survey's focus on the most recent refugees from Ukraine coming to Germany in 2022. Thereby M9 secures and expands the analysis potential of the survey of refugees conducted by IAB, BAMF, and SOEP. The resulting M9 sample is designed to be readily combined with existing IAB-BAMF-SOEP refugee survey data and integrated into the SOEP infrastructure.

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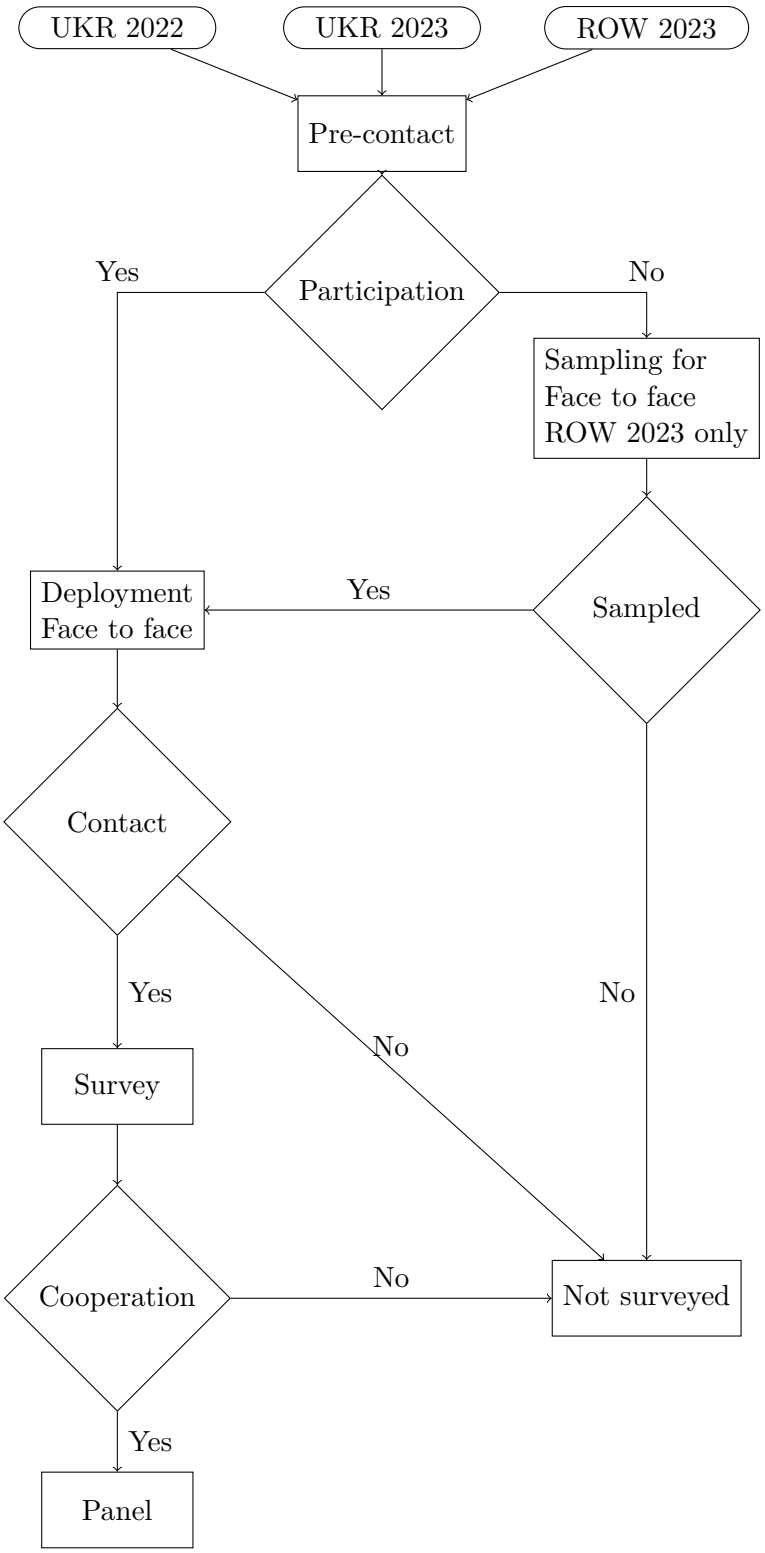
A. Figures

Figure 1: Flowchart of the processes leading to panel participation in the M9 samples.



B. Revisions

January 28, 2026
We corrected the date in the sentence "The second group, UKR 2023, is formed by persons with a Ukrainian Nationality arriving in Germany between June 9, 2022, and August 1, 2022." from August 1, 2022 to August 31, 2022 in Section 2 on page 1.