SOEP The German Socio-Economic Panel study

477

SOEP Survey Papers

Series C – Data Documentation

SOEP — The German Socio-Economic Panel study at DIW Berlin 2017

Sampling, Nonresponse, and Integrated Weighting of the 2016 IAB-BAMF-SOEP Survey of Refugees (M3/M4) – revised version

Martin Kroh, Simon Kühne, Jannes Jacobsen, Manuel Siegert, Rainer Siegers

DIW SOEP

Running since 1984, the German Socio-Economic Panel study (SOEP) is a wide-ranging representative longitudinal study of private households, located at the German Institute for Economic Research, DIW Berlin.

The aim of the SOEP Survey Papers Series is to thoroughly document the survey's data collection and data processing. The SOEP Survey Papers is comprised of the following series:
Series A – Survey Instruments (Erhebungsinstrumente)
Series B – Survey Reports (Methodenberichte)
Series C – Data Documentation (Datendokumentationen)
Series D – Variable Descriptions and Coding
Series E – SOEPmonitors
Series F – SOEP Newsletters
Series G – General Issues and Teaching Materials

The SOEP Survey Papers are available at **http://www.diw.de/soepsurveypapers**

Please cite this paper as follows:

Martin Kroh, Simon Kühne, Jannes Jacobsen, Manuel Siegert, Rainer Siegers. 2017. Sampling, Nonresponse, and Integrated Weighting of the 2016 IAB-BAMF-SOEP Survey of Refugees (M3/M4) – revised version. SOEP Survey Papers 477: Series C. Berlin: DIW/SOEP

ISSN: 2193-5580 (online)
DIW Berlin
German Socio-Economic Panel (SOEP)
Mohrenstr. 58
10117 Berlin
Germany
soeppapers@diw.de

Sampling, Nonresponse, and Integrated Weighting of the 2016 IAB-BAMF-SOEP Survey of Refugees (M3/M4) – revised version

Martin Kroh[1] Simon Kühne[1] Jannes Jacobsen[1]

Manuel Siegert[2] Rainer Siegers[1]

December 31, 2017

[1] DIW Berlin – Deutsches Institut für Wirtschaftsforschung e.V.
Sozio-oekonomisches Panel (SOEP)
Mohrenstraße 58
10117 Berlin

[2] Bundesamt für Migration und Flüchtlinge (BAMF-FZ)
Forschungszentrum Migration, Integration und Asyl
Frankenstr. 210
90461 Nürnberg

Contents

List of Tables

List of Figures

1 Introduction

Over the course of 2015, around one million refugees arrived in Germany (see the September 30, 2016, press release of the Federal Ministry of the Interior (BMI), BMI 2017). The growing refugee population poses a major challenge for Germany's policy makers, civic administrators, and society at large. New approaches to registration procedures, housing, and social and economic integration need to be developed. To do so, government administrators, politicians, and the public need robust analyses of the accompanying and demographic changes based on valid and reliable empirical data. The Socio-Economic Panel (SOEP) at the German Institute for Economic Research in Berlin (DIW Berlin) provides such a database. The SOEP is an annual longitudinal panel study of private households in Germany that has worked together with the IAB (Institute for Employment Research) and the BAMF-FZ (Research Centre of the Federal Office for Migration and Refugees) to develop a joint survey of recently arrived refugees.

The Socio-Economic Panel had already added other samples with a focus on migration in recent years (Samples B, D, M1, and M2 – for samples M1 and M2, see Kühne/Kroh 2017; Kroh et al. 2015). Samples M1 and M2 were also part of a joint project with the IAB. Thus, refugee cohorts were already part of the SOEP before the new refugee samples were added, but this population was only covered to a limited degree, placing constraints on the complex, comparative analysis of particular refugee subgroups. With the most recent influx of refugees into Europe and into Germany in particular, this kind of analysis has become even more important, but its potential has gone largely unrealized due to the lack of empirical data. The present IAB-BAMF-SOEP Survey of Refugees was designed to close this information gap on recent refugees to Germany.

The IAB-BAMF-SOEP Survey of Refugees is designed as a yearly repeated panel study of refugee households that will be implemented prospectively into the Socio-Economic Panel. In the first wave in 2016, a total of 3,336 households were interviewed, resulting in a total of 4,527 face-to-face individual interviews with adult respondents and proxy information on 5,438 children. The study consists of two sub-samples referred to as M3 and M4 (following on SOEP samples M1 and M2 because they add another perspective

on migrants). Sample M3 was funded by the Federal Employment Agency (BA), whereas Sample M4 was funded by the Federal Ministry of Education and Research (BMBF) and has a focus on refugee families. Furthermore, a third sample was drawn, including both a refresher sample to M3/M4 as well as a new additional sample. This latter sub-sample, M5, went into the field in 2017 and will be released in 2018.

This paper documents the sampling procedure, the weighting strategy used to sample households of refugees who arrived recently to Germany. It is a joint project of the Institute for Employment Research (IAB), the Migration, Integration and Asylum Research Center at the Federal Office for Migration and Refugees (BAMF-FZ), and the Socio-economic Panel (SOEP).

The Institute for Employment Research (Institut für Arbeitsmarkt- und Berufsforschung, IAB) is an independent institute of the Federal Employment Agency in Nuremberg, Germany. The IAB conducts labor market and occupational research in Germany on topics such as labor market policy and social inequality, and also does research in the fields of statistical methods and survey methodology (IAB 2017).

The Migration, Integration and Asylum Research Center at the Federal Office for Migration and Refugees (BAMF-FZ) conducts research on migration to and from Germany as well as research on integration processes in Germany. The results are used for migration management and political consultancy. The Federal Office for Migration and Refugees (BAMF) is a federal authority within the portfolio of the Ministry of the Interior (BMI) and the Centre of Excellence for Asylum, Migration and Integration in Germany (BAMF 2017b).

The Socio-economic Panel (SOEP) is a longitudinal survey of private households in Germany based at the German Institute for Economic Research (DIW Berlin) and has been conducted annually since 1984. Since 2002, the SOEP has been receiving ongoing funding through the Joint Science Conference by the Federal Government and the State of Berlin. The survey provides information on various topics such as household composition, employment, health, and personal attitudes. In 2016, a total of around 30,000 individual respondents in 14,000 households were interviewed (Britzke/Schupp 2016).

2 Target Population and Sampling Frame

The target population of the sample consists of individuals who arrived in Germany between January 2013 and January 2016 and applied for asylum or were hosted as part of specific programmes of the Federal government or of the Länder (federal states), irrespective of the outcome of their asylum procedure and their current legal status. That is, individuals were covered 1) whose asylum procedure was still ongoing, 2) who were granted some kind of protection - most notably entitlement to asylum, award of refugee protection and award of subsidiary protection - as well as 3) individuals with a ban on deportation. People with a ban on deportation are included because in Germany they are a big part of the refugee population and live in Germany for many years.[1]

Table 1: Number of Refugees by Residence Status and Year of Entry

	Legal Status in June 2016			
	Asylum Seeker	**Protection Granted**	**Rejected with Toleration or Protected due to other Reasons**	**Total**
Year of Entry				
2013	26,679	30,933	15,921	73,533
2014	65,557	73,929	23,780	163,266
2015	286,297	149,102	32,780	468,199
January 2016	26,748	1,904	1,360	30,012
Total	405,191	255,868	73,951	735,010
In percent	55.1	34.8	10.1	100

Source: Calculation on grounds of the AZR for June 30th 2016

As Table 1[2] indicates, the majority of individuals in our target population arrived in 2015 and have not been granted a final asylum status yet. At the end of the sampling period (June 30, 2016), there were 735,010 individuals in Germany who were part of our sampling frame. This covers 529,078 adults and 205,932 minors. Two thirds of this population moved to Germany in 2015 (468,199). Also, more than half of the target population (55 percent) was still in the application process at the time of fieldwork. Furthermore, 35 percent already had some asylum status. The remaining 10 percent

[1] For the legal frame work see §§ 60 and 60a AufenthG (Residence Act).
[2] The AZR is a register database of information on foreigners living in Germany.

had protection from deportation or another status. Table 11 in the appendix indicates that around 40 percent of the population are from Syria, followed by Afghanistan and the Balkans. For more detailed information on the distribution across age groups and countries of origin, see Table 11 in the appendix.

The sampling is based on the German Central Register of Foreigners (Ausländerzentralregister, AZR). This register documents not only refugees but all foreigners who are not German nationals[3] or nationals of member states of the European Union and who have settled in Germany permanently. Babka von Gostomski and Pupeter give a detailed description of this register and the legal frameworks that determine who is included (von Gostomski/Pupeter 2008, p. 152).

One problem in sampling refugees – especially in Germany in the year 2015 – was the delay between crossing the border and being registered by the federal authorities. This delay results in a lag in entry into the AZR (referred to in Germany as the *EASY-gap* [4]). To account for this delay, sampling of both sub-samples M3 and M4 were split into three different time points using different versions of the central register:

a) registered adults as of January 2016 (M3)

b) newly registered adults between February and April 2016 (M3)

c) registered adults as of April 2016 (M4)

d) registered underage persons as of June 2016 (M4)

All four tranches went into the field as quickly as possible. With this approach, we not only addressed the delayed registering but also dealt (in part) with the frequent changes of address among the target population.[5]

Table 2 displays the gross sample sizes across all four tranches. The first tranche covered adults who had been registered as of January 2016 (N = 10,400). The second

[3] In the sense of §116 section 1 GG.

[4] EASY is a computer program that registers migrants who apply for asylum and distributes these individuals across federal states. Usually there is a short gap between arrival and proper registration, which is what is known as the "EASY-gap".

[5] However, there were still refugees who had not applied for asylum at that point in time. To close this gap, we already added a refresher sample (being part of the Sample M5) that includes this group in its target population. This additional sub-sample went into the field in 2017.

Table 2: Sampling in Tranches

	Month	Subsample	Number of Units
Tranche 1	January	M3	10,400
Tranche 2	April	M3	5,200
		Subtotal	*15,600*
Tranche 3	April	M4	5,850
Tranche 4	June	M4	5,850
		Subtotal	*11,700*
Total			**27,300**

tranche, April 2016, covered only newly registered adults (N=5,200). Therefore, the gross sample for M3 consists of 15,600 people. For the third and fourth tranches (M4), 5,850 adults were surveyed in April and 5,850 minors under the age of 18 in June. In sum 11,700 respondents were selected for sub-sample M4. With this oversampling of minors in M4, researchers will be able to analyzes process across the life course involving families and children.

Like all the other SOEP sub-samples, M3 and M4 use a household concept. Therefore, every (adult) household member is interviewed. Individuals sampled from the central register are thus used as what are known as *anchor respondents*, through whom we make initial contact with the household. We then include the rest of the household by interviewing each household member 18 years or older and collecting proxy information on children and adolescents. Design weighting procedures allow for representative analysis on both a household and an individual level.

3 Sampling Design

Sampling of refugee households in Subsamples M3 and M4 was based upon a stratified multi-stage clustered sampling design. In this section, we describe the various steps in the sampling procedure.

3.1 Clustering of Addresses

In a first step, individuals in the central register of foreigners were compiled into regional clusters in order to allow for a multi-stage cluster sample design. More precisely, we made use of the fact that each individual is assigned to a local immigration office, which has the individual's address. These offices are located across Germany and maintain information on the administrative procedures and addresses of foreigners and refugees living in the area.

In principle, it would have been possible to select individual immigration offices as primary sampling units. However, as some offices only had a few members in the target population, they were combined with other nearby offices to create sample points with a minimum of 300 target population members. The 594 immigration offices were thus merged into 369 clusters consisting of one to seven offices each. The clustering process followed a set of rules. First, only offices with fewer than 300 target population members were merged with other offices. Second, merging was only allowed within a given federal state, not across states. Third, offices were merged only with offices located nearby. And fourth, whenever possible, we merged offices within a given municipality or county.

3.2 Sampling of Primary Sampling Units

Out of the 369 clusters, 130 clusters (Primary Sampling Units, PSUs) were randomly selected for Sample M3 and 130 for Sample M4. We sampled "with replacement", thus, some clusters were sampled more than once. Sample M3 consists of 99 unique clusters and Sample M4 consists of 95 unique clusters. At the PSU level, there is an overlap of about one third between Samples M3 and M4.

We used stratified sampling of sample points in order to assure minimum sample sizes for different regions of Germany. For this, 16 strata were constructed based on federal states and county types (rural vs. urban) of sample points. Within each of the 16 strata, the number of points to be sampled was proportional to the size of the stratum. Thus, a higher number of sample points were sampled in a stratum that comprised a large number of target population members (such as urban areas in North Rhine-Westphalia) compared to a smaller stratum (such as Eastern Germany). Finally, clusters themselves were sampled proportionally to their size. Thus, larger clusters had a higher probability of being sampled than smaller clusters.

Figure 1 displays the geographical distribution of all the sampled immigration offices (red dots) and the offices that are not part of our sample (grey dots).

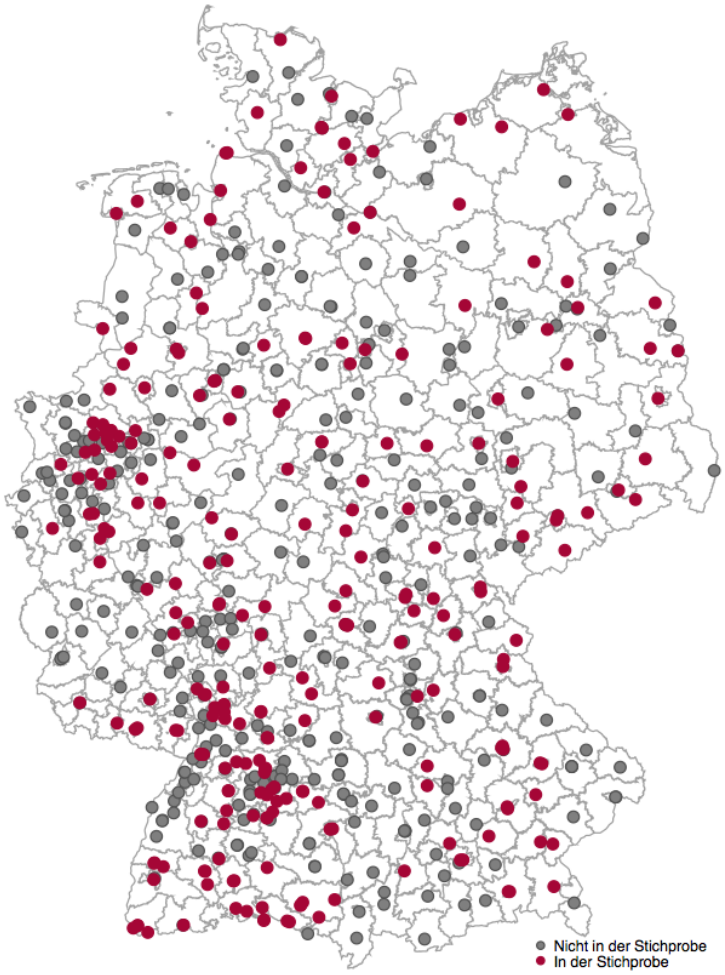

Figure 1: Sampled Immigration Offices in Samples M3/M4

3.3 Sampling of Secondary Sampling Units

In each of the 130 sample points for Sample M3, 80 individuals were sampled in Tranche 1 (adults who appeared in the register up to January 2016), and 40 individuals were sampled in Tranche 2 (adults who appeared in the register between February and April 2016). Thus, the total gross sample for Sample M3 was 15,600 individuals.

For Sample M4, 45 individuals were sampled in Tranche 3 (adults who appeared in the register up to April 2016) and 45 individuals were sampled in Tranche 4 (minors who appeared in register up to June 2016). Thus, the total gross sample for Sample M4 was 11,700 individuals.

In each of the four tranches, the sampling of individuals was based on a disproportional sampling design to ensure minimum sample sizes and thus allow for meaningful comparisons between subgroups of refugees. For this purpose, we made use of individual information on a number of characteristics available from the central register of foreigners. More precisely, we assigned varying sample probabilities dependent upon an individual's country of origin, current legal status, age, as well as gender.

Table 3 displays the sample probabilities assigned to combinations of country of origin and legal (asylum) status for Tranche 1, 2, and 3 (the sub-samples in which we sampled adults).[6] As can be seen, refugees who have already been granted protection were assigned a higher probability than refugees whose asylum procedures are still ongoing and individuals whose asylum claims have been rejected but who are permitted to remain in the country temporarily with the status of protection from deportation or another status. Because the study is designed as a longitudinal survey, we thereby increase the number of individuals in our sample who are more likely to remain in Germany for a long(er) time. Moreover, higher sample probabilities were assigned to refugees from Afghanistan and Iraq, while lower probabilities were assigned to refugees from Syria, Albania, Serbia and Kosovo.

In addition, we increased the number of older refugees in the sample by assigning higher sample probabilities to individuals age 30+ (factor 1.15) if they were from Syria,

[6] We assigned slightly different sample probabilities in Tranche 4, Sample M4, in which underaged refugees were sampled as anchor respondents.

Table 3: Sample Factors Across Countries of Origin and Legal Status

Country	**Legal Status**		
	Ongoing Procedure	Granted Protection	Toleration
Syria	0.63	0.55	0.80
Albania	0.20	1.10	0.80
Afghanistan	0.66	1.98	0.80
Eritrea	0.90	1.10	0.80
Serbia	0.20	1.10	0.80
Kosovo	0.20	1.10	0.80
Iraq	0.99	1.98	0.80
Iran	0.80	1.10	0.80
Somalia	0.60	1.10	0.80
Pakistan	0.50	1.10	0.80
Other	0.36	0.66	0.48

Afghanistan, Eritrea, Iraq, or Somalia. Finally, we increased the number of female refugees in our sample: Women were sampled with a higher probability (factor 1.3) if they were from Syria, Afghanistan, Eritrea, Iraq, Somalia, Pakistan, or the rest of the world.

Design weights will correct for these unequal sampling probabilities (see Section 5.1 below).

4 Fieldwork Results and Response Rates

4.1 Address Availability and Quality

At the time of the sampling, individual addresses of refugees were not kept in the central register of foreigners but were only administered by the regional immigration offices. As a consequence, offices in the sample had to provide our fieldwork agency, Kantar Public, with the addresses of the individuals sampled. Immigration offices are not legally bound to provide these addresses to fieldwork agencies. The team at BAMF-FZ therefore had to contact each individual office in the samples to request the addresses of sampled individuals. While a large majority of offices did provide all requested addresses, some did not. Thus, out of the 27,300 sampled addresses in all four tranches, a total of 25,763 addresses were available. Different strategies were used to deal with the problem of missing addresses.

First, in the case that an entire sample point dropped out of the sample due to an immigration office's unwillingness to provide the address, an alternative sample point was taken as a replacement. This was the case for eight points in Sample M3 and five points in Sample M4. For clusters consisting of multiple immigration offices, missing addresses for one office were replaced with addresses from the remaining offices within the point.

Second, not all sampled offices were able to provide all requested addresses despite cooperating with the study. This is because some refugees move and are assigned to other offices, or even leave Germany and drop out of the register altogether. However, as the gross sample was comparatively large, a few missing addresses did not cause problems in the fieldwork. In the few cases in which the number of available addresses in a sample point was too low for fieldwork, addresses from structurally comparable and nearby sample points were selected as replacements.

4.2 Fieldwork

The IAB-BAMF-SOEP Survey of Refugees was in the field from June to December 2016. Fieldwork was conducted by the survey institute Kantar Public. Sampled households

were informed by letters sent out prior to the actual interview. The letters emphasized that participation is voluntary and completely independent of any legal procedures the members of the household may be part of.

Not all 25,763 available addresses were used in the fieldwork. Kantar Public drew a random sub-sample of available addresses for each PSU. Excluding non-existent and invalid addresses, on average, 24 addresses per PSU were used in M3, Tranche 1; six addresses per PSU in M3 Tranche 2; 11 addresses per PSU in M4 Tranche 1; and 17 addresses per PSU in M4 Tranche 2.[7]

Table 4 displays the results of the fieldwork (in regard of a classification we refer to AAPOR 2016 as an example). Interviews were attempted with 9,902 anchor respondents, 3,045 of whom did not respond for reasons that can be described as quality-neutral drop-outs. These include nonexistent or invalid addresses, fraud[8], and individuals who had moved abroad or died and thus are no longer part of our target population. We assume that invalid addresses result from spelling mistakes or misunderstandings in the registration process. Of the remaining 6,848 households, 3,336 were part of our survey. Thus, the response rate of the IAB-BAMF-SOEP Survey of Refugees is around 48.6%. Looking at the two different sub-samples, we see that the response rate for M4 (50.6%) is slightly higher than for M3 (47.0%).

The successful interviews were conducted by a total of 97 interviewers, who did an average of 34 interviews each (min = 1 / max = 167).

Around 3,512 anchor respondents either refused or were not able to participate. It is striking that in total only around fourteen percent did not participate due to a "hard refusal" or due to time constraints. The overall response rate of the IAB-BAMF-SOEP Survey of Refugees is 48.7% if the quality-neutral drop-outs are ignored. This is an excellent response rate compared to other sub-samples in the SOEP.

Figure 2 shows the response rates at the federal and county levels. Generally speaking,

[7]For M3, the fieldwork started with 45 addresses per PSU. But the first weeks of fieldwork showed a much higher net response rate than expected based on this sample size. The number of valid addresses per PSU was therefore reduced to 24.

[8]Due to the fact that one interviewer did not conduct the interviews properly the sample was revised. See the press release of the research partners: (DIW 2018).

we found lower response rates in northeastern Germany. The response rates on the state level vary from around 35 (Berlin) to 59 percent (Bavaria).

Table 4: Fieldwork Results

	Percent (Case Numbers)					
	M3/M4		M3		M4	
Qualitiy Neutral Drop-Out						
Moved abroad	1.3 (129)	-	1.1 (66)	-	1.7 (63)	-
Deceased	0.03 (3)	-	0.1 (3)	-	0 (0)	-
Not existent/invalid adress	26.8 (2658)	-	38.9 (2416)	-	6.6 (242)	-
Fraud	2.7 (264)	-	1.9 (120)	-	3.9 (144)	
Subtotal	30.8 (3054)	-	42.0 (2605)	-	12.2 (449)	-
Response						
Full/Partial Response	33.7 (3336)	48.6 (3336)	27.3 (1698)	47.0 (1698)	44.4 (1638)	50.6 (1638)
Subtotal	33.7 (3336)	48.6 (3336)	27.3 (1698)	47.0 (1698)	44.4 (1638)	50.6 (1638)
Nonresponse						
Not locatable/accesible	20.5 (2029)	29.6 (2029)	19.3 (1197)	33.2 (1197)	22.5 (832)	25.7 (832)
Illness or Nursing Care	0.6 (61)	0.9 (61)	0.6 (37)	1.0 (37)	0.7 (24)	0.7 (24)
Language Problems	3.1 (311)	4.5 (311)	2.5 (153)	4.2 (153)	4.3 (158)	4.9 (158)
No time/refusal	9.5 (941)	13.7 (941)	6.9 (429)	11.9 (429)	13.9 (512)	15.8 (512)
Other	1.7 (170)	2.5 (170)	1.5 (96)	2.7 (96)	2.0 (74)	2.3 (74)
Subtotal	35.4 (3512)	51.2 (3512)	30.8 (1912)	53.0 (1912)	43.4 (1600)	49.4 (1600)
Total	100 (9902)	100 (6848)	100 (6215)	100 (3610)	100 (3687)	100 (3238)

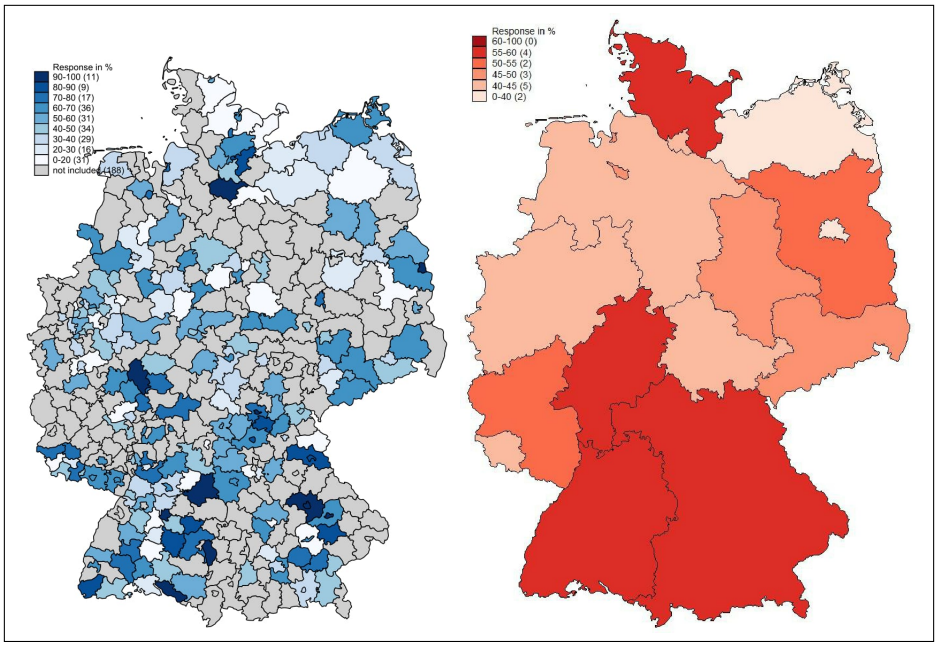

Figure 2: Response Rates At the State and Municipal Level

4.2.1 Versions of the Questionnaire in Different Languages

As a significant number of respondents are not proficient in German, all the field materials were provided in seven different languages (see Table 5). At the beginning of the interview, one of the languages was chosen. Due to the CAPI (Computer Assisted Personal Interviewing) mode of the interview, the German and the chosen version appeared on the screen side by side. This allowed language barriers to be overcome quite easily. Moreover, Kantar Public provided an interpreter hotline that could be contacted if any difficulties arose prior to or during the interview.

Table 5: Use of Visual Translations in Net Sample

Visual Translation	**Percent (absolute)**
German / English	16.1 (728)
German / Arabic	65.2 (2.952)
German / Farsi	12.6 (571)
German / Pashto	1.0 (47)
German / Urdu	1.7 (77)
German / Kurmanji	3.4 (152)
Total	100 (4,527)

In addition, we provided audio files to deal with potential illiteracy (see Table 6).

Table 6: Use of Audio-Files in Net Sample

Audio-Files	**Percent (absolute)**
With every question	7.2 (326)
With around 2/3	6.3 (286)
With around half	4.0 (181)
With fewer than half	9.1 (411)
Not at all	73.4 (3,323)
Total	100 (4,527)

Besides language barriers, the interviewers also encountered other difficulties. Not all persons in the target population had found private housing. Some interviewers therefore needed to first obtain permission to enter refugee shelters. For this to succeed, contact with the local welfare organizations that often run the shelters was crucial. Our interviewers were asked to report the type of living arrangements. Around 40 percent of respondents still lived in refugee shelters (38.3 public and 61.7 private).

5 Cross-sectional Weighting

Even though a random sample was drawn from the central register of foreigners, we had to account for selectivity in the sampling process. First, we had to address a *selection by design* that was introduced by applying a disproportionate sampling across individuals' age, gender, country of origin, and asylum status. And second, we needed to account for selectivity during the fieldwork phase, as some sampled individuals chose to not participate in the survey or were impossible to contact (*self-selection*).

There are different strategies for dealing with selective samples. Consistent with previous strategies used in the SOEP, we make use of the technique "propensity score weighting" (Rosenbaum/Rubin 1983). Using propensity weights, we assign individuals and households a greater "importance" if they have characteristics that are associated with lower sampling probabilities and lower response probabilities. Therefore, we estimate the inverse sampling probability and the inverse response probability. The resulting weight allows us to then produce an unbiased estimate. An example is the mean estimator developed by Horvitz and Thompson (Horvitz/Thompson 1952).

$$\hat{\mu}_{HT} = \frac{1}{N} \sum_{i=1}^{N} \frac{s_i}{\pi_i \cdot P(x_i h \in S)} \tag{1}$$

In equation 1, π_i denotes the response probability of household i, and $P(x_i h \in S)$ refers to the sampling probability of household i in stratum h. The variable s_i denotes a binary indicator, taking the value 1 if household i was interviewed, and 0 if household i was not interviewed.

In the following sections, we present, first, the construction of the design weights, and second, the construction of the nonresponse weights. Third, we describe a procedure that corrects for deviations with respect to the target population, often referred to as post-stratification or raking.

5.1 Design Weighting

As described above, we assigned varying sampling probabilities to target population members. Design weights account for these unequal sampling probabilities of households within samples points. The two-stage sampling design initially implements equal selection probabilities (PPS, probability proportional to size). Only in the subsequent step of randomly selecting secondary sampling units (SSUs) per sample point did we introduce unequal sampling factors across countries of origin, legal status, age, and gender (see Table 2 in Section 3.3).

Please note that the central register of foreigners lists individuals with no information about the household context (marital status or relatives). However, as with all of the other samples that make up the Socio-Economic Panel Study, the IAB-BAMF-SOEP Survey of Refugees is designed as a household panel survey in which all adults are interviewed. Hence, a household with two refugees, for instance, has twice the sampling probability of a single household. In order to determine a household's sampling probability, we therefore need to assign sample probabilities to all existing households' members, even though we did not initially sample these individuals as anchor respondents. For this, information about the country of origin, legal status, age, gender, and asylum application/arrival date is needed for all household members. While complete information is available on anchor respondents, it is not always available on other household members, for instance, because some household members did not participate in an interview. In many cases, proxy information provided by other household members was available. For children, missing information – for instance, on the date of arrival in Germany – was replaced with their mothers' or fathers' information. Finally, we employed targeted imputation procedures to replace missing values with plausible and consistent information.

As described above, we assigned varying sample probabilities across countries of origin, legal status, age, and gender. In addition, the design weights had to reflect that the study consists of different sub-samples or tranches that were, a) drawn at different points in time and thus based on different versions of the central register of foreigners, and b) focused on different sub-populations of refugees. Dependent upon their age and first appearance

in the register, an individual could have had multiple chances to be sampled (see Table 7).

Table 7: Sample Populations Across Tranches/Subsamples

Sample Population	**Tranche/Subsample**			
	M3-1	M3-2	M4-1	M4-2
1) Adult, in AZR by January 2016	✓	×	✓	×
2) Adult, in AZR betw. February and April 2016	×	✓	✓	×
3) Adult, Minor	×	×	×	✓
4) Adult, not in AZR by April 2016	×	×	×	×

Adults appearing in the register by January 2016 could have been sampled both in Tranche M3-1 in January and Tranche M4-1 in April. Adults appearing in the register between February and April 2016 could have been sampled both in Tranche M3-2 and in Tranche M4-1. As an individual's legal status may have changed between January and April, we need to determine the sample probabilities for each time separately. Thus, an individual's disproportional sample probability in accordance with all three times of sampling is:

$$p_{\text{january}} \begin{cases} p_{\text{country}} \times p_{\text{legalstatus}} \times p_{\text{age}} \times p_{\text{gender}} & \text{if Sample Population} = 1 \\ 0.00 & \text{if Sample Population} \neq 1 \end{cases}$$

$$p_{\text{april}} \begin{cases} p_{\text{country}} \times p_{\text{legalstatus}} \times p_{\text{age}} \times p_{\text{gender}} & \text{if Sample Population} \leq 2 \\ 0.00 & \text{if Sample Population} > 2 \end{cases}$$

$$p_{\text{june}} \begin{cases} p_{\text{country}} \times p_{\text{legalstatus}} \times p_{\text{age}} \times p_{\text{gender}} & \text{if Sample Population} = 3 \\ 0.00 & \text{if Sample Population} \neq 3 \end{cases}$$

In addition, gross sample sizes and sampling frame sizes varied across sub-samples. As a consequence, baseline sample probabilities vary across sub-samples as well. We can account for this by multiplying the individual sample probabilities in January, April, and June with the baseline probabilities for each sub-sample M3-1, M3-2, M4-1, and M4-2. In this regard, baseline probabilities stem from the quotient of the gross sample size actually used in the fieldwork (numerator) and the sampling frame size for a given version of the register (denominator).

Combining all the sample probability components allows us to calculate the probability of each individual to be sampled in the study:

$$p_{\text{ind}} \begin{cases} (p_{\text{january}} \times \frac{2896}{414798}) + (p_{\text{april}} \times \frac{1317}{525198}) - ((p_{\text{april}} \times \frac{2986}{414798}) \times (p_{\text{april}} \times \frac{1317}{525198})) & \text{if Pop.} = 1 \\ (p_{\text{april}} \times \frac{714}{110400}) + (p_{\text{april}} \times \frac{1317}{525198}) - ((p_{\text{april}} \times \frac{714}{110400}) \times (p_{\text{april}} \times \frac{1317}{525198})) & \text{if Pop.} = 2 \\ (p_{\text{june}} \times \frac{1912}{205932}) & \text{if Pop.} = 3 \\ 0.00 & \text{if Pop.} = 4 \end{cases}$$

After having identified the sample probabilities for each individual household member, we can calculate household sample probabilities by summing up the probabilities within each of the 3,336 households:

$$p_{\text{hh}} = \sum_{hh=1}^{3336} p_{ind_{hh}}$$

Household weights result from the inverse household sample probability:

$$w_{\text{hh}} = \frac{1}{p_{\text{hh}}}$$

With a final scalar multiplication, we construct design weights at the household level so that their sum over all units of the reduced gross sample of 6,848 households equals the number of households in the target population:

$$w_{\text{design}} = w_{\text{hh}} * \frac{474,129}{\sum_{n=1}^{6,848} w_{\text{hh}}}$$

Please note that the number of households in the target population is not known and cannot be extracted from the sampling frame, as no household identifier is available in the central register of foreigners. Thus, we estimated the total number of households based on our entire weighting and post-stratification procedure at 476,075 households.

5.2 Nonresponse Weighting

Not all sampled households can be contacted during fieldwork, and those that are contacted may choose to not participate in the survey. *Nonresponse* may introduce bias into estimates if respondents systematically differ from nonrespondents. Nonresponse weights are constructed to address this issue with the aim of minimizing potential bias due to nonresponse.

Over recent years, nonresponse has been increasing constantly in surveys like the SOEP and very few studies have achieved response rates above 40 percent (Schnell 2012). The response rate in the IAB-BAMF-SOEP Survey of Refugees is around 50 percent. This is significantly higher than in previous SOEP samples such as M2 (Kühne/Kroh 2017), M1 (Kroh et al. 2015), or J and K (Kroh et al. 2014). One possible explanation for this may be that most of the respondents come from parts of the world with totalitarian regimes. Therefore, the desire to participate in surveys and the willingness to report personal opinions might be higher than in the native European population.

From a statistical perspective, nonresponse bias is a function of the response rate as well as differences between respondents and nonrespondents:

$$b_{\bar{x}} = (\bar{x}_{response} - \bar{x}_{nonresponse}) \cdot \frac{n_{nonresponse}}{n_{total}} \tag{2}$$

This notion (2) is based on the assumption of a "real" or "true" population parameter, a mean, for example, which consists of the mean value of participants ($\bar{x}_{response}$) and non-participants ($\bar{x}_{nonresponse}$). Depending on the prevalence of unit non-response and the amount of variation between those groups, estimation results in a certain bias ($b_{\bar{x}}$) (Bethlehem et al. 2011). Therefore, a bias increases proportionally to the increase in nonresponse.

Several techniques have been suggested to adjust for such a bias. Using a strategy similar to those used previously in the SOEP, we estimated a “propensity score”. For this, we need information on both groups and have to calculate a weight for included households so that the different estimators are distributed by respondents and nonrespondents (Kalton/Flores-Cervantes 2003). For the IAB-BAMF-SOEP Survey of Refugees, the par-

ticipation probabilities were estimated using logistic regression and then transformed into propensity weights (Kim/Kim 2007).

There is already a vast literature on non-response weighting from which we can draw conclusions. Most of these studies aim at explaining non-response by referring to personal decision-making processes (Groves et al. 1992). According to rational-choice-based studies, this can be best explained by focusing on costs and benefits that are evaluated by the possible respondent (Coleman/Fararo 1992). But, due to the fact that we usually have little information on non-respondents, we can rarely gather information to test such hypotheses (Giraldo/Zuanna 2006). Therefore, we have to identify other variables to explain the nonresponse of possible interviewees. As a basis for this, we can draw initial conclusions from earlier studies on migrants (Kroh et al. 2015 , Deding et al. 2007). Since most of these studies focused on migrants and not exclusively on refugees, we looked at further studies from Australia (de Maio et al. 2014), Austria (Buber-Ennser et al. 2016), and England (Cebulla et al. 2010). Studies analyzing nonresponse among refugees strongly suggest that personal characteristics such as language abilities, residency status, and country of origin play a key role.

5.2.1 Data Sources and Documentation of Variables

The main data sources for estimating propensity scores stem from our sampling frame, the central register of foreigners. The following information on anchor respondents was used in the modelling of nonresponse:

a) Asylum status at the time of sampling

b) Country of origin

c) Gender

d) Time of arrival in Germany

e) Age

In addition, we made use of external databases at the county (INKAR) and municipality level (Regionaldatenbank).

Data Sources used in the Modelling of Nonresponse:

Municipality: Federal Statistical Office: The "Regionaldatenbank Deutschland" (Regional Database Germany) contains information on different levels of geographic units that was collected as part of a joint project of the Federal Statistical Office and its sub-national counterparts at the state (Länder) level. We make use of variables compiled at county and neighborhood levels for the analysis of non-response.

County: Federal Statistical Office (INKAR): The database "Indikatoren und Karten zur Raum und Stadtentwicklung in Deutschland und in Europa" (INKAR) provides information on regional economic activity (e.g., property prices, household income, welfare benefits) as well as population characteristics (e.g., educational data) for the different regional entities. From this source, the information is available at the county level and compiled in 2014 and 2015.

Central Register of Foreigners: Additionally, Kantar Public anonymized the gross sample, and we used information from the AZR regarding the anchor respondents. We were able to use the nationality, age, and asylum status at the time of sampling to estimate a propensity score.

Interviewer Questionnaire: Furthermore, interviewers were requested to fill out a questionnaire on each household they had attempted to contact. Hence, we are able to gain a picture of the household's physical surroundings and of the interviewer's feelings about these surroundings.

A documentation of all the variables used is provided in the appendix (see table 12).[9]

5.2.2 Multiple Imputation and Data Coding

In order to generate a non-response weight we need complete information for all respondents and nonrespondents as individuals with missing values would otherwise drop out of any multivariate estimation models. To avoid such exclusion we imputed missing data. Missing observations were imputed to the dataset by way of the "Multiple Imputation by Chained Equations" (Royston 2009) methodology which is implemented in Stata 14. We worked with ten different predictions in order to deal with uncertainty in the imputation process adequately.

[9] In comparison to previous weighting strategies in the SOEP, regional information was used to a lesser degree. We assume that refugees, because of the system known as the Königssteiner Schlüssel (BAMF 2017a), do not choose their residence themselves but are distributed randomly across the country. Inferring regional information at the household or personal level is therefore inadequate in this case. Nevertheless, we identified some information that still might have an influence on the probability of responding to our sampling. We used information on employment rates among foreigners and the use of public childcare services by foreigners. We further inserted information about the regional government, such as debt, tax revenue, and employees in public administration. As we will present below, our hypotheses were confirmed. It was primarily individual characteristics that played the key role in explaining response rates.

Some variables were recoded and condensed. Metric variables were categorized, resulting in three distinct categories – with the middle category as a reference. Ordinal indicators were condensed to a maximum of five categories, and each category was implemented as a dummy variable. The same procedure was used with nominal variables. Using categorized variables and their respective binary indicators in regression has several advantages. Non-linear effects are controlled for, because individual parameters are estimated for each group. Also, this categorization prevents the estimation of extreme probabilities very close to zero or one because of single outliers on a variable. This is necessary in order to not inflate the estimated weights inappropriately (for an example, see Kroh et al. 2015).

5.2.3 Results and Calculation of Nonresponse Weights

In order to estimate household response propensities, logistic regression analysis was used. In this process, we accounted for multiple imputations. We used robust standard errors, clustered at PSU level, to account for variance due to primary sampling units from which the anchor person was sampled. The full sample of 6,848 households was used in every estimation. First, a full model was estimated using all of the variables at hand. We then estimated a reduced model, which includes only variables that are significant at a 5% alpha level.

In both models, the model fit is low. We estimate a Pseudo-R^2 of .060 for the full model and a Pseudo-R^2 of .049 for the reduced model. This can be interpreted in a positive sense: A large number of variables were tested for their influence on response probabilities and only few actually explain variance in (non-)response. Nevertheless, it is valuable to take a closer look in order to assess which factors influence the chance of responding to the interview inquiry.

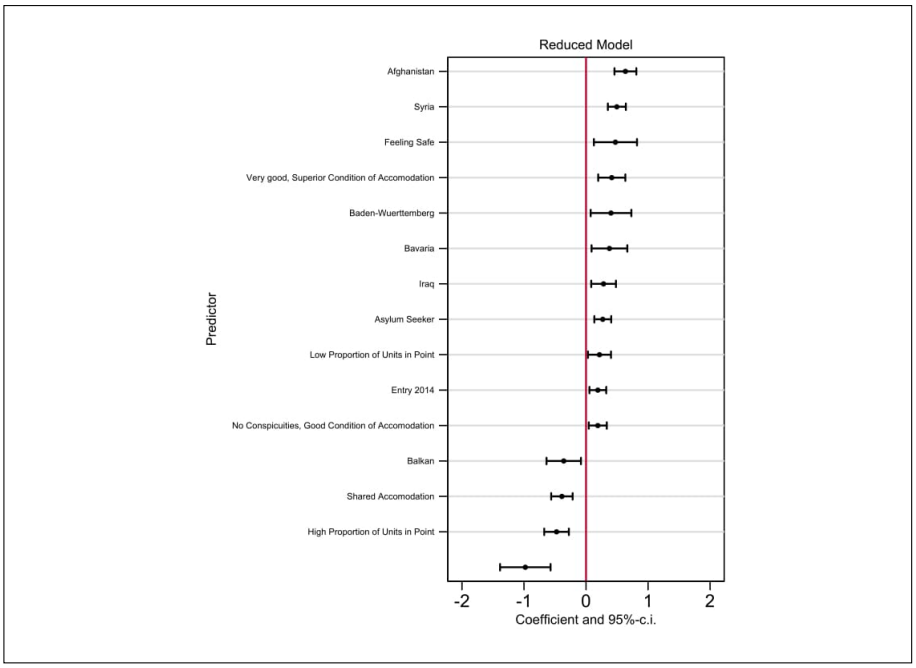

Figure 3: Reduced Nonresponse-Model

The last plot in the figure shows the intercept.

Country of Origin

We found a strong effect of the respondent's country of origin. Respondents from Syria, Afghanistan, and Iraq had a higher chance of being in the sample while people from the Balkans have a lower chance.

Asylum Status

Regarding the asylum application process, we found an effect only for those respondents whose cases are still under review. They have a slightly higher chance of responding to our inquiry.

Personal Sensitivities of the Interviewer

When the interviewer felt safe in the household's neighborhood surroundings, we measured a higher chance of the respondent taking part in the interview. All the other variables describing personal sensitivities are not significant. Therefore, we can conclude that interviewer effects are reasonably low.

Sampling Units

Regarding the sampling units, we measured a lower probability for refugees who are part of a primary sampling unit in which many people of the target population live and a

higher probability for those that live in sampling units with few people.

Characteristics of the Household's Neighborhood Surroundings

When the household's surroundings were described as superior or good, we measured a higher chance of respondents taking part in an interview. People living in a shared accomodation have a lower chance of responding to our inquiry.

Time of Arrival

People who entered in 2014 had the highest chance of taking part in an interview.

Current Place of Living

On a state (Länder) level, we found a higher chance for people that live in Bavaria or Baden-Wuerttemberg.

This reduced model was used to predict household participation probabilities. The inverse of these probabilities function as nonresponse weights. Table 8 shows the summary statistics of the nonresponse weights.

Table 8: Characteristics of Household Nonresponse Weights

		Quantiles								
	Min	10%	25%	50%	75%	90%	Max	Mean	SD	N
Nonresponse Weight	1.2	1.5	1.6	1.8	2.3	2.9	10.1	2.1	0.6	3336

We estimated a nonresponse weight for all participating households. Due to having a response rate of around 50 percent, the mean of the weight is close to two.

5.3 Post-Stratification

In addition to the aforementioned combination of design and nonresponse weights, the weights were corrected to meet known cell distributions, or marginal totals. These were derived from the central register of foreigners. Following the post-stratification procedures used previously in the SOEP, we used the technique of "iterative proportional fitting" (Deming/Stephan 1944), also referred to as "raking". This is a special case of post-stratification and is usually used "when post-strata are formed using more than one variable, but only the marginal population totals are known" (Lohr 2010).

Table 9 shows a list of characteristics that were used in the raking process of the

individual weight: Country of origin, sex, age as a grouped variable, the date of arrival in Germany, and a variable for the region. These variables apply to the raking process on the individual level.

Often in household surveys, not all household members fill out a questionnaire. These individuals were also part of the weighting strategy so far, meaning that they were assigned a weight as well. Due to the fact that these people will not be included in the net sample, we have to correct for this distortion in order to keep the sample representative. To do so, a strata variable, reflecting the constitution of the household in terms of age and number of household members, was created. Each respondent was then matched to one of the strata. After removing the ineligible cases (those that did not fill out a questionnaire), we corrected for this distortion by assigning higher factors to those living in households in which not all members completed a questionnaire. Thus, we corrected for individuals in households in which not all members took part in our survey.

The raking process completes the three-step first wave weighting procedure in the IAB-BAMF-SOEP Survey of Refugees. These weights are of special importance as they serve as a basis for the future longitudinal and cross-sectional weighting. The final individual weights are labelled as *bgphrfm34* and household weights as *bghhrfm34*.

5.3.1 Constructing a Household Weight

Due to the features of the AZR, we were not able to identify households from our sampling frame. Therefore, the construction of the household weight relies on individual characteristics only. Nevertheless, due to the SOEP's household concept, it is crucial to construct weights accordingly. A common approach to estimate household weights when true household parameters are unknown is to estimate the mean individual weight for each household dependent on all household members. A second raking procedure on the household level was not applied.

Table 9: Population Characteristics used in the Raking Process

Variable	Values
Country of Origin	1, Syria 2, Afghanistan 3, Iraq 4, Albania/Serbia/Kosovo 5, Eritrea/Somalia 6, Iran/Pakistan 7, Other
Sex	1, Male and unknown 2, Female
Age	0-4, 5-9, 10-14, 15-17, 18-20, 21-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60+
Date of Arrival	Each Quarter of 2013 Each Quarter of 2014 Each Quarter of 2015
Region	1, Berlin/Brandenburg 2, Hamburg/Schleswig Holstein 3, Bremen/Lower Saxony 4, North Rhine-Westphalia 5, Hesse 6, Saarland/Rhineland-Palatinate 7, Baden-Württemberg 8, Saxony-Anhalt 9, Bavaria 10, Mecklenburg-Vorpommern 11, Thuringia 12, Saxony

5.4 Characteristics of Cross-Sectional Weight

As mentioned above, the weighting process in the IAB-BAMF-SOEP Survey of Refugees is a three-step process: design weighting (1), nonresponse weighting (2), and post-stratification (3). A combination of these three steps results in a first wave weight. Such weights are available for all sub-samples of the SOEP.

Table 10 displays summary statistics at all three steps of our weighting procedure.

Table 10: Summary Statistics of Household Weight

		Quantiles								
	Min	10%	25%	50%	75%	90%	Max	Mean	SD	N
Complete Weight	5.1	20.0	33.9	72.6	170.9	323.3	3503.2	141.1	197.3	3336
Design*Nonresponse	9.3	28.6	42.0	77.6	209.8	345.2	2829.6	147.2	165.9	3336
Design	6	16	23	38	104	163	532	68.7	64.1	3336

Variance in the design weight is due, first, to the disproportionate sampling probabilities for certain subgroups and, second, to the multilevel sampling procedure. At the

second stage, this design weight was multiplied by the non-response weight. As expected, the variance increases. Finally, this second weight was adjusted in the raking process. This process, again, increases the variance to some extent. The distribution of the different steps is displayed in figure 4. As can be seen, all weights are strongly right-skewed, but to a lesser extent in the case of the complete weight than with the design weight alone.

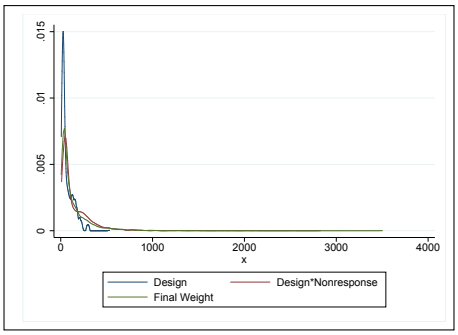

Figure 4: Distribution of Weights Across All Three Weighting Steps

6 Appendix

Table 11: Minor and Adult Refugees in Target Population and Sample by Nationality

	Minors **Numbers in Survey in Paranthesis**					
	Boys		Girls			
	Up to 10 Years	Over 10 Years	Up to 10 Years	Over 10 Years	Total	Percentage in Target Population
Country of Origin						
Syria	27,275 (984)	19,705 (430)	23,928 (877)	10,168 (343)	81,076 (2,634)	39.4
Afghanistan	8,040 (267)	12,466 (114)	7,079 (253)	3,480 (106)	31,065 (740)	15.1
Iraq	7,200 (275)	4,130 (121)	6,235 (225)	2,317 (105)	19,882 (726)	9.7
Albania, Serbia Kosovo	7,368 (85)	4,037 (52)	6,974 (113)	3,448 (48)	21,827 (298)	10.6
Eritrea, Somalia	1,717 (49)	1,829 (12)	1,524 (32)	544 7)	5,614 (100)	2.7
Iran, Pakistan	3,499 (29)	1,408 (20)	3,199 (20)	1,037 (7)	9,143 (66)	4.4
Other	13,726 (271)	6,950 (206)	12,242 (229)	4,407 (168)	37,325 (874)	18.1
Total	68,825 (1,960)	50,525 (945)	61,181 (1,749)	25,401 (784)	205,932 5,438	100
	Adults					
	Men		Women			
	Up to 30 Years	Over 30 Years	Up to 30 Years	Over 30 Years	Total	Percentage in Target Population
Country of Origin						
Syria	96,608 (567)	66,638 (839)	26,282 (295)	30,145 (528)	219,673 (2,229)	41.5
Afghanistan	28,600 (172)	9,482 (179)	7,607 (109)	6,020 (113)	51,709 (573)	9.8
Iraq	20,776 (182)	10,569 (190)	6,866 (89)	5,927 (133)	44,138 (594)	8.3
Albania, Serbia, Kosovo	8,084 (35)	9,234 (62)	6,264 (28)	7,522 (48)	31,104 (173)	5.9
Eritrea, Somalia	21,918 (153)	4,862 (46)	6,585 (71)	1,669 (32)	35,034 (302)	6.6
Iran, Pakistan	11,252 (44)	7,923 (55)	1,859 (11)	3,031 (28)	24,065 (138)	4.5
Other	50,548 (117)	38,223 (170)	14,943 (70)	19,641 (161)	123,355 (518)	23.3
Total	237,786 (1,270)	146,931 (1,541)	70,406 (673)	73,955 (1,043)	529,078 (4,527)	100

Source: AZR, June 30th 2016 and IAB-BAMF-SOEP Refugee Survey

Table 12: Variables used for Estimating the Propensity Scores

Variable	Source	Type	Values / Range	Level	Year
Share Unemployed Migrants	Inkar	metric		Municipality	2014
Tax Revenue	Inkar	metric		Municipality	2014
Accessibility of Rural Centres in km	Inkar	metric		Municipality	2014
Accessibility of Medium Rural Centres in km	Inkar	metric		Municipality	2014
Share of Foreign Born Children in Day Care	Inkar	metric		Municipality	2014
Local debt	Inkar	metric		Municipality	2014
GDP per Capita	Inkar	metric		Municipality	2014
Asylum benefits	Regional-datenbank	metric		County	2015
Bundesland	Field Information	nominal	1 (HB/NI/SH/HH) 2 (SL/RP/HE) 3 (SN/ST/TH) 4 (BY) 5 (BW) 6 (MV/BB/BE) 7 (NW)	Individual	2016
Type of Municipality	Field Information	ordinal	Classification by the BIK 1 (500tsd and more / Urban core) 2 (less than 500tsd / Urban core) 3 (less than 100tsd / dense district) 4 (less than 50tsd / Rural) 5 (less than 5tsd / Rural)	Individual	2016
Size of Municipality	Field Information	ordinal	Number of people living in Area 1 (less than 2tsd) 2 (less than 50tsd) 3 (less 100tsd) 4 (less than 500tsd) 5 (more than 500tsd)	Individual	2016
Settlement Structure	Field Information	ordinal	Classification by the BfLR 1 (Dense Area) 2 (Medium Density) 3 (Rural Area)	Individual	2016
Tranche	Field Information	nominal	1 (M3 January) 2 (M3 April) 3 (M4 April) 4 (M4 June)	Individual	2016
Size of PSU I (Number People in Point)	Field Information	metric		Individual	2016
Size of PSU II (Number of Administrations in Point)	Field Information	ordinal	1 (1 administration) 2 (2 administrations) 3 (3-5 administrations)	Individual	2016
Language Barriers by First Contact	Field Information	ordinal	1 (no) 2 (some) 3 (big)	Individual	2016
Condition of Housing	Field Information	ordinal	1 (very good, superior) 2 (good) 3 (in part unkempt) 4 (shabby) 5 (don't know)	Individual	2016
Feeling in Street/Residential Complex	Field Information	dummy	1 (safe) 0 (unsafe)	Individual	2016
Type of Residence	Field Information	dummy	1 (shared accomodation) 0 (private)	Individual	2016
Problems with Entry	Field Information	dummy	1 (yes) 0 (no)	Individual	2016
Description of Living Area	Field Information	nominal	1 (residential area with older buildings) 2 (residential area with new buildings) 3 (mixed-use zone) 4 (business district) 5 (industrial park)	Individual	2016
Age of Anchor Person	Register Data	ordinal	1 (minor) 2 (18-49) 3 (older than 50)	Individual	2016
Country of Origin of Anchor Person	Register Data	nominal	1 (Syria) 2 (Afghanistan) 3 (Iraq) 4 (Albania, Serbia, Kosovo) 5 (Eritrea, Somalia) 6 (Iran, Pakistan) 7 (Other)	Individual	2016
Sex of Anchor Person	Register Data	binary	1 (male and unknown) 2 (female)	Individual	2016
Status of Asylum Application of Anchor Person	Register Data	nominal	1 (In Application Process) 2 (Refugee, Asylum Status) 3 (Toleration and other)	Individual	2016
Year of Entry of Anchor Person	Register Data	ordinal	1 (2013) 2 (2014) 3 (2015) 4 (2016)	Individual	2016

References

AAPOR (2016). *Standard Definitions - Final Dispositions of Case Codes and Outcome Rates for Suveys.* Tech. rep. American Association of Public Opinion.

BAMF (2017a). *Erstverteilung der Asylsuchenden (EASY).* URL: http://www.bamf.de/DE/Fluechtlingsschutz/AblaufAsylv/Erstverteilung/erstverteilung-node.html.

— (2017b). *Research mandate.* URL: http://www.bamf.de/EN/DasBAMF/Forschung/Auftrag/auftrag-node.html.

BMI (2017). *890.000 Asylsuchende im Jahr 2015.* URL: https://www.bmi.bund.de/SharedDocs/pressemitteilungen/DE/2016/09/asylsuchende-2015.html.

Bethlehem, J./F. Cobben/B. Schouten (2011). *Handbook of nonresponse in household surveys.* John Wiley & Sons.

Britzke, J./J. Schupp (2016). *SOEP Wave Report 2016.* Tech. rep. Socio-economic Panel.

Buber-Ennser, I./J. Kohlenberger/B. Rengs/Z. A. Zalak/A. Goujon/E. Striessnig/M. Potančoková/-R. Gisser/M. R. Testa/W. Lutz (2016). "Human Capital, Values, and Attitudes of Persons Seeking Refuge in Austria in 2015". In: *Plos One* 11(9).

Cebulla, A./M. Daniel/C. Devine/S. Tipping (2010). *Survey of New Refugees - Technical Noes.* Tech. rep. Home Office United Kingdom.

Coleman, J. S./T. J. Fararo (1992). *Rational Choice Theory.* Sage.

DIW (2018). *IAB-BAMF-SOEP-Befragung Geflüchteter in Deutschland: Revision des Datensatzes.* URL: http://www.diw.de/sixcms/detail.php?id=diw_01.c.574021.de.

De Maio, J./M. Silbert/R. Jenkinson/D. Smart (2014). "Building a New Life in Australia". In: *Family Matters* 2014(5), pp. 5 –14.

Deding, M./T. Fridberg/V. Jakobsen (2007). *Non-Response in a Survey among Immigrants in Denmark.* Tech. rep. Research Department of Children, Integration and Equal Opportunity.

Deming, W. E./F. F. Stephan (1944). "On a least squares Adjustment of a sampled frequency table when the expected marginal totals are known". In: *The Annals of Mathematical Statistics* 11(4), pp. 427–444.

Giraldo, A./G. D. Zuanna (2006). "Investigation of a unit non-response adjustment procedure: The case of the Urban Fertility Survey, Italy, 2001-2002". In: *Population-E* 61(3), pp. 295–307.

Groves, R. M./R. B. Cialdini/M. P. Couper (1992). "Understanding the Decision to Participate in a Survey". In: *Public Opinion Quarterly* 56(4), pp. 475–495.

Horvitz, D. G./D. J. Thompson (1952). "A Generalization of Sampling Without Replacement From a Finite Universe". In: *Journal of the American Statistical Association* 47(260), pp. 663–685.

IAB (2017). *About us*. URL: http://www.iab.de/de/ueberblick.aspx.

Kalton, G./I. Flores-Cervantes (2003). "Weighting Methods". In: *Journal of Official Statistics* 19(2), pp. 81–97.

Kühne, S./M. Kroh (2017). "The 2015 IAB-SOEP Migration Study M2: Sampling Design, Nonresponse, and Weighting Adjustment". In: *SOEP Survey Papers*(473).

Kim, J. K./J. J. Kim (2007). "Nonresponse weighting adjustment using estimated response probability". In: *Canadian Journal of Statistics* 35(4), pp. 501–514.

Kroh, M./K. Käppner/S. Kühne (2014). "Sampling, Nonresponse, and Weighting in the 2011 and 2012 Refreshment Samples J and K of the Socio-Economic Panel". In: *SOEP Survey Papers*(260, Series C - Data Documentations).

Kroh, M./S. Kühne/J. Goebel/F. Preu (2015). "The 2013 IAB-SOEP Migration Sample (M1): Sampling Design and Weighting Adjustment". In: *SOEP Survey Papers*(271).

Lohr, S. L. (2010). *Sampling: Design and Analysis*. Bropoks/Cole.

Rosenbaum, P. R./D. B. Rubin (1983). "The central role of the propensity score in observational studies for causal effects". In: *Biometrika* 70(1), pp. 41–55.

Royston, P. (2009). “Multiple imputation of missing values: Further update of ice, with an emphasis on categorical variables”. In: *The Stata Journal* 9(3), pp. 466–477.

Schnell, R. (2012). *Survey-Interviews. Methoden standardisierter Befragungen*. Springer.

Von Gostomski, C. B./M. Pupeter (2008). “Zufallsbefragung von Ausländern auf Basis des Ausländerzentralregisters: Erfahrungen bei der Repräsentativbefragung "Ausgewählte Migrantengruppen in Deutschland 2006/2007"”. In: *Methoden, Daten, Analyse* 2(2), pp. 149–177.