Documentation of the German Generations and Gender Survey, Round II – Wave 1

Detlev Lück *[1], Clara Englert [1], Felicitas Eigenbrodt [2],
Pablo Christmann [2], Robert Naderi [1]

[1] Federal Institute for Population Research (BiB), Wiesbaden, Germany
[2] GESIS – Leibniz Institute for the Social Sciences, Mannheim, Germany

* Please direct correspondence to Detlev Lück, Federal Institute for Population Research (BiB), Friedrich-Ebert-Allee 4, 65185 Wiesbaden, Germany (detlev.lueck@bib.bund.de)

Please cite as: Lück, D., Englert, C., Eigenbrodt, F., Christmann, P., & Naderi, R. (2024). Documentation of The German Generations and Gender Survey, Round II – Wave 1. *GGP Technical Paper Series*. https://doi.org/10.5281/zenodo.12913966

Table of Contents

Acknowledgements

The German GGS-II, wave 1 is a post-harmonised version of the first wave of FReDA – The German Family Demography Panel Study. It would not exist without the team of primary researchers responsible for FReDA. The process of post-harmonisation was executed mainly by Clara Englert and Felicitas Eigenbrodt. Important support was provided by the GGP Central Coordination Team, in particular by Aisling Connolly and Olga Grünwald. Important quality checks were conducted by Inga Laß, Carmen Friedrich and Leonie Kleinschrot.

This document is based partly on the documentation of FReDA – The German Family Demography Panel Study, which is available at:

The FReDA project website: www.freda-panel.de

The FReDA Data Portal: https://freda.colectica.org/

FReDA wave 1 data release (Data File Version 3.0.0):

Bujard, Martin; Gummer, Tobias; Hank, Karsten; Neyer, Franz J.; Pollak, Reinhard; Schneider, Norbert F.; Spieß, C. Katharina; Wolf, Christof; Bauer, Irina; Börlin, Simon; Bretschi, David; Brüggemann, Katja; Christmann, Pablo; Edinger, Rüdiger; Eigenbrodt, Felicitas; Frembs, Lena Claudia; Groß, Katharina; Jost, Carolin; Kunz, Tanja; Lines, Emily; Lück, Detlev; Naderi, Robert; Naumann, Elias; Nutz, Theresa; Oehrlein, Anne-Sophie; Oellers, Viktoria; Ruckdeschel, Kerstin; Schmid, Lisa; Schumann, Almut; Schumann, Nina; Stein, Annika; Thönnissen, Carolin; Ullrich, Emely; von den Driesch, Ellen; Weih, Ulrich (2023). FReDA – The German Family Demography Panel Study (Study No. ZA7777; Data File Version 3.0.0). GESIS. http://dx.doi.org/10.4232/1.14080

Funding: Funding of FReDA – The German Family Demography Panel Study by the German Federal Ministry of Education and Research (BMBF) under grant numbers 01UW2001A, 01UW2001B, and 01UW2001C is gratefully acknowledged.

1. Study Background and Adaptations Due to COVID-19

The aim of this paper is to document wave 1 of the second round of the German Generations and Gender Survey (GGS-II). While wave 1 of the German GGS-II aligns with the broader GGS-II data collection, it also presents unique country-specific characteristics that should be considered when analysing the data and comparing them with those of other GGS-II countries.

Data collection for wave 1 of the German GGS-II deviated for two reasons from that of other countries. First, due to the COVID-19 pandemic, it was not possible to field it face-to-face in 2020/2021 as originally intended. Instead, it was fielded in two self-administered modes (web-based and paper-based questionnaires) in 2021. The mode switch gave rise to two further adaptations: Instead of one long survey of ca. 60 minutes' duration, we conducted three shorter surveys with much larger sample sizes.

The second reason for deviations from the GGS standards is that the German GGS is embedded in a larger national longitudinal survey infrastructure, FReDA – The German Family Demography Panel Study. In FReDA, anchor persons and their partners are surveyed twice a year, and the sample is refreshed on a regular basis. While the German GGS uses an alternative mode of data collection, and it offers additional opportunities for research, this setup also leads to country-specific characteristics. All country-specific characteristics of the German GGS as well as their causes are addressed in more detail in the following sections.

1.1. The German GGS as Part of the Data Infrastructure FReDA

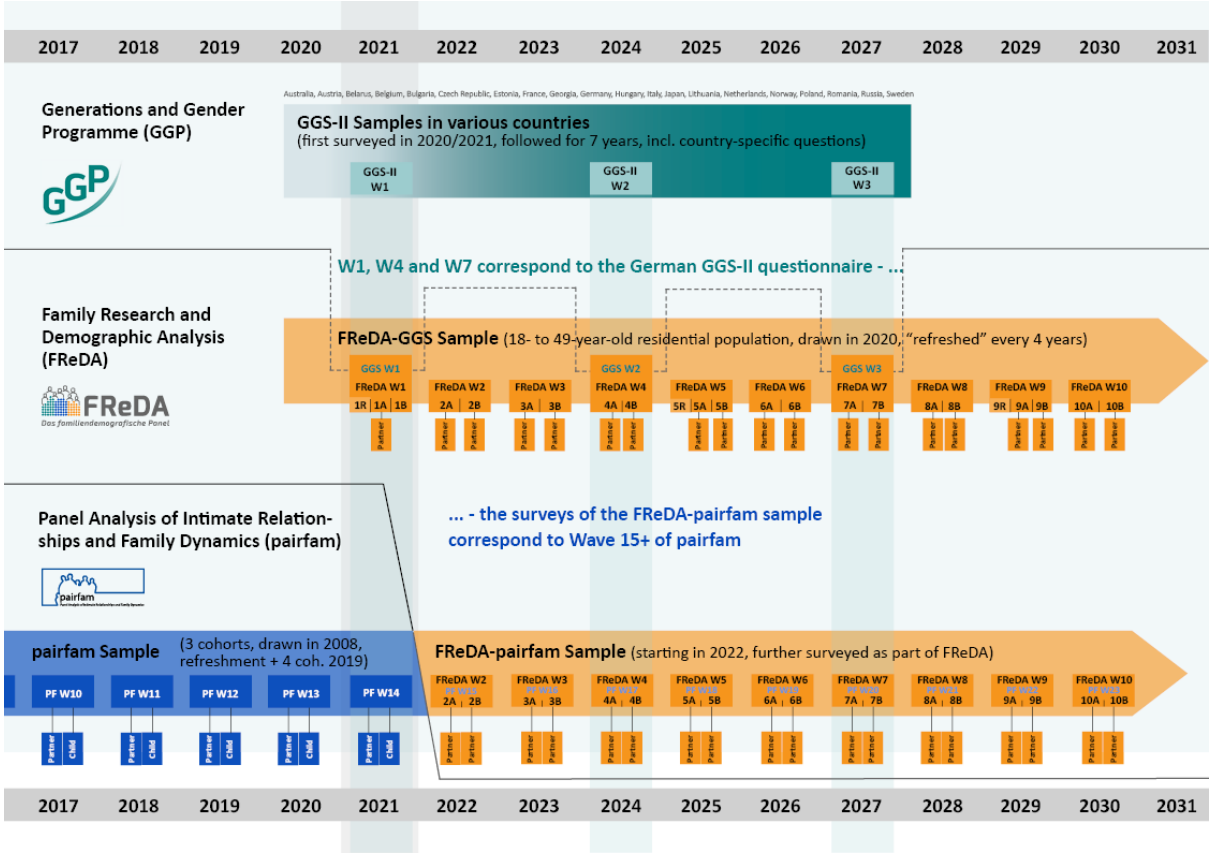
In Germany, the GGS is embedded in a larger panel data infrastructure, FReDA – The German Family Demography Panel Study (Hank et al., 2024; Schneider et al., 2021). Detailed information on FReDA can be found on the study website (www-freda-panel.de) and in the documentation linked on that website. A key feature of FReDA is that it integrates the German GGS. Conducted in 2021, FReDA wave 1 (Bujard et al., 2023) was at the same time wave 1 of the German GGS-II. FReDA wave 4 (2024) and wave 7 (2027) will collect the German GGS-II waves 2 and 3, respectively. The questionnaires for these three waves are German translations of the internationally coordinated GGS-II questionnaires.

Like the GGS, FReDA collects panel data on issues in the context of family demography. For this purpose, it relies to a large extent on GGS questions in all its questionnaires, also in those that do not collect a GGS wave. However, FReDA also features questions from other sources, most notably from pairfam – The German Family Panel, which ended in 2021 and whose sample was integrated into the FReDA data collections in 2022 (see Figure 1). However, the pairfam cases will not be included in the GGS data releases. Furthermore, "open modules" based on questions proposed by external researchers are incorporated into the FReDA questionnaire each year, except in those waves that are at the same time a GGS wave.

FReDA is intended to be a permanent panel, collecting data for the foreseeable future and refreshing its sample at regular intervals to do so. It collects data twice a year, with the two subwaves complementing each other in terms of questionnaire content to form one annual wave. FReDA relies on self-administered modes of data collection – primarily web interviews, with paper-based questionnaires sent by postal mail as a backup. Adhering to best practices, the average time needed to complete each questionnaire is kept between 20 and 30 minutes to ensure high retention rates and to limit break-off rates.

Despite these differences in the overall design, FReDA covers the data collection of the GGS in Germany completely and in compliance with the GGS Technical Guidelines (Gauthier et al., 2024). The post-harmonised data are comparable with the international GGS data.

Figure 1. The German GGS-II as Part of the Longitudinal Study FReDA



In its GGS-II waves 1, 2, and 3 (2021, 2024, 2027), FReDA initially planned to fully adapt its modes of data collection and its design to GGS standards. This means that FReDA wave 1 (= GGS-II wave 1) should have been conducted with only one single data collection in CAPI (computer-assisted personal interviewing) mode, with personal face-to-face interviews of about 50 to 60 minutes' duration, and with *n* = 10,000 respondents. Following consultation within the GGP in 2019, the recommendation was made to include both standard GGS modes – CAPI and CAWI (computer-assisted web interviewing) – in all GGS data collections, so that the mode could be controlled for when analysing the data across countries. The FReDA Consortium decided to follow this recommendation and supplement the CAPI mode in FReDA with approximately 8,000 additional web interviews. This plan was pursued until summer 2020. Only then, because of the persisting restrictions on personal contacts due to the COVID-19 pandemic, did FReDA switch completely to self-administered modes. This means that the GGS waves now follow the design of FReDA's "in-between" waves, whereby two short subwaves are conducted each year using web-based and paper-based questionnaires.

A few details of the German GGS deviate from the overall GGS design due to organisational difficulties in coordinating the two programmes, each of which is governed by a large consortium with occasionally long decision-making processes. Both the study design and the

questionnaire of GGS-II were still under negotiation in autumn 2019, and some details were adjusted after the funding application for FReDA had been submitted – and after the FReDA Consortium had defined its standards for the joint work. For this reason, it was not always possible to adjust the design of the German GGS-II to the final GGS-II standards. Most notably, this resulted in a deviation in the age span of the target population. The GGS standards now require an age span of people aged 18 to 59 years in the initial sample in countries, such as Germany, in which data from the Survey of Health, Ageing and Retirement in Europe (SHARE) are available. However, when the project application for FReDA was submitted in 2019, the GGP was still discussing a target population aged 18 to 49 years. For this reason, FReDA and the German GGS defined a target population of 18 to 49 years for its first wave.

Late changes to the GGS-II baseline questionnaire also resulted in a number of questions not being included in the German GGS-II, for example: FER24–FER29 (age starting menopause, child impact, decision to have a/another child during the next three years, sexual autonomy, and contraception autonomy); HHD25–HHD31 (helping others with childcare and receiving help with household tasks); and HHD35 and HHD36 (giving help with household tasks). A complete list of variables that were not included in the German GGS-II can be found in Table A1 in the Appendix.

Other GGS-II questions had to be adapted to fit the German context. For example, the German educational system is divided into general education on the one hand and vocational education on the other. As the International Standard Classification of Education (ISCED) also considers vocational education, we could not ask only about the highest level of education completed (DEM07). Instead, we asked about the highest school-leaving certificate, the highest vocational qualification, the type of college or institution at which respondents earned their highest education qualification, together with the dates when they achieved their highest school-leaving certificate and vocational qualification. These variables were then included in the German GGS-II as country-specific variables DEM07_1401, DEM07_1402 and DEM07_1403, DEM08m_1401, DEM08y_1401, DEM08m_1402, and DEM08y_1402, respectively. A complete list of all country-specific variables included in the German GGS-II can be found in Table A2 in the Appendix.

1.2. Adaptations to the COVID-19 Pandemic

The COVID-19 pandemic reached Germany in spring 2020, shortly after the start of the FReDA project, and shortly after the tender for the fieldwork had been won by the infas Institute for Applied Social Science. During the autumn of 2020, there was a surge in the incidence of COVID-19 cases, prompting the German government to implement a “lockdown light” in November. This measure was intensified in January 2021, leading to a hard lockdown. As part of these restrictions, schools, shops, and personal care services were closed; mandatory work-from-home policies were enforced; and the wearing of medical masks became obligatory in enclosed public spaces, including shops and public transport. Additionally, face-to-face meetings were limited to no more than two households. In this situation, it was therefore impossible to conduct personal interviews in Germany. However, face-to-face surveys had already been stopped or interrupted in Spring 2020.

In response to COVID-19 restrictions, some panel studies that had collected telephone numbers from their respondents, for example pairfam (Gummer et al., 2020) and SHARE (Scherpenzeel et al., 2020), switched to computer-assisted telephone interviewing (CATI).

Other panel surveys, such as the German Institute for Employment Research Establishment Panel (IAB-BP; Sakshaug et al., 2020) and Understanding Society – The UK Household Longitudinal Study (Burton et al., 2020), relied increasingly on the use of self-administered mixed-mode designs with web-based and paper-based questionnaires. This was also the strategy adopted by FReDA and the German GGS, as telephone numbers are not available from the German population registers from which the gross sample was drawn.

As a first consequence of the COVID-19 pandemic, initially only the start of fieldwork for the German GGS was postponed: from 1 November 2020 to 1 February 2021. The assumption was that fielding GGS wave 1 in CAPI mode would be possible again after a couple of months (Gummer et al., 2020). However, by August 2020, it had become obvious that the pandemic was likely to last longer than FReDA and the German GGS would be able to further postpone fieldwork without breaching their obligations to their third-party funders.

By late September 2020, it was decided to change the design of the German GGS from a mixed-mode design with face-to-face and web-based interviews to a fully self-administered mixed-mode design with web-based and paper-based questionnaires. This decision was motivated by two reasons. First, the German GGS-II was supposed to have web-based questionnaires as a second mode anyway. Second, the waves in between the GGS data collections had always been intended to rely on self-administered modes only. The design of these "in-between waves" was now adopted for GGS-II wave 1.

This means:

1. Face-to-face interviewing as a mode was omitted completely.
2. The web mode was defined as the main mode of data collection, instead of as a back-up mode.
3. And, as a new back-up mode, self-administered paper-based questionnaires were offered.

The provision of a paper-based questionnaire option was intended to reduce biases and improve the representation of the target population in the sample. The underlying assumption is that providing target persons with various participation options enhances their likelihood of participating. Each mode accommodates specific respondent preferences, such as concerns about privacy, which might decrease their willingness to participate online, and varied abilities, such as the ability to use a smartphone or computer for web-based participation. The results of a mode experiment implemented in the German part of the European Values Study in 2017/2018 indicate that (even long) self-administered mixed-mode surveys are a viable alternative for general population surveys, as they lead to higher response rates while being more cost-efficient than the face-to-face mode (Wolf et al., 2021).

The mode switch came with advantages and disadvantages. One advantage was that the costs per interview are much lower in the self-administered modes, so that the sample size could be substantially increased. Therefore, wave 1 of the German GGS-II was able to realise a sample size of n = 22,048, which is probably larger than any other country will achieve in GGS-II. One disadvantage is questionnaire length. Whereas the typical duration of general social surveys in face-to-face mode is 60 minutes or more, it is usually recommended that online surveys should not take longer than 20 minutes to complete (Callegaro et al., 2015, p. 101).

This problem was addressed in a GGP pilot study conducted in Germany, Croatia, and Portugal in 2018 (Emery et al., 2020), which tested whether a 59-minute-long GGS could be conducted

in web mode. The authors arrived at the optimistic conclusion that at least when respondents are allowed to interrupt the web interview and continue later on, and when they are simultaneously offered a pre-paid incentive, a single GGS wave could be conducted online in an acceptable quality (Emery et al., 2020; Lugtig et al., 2022). Nevertheless, the pilot study also revealed that the break-off rates reached remarkable two-digit levels – 17% on average. In Germany, the break-off rates were even higher, reaching 32% with the standard €5 pre-paid (i.e., unconditional) incentive (Emery et al., 2023), which is testament to a very high response burden and hardly acceptable for the recruitment interview of a panel study. Against this backdrop, it is probably not surprising that the German part of the GGP pilot study could collect panel consent from less than 7% of web participants who received a €5 pre-paid incentive (Lück et al., 2019). The switch away from face-to-face interviewing therefore posed the risks of low response rates and very high attrition – potentially even threatening the realisation of future panel waves altogether.

After the pilot study in 2018, the GGS questionnaire was shortened and substantially improved. Nevertheless, in light of the study findings, the FReDA Consortium decided that starting a long-term panel with an approximately one-hour-long interview in web mode would be too risky.

As a first consequence, FReDA introduced a dedicated recruitment survey (subwave W1R). The questionnaire in W1R was specifically designed for the purpose of recruiting respondents for the FReDA panel. Thus, it was kept short (duration approximately 10 min), and included key sociodemographic questions (e.g., age, gender, family status, nationality), as well as 27 questions that were deemed by a group of survey experts to be interesting and motivating for participants and to provide initial insights into the family demographic topics of the survey. At just 1.2%, the break-off rate in the W1R survey was minimal. Panel consent was collected at the end of the recruitment survey. We achieved a panel consent rate of 70.2%, which is comparable to what we would have expected for the face-to-face mode.

Second, the GGS-II questionnaire was split into two parts and fielded in two consecutive subwaves, W1A and W1B. Subwave W1A was fielded between July and September 2021; subwave W1B was fielded between November 2021 and January 2022. In this way, each part of the GGS-II questionnaire took on average no more than 30 minutes to complete, so that both break-off rates (W1A: 0.9%, W1B: 1.2%) and attrition remained low.

The splitting of the GGS-II questionnaire (as outlined in Table 1) mainly followed the chronological order of the GGS modules, with the first half of the questionnaire being integrated into subwave W1A and the second half into subwave W1B (see Table A3 in the Appendix for a detailed overview of the GGS variables collected in the respective subwaves). A few questions were asked repeatedly in two or all three subwaves. These include questions collecting time-varying information of high thematic relevance, in particular life satisfaction, relationship satisfaction, partnership status, and the number of children. They also include questions collecting information used to identify respondents (gender, date of birth) as well as information needed for filtering (e.g., employment status) (Schmid et al., 2023, pp. 3–4).

Before releasing the German GGS-II dataset, decisions had to be taken as to how to make it as comparable as possible with GGS datasets of other participating countries. The fact that the questionnaire had been split into two parts that were fielded in two subwaves with three months in between, was by far the greatest challenge. In consultation between the GGP hub and the FReDA team, it was decided that the first part of the GGS-II survey (subwave W1A

conducted in early summer 2021) should be considered the main German GGS-II data collection. Thus, each respondent who participated in subwave W1A is considered a respondent of the German GGS-II. Any W1A respondent who did not participate in subwave W1B will have missing values on the corresponding variables. Any respondent who participated only in subwave W1B will not be considered a respondent of the German GGS-II. If the partnership status, partnership, number of children, household size or household income of a respondent changed between subwaves W1A and W1B, the situation in subwave W1A is represented in the GGS data. An exception is made only if the variable in question was measured in subwave W1B only. This is the case for the occupational situation of the respondent and their partner. As the respondent's educational level, migration background, language spoken at home, and internet use were collected only in recruitment wave W1R, they are taken from there.

Table 1. Overview of GGS-II Questionnaire Modules Included in FReDA W1A and W1B

Questionnaire modules (GGS)		W1A	W1B
DEM	Demographics	(X) [1]	
LHI	Life Histories	X	
FER	Fertility	X	
HHD	Household Decisions	X	
GEN	Generations		X
WEL	Well-Being		(X) [2]
WRK	Work		(X) [3]
INC	Income		X
ATT	Attitudes		X

Source: Schmid et al. (2023, pp. 3–4).
Note. "X" = Module was included completely in the respective subwave; "(X)" = Module was included almost completely in the respective subwave. Exceptions are:
[1] Questions included in W1R: Country of birth, Place of birth, Date of immigration, Citizenship German/Country, Highest school leaving certificate, Date school leaving certificate reached, Highest vocational education, Date vocational education reached, Education: Type of academic institution, Internet connection, Internet use, Language at home.
[2] Questions included in W1A: 5-item battery on depression, question on subjective health.
[3] Questions included in W1A: 5-item battery on work-life balance.

1.3. FReDA Consortium, Organisations Involved, and Funding

FReDA is a collaboration between the German Federal Institute for Population Research (BiB), GESIS – Leibniz Institute for the Social Sciences, and the University of Cologne. Responsibility for international cooperation within the GGP Consortium lies with BiB. Among other responsibilities, BiB is also in charge of the overall coordination of the FReDA project. Within FReDA wave 1 and the German GGS-II wave 1, GESIS was mainly responsible for the methodological adaptations to the pandemic situation and for the supervision of the fieldwork. In the subsequent FReDA waves, the fieldwork is organised and conducted by GESIS itself. The University of Cologne represents those responsible for pairfam. The pairfam panel ended in 2022, and its sample has since been integrated into FReDA. However, the FReDA-pairfam sample is not included in the German GGS-II dataset.

The fieldwork institute responsible for drawing the sample and conducting the data collection for FReDA wave 1 and the German GGS-II wave 1 was the infas Institute for Applied Social Science (infas) in Bonn. The institute won a tendering process in winter 2019/2020. It also provided documentation of the fieldwork process, which is available on www-freda-panel.de.

The German GGS-II wave 1 was supported in many ways by the GGP and its central hub at the Netherlands Interdisciplinary Demographic Institute (NIDI) in The Hague. This support included the coordination and provision of the questionnaire. It also included consultation and support in the process of post-harmonisation and documentation. However, the German GGS-II wave 1 did not use the digital questionnaire programmed in Blaise by NIDI; nor did it avail of the central hosting of the questionnaire during fieldwork on a server at NIDI. The reason for this was that the fieldwork institute, infas, insisted on working with its own language for questionnaire programming and with its own server infrastructure. The collaboration between NIDI, as the hosting institution of the GGP, on the one hand, and BiB, as the German National Focal Point and the institution representing FReDA, on the other, was defined in a Service Agreement in February and March 2022.

The first five years of FReDA (2020 to 2024), including the German GGS-II waves 1 and 2, have been funded by the German Ministry of Education and Research (BMBF). From 2025 onwards, the German Federal Ministry of the Interior and Community (BMI) will take over the funding of FReDA by increasing the BiB research budget. This will include the third wave of the German GGS-II.

2. Sampling and Weighting

The FReDA study, including the German GGS-II, is conducted in a self-administered mixed-mode design – that is, two self-administered survey modes (web-based and paper-based) are used in the data collection process. In wave W1, data collection and panel maintenance were administered and organised by the infas Institute for Applied Social Science.

2.1. Sampling

The FReDA sampling design is a random two-stage sampling process. The sample was drawn from the population registers of selected municipalities in Germany. In the first stage, municipalities comprising one or multiple sampling points, referred to as primary sampling units (PSUs), were selected. In the second stage, individual personal addresses (secondary sampling units, SSUs) were selected from the registers of the selected municipalities.

First, municipalities were stratified by combining 410 districts and 10 population size classes. A total of 320 sampling points were then allocated to these 4,100 stratification cells. According to the number of sampling points, municipalities were selected from each stratification cell using a probability-proportional-to-size (PPS) sampling approach, which resulted in multiple municipalities representing more than one sampling point (e.g., stratification cells with one municipality but more than one assigned sampling point). With this procedure, municipalities were randomly selected with a selection probability proportional to their measurement of size, which in this case corresponded to the number of registered residents aged 18–49 years in the respective municipality's population. The data basis, including the List of Municipalities

in the Federal Republic of Germany, was provided by the Federal Statistical Office (Statistisches Bundesamt) and the statistical offices of the German federal states (Statistische Landesämter).

For the FReDA study, a total of 320 sampling points in 268 municipalities were drawn using the procedure outlined above. As larger municipalities were represented by more than one sampling point, the number of sampling points was larger than the number of municipalities. By February 2021, a total of 258 municipalities represented by 310 sampling points had provided the requested personal addresses of a total of 120,796 individuals living in private households. Within the 258 municipalities, 25 structurally identical or structurally similar substitute municipalities replaced refusals or non-responders. However, 10 sampling points could not be replaced due to a lack of structurally identical or similar substitute municipalities or to non-response on the part of the respective substitute municipalities.

In the second stage, personal addresses (SSUs) were selected in a non-stratified, random sampling process. In principle, the same number of addresses per sampling point – namely 351 – was supposed to be selected. In the case of municipalities represented by more than one sampling point, the number of addresses to be selected was multiplied by the number of sampling points in the respective municipality.

FReDA's two-stage sampling design resulted in unequal inclusion probabilities for SSUs within the (gross) recruitment sample because of (a) household duplicates in the sample, and (b) a sampling-related insufficient number of addresses in the smallest municipalities.

Household duplicates were identified by identical family names at the same address. For the FReDA design, household duplicates had to be avoided due to the multi-actor design whereby anchor respondents and their partners are interviewed. However, individuals should either be anchors or partners. Furthermore, in person samples, members of the same household are confounded not only in their characteristics but also in their probability to participate. In a first step, household duplicates remained in the deployment sample, but the total number of addresses to be drawn was increased by the factor of household duplicates. After the addresses were drawn randomly, one individual from each sampled household duplicate was selected randomly while the other was deleted and not contacted.

The second restriction regarding the selected number of addresses per sampling point was an insufficient number of addresses in the smallest municipalities. To compensate for the lack of addresses in the smallest municipalities, the total target number of addresses per federal state was defined, and the lacking addresses from the smallest municipalities in a federal state were drawn equally from the other previously selected municipalities in that federal state. The smallest municipalities are those where the intended total of 351 addresses per sampling point exceeded 70% of the individual addresses in the target population of the municipality.

To account for individuals' unequal inclusion probabilities, design weights calculated as the inverse of the inclusion probability are provided in the FReDA Scientific Use Files (SUFs).

In total, the two-stage random selection procedure resulted in a sample of 108,256 individual addresses clustered in 258 municipalities covering a total of 310 sampling points. The sampling approach using a probability-proportional-to-size selection of sampling points and an equal number of randomly selected addresses per sample point was chosen, as it ideally results in a self-weighting sample. All 108,256 sampled individuals were contacted by postal mail and invited to participate in FReDA. A more detailed documentation can be found in

FReDA Field Report W1 v3.0.0 (Bujard et al. 2023), which is available on request. The most recent update of this report (currently v4.0.0) is available at www-freda-panel.de.

2.2. Non-Response Analysis and Weighting

Like all GGS datasets, the German GGS-II wave 1 dataset comes with weighting factors that correct biases due to the survey design and non-response. The weights were generated by the GGP Central Hub at NIDI in The Hague using a weighting procedure standardized for all GGS-II datasets.

According to the "Technical Guidelines for Weighting in GGS-II" (forthcoming), the weighting procedure corrects bi- and tri-variate distributions based on the following demographic indicators partly adapted to the German case:

- age (18–24, 25–34, 35–44, 45–50)
- gender (male, female)
- region (western Germany incl. Berlin versus eastern Germany/16 federal states)
- education level (ISCED 0–2, ISCED 3–4, ISCED5+) and
- marital status (ever married, never married).

The reference data were based on the German Microcensus 2020. The Microcensus is an annual survey conducted jointly by the Federal Statistical Office (Statistisches Bundesamt) and the statistical offices of the federal states (Statistische Landesämter). As participation is compulsory, biases due to unit non-response are small. The Microcensus is therefore commonly used as a reference for assessing the selectivity of survey data in Germany.

In Germany, the weighting procedure for the GGS-II wave 1 dataset also accounted for unequal probability of inclusion in the sample because of (a) household duplicates in the sample and (b) a sampling-related insufficient number of addresses in the smallest municipalities. This unequal inclusion probability resulted from the fact that 10 sampling points did not provide address data and could not be replaced by structurally similar substitute municipalities during the first step of sampling (see section 2.1).

The German GGS-II wave 1 dataset for which the distributions are calculated and adjusted comprises the 22,048 respondents who participated in subwave W1A (see section 3.2).

3. Study Design, Fieldwork, and Contact Strategy

3.1. Study Design

Due to necessary adaptations to the COVID-19 pandemic (see chapter 1), the German GGS-II wave 1 relied completely on self-administered modes of data collection, namely web-based questionnaires, as the main mode, and paper-based questionnaires, as a supplementary mode for target persons who were either unwilling or unable to participate via the web.

Given the self-administered modes, the expected interview duration of approximately one hour seemed too long to keep break-off rates and attrition low and panel consent rates high. However, low break-off rates and attrition and high panel consent rates were deemed important, as the GGS (like FReDA) is a panel survey, and thus future waves must be realised.

Therefore, it was decided to split the GGS-II questionnaire into two parts and to integrate them into two consecutive FReDA subwaves, W1A and W1B.

As W1A was considered to be the main GGS-II subwave, it defines the net sample of the released dataset and is the primary source of information in cases where this information is available from more than one interview.

The first GGS-II subwave (W1A) was preceded by a FReDA recruitment subwave, W1R, the purpose of which was to achieve a high rate of panel consent after a short and pleasant interview experience. Only those respondents who gave their panel consent in W1R subsequently became FReDA panellists and were invited to participate in the next subwave, W1A.

- The recruitment survey (W1R) took 10 minutes, on average. Its net sample size was *n* = 37,777. Fieldwork took place from 7 April to 29 June 2021.
- The subwave W1A survey, which included the first part of the GGS-II questionnaire and was considered the main data collection for the German GGS-II wave 1, took 23 minutes, on average to complete. Its net sample size was *n* = 22,048. Fieldwork took place from 7 July to 22 September 2021.
- The subwave W1B survey, which included the second part of the GGS-II questionnaire, took 30 minutes on average to complete. Its net sample size was *n* = 20,220. Fieldwork took place from 4 November 2021 to 31 January 2022.

The German GGS is embedded in a larger panel data infrastructure, FReDA. FReDA is continuing with annual waves comprising bi-annual subwaves. Additionally, partner surveys are conducted. However, the data from these surveys are not part of the GGS and are not comparable with those of other GGS countries. Rather, they can be used only for analyses relating to Germany. They are available via the website www-freda-panel.de.

3.2. Fieldwork and Survey Participation

W1R, the first FReDA data collection, was fielded as a recruitment survey for the FReDA panel. A gross sample of 108,256 target persons was invited to participate (see Table 2). Due to its size, the sample was divided into two staggered tranches. Invitation letters were mailed to the first tranche (*n* = 54,845) on 7 April 2021 and to the second tranche (*n* = 53,411) on 14 April 2021 (see also Figure 2). Thus, all invitation and reminder letters reached the second tranche one week later than the first tranche. However, the field period for both tranches ended on 29 June 2021, resulting in a field duration of 12 and 11 weeks, respectively.

In W1R, a total of 38,583 questionnaires were returned or submitted, of which 37,777 made it into the final sample. This corresponds to a response rate of 34.91% (American Association for Public Opinion Research [AAPOR] Response Rate 2; see AAPOR, 2023). Of the respondents in the final sample, 30,198 participated online and 7,579 via paper questionnaire sent by postal mail. A total of 26,529 respondents (70.23%) in the final sample gave their panel consent and were considered in the further invitation process for FReDA W1A. A further 196 cases who gave their panel consent but who did not make it into the final sample due to break-off or a multilingual interview were also considered in the further invitation process for W1A.

All 26,725 respondents who gave their panel consent in W1R were invited to participate in W1A, which was fielded just one week after the W1R field period ended. In contrast to W1R,

the invitations to participate in W1A were not split into tranches, but rather all were sent on 7 July 2021. The field period for W1A ended about 11 weeks later, on 22 September 2021. Of the 26,725 panellists who were invited to participate in subwave W1A, a total of 22,396 returned or submitted a questionnaire. Of these, 22,048 made it into the final sample after data quality control. This corresponds to an AAPOR Response Rate 2 of 82.50% and a Cumulative AAPOR Response Rate 2 of 20.37%. The final sample of subwave W1A consisted of 18,861 (85.55%) web-based and 3,187 (14.45%) paper-based cases.

Subwave W1A is treated as the main data collection for the German GGS-II wave 1; it determines the German GGS-II wave 1 sample size, and it is also used to estimate weights (see section 2.2). Please note that 3,376 persons who completed W1A did not complete W1B. This results in a higher share of missing values for GGS-II question blocks about generations, well-being, work, income, and attitudes. These cases are coded in the dataset using the GGS summary missing code ".k" (see Table A4 in the Appendix for a detailed overview of the GGS and FReDA missing values codes). These cases can be identified in the dataset by also relying on the country-specific variable waveindicator_1401, which provides information about participation in FReDA subwave W1B.

The field period for subwave W1B started on 4 November 2021 with the sending of invitations to a total of 26,625 panellists. Between subwaves W1A and W1B, the number of panellists decreased by 100 cases, as some panellists had withdrawn their panel consent, moved abroad or died. The field period for W1B ended on 31 January 2022. Thus, compared with subwaves W1R and W1A, subwave W1B had the longest field period of 12 and a half weeks. A timeframe for the field period of FReDA wave 1 – which at the same time is wave 1 of the German GGS-II – is provided in Figure 2.

In W1B, a total of 20,609 respondents returned a paper-based questionnaire or submitted a web-based questionnaire. Of these, 20,220 made it into the final sample after data quality control (AAPOR Response Rate 2 of 75.95% and Cumulative AAPOR Response Rate 2 of 16.89%). This final sample consisted of 17,289 (85.50%) respondents who participated via web and 2,931 (14.50%) who participated via postal mail.

Table 2. Overview of FReDA Wave 1, of Which the German GGS-II Wave 1 Was a Part

GGS-II wave	FReDA subwave	Field period	Invited	Final Sample	Web-based	Paper-based	AAPOR RR2	Cumulated AAPOR RR2
1	W1R	07.04.2021–29.06.2021	108,256	37,777	30,198 (79.94%)	7,579 (20.06%)	34.91%	-
1	W1A	07.07.2021–22.09.2021	26,725	22,048	18,861 (85.55%)	3,187 (14.45%)	82.50%	20.37%
1	W1B	04.11.2021–31.01.2022	26,625	20,220	17,289 (85.50%)	2,931 (14.50%)	75.95%	16.89%

3.3. Contact Strategy and Incentivisation

The invitation process was similar for all three subwaves. As a first contact, the target persons were sent an invitation letter. Two reminder letters followed, each of them two weeks after the previous contact. Due to the large size of the gross sample in the recruitment wave and the limited resources for organising the postal dispatch, this sample was split into two tranches, with the second tranche receiving each letter one week later than the first. Along with the invitation letter, target persons received supplemental information on the FReDA panel study and on the implementation of the data protection provisions.

A prepaid (i.e., unconditional) €5 cash incentive was enclosed with the invitation letter in every subwave. In subwave W1B, incentives were modified slightly to examine how the amount of a monetary incentive impacted a person's willingness to participate in a survey. For this purpose, panellists who had not participated in subwave W1A were randomly assigned to two equal-sized groups in subwave W1B: a control group (n = 2,313) that received the standard €5 incentive and an experimental group (n = 2,313) that received an increased incentive of €10. Overall, the control group achieved an AAPOR Response Rate 2 of 30.96%, whereas the experimental group achieved an AAPOR Response Rate 2 of 39.37%.

Generally, the contact design followed a push-to-web strategy, aiming for a high share of web interviews and offering paper questionnaires sent by mail only as a back-up for those who were unable or unwilling to participate online within a given time period.

The main contact strategy (used for 50% of the gross sample) was to ask the target person to participate online, without mentioning any alternative mode in the invitation letter or the first reminder. The paper questionnaire was enclosed only with the second reminder letter and offered as an alternative ("web-first-2" design).

However, two other contact strategies were tested in an experiment (each used for 25% of the gross sample; for more information see Christmann et al., 2024) in which one group received the paper questionnaire only with a third reminder letter that target persons in the other two experimental groups did not receive, so that the push to web increased ("web-first-3" design). The other group received the paper questionnaire with the invitation letter, thereby offering the target person a free choice of mode at the start of the fieldwork ("concurrent" design).

Figure 2. Contact Strategy for Wave 1 of the German GGS-II and FReDA

Note. The third reminder was sent only to target persons who were part of the experimental group "web-first-3".

The experiment and its outcomes are described in more detail in the FReDA documentation, in particular the Field Report for FReDA wave 1 (see www-freda-panel.de).

The invitation to participate online came with a web address (URL), which had to be typed into a browser, and a personalised access code, which had to be typed into a form on the landing page. The letters additionally offered a QR code that would lead respondents directly to the personalised interview without having to type in the personalised access code. The paper questionnaire came with a stamped addressed envelope.

4. Data Processing, Cleaning, and Post-Harmonisation

For a variety of reasons, the GGS-II wave 1 data collected in Germany had to be cleaned and processed before they could be released. These reasons include, for example, the fact that a number of interviews showed characteristics, such as very high ratios of item non-response, that raised doubts as to whether the questionnaires had been filled out accurately at all. In addition, a number of deviations between the birth year or gender reported by the respondent and the birth year or gender documented in the population register raised doubts as to whether the right person had filled out the questionnaire. Further, there were concerns that respondents might be identified based on the survey information in the dataset.

The most important steps in the data processing are described in the following sections. A more detailed documentation can be found in the FReDA Data Manual, which is available at www-freda-panel.de.

4.1. Post-Harmonisation

The GGS data collected in Germany also had to undergo ex-post harmonisation before their release. Again, there are several reasons for this. First, the fieldwork institute, infas, was unwilling to work with the GGS-II questionnaire programmed in Blaise and did not agree to the questionnaire being centrally hosted on a server at NIDI during fieldwork. Instead, infas programmed the questionnaire itself and used its own server infrastructure. Second, there were a few late changes to the GGS baseline questionnaire, which could not be incorporated into the German GGS-II questionnaire. Third, there were adaptations to the COVID-19 pandemic, in particular the sole reliance on self-administered survey modes, which led to the splitting of the GGS-II questionnaire into two parts spread across two subwaves and to the inclusion of a paper questionnaire as a second mode (Schmid et al., 2023). The main ex-post harmonisation steps were:

- Relabelling of variable names and values
- Recoding of variables
- Recoding of missing values
- Production of generated variables
- Production of an integrated dataset for GGS-II wave 1 based on information from FReDA subwaves W1A and W1B, and to a limited extent on socio-demographic background information collected in recruitment subwave W1R.

The German GGS-II wave 1 dataset is based on FReDA data file version 3.0.0 (Bujard et al., 2023), which can be accessed free of charge after signing a data use agreement with GESIS – Leibniz Institute for the Social Sciences.

All ex-post harmonisation steps from FReDA data file version 3.0.0 to the German GGS-II wave 1 can be replicated using the replication syntaxes available on request from the authors of this documentation.

4.2. Anonymisation

For data documenting publicly observable characteristics or behaviours, such as country of birth, religious affiliation, health conditions etc., empirical checks were conducted to determine whether this information increased the risk of re-identification when combined with regional attributes. If this was the case, the respective variable was aggregated.

4.3. Value Checks

As a number of value checks had been programmed in the web-based survey instrument, they were executed during the interview in order to avoid impossible or implausible values due to typing errors. In the paper-based questionnaire, this was not possible. Therefore, after the fieldwork, checks were conducted for each variable to determine whether actual values corresponded to the range of possible values listed in the questionnaire. Values out of range were regarded as incorrect entries and recoded as missing values (“.z”). The same was done when values violated the input rules in other ways, such as decimal numbers and number ranges where only single integers were allowed.

4.4. Filter Checks

For every variable for which a filter was defined, checks were conducted to determine whether filter errors had occurred. Here, too, inconsistencies could occur in the paper questionnaire that could not occur in the web questionnaire. The filter errors could be cases in which a question was answered by mistake (error of commission) or cases in which a question was not answered by mistake (error of omission). In both cases, the variable was assigned a missing value code (".z").

4.5. Consistency Checks

Various checks were conducted to identify further logically impossible or empirically implausible combinations of values on two or more variables. This concerns, for example, the order of biographical dates, such as year of birth and year of marriage. If it was possible to identify which of the inconsistent values was correct and which was incorrect, the incorrect value was coded as a missing value (".z"). If it was not possible to identify the incorrect value, the contradicting values of the variables in question remained unedited.

Dates of respondents', (ex-)partners', or parents' biographical events were regarded as inconsistent if they were prior to the respective person's year of birth. The date of the highest general school-leaving certificate was considered inconsistent if it had been achieved under the age of 10. The same was true for the highest vocational training qualification if it had been achieved under the age of 15. Dates of events relating to partners and ex-partners were considered inconsistent if the respective partner had been younger than 14 years at the time. Finally, a second or third citizenship was defined as inconsistent if it was identical to a citizenship already reported. Likewise, if the question whether a person had been born in Germany was answered with "No", and the reported "other" country of birth was "Germany", this other country of birth was classified as inconsistent.

4.6. Comparison With Register Data

Together with the contact information, the local registration offices had provided information on the target persons' gender, age or year of birth, and citizenship (German/non-German). To ensure that only actual target persons – that is, persons who were drawn from register data in the sampling process – filled out the questionnaire, the respondents' answers to these key demographic questions were compared with the information from population register. As the age at the time of sampling can deviate from the age on the day of the interview, deviations in age of up to two years were not classified as problematic inconsistencies. Inconsistencies in the information on gender were not classified as such if a respondent reported their gender as "non-binary, intersex" in the interview. Individuals with discrepancies in all three demographic characteristics were deleted from the dataset in the recruitment subwave, W1R, and were no longer eligible to participate in the panel.

4.7. Comparison Between Subwaves

In addition to comparing the age and gender of the respondents with register data, we also compared these demographic variables with information provided by the respondents in the previous subwave. Thus, the age and gender of the respondents reported in subwaves W1A

and W1B were compared with the corresponding answers provided in the previous subwaves (i.e., W1R and W1A, respectively). Participants providing discrepant information on their age and gender in two consecutive subwaves were deleted from the dataset.

4.8. Break-Off Cases

In each subwave, interviews with more than 50% item non-response were classified as break-off cases and thus deleted from the dataset.

4.9. Data Deletion

A further reason for deleting a case was the existence of information regarding the ineligibility of a respondent due to factors other than the survey data collected. Panellists were able to contact the panel management or to leave a comment in an open question at the end of each subwave. If any of the information that reached the panel management clearly indicated that the respondent did not meet the eligibility criteria, the respective case was excluded from the dataset. For instance, this was the case when a respondent reported that they had participated on behalf of another person or that they had moved abroad.

5. References

American Association for Public Opinion Research (AAPOR). (2023). *Standard definitions: Final dispositions of case codes and outcome rates for surveys* (10th ed.). AAPOR. https://aapor.org/wp-content/uploads/2024/03/Standards-Definitions-10th-edition.pdf

Burton, J., Lynn, P., & Benzeval, M. (2020). How Understanding Society: The UK Household Longitudinal Study adapted to the COVID-19 pandemic. *Survey Research Methods*, 14, 235–239.

Bujard, M., Gummer, T., Hank, K., Neyer, F. J., Pollak, R., Schneider, N. F., ... Weih, U. (2023). *FReDA – The German Family Demography Panel Study* (Study No. ZA7777; Data File Version 3.0.0). GESIS. https://doi.org/10.4232/1.14080

Callegaro, M., Lozar Manfreda, K., & Vehovar, V. (2015). *Web survey methodology*. SAGE.

Christmann, P., Gummer, T., Häring, A., Kunz, T., Oehrlein, A., Ruland, M., Schmid, L. (2024). Concurrent, web-first, or web-only? How different mode sequences perform in recruiting participants for a self-administered mixed-mode panel study. *Journal of Survey Statistics and Methodology*. https://doi.org/10.1093/jssam/smae008

Emery, T., Lück, D., Schumann, A., Cabaço, S., Lugtig, P., Toepoel, V., Bujard, M., Naderi, R., & Schneider, N. F. (2020). *Three-country experiment on modes of data collection*. The Generations & Gender Programme. https://www.ggp-i.org/wp-content/uploads/2020/10/Three-country-push-to-web-experiment.pdf

Emery, T., Cabaço, S., Fadel, L., Lugtig, P., Toepoel, V., Schumann, A., Lück. D., & Bujard, M. (2023). Breakoffs in an hour-long, online survey. *Survey Practice*, *16*(1). https://doi.org/10.29115/SP-2023-0008

Gauthier, A., Emery, T., Cabaço, S., Beaupre, P., Jablonski, W., Mynarska, M., Caporali, A., Deimantas, V., Grünwald, O., Kong, S., Koops, J. C., Rijken, A., & Schumann, A. (2024). GGP Technical Guidelines (4.0). Zenodo. https://doi.org/10.5281/zenodo.10812889

Gummer, T., Schmiedeberg, C., Bujard, M., Christmann, P., Hank, K., Kunz, T., Lück, D., & Neyer, F. J. (2020). The impact of COVID-19 on fieldwork efforts and planning in pairfam and FReDA-GGS. *Survey Research Methods*, *14*(2), 223–227. https://doi.org/10.18148/srm/2020.v14i2.7740

Hank, K., Gummer, T., Bujard, M., Neyer, F. J., Pollak, R., Spieß, C. K., ... Thönnissen, C. (2024). A new data infrastructure for family research and demographic analysis: The German Family Demography Panel Study (FReDA). *European Sociological Review*, *40*: 1–13. https://doi.org/10.1093/esr/jcae019

Lück, D., Schumann, A., Naderi, R., Bujard, M., & Schneider, N. F. (2019, 4–6 March). *Große Ereignisse werfen ihre Schatten voraus. Planungen zum Neustart des „Generations and Gender Survey" und Ergebnisse der Pilotstudie* [Paper presentation]. 13th Workshop of Panel Surveys in the German-Speaking Area, German Centre for Higher Education Research and Science Studies (DZHW), Hannover, Germany.

Lugtig, P., Toepoel, V., Emery, T., Cabaço, S., Bujard, M., Naderi, R., Schumann, A., & Lück, D. (2022). *Can we successfully move a cross-national survey online? Results from a large*

three-country experiment in the Gender and Generations Programme Survey. SocArXiv. https://doi.org/10.31235/osf.io/mu8jy

Sakshaug, J. W., Beste, J., Coban, M., Fendel, T., Haas, G.-C., Hülle, S., ... Zins, S. (2020). Impacts of the COVID-19 pandemic on labor market surveys at the German Institute for Employment Research. *Survey Research Methods*, *14*, 229–233. https://doi.org/10.18148/srm/2020.v14i2.7743

Scherpenzeel, A., Axt, K., Bergmann, M., Douhou, S., Oepen, A., Sand, G., Schuller, K., Stuck, S., Wagner, M., & Börsch-Supan, A. (2020). Collecting survey data among the 50+ population during the COVID-19 outbreak: The Survey of Health, Ageing and Retirement in Europe (SHARE). *Survey Research Methods*, *14*, 217–221. https://doi.org/10.18148/srm/2020.v14i2.7738

Schmid, L., Kunz, T., & Naumann, E. (2023). Questionnaire design in the FReDA panel recruitment: Challenges in transitioning from a face-to-face to a self-administered mixed-mode design. *Survey Methods: Insights from the Field*. https://doi.org/10.13094/SMIF-2023-00006

Schneider, N. F., Bujard, M., Wolf, C., Gummer, T., Hank, K., & Neyer, F. J. (2021). Family Research and Demographic Analysis (FReDA): Evolution, framework, objectives, and design of "The German Family Demography Panel Study". *Comparative Population Studies*, 46, 149–186 . https://doi.org/10.12765/CPoS-2021-06

Wolf, C., Christmann, P., Gummer, T., Schnaudt, C., & Verhoeven, S. (2021). Conducting general social surveys as self-administered mixed-mode surveys. *Public Opinion Quarterly*, *85*, 623–648. https://doi.org/10.1093/poq/nfab039

6. Appendix

Table A1. List of Variables Not Included in the German GGS-II Wave 1

Variable name	Question text
DEM22am	[Question to respondents who are not married today, but had been married to their current partner in the past:] When did you marry?
DEM22ay	[Question to respondents who are not married today, but had been married to their current partner in the past:] When did you marry?
FER24	How old were you when you started menopause? If you have not started menopause, select not applicable
FER25a	Even though you might not intend to have a/another child, we would still want your opinion about this possibility. Suppose that during the next 3 years you were to have a/another child. I would like you to tell me what effect you think this would have on various aspects of your life: - the possibility to do what you want
FER25b	- the amount of money you can spend
FER25c	- the possibility to realize other goals in life
FER25d	- the joy and satisfaction you get from life
FER25e	- your employment opportunities
FER25f	- your partner's employment opportunities
FER25g	- the care and security you may get in old age
FER25h	- the closeness between you and your partner
FER26a	The next statements are about conditions that might need to be fulfilled before people have a/another child. - I will be able to financially afford to have a/another child
FER26b	- I will have access to suitable housing to allow me to have a/another child
FER26c	- I will be healthy enough to have a/another child
FER26d	- I will feel ready to have a/another child
FER26e	- I will have a suitable partner with whom to have a/another child
FER26f	- I will be able to balance my work and family life if I have a/another child
FER26g	- My partner will be healthy enough to have a/another child
FER26h	- I will have access to satisfactory childcare if I have a/another child
FER26i	- I will have access to sufficient parental leave if I have a/another child
FER27a	The next statements are about what other people might think about you having a/another child during the next 3 years. - Most of my friends think I should have a/another child

FER27b	- My parents think I should have a/another child
FER27c	- My partner thinks we should have a/another child
FER28	Can you say no to your partner if you do not want to have sexual intercourse?
FER29	Who usually decides on using contraception?
HHD03_[x]	Is [x] away on business, at school, at boarding school, at university, in hospital or somewhere else?
HHD24a	Does your household regularly pay someone to do housework?
HHD25	Over the last 12 months, have you given help with childcare to other people?
HHD26_[x]	To whom have you given this help? Please select all answers that apply.
HHD28	Over the last 12 months, have you received regular help with household tasks from people for whom these household chores are not their professional job?
HHD29_[x]	Which people have provided you with regular help with household tasks?
HHD35	During the last 12 months, have you given regular help with household tasks to people who do not live in your household? If taking care of household tasks is your job, please consider only the help you have given outside your professional activities.
HHD36_[x]	To whom have you given this help? Please select all that apply.
GEN59	Over the last 12 months, is there any person who has helped you regularly with personal care, such as dressing, bathing or showering, eating, getting in or out of bed, using the toilet?
GEN60_[x]	From whom did you receive this assistance? Please select all answers that apply.
GEN63	Over the last 12 months, have you received regular help with personal care from professional persons from the public sector or from a private organisation?
GEN66	Over the last 12 months, have you given any person inside or outside the household regular help with personal care, such as washing, getting out of bed, or dressing?
GEN67_[x]	To whom have you given this help? Please select all answers that apply.
GEN68	Please think of the last 12 months. Not counting any shared housing or shared food, have you [or your partner] received any financial or material gift from anyone inside or outside this household amounting to at least €250?
GEN69_[x]	From whom have you received this support? Please select all answers that apply.
GEN70	Over the last 12 months, have you [or your partner] given any goods or money to another person inside or outside this household?
GEN71_[x]	To whom have you given this support? Please select all answers that apply.
WEL02a	Who usually makes decisions about health care for yourself?
WRK16b	Do you intend to give up paid work in the next three years?
WRK30am	When did you stop working in your previous job or business? [MM/YYYY]

WRK30ay	When did you stop working in your previous job or business? [MM/YYYY]
INC04a	The next questions are about whether your household can afford to purchase various items, even if they do not want them… - ...keeping your home adequately warm
INC04b	- ...paying for a week annual holiday away from home
INC04c	- ...replacing any worn out furniture
INC04d	- ...replace worn-out clothes with some new ones
INC04e	- ...afford a meal with meat, chicken or fish or vegetarian equivalent every second day
INC04f	- ...having friends or family for a drink or meal at least once a month
INC04g	- …face unexpected expenses
INC04h	- …have access to a car/van for personal use
INC04i	- …have two pairs of properly fitting shoes
INC04j	- …spend a small amount of money each week on yourself
INC04k	- …have regular leisure activities
INC09_[x]	How many times has your household received [x] during the last 12 months?
INC11_[x]	Please indicate the range of the average amount your household received each time from that payment type.

Table A3. List of Country-Specific Variables Due to Questionnaire Deviations or Data Processing

Core variable GGS-II	Core question	German deviation	Country-specific variable name in data	Variable label
_	_	Generated variable due to wave split	**waveindicator_1401**	Wave dropouts from wave 1A to wave 1B
DEM04b/ DEM04biso	In which country were you born?	Generated variable due to anonymization.	**DEM04b_1401**	Country of birth
DEM07	What is the highest level of education you have completed?	In Germany, three different questions were asked to capture the highest level of education:		
		DEM07_1401: What is your highest school-leaving certificate?	**DEM07_1401**	Highest school-leaving certificate
		DEM07_1402: What is the highest vocational training qualification that you have?	**DEM07_1402**	Highest vocational qualification
		DEM07_1403: At what type of college or institution did you earn this degree (or the highest of these degrees)?	**DEM07_1403**	Education: Type of academic institution
DEM08m/y	When did you reach that level? [MM/YYYY]	Country-specific because "level" in the German case refers only to school-leaving certificates.	**DEM08m_1401 DEM08y_1401**	Date reached highest school leaving certificate
DEM08m/y		Additional question in Germany: When did you receive this degree?	**DEM08m_1402 DEM08y_1402**	Date reached highest vocational qualification
DEM24b	In which country was he/she born?	Generated variable due to anonymization.	**DEM24b_1401**	Partner's country of birth
DEM25	What is the highest level of education your	In Germany, three different questions		

	partner has successfully completed?	were asked to capture DEM25		
		DEM25_1401: What is the highest general school-leaving certificate of your partner?	**DEM25_1401**	Partner's highest school leaving certificate
		DEM25_1402: What is the highest vocational training qualification that your partner has?	**DEM25_1402**	Partner's highest vocational qualification
		DEM25_1403: At what type of college or institution did your partner earn this degree (or the highest of these degrees)?	**DEM25_1403**	Partner's education: Type of academic institution
LHI01	Not including any current partnership, have you ever before lived with someone as a couple or have you ever been married?	Question differs from core in Germany: LHI01_1401: Aside from your current situation, have you ever had a steady partner before that you were with for at least 3 months?	**LHI01_1401**	Partnership before current one: At least 3 months duration
		Additional generated question in Germany: The variable LHI01_1402 was generated and has therefore no core question	**LHI01_1402**	Lived with a partner or was married
LHI02	Not including your current relationship, how many partnerships did you have where you lived together?	Question differs in Germany: LHI02_1402: Not including your current relationship, how many partnerships did you have where you lived together or with whom you have been married? Additional question in Germany:	**LHI02_1402** **LHI02_1401**	Number of partnerships before current one (lived together or were married) Number of steady

		LHI02_1401: How many steady partners have you had?		partnerships before current one
LHI20	Based on the information you have provided you had ^{numbiol} biological children, ^{numadopt} adopted children and ^{numstep} stepchildren. Is this correct?	Question was asked but is not included in SUF.	-	-
LHI21	How many biological children have you had in total (including children born via donor conception or surrogacy)?	Generated variable provided.	**nkids_1401**	Total number of biological children
LHI22	How many stepchildren do you have in total?	Generated variable provided.	**nkids_1402**	Total number of stepchildren
LHI23	How many adopted children do you have in total?	Generated variable provided.	**nkids_1403**	Total number of adopted children
LHI27_[x]	Who is the (other) parent of?	Question was only asked for biological children.	**LHI27_[x]_1401**	Who is the (other) biological parent of [x]?
HHD24	How much does your household usually pay for childcare, if anything?	In Germany, childcare costs for all children per month were explicitly asked for: HHD24_1401: How much does your household typically pay for childcare for	**HHD24_1401**	Childcare costs

		all children in a month?		
HHD24u	Per…	Since Germany asked for costs per month, the unit for every respondent is month.	**HHD24u_1401**	Childcare costs [unit]
GEN12/ GEN12iso	In which country was she born?	Generated variable due to anonymity.	**GEN12_1401**	Mother's country of birth
GEN26/ GEN26iso	In which country was he born?	Generated variable due to anonymity.	**GEN26_1401**	Father's country of birth
GEN48	What was your father's occupation when you were 15?	Only ISCO code available in GEN48isco due to anonymity.		
GEN49	What is the highest level of education that your father has successfully completed?	In Germany, three different questions were asked to capture GEN49:		
		GEN49_1401: What is the highest general school-leaving certificate of your biological father?	**GEN49_1401**	Father's highest school leaving certificate
		GEN49_1402: What is the highest vocational training qualification that your father has or had?	**GEN49_1402**	Father's highest vocational qualification
		GEN49_1403: At what type of college or institution did your biological father earn his degree (or the highest of these degrees)?	**GEN49_1403**	Father's education: Type of academic institution
GEN50	What was your mother's occupation when you were 15?	Only ISCO code available in GEN50isco due to anonymity.		
GEN51	What is the highest level of	In Germany, three different questions		

	education that your mother has successfully completed?	were asked to capture GEN51:		
		GEN51_1401: What is the highest general school-leaving certificate of your biological mother?	**GEN51_1401**	Mother's highest school-leaving certificate
		GEN51_1402: What is the highest vocational training qualification that your mother has or had?	**GEN51_1402**	Mother's highest vocational qualification
		GEN51_1403: At what type of college or institution did your biological mother earn her degree (or the highest of these degrees)?	**GEN51_1403**	Mother's education: Type of academic institution
WRK04isco	What is your current occupation? Please describe your occupation and click on the best description from the list that will appear.	IF WRK02 = 1 then wrk04isco was generated from the German core generated variable isco08, which includes both current and last occupation.	**WRK04isco** **No country-specific variable.**	Occupation [ISCO]
WRK27isco	What was your last occupation? Please describe your last occupation and click on best description from the list that will appear.	IF WRK02 = 2 OR WRK02 = 3, then WRK27isco was generated from the German core generated variable isco08, which includes both current and last occupation.	**WRK27isco** **No country-specific variable.**	Last occupation [ISCO]
INC06	If you add up the income from all sources received during the last 12 months, what is your household total net income	In Germany, the total net income in the last month was asked for. Generated variable with information from two questions: Open question:	**INC06_1401**	Total household net income (last month)

	from all members including yourself?	Combining all income types: How much was the net household income last month? Categorical question: Can you please categorise the net income of your household in the past month, meaning the income of all members of your household after taxes and contributions to social insurance are deducted?		
INC08_[x]	This list shows different types of income. Please indicate which of these types of income your household has received during the last 12 months	Question text differs in Germany: This list shows different types of income. Please indicate which of these types of income your household received last month. Two variables were generated: INC08_[x]_1401 lists the categories as they were listed in the German questionnaire. And INC08_[X]_1402 recoded those categories corresponding to the core question, only for the last month instead of the last 12 months.	**INC08_[X]_1401** **INC08_[X]_1402**	Income type - extended (last month) Income type (last month)

Table A3. Overview of GGS-II Variables in FReDA Subwaves W1R, W1A and W1B

FReDA subwave	GGS-II variables
W1R	dem03, dem04a, dem04b_1401, dem05m, dem05y, dem07_1401, dem07_1402, dem07_1403, dem07isced, dem08m_1401, dem08m_1402, dem08y_1401, dem08y_1402, dem14, dem15, dem16
W1A	dem01, dem02m, dem02y, dem09, dem10m, dem10y, dem11, dem12, dem17, dem18, dem19, dem20, dem21, dem22a, dem22m, dem22y, dem23, dem24a, dem24b_1401, dem24em, dem24ey, dem25_1401, dem25_1402, dem25_1403, dem25isced, dem26, dem27, dem28a, dem28bm, dem28by, dem28c, dem29a, dem29bm, dem29by, dem30a, dem30bm, dem30by, dem30c, dem30d, dem31m, dem31y, dem32a, dem32b, dem32c, dem32d, dem33, dem34m, dem34y, dem35, dem36a, dem36au, dem36b, dem36bu, dem37, dem38a, dem38b, dem38c, dem38d, dem38e, dem38f, dem38g, dem39a, dem39b, dem39c, dem39d, dem40, dem41, dem42, dem43, dem44, dem45, dem46, lhi01_1401, lhi01_1402, lhi02_1401, lhi02_1402, lhi04_m1, lhi04_m2, lhi04_m3, lhi04_m4, lhi04_m5, lhi04_m6, lhi04_m7, lhi04_m8, lhi04_m9, lhi04_m10, lhi04_m11, lhi04_m12, lhi04_m13, lhi04_m14, lhi04_m15, lhi04_m16, lhi04_m17, lhi04_m18, lhi04_m19, lhi04_m20, lhi04_y1, lhi04_y2, lhi04_y3, lhi04_y4, lhi04_y5, lhi04_y6, lhi04_y7, lhi04_y8, lhi04_y9, lhi04_y10, lhi04_y11, lhi04_y12, lhi04_y13, lhi04_y14, lhi04_y15, lhi04_y16, lhi04_y17, lhi04_y18, lhi04_y19, lhi04_y20, lhi04a_1, lhi04a_2, lhi04a_3, lhi04a_4, lhi04a_5, lhi04a_6, lhi04a_7, lhi04a_8, lhi04a_9, lhi04a_10, lhi04a_11, lhi04a_12, lhi04a_13, lhi04a_14, lhi04a_15, lhi04a_16, lhi04a_17, lhi04a_18, lhi04a_19, lhi04a_20, lhi05a_1, lhi05a_2, lhi05a_3, lhi05a_4, lhi05a_5, lhi05a_6, lhi05a_7, lhi05a_8, lhi05a_9, lhi05a_10, lhi05a_11, lhi05a_12, lhi05a_13, lhi05a_14, lhi05a_15, lhi05a_16, lhi05a_17, lhi05a_18, lhi05a_19, lhi05a_20, lhi05b_m1, lhi05b_m2, lhi05b_m3, lhi05b_m4, lhi05b_m5, lhi05b_m6, lhi05b_m7, lhi05b_m8, lhi05b_m9, lhi05b_m10, lhi05b_m11, lhi05b_m12, lhi05b_m13, lhi05b_m14, lhi05b_m15, lhi05b_m16, lhi05b_m17, lhi05b_m18, lhi05b_m19, lhi05b_m20, lhi05b_y1, lhi05b_y2, lhi05b_y3, lhi05b_y4, lhi05b_y5, lhi05b_y6, lhi05b_y7, lhi05b_y8, lhi05b_y9, lhi05b_y10, lhi05b_y11, lhi05b_y12, lhi05b_y13, lhi05b_y14, lhi05b_y15, lhi05b_y16, lhi05b_y17, lhi05b_y18, lhi05b_y19, lhi05b_y20, lhi06_m1, lhi06_m2, lhi06_m3, lhi06_m4, lhi06_m5, lhi06_m6, lhi06_m7, lhi06_m8, lhi06_m9, lhi06_m10, lhi06_m11, lhi06_m12, lhi06_m13, lhi06_m14, lhi06_m15, lhi06_m16, lhi06_m17, lhi06_m18, lhi06_m19, lhi06_m20, lhi06_y1, lhi06_y2, lhi06_y3, lhi06_y4, lhi06_y5, lhi06_y6, lhi06_y7, lhi06_y8, lhi06_y9, lhi06_y10, lhi06_y11, lhi06_y12, lhi06_y13, lhi06_y14, lhi06_y15, lhi06_y16, lhi06_y17, lhi06_y18, lhi06_y19, lhi06_y20, lhi07_1, lhi07_2, lhi07_3, lhi07_4, lhi07_5, lhi07_6, lhi07_7, lhi07_8, lhi07_9, lhi07_10, lhi07_11, lhi07_12, lhi07_13, lhi07_14, lhi07_15, lhi07_16, lhi07_17, lhi07_18, lhi07_19, lhi07_20, lhi08_1, lhi08_2, lhi08_3, lhi08_4, lhi08_5, lhi08_6, lhi08_7, lhi08_8, lhi08_9, lhi08_10, lhi08_11, lhi08_12, lhi08_13, lhi08_14, lhi08_15, lhi08_16, lhi08_17, lhi08_18, lhi08_19, lhi08_20, lhi09_1, lhi09_2,

	lhi09_3, lhi09_4, lhi09_5, lhi09_6, lhi09_7, lhi09_8, lhi09_9, lhi09_10, lhi09_11, lhi09_12, lhi09_13, lhi09_14, lhi09_15, lhi09_16, lhi09_17, lhi09_18, lhi09_19, lhi09_20, lhi10_1, lhi10_2, lhi10_3, lhi10_4, lhi10_5, lhi10_6, lhi10_7, lhi10_8, lhi10_9, lhi10_10, lhi10_11, lhi10_12, lhi10_13, lhi10_14, lhi10_15, lhi10_16, lhi10_17, lhi10_18, lhi10_19, lhi10_20, lhi11_1, lhi11_2, lhi11_3, lhi11_4, lhi11_5, lhi11_6, lhi11_7, lhi11_8, lhi11_9, lhi11_10, lhi11_11, lhi11_12, lhi11_13, lhi11_14, lhi11_15, lhi11_16, lhi11_17, lhi11_18, lhi11_19, lhi11_20, lhi12_1, lhi12_2, lhi12_3, lhi12_4, lhi12_5, lhi12_6, lhi12_7, lhi12_8, lhi12_9, lhi12_10, lhi12_11, lhi12_12, lhi12_13, lhi12_14, lhi12_15, lhi12_16, lhi12_17, lhi12_18, lhi12_19, lhi12_20, lhi13_1, lhi13_2, lhi13_3, lhi13_4, lhi13_5, lhi13_6, lhi13_7, lhi13_8, lhi13_9, lhi13_10, lhi13_11, lhi13_12, lhi13_13, lhi13_14, lhi13_15, lhi13_16, lhi13_17, lhi13_18, lhi13_19, lhi13_20, lhi14_m1, lhi14_m2, lhi14_m3, lhi14_m4, lhi14_m5, lhi14_m6, lhi14_m7, lhi14_m8, lhi14_m9, lhi14_m10, lhi14_m11, lhi14_m12, lhi14_m13, lhi14_m14, lhi14_m15, lhi14_m16, lhi14_m17, lhi14_m18, lhi14_m19, lhi14_m20, lhi14_y1, lhi14_y2, lhi14_y3, lhi14_y4, lhi14_y5, lhi14_y6, lhi14_y7, lhi14_y8, lhi14_y9, lhi14_y10, lhi14_y11, lhi14_y12, lhi14_y13, lhi14_y14, lhi14_y15, lhi14_y16, lhi14_y17, lhi14_y18, lhi14_y19, lhi14_y20, lhi15a_1, lhi15a_2, lhi15a_3, lhi15a_4, lhi15a_5, lhi15a_6, lhi15a_7, lhi15a_8, lhi15a_9, lhi15a_10, lhi15a_11, lhi15a_12, lhi15a_13, lhi15a_14, lhi15a_15, lhi15a_16, lhi15a_17, lhi15a_18, lhi15a_19, lhi15a_20, lhi15b_m1, lhi15b_m2, lhi15b_m3, lhi15b_m4, lhi15b_m5, lhi15b_m6, lhi15b_m7, lhi15b_m8, lhi15b_m9, lhi15b_m10, lhi15b_m11, lhi15b_m12, lhi15b_m13, lhi15b_m14, lhi15b_m15, lhi15b_m16, lhi15b_m17, lhi15b_m18, lhi15b_m19, lhi15b_m20, lhi15b_y1, lhi15b_y2, lhi15b_y3, lhi15b_y4, lhi15b_y5, lhi15b_y6, lhi15b_y7, lhi15b_y8, lhi15b_y9, lhi15b_y10, lhi15b_y11, lhi15b_y12, lhi15b_y13, lhi15b_y14, lhi15b_y15, lhi15b_y16, lhi15b_y17, lhi15b_y18, lhi15b_y19, lhi15b_y20, lhi16_1, lhi16_2, lhi16_3, lhi16_4, lhi16_5, lhi16_6, lhi16_7, lhi16_8, lhi16_9, lhi16_10, lhi16_11, lhi16_12, lhi16_13, lhi16_14, lhi16_15, lhi16_16, lhi16_17, lhi16_18, lhi16_19, lhi16_20, lhi17_1, lhi17_2, lhi17_3, lhi17_4, lhi17_5, lhi17_6, lhi17_7, lhi17_8, lhi17_9, lhi17_10, lhi17_11, lhi17_12, lhi17_13, lhi17_14, lhi17_15, lhi17_16, lhi17_17, lhi17_18, lhi17_19, lhi17_20, lhi18, lhi19, nkids_1401, nkids_1402, nkids_1403, lhi25_1, lhi25_2, lhi25_3, lhi25_4, lhi25_5, lhi25_6, lhi25_7, lhi25_8, lhi25_9, lhi25_10, lhi25_11, lhi25_12, lhi25_13, lhi25_14, lhi25_15, lhi25_16, lhi25_17, lhi25_18, lhi25_19, lhi25_20, lhi26_1, lhi26_2, lhi26_3, lhi26_4, lhi26_5, lhi26_6, lhi26_7, lhi26_8, lhi26_9, lhi26_10, lhi26_11, lhi26_12, lhi26_13, lhi26_14, lhi26_15, lhi26_16, lhi26_17, lhi26_18, lhi26_19, lhi26_20, lhi27_[x]_1401, lhi27_2, lhi27_3, lhi27_4, lhi27_5, lhi27_6, lhi27_7, lhi27_8, lhi27_9, lhi27_10, lhi27_11, lhi27_12, lhi27_13, lhi27_14, lhi27_15, lhi27_16, lhi27_17, lhi27_18, lhi27_19, lhi27_20, lhi28_1, lhi28_2, lhi28_3, lhi28_4, lhi28_5, lhi28_6, lhi28_7, lhi28_8, lhi28_9, lhi28_10, lhi28_11, lhi28_12, lhi28_13, lhi28_14, lhi28_15, lhi28_16, lhi28_17, lhi28_18, lhi28_19, lhi28_20, lhi29_m1, lhi29_m2, lhi29_m3, lhi29_m4, lhi29_m5, lhi29_m6, lhi29_m7, lhi29_m8, lhi29_m9, lhi29_m10, lhi29_m11, lhi29_m12, lhi29_m13, lhi29_m14, lhi29_m15,

	lhi29_m16, lhi29_m17, lhi29_m18, lhi29_m19, lhi29_m20, lhi29_y1, lhi29_y2, lhi29_y3, lhi29_y4, lhi29_y5, lhi29_y6, lhi29_y7, lhi29_y8, lhi29_y9, lhi29_y10, lhi29_y11, lhi29_y12, lhi29_y13, lhi29_y14, lhi29_y15, lhi29_y16, lhi29_y17, lhi29_y18, lhi29_y19, lhi29_y20, lhi30_m1, lhi30_m2, lhi30_m3, lhi30_m4, lhi30_m5, lhi30_m6, lhi30_m7, lhi30_m8, lhi30_m9, lhi30_m10, lhi30_m11, lhi30_m12, lhi30_m13, lhi30_m14, lhi30_m15, lhi30_m16, lhi30_m17, lhi30_m18, lhi30_m19, lhi30_m20, lhi30_y1, lhi30_y2, lhi30_y3, lhi30_y4, lhi30_y5, lhi30_y6, lhi30_y7, lhi30_y8, lhi30_y9, lhi30_y10, lhi30_y11, lhi30_y12, lhi30_y13, lhi30_y14, lhi30_y15, lhi30_y16, lhi30_y17, lhi30_y18, lhi30_y19, lhi30_y20, lhi31_1, lhi31_2, lhi31_3, lhi31_4, lhi31_5, lhi31_6, lhi31_7, lhi31_8, lhi31_9, lhi31_10, lhi31_11, lhi31_12, lhi31_13, lhi31_14, lhi31_15, lhi31_16, lhi31_17, lhi31_18, lhi31_19, lhi31_20, lhi32_1, lhi32_2, lhi32_3, lhi32_4, lhi32_5, lhi32_6, lhi32_7, lhi32_8, lhi32_9, lhi32_10, lhi32_11, lhi32_12, lhi32_13, lhi32_14, lhi32_15, lhi32_16, lhi32_17, lhi32_18, lhi32_19, lhi32_20, lhi33_1, lhi33_2, lhi33_3, lhi33_4, lhi33_5, lhi33_6, lhi33_7, lhi33_8, lhi33_9, lhi33_10, lhi33_11, lhi33_12, lhi33_13, lhi33_14, lhi33_15, lhi33_16, lhi33_17, lhi33_18, lhi33_19, lhi33_20, lhi33u_1, lhi33u_2, lhi33u_3, lhi33u_4, lhi33u_5, lhi33u_6, lhi33u_7, lhi33u_8, lhi33u_9, lhi33u_10, lhi33u_11, lhi33u_12, lhi33u_13, lhi33u_14, lhi33u_15, lhi33u_16, lhi33u_17, lhi33u_18, lhi33u_19, lhi33u_20, lhi34_1, lhi34_2, lhi34_3, lhi34_4, lhi34_5, lhi34_6, lhi34_7, lhi34_8, lhi34_9, lhi34_10, lhi34_11, lhi34_12, lhi34_13, lhi34_14, lhi34_15, lhi34_16, lhi34_17, lhi34_18, lhi34_19, lhi34_20, lhi35_1, lhi35_2, lhi35_3, lhi35_4, lhi35_5, lhi35_6, lhi35_7, lhi35_8, lhi35_9, lhi35_10, lhi35_11, lhi35_12, lhi35_13, lhi35_14, lhi35_15, lhi35_16, lhi35_17, lhi35_18, lhi35_19, lhi35_20, lhi36_1, lhi36_2, lhi36_3, lhi36_4, lhi36_5, lhi36_6, lhi36_7, lhi36_8, lhi36_9, lhi36_10, lhi36_11, lhi36_12, lhi36_13, lhi36_14, lhi36_15, lhi36_16, lhi36_17, lhi36_18, lhi36_19, lhi36_20, lhi37_1, lhi37_2, lhi37_3, lhi37_4, lhi37_5, lhi37_6, lhi37_7, lhi37_8, lhi37_9, lhi37_10, lhi37_11, lhi37_12, lhi37_13, lhi37_14, lhi37_15, lhi37_16, lhi37_17, lhi37_18, lhi37_19, lhi37_20, lhi38_1, lhi38_2, lhi38_3, lhi38_4, lhi38_5, lhi38_6, lhi38_7, lhi38_8, lhi38_9, lhi38_10, lhi38_11, lhi38_12, lhi38_13, lhi38_14, lhi38_15, lhi38_16, lhi38_17, lhi38_18, lhi38_19, lhi38_20, lhi39a_1, lhi39a_2, lhi39a_3, lhi39a_4, lhi39a_5, lhi39a_6, lhi39a_7, lhi39a_8, lhi39a_9, lhi39a_10, lhi39a_11, lhi39a_12, lhi39a_13, lhi39a_14, lhi39a_15, lhi39a_16, lhi39a_17, lhi39a_18, lhi39a_19, lhi39a_20, lhi39au_1, lhi39au_2, lhi39au_3, lhi39au_4, lhi39au_5, lhi39au_6, lhi39au_7, lhi39au_8, lhi39au_9, lhi39au_10, lhi39au_11, lhi39au_12, lhi39au_13, lhi39au_14, lhi39au_15, lhi39au_16, lhi39au_17, lhi39au_18, lhi39au_19, lhi39au_20, lhi39b_1, lhi39b_2, lhi39b_3, lhi39b_4, lhi39b_5, lhi39b_6, lhi39b_7, lhi39b_8, lhi39b_9, lhi39b_10, lhi39b_11, lhi39b_12, lhi39b_13, lhi39b_14, lhi39b_15, lhi39b_16, lhi39b_17, lhi39b_18, lhi39b_19, lhi39b_20, lhi39bu_1, lhi39bu_2, lhi39bu_3, lhi39bu_4, lhi39bu_5, lhi39bu_6, lhi39bu_7, lhi39bu_8, lhi39bu_9, lhi39bu_10, lhi39bu_11, lhi39bu_12, lhi39bu_13, lhi39bu_14, lhi39bu_15, lhi39bu_16, lhi39bu_17, lhi39bu_18, lhi39bu_19, lhi39bu_20, lhi40_1, lhi40_2, lhi40_3, lhi40_4, lhi40_5, lhi40_6, lhi40_7, lhi40_8, lhi40_9, lhi40_10, lhi40_11, lhi40_12, lhi40_13, lhi40_14, lhi40_15,

	lhi40_16, lhi40_17, lhi40_18, lhi40_19, lhi40_20, lhi41_1, lhi41_2, lhi41_3, lhi41_4, lhi41_5, lhi41_6, lhi41_7, lhi41_8, lhi41_9, lhi41_10, lhi41_11, lhi41_12, lhi41_13, lhi41_14, lhi41_15, lhi41_16, lhi41_17, lhi41_18, lhi41_19, lhi41_20, fer01a, fer01b, fer01c, fer02m, fer02y, fer03, fer04, fer04b, fer04c, fer04d, fer05, fer06, fer07_1, fer07_2, fer07_3, fer07_4, fer07_5, fer07_6, fer07_7, fer07_8, fer07_9, fer07_10, fer08, fer09, fer10a, fer10bm, fer10by, fer11_1, fer11_2, fer11_3, fer11_4, fer11_5, fer11_6, fer11_7, fer11_8, fer12_1, fer12_2, fer12_3, fer12_4, fer12_5, fer12_6, fer12_7, fer12_8, fer12_9, fer12_10, fer12_11, fer12_12, fer12_13, fer12_14, fer13, fer14, fer15, fer16a, fer16b, fer16c, fer17, fer21, fer22, fer23, hhd01a, hhd01b, hhd04_1, hhd04_2, hhd04_3, hhd04_4, hhd04_5, hhd04_6, hhd04_7, hhd04_8, hhd04_9, hhd04_10, hhd04_11, hhd04_12, hhd04_13, hhd04_14, hhd04_15, hhd04_16, hhd04_17, hhd04_18, hhd04_19, hhd04_20, hhd05_1, hhd05_2, hhd05_3, hhd05_4, hhd05_5, hhd05_6, hhd05_7, hhd05_8, hhd05_9, hhd05_10, hhd05_11, hhd05_12, hhd05_13, hhd05_14, hhd05_15, hhd05_16, hhd05_17, hhd05_18, hhd05_19, hhd05_20, hhd06_m1, hhd06_m2, hhd06_m3, hhd06_m4, hhd06_m5, hhd06_m6, hhd06_m7, hhd06_m8, hhd06_m9, hhd06_m10, hhd06_m11, hhd06_m12, hhd06_m13, hhd06_m14, hhd06_m15, hhd06_m16, hhd06_m17, hhd06_m18, hhd06_m19, hhd06_m20, hhd06_y1, hhd06_y2, hhd06_y3, hhd06_y4, hhd06_y5, hhd06_y6, hhd06_y7, hhd06_y8, hhd06_y9, hhd06_y10, hhd06_y11, hhd06_y12, hhd06_y13, hhd06_y14, hhd06_y15, hhd06_y16, hhd06_y17, hhd06_y18, hhd06_y19, hhd06_y20, hhd07_1, hhd07_2, hhd07_3, hhd07_4, hhd07_5, hhd07_6, hhd07_7, hhd07_8, hhd07_9, hhd07_10, hhd07_11, hhd07_12, hhd07_13, hhd07_14, hhd07_15, hhd07_16, hhd07_17, hhd07_18, hhd07_19, hhd07_20, hhd08_1, hhd08_2, hhd08_3, hhd08_4, hhd08_5, hhd08_6, hhd08_7, hhd08_8, hhd08_9, hhd08_10, hhd08_11, hhd08_12, hhd08_13, hhd08_14, hhd08_15, hhd08_16, hhd08_17, hhd08_18, hhd08_19, hhd08_20, hhd09_1, hhd09_2, hhd09_3, hhd09_4, hhd09_5, hhd09_6, hhd09_7, hhd09_8, hhd09_9, hhd09_10, hhd09_11, hhd09_12, hhd09_13, hhd09_14, hhd09_15, hhd09_16, hhd09_17, hhd09_18, hhd09_19, hhd09_20, hhd11a, hhd11b, hhd11c, hhd11d, hhd11e, hhd11f, hhd12, hhd13a, hhd13b, hhd13c, hhd13d, hhd13e, hhd14, hhd15a, hhd15b, hhd15c, hhd15d, hhd16, hhd17, hhd18, hhd19_1, hhd19_2, hhd19_21, hhd19_3, hhd19_4, hhd19_5, hhd19_6, hhd19_7, hhd19_8, hhd19_10, hhd19_11, hhd19_12, hhd19_13, hhd19_14, hhd19_15, hhd19_16, hhd19_17, hhd19_18, hhd19_19, hhd19_20, hhd19_9, hhd20, hhd20u, hhd21, hhd22, hhd23_1, hhd23_2, hhd23_3, hhd23_4, hhd23_5, hhd23_6, hhd24_1401, hhd24u_1401, wel01, wel02, wel11a, wel11b, wel11c, wel11d, wel11e, wrk15a, wrk15b, wrk15c, wrk15d
W1B	dem06, gen01, gen02, gen03, gen09m, gen09y, gen10m, gen10y, gen11, gen12_1401, gen15a, gen15au, gen15b, gen15bu, gen16, gen23m, gen23y, gen24m, gen24y, gen25, gen26_1401, gen29a, gen29au, gen29b, gen29bu, gen30, gen37a, gen37m, gen37y, gen38a, gen38bm, gen38by, gen39a, gen39b, gen40, gen41a, gen41b, gen42, gen43, gen44b, gen45, gen46, gen47, gen48isco, gen49_1401, gen49_1402, gen49_1403, gen49isced,

	gen50isco, gen51_1401, gen51_1402, gen51_1403, gen51isced, gen52, gen52am, gen52ay, gen53, gen54, gen55, gen56, gen57m, gen57y, gen58, wel03_1, wel03_2, wel03_3, wel03_4, wel03_5, wel03_6, wel03_7, wel03_8, wel03_9, wel03_10, wel03_11, wel03_12, wel03_13, wel03_14, wel03_15, wel03_16, wel03_17, wel03_18, wel03_19, wel03_20, wel04, wel05, wel06, wel07, wel08, wel09a, wel09b, wel09c, wel09d, wel09e, wel09f, wel10_1, wel10_2, wel10_3, wel10_4, wel10_5, wel10_6, wel10_7, wel10_8, wel10_9, wel10_10, wel10_11, wel10_12, wel10_13, wel10_14, wel10_15, wel10_16, wel10_17, wel10_18, wel10_19, wel10_20, wel10_21, wel10_22, wrk01, wrk02, wrk03m, wrk03y, wrk04isco, wrk06, wrk07, wrk08, wrk09, wrk10, wrk11, wrk12, wrk13, wrk14, wrk16a, wrk17, wrk18, wrk20, wrk21, wrk22, wrk23, wrk24, wrk25, wrk26, wrk28, wrk30, wrk31, wrk32, wrk34isco, wrk36, wrk37, wrk38, wrk39, wrk40, wrk41, wrk42, wrk43, wrk44, wrk46, wrk47, wrk48, wrk49, wrk50, inc01, inc03, inc05, inc06_1401, inc08_1_1401 - inc08_25_1401, inc08_1_1402 - inc08_11_1402, inc12, inc13, inc14_1, inc14_2, inc14_3, inc14_4, inc14_5, inc14_6, inc14_7, inc14_8, inc14_9, inc14_10, inc14_11, inc14_12, inc14_13, inc14_14, inc14_15, inc14_16, inc14_17, inc14_18, inc14_19, inc14_20, inc14_21, inc15, att01, att02, att03a, att03b, att03d, att03e, att03g, att03h, att03i, att03j, att05b, att06a, att06b, att07a, att07b, att07c, att07d, att07g, att08, att09, att09u, att10, att11b, att11d

Table A4. Adaptation of the FReDA Missing-Values Scheme to the GGS Missing Values

GGS missing value	GGS label	FReDA missing value/label
.a	Don't know	-1 Don't know
.b	Refusal	-2 No answer
.c	Not applicable	-8 Does not apply (answer option)
.h	Incomplete survey	-7 Incomplete data
.z	Implausible value	-4 Filter error/Incorrect entry -5 Inconsistent value -6 Unreadable answer -9 Invalid (multiple) answers
.k	Missing by study design	-10 Missing by study design . Wave dropout
.	Does not apply	-3 Does not apply (filter)