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Job Mobilities and Family Lives in Europe. Documentation of the Panel Dataset

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Abstract

This data documentation describes the realisation of the second wave of the study Job Mobilities and Family Lives in Europe – Modern Mobile Living and its Relation to Quality of Life and the basic structure of the panel data thus obtained. A first wave was conducted in 2007 in six European countries: Germany, France, Spain, Switzerland, Poland and Belgium. Overall, 7,220 randomly selected individuals were interviewed. The study focused on three main aspects: firstly, on the prevalence and variety of job-related spatial mobility in Europe, secondly, on the causes and circumstances of people's mobility decisions, and thirdly, on the consequences of job-related spatial mobility for subjective well-being, family life, occupational career and social integration. Between 2010 and 2012, a follow-up survey was carried out in four countries: Germany, Spain, Switzerland and France. 1,735 respondents of the initial survey could be interviewed again (overall response rate: 34.5%). The panel structure provides a deeper insight into the mentioned research interests by providing an opportunity for longitudinal analysis. Moreover, this opportunity is enhanced by a collection of extensive retrospective data about spatial mobility, employment, partnership and family. Furthermore, the second wave includes new contents with topics such as social integration, volunteerism and social mobility. This documentation features a description of the forms of mobility investigated, the contents of the questionnaire, the sampling procedure, the fieldwork, the sample drop-outs and the weighting of the data.

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1 Introduction

This data documentation describes the implementation of the second wave as well as the basic structure of the resulting panel data of the study Job Mobilities and Family Lives in Europe – Modern Mobile Living and its Relation to Quality of Life.[1]

A first wave was conducted in 2007 in six European countries: Belgium, France, Spain, Switzerland, Poland and Germany. Overall, 7,220 randomly selected persons were interviewed via landline telephones (Poland: face-to-face interviews). The survey was funded by the European Commission and put into practice by a network of researchers in the six participating European countries. The study was coordinated by Prof. Dr. Norbert F. Schneider at the Johannes Gutenberg University Mainz.[2]

In terms of its content, the study focused on the following three main aspects:

- Assessing the prevalence and variety of job-related spatial mobility patterns in Europe
- Broadening the knowledge about the causes and circumstances of people's mobility decisions
- Analysing the consequences of spatial job mobility for one's subjective well-being, family life, occupational career and social integration

The data set of the first wave is available as a scientific use file at GESIS Leibniz Institute for the Social Sciences (http://www.gesis.org; study number: ZA5065). Detailed information on this European comparative study can be found on the project website (www.jobmob-and-famlives.eu). Two edited volumes have been published, presenting comprehensive results based on this data.[3] The codebook for the first wave provides a detailed description of the research design and data structure.[4]

Between 2010 and 2012, a follow-up survey was carried out in four participating countries: Germany, Spain, Switzerland and France. 1,735 respondents of the initial survey could be interviewed a second time. The panel structure received thereby allows more insights concerning the above mentioned research interests by giving the opportunity to run longitudinal analysis. The opportunity for adopting a longitudinal perspective is furthermore enhanced by newly added retrospective questions about family and employment histories and spatial mobility experiences. The second aim of implementing the follow-up survey was to get more information about certain topics that had not been captured yet in detail with the questionnaire of the first wave. These topics include for example, social integration, volunteerism and social mobility.

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[1] This documentation is also available on www.jobmob-and-famlives.eu: Skora, Thomas; Rüger, Heiko; Schneider, Norbert F. (2012): Job Mobilities and Family Lives in Europe. Documentation of the Panel Dataset. JobMob and FamLives Working Paper (JFW), No. 2012-02

[2] Today, Prof. Dr. Norbert F. Schneider is the Director of the Federal Institute for Population Research (BiB) in Wiesbaden, Germany.

[3] Schneider, Norbert F.; Meil, Gerardo (eds.) (2008): Mobile Living across Europe. Volume I. Relevance and Diversity of Job-Related Spatial Mobility in Six European Countries. Opladen: Barbara Budrich.
Schneider, Norbert F.; Collet, Beate (eds.) (2010): Mobile Living Across Europe. Volume II. Causes and Consequences of Job-Related Spatial Mobility in Cross-National Perspective. Opladen: Barbara Budrich.

[4] Schneider, Norbert F.; Lück, Detlev; Ruppenthal, Silvia; Rüger, Heiko (2011): Code Book for the Job Mobilities and Family Lives Data Set. First Wave. JobMob and FamLives Working Paper (JFW), No. 11-02, available on: www.jobmob-and-famlives.eu.

2 Investigated Manifestations of Mobility

The project focuses on a broad concept of mobility, accounting for quite different manifestations of mobile living. Generally it is possible to distinguish between relocation mobility (people change their place of residence by moving to another location on a long-term basis) and circular mobility (people commute over a long distance to their workplace on a daily or a weekly basis or are frequently staying away from home overnight for job reasons. This mobility often continues over longer periods in the life course).

The following types of *circular* mobility were identified and further investigated in the course of the first *and* the second wave:

- ***Long-Distance Commuters*** commute to their workplace at least three times a week and travel at least one hour each way.
- ***Overnighters*** spend at least 60 nights a year away from home because of job requirements. Overnighters can be further differentiated into the following subgroups:
  - ***Shuttlers*** maintain a secondary residence near their work place that is located too far away from their home to commute on a daily basis. Their principle residence typically serves as their home on weekends.
  - People living in a ***Long-Distance Relationship*** do not share a common household with their partner due to job reasons. Both partners in the relationship maintain an independent household. The time to travel one-way between the two domiciles is at least one hour.
  - ***Vari-Mobiles*** engage in recurring but irregular overnight trips of varying rhythms. This category typically comprises people, who often are on long business trips.
- ***Multi-Mobiles*** are mobile in at least two of the described ways simultaneously.

In order to asses the spread, circumstances and impact of *relocation* mobility on private life, so called ***Recent Relocators*** were identified by screening questions during the interviews of the first wave. According to the adopted operationalisation, these respondents have relocated for job related reasons over a distance of at least 50 km within the last three years before the day of the interview.

However, regarding the sample of the second wave, it was expected that the vast majority of the respondents, who relocated after the first-wave-interview, will drop out of the survey. This can be expected, because in most cases relocations involve a change of the telephone number. At the same time, a valid number was necessary to contact the respondent again. As a consequence, the German and the Spanish research team decided not to try to identify “new” Recent Relocators at the beginning of the second-wave-interview.

Instead of that, respondents, who were identified as being a Recent Relocator at the first-wave-interview (i.e. they moved between 2004 and 2007), were asked some move-related questions in the follow-up questionnaire. This approach allows a comparison of the answers of the first and the second wave of the same respondents, giving the opportunity to investigate changes concerning the situation and well-being of relocators, as they proceed in adapting to their new place of living.

In contrast, in Switzerland and France, efforts were made to additionally identify “new” Recent Relocators (i.e. respondents who moved for job related reasons over a distance of at least 50 km within the last three years before the day of the second-wave-interview). Preliminary to the fieldwork, the polling institute that conducted the second wave in France and Switzerland made some research based mainly on phone books and online directories to detect the possible changes of postal addresses and phone numbers of

the target persons (cf. section 6). However, since only very few Recent Relocators could be identified in the second wave, the panel dataset actually deals with circular mobility only.

3 Content of the Questionnaire

In terms of its content, the questionnaire used in the second wave is quite similar to the questionnaire of the first wave. Many variables have been identically collected for a second time, in order to capture potential changes over time. This section provides an overview of the basic structure of the questionnaire of the second wave.

The questionnaire is divided into seven major sections (A to G) and 17 topics (cf. table 1). As in the first wave, it starts by assessing the extent and type of job-related spatial mobility of the contacted person (A). Having collected this information in both waves, changes between 2007 and 2010 concerning the mobility status can be ascertained.

Table 1: Overview over the Content of the Questionnaire

A) Job-Mobility I
1) Identification of Job-Mobility Employment Status, Daily Long-Distance Commuters, Overnighters, Long Distance Relationships, Job-Mobility of the Partner
B) Origin and Places
2) Life History
3) Place of Living, Social Networks, Volunteerism
C) Family Life
4) Partnership
5) Occupational Situation of the Partner
6) Partnership Biography
7) Children, Child Care, Grandchildren, Household and Parents
8) Quality of Partnership, Division of Labour and Housework
D) Work I
9) Job Biography and Past Mobility Experiences
10) Current Occupational Situation (a): Working for Pay
11) Current Occupational Situation (b): Not Working for Pay
E) Job-Mobility II (only for job-mobile people)
12) Phenomenology of Job-Mobility Daily Long-Distance Commuters, Overnighters, Shuttlers (Overnighters I), Vari-Mobiles (Overnighters II), Long-Distance Relationships, Recent Relocators (of First Wave)
13) Circumstances of Job-Mobility
14) Consequences of Job-Mobility
F) Work II
15) Readiness to Become Job-Mobile
G) Individual Characteristics
16) Attitudes Regarding Job, Job-Mobility and Family
17) Health, Stress and Satisfaction
18) Socio Demographics

Source: Job Mobilities and Family Lives in Europe.

After the identification of job-mobility, the interview continued with questions about the respondent's national origin, past relocation experiences and current place of living. This section further includes questions about social networks and volunteerism that were not asked in the first wave (B). The third section consists of questions concerning respondent's current intimate relationship and family life. Additionally, information about past relationships and birth events were collected using retrospective questions. In the second wave, this biographical information was collected in much more detail than in the first wave (C). The current occupational situations as well as the career history and past job-induced mobility experiences are central topics of the fourth section (D). In the fifth part, only job-mobile respondents are asked to evaluate and describe their mobile way of living in detail (E). The sixth section includes questions for detecting the potential and ambition to become or to remain mobile for job reasons (F). A series of socio-demographic characteristics, attitudes and health-related aspects were collected at the end of the interview (G).

4 Target Population of the Panel

By definition, conducting a panel study implies the collection of data from the same individuals at different points in time, whereat in a best-case scenario, all respondents, interviewed in the first wave also participate in the following waves. As a second wave was implemented in four countries, the target population of the panel is congruent with the target population, which was defined in these countries for the first wave. It is the residential population aged 25 to 54 in 2007.

The target population of the first wave is thus not restricted to job-mobile people. The inclusion of non-mobile as well as economically inactive people in the target population of the study is expedient because of two reasons: On the one hand, such a definition allows for receiving representative numbers on the spread of job mobility and specific mobility types in the population, which is exposed to the risk of being mobile.[5] Furthermore, non-mobile and economically inactive people are intended to serve as a reference group, when assessing the specific situation of mobile people as well as the effects of mobility on private life.

However, the target population is subject to further restrictions that are not criteria for the theoretical population, but could not be avoided for methodological reasons. Thus they became aspects of the target population of the final sample. Firstly, due to the chosen sampling technique only people with access to a landline phone had a chance to be an element of the sample, because the sampling procedure was realised by generating random phone numbers which did not account for the digit structure of mobile phones. Secondly, language skills were a precondition to participate in an interview, either in the national language(s) of the respective survey country or in English.

Regarding the panel, an individual of the target population has to meet several prerequisites, for being an element of the data. First of all, the individual has to be already selected and interviewed in 2007. Therefore, the structure of the panel-data is influenced by the sampling procedure (including several sources of potential sampling biases) of the first wave (cf. section 5). Furthermore, the individuals had to give their permission to get re-contacted and interviewed for a second time. This permission was asked for at the end of the first-wave- interview. It is reasonable to expect that refusals vary systematically across different socio-demographic attributes. Finally, respondents who agreed on participating again, had to be successfully re-contacted and interviewed

[5] The focusing on people, who are exposed to the risk of being mobile, is ensured by restricting the target population to people aged 25 to 54.

during the fieldwork of the second wave (cf. section 6). Thus, the representativeness of the sample might be limited due to the sampling technique or selective drop-outs (cf. section 7 & section 8). In order to correct possible biases, a weighting variable was created (cf. section 9).

5 Sampling of the First Wave[6]

The sample of the first wave was divided into two subsamples, collected in two different sampling phases:

The first subsample (S1) was a fully randomised sample of the residential population aged 25 to 54 in the six countries which participated in the first wave. This subsample serves the purpose of assessing the prevalence and variety of job-related spatial mobility patterns in the six European countries in a representative way.

In the second subsample (S2), only people who were mobile for job related reasons were interviewed. This oversampling aims to raise the relatively small number of job-mobile people included in the S1-sample, in order to allow for more differentiated analysis with this group.[7]

For both subsamples, a two-level sampling technique was used for randomisation. On the first level, a sample of landline phone numbers was randomly generated. On the second level, the person to be interviewed within a contacted household was identified by means of a screening interview.

For realising the subsample S1, the entire interview was carried out, if a person, aged 25 to 54 years old, was living in the contacted household. The last birthday method was applied, if more than one eligible people was living in the household: In this case, the one whose birthday had been most recently was interviewed.

In contrast, the subsample of S2 was restricted to people, who were job-related spatial mobile. After a person, aged 25 to 54 was identified, the screening interview continued by assessing the mobility status of this person. People who were not job-mobile were screened out, while mobile people were asked to participate in the entire interview.

The fieldwork of the first wave was carried out between May and August 2007. In five countries – Germany, France, Spain, Switzerland, and Belgium – the survey was carried out by CATI technique. In contrast, in Poland a CAPI technique was chosen for several reasons.

The following table gives an overview of the sample drop-outs and response rates of the first wave for those four countries that participated in the second wave.

[6] A detailed description of the sampling procedure of the first wave is provided by: Huynen, Philippe; Montulet, Bertrand; Hubert, Michel; Lück, Detlev; Orain, Renaud (2008): Survey Design and Methods. In: Schneider, Norbert F.; Meil, Gerardo (eds.): Mobile Living across Europe. Volume I. Relevance and Diversity of Job-Related Spatial Mobility in Six European Countries. Opladen: Barbara Budrich, 47-63

[7] One further advantage of oversampling job-mobile people is the increased reliability of empirical distributions among this subgroup, due to a reduction of the standard error. The data set of the first wave provides a weighting variable to correct this oversampling.

Table 2: Number of Phone Numbers and Contacts at First Wave (2007)[8]

	Germany	France	Spain	Switzerland
total no. of phone numbers generated	38,660	38,367	51,388	16,201
non-existent phone numbers	5,388	1,123	2,863	1,111
existent phone numbers	33,272	37,244	48,525	15,090
contact with no person inside the target population [A]	11,449	2,879	20,480	7,137
contact with a person *potentially* inside the target population	21,823	34,365	28,045	7,953
no contact (phone never answered) [B]	6,110	10,594	5,732	1,182
refusals / abandons [B]	12,915	19,429	18,196	2,119
completed interviews [C]	2,798	4,342	4,117	4,652
screening interviews only	1,135	3,119	2,984	3,645
full interviews	1,663	1,223	1,133	1,007
response rate [D]	12.8%	12.6%	14.7%	58.5%

Source: Job Mobilities and Family Lives in Europe.

[A] This category contains phone numbers of private households in which no person aged 25 to 54 is living, as well as phone numbers of offices, fax numbers, etc.

[B] This category contains (mostly) phone numbers of which it is unclear whether or not they belong to a person inside the target population, so that it is unclear to what degree these numbers represent a potentially selective drop-out.

[C] The number of "completed interviews" includes screening interviews in the S2 sampling phase that did not lead to full interviews (because the contacted person was identified as non-mobile or refused to continue with the full interview after the screening).

[D] The presented response rates (completed interviews divided by contacts with a person potentially inside the target population) under-estimate the true rates because all immediate refusals and all contact attempts without contact are treated as selective drop-outs – although a large share presumably do not correspond to a person inside the target population. A more realistic estimate for Germany, treating the contact attempts without contact as people outside the target population, is 18%.

Response rates are a widely used measure for evaluating the quality of social science surveys. The response rate of the study at hand can be defined as the ratio of the number of respondents divided by the number of households with at least one target person living in it, within the randomly generated sample of telephone numbers. The final can be biased, if target persons, who were selected by the sample of landline phone numbers, are not interviewed in the end. In contrast, the generation of numbers which do not exist or do not belong to a household of a target person, does not threaten the sample structure. Those case-neutral drop-outs merely reduce the size of the initially generated sample.

However, if drop-outs are caused by immediate refusal or by non-answered phones, it is uncertain whether or not they belong to a person in the target population. Therefore, valid response rates that rely on all target persons of the generated sample cannot be calculated. Instead of that, "minimum response rates" are presented in table 2, which express the ratio of the number of respondents divided by the number of telephone numbers which potentially belong to people inside the target population.[9] Thus, they are based on the pessimistic and unrealistic assumption that all immediate refusals and all non-answered phones belong to people inside the target population. Thereby they underestimate the true response rates.

[8] This table is taken from: Schneider, Norbert F.; Lück, Detlev; Ruppenthal, Silvia; Rüger, Heiko (2011): Code Book for the Job Mobilities and Family Lives Data Set. First Wave. JobMob and FamLives Working Paper (JFW), No. 11-02, available on: www.jobmob-and-famlives.eu (Table 6, p. 16). The figures for Belgium are left out, as no second wave was conducted in this country

[9] The report of a minimal response rate, treating all drop-outs which cannot be cleary classified as 'selective', is also proposed by: The American Association for Public Opinion Research (2011): Standard Definitions. Final Dispositions of Case Codes and Outcome Rates for Surveys. 7th edition, AAPOR. www.aapor.org (retrieved: 12.04.2012).

6 Activities between the Waves and Fieldwork of the Second Wave

Immediately after the first-wave-interview, all respondents of the first wave were asked about their willingness to participate again. While the realisation of the first wave was funded by the same sponsor in six European countries (cf. section 1), the implementation of the follow-up study depended on each national team's own initiative. Finally, a second wave could be realised in Switzerland, France, Spain and Germany. However, the fieldwork started at quite different points in time in each of the countries.

Table 3: Periods of Fieldwork and Spacing between the Waves

	1st wave	2nd wave
Germany	10. 05. 2007 - 09. 07. 2007	03. 05. 2010 - 01. 07. 2010
France	30. 05. 2007 - 19. 07. 2007	12. 12. 2011 - 01. 02. 2012
Spain	18. 05. 2007 - 25. 06. 2007	20. 09. 2011 - 05. 12. 2011
Switzerland	10. 05. 2007 - 18. 08. 2007	17. 10. 2011 - 30. 11. 2011

Source: Job Mobilities and Family Lives in Europe.

In Germany, the fieldwork of the second wave took place in 2010. It was conducted almost exactly three years after the fieldwork in 2007. In France, Spain and Switzerland, the fieldwork was carried out in the second half of 2011 and extended into 2012 in France. Thus, the time span between the conduction of the two waves amounts to more than four years in these countries (cf. table 3).

6.1 Preliminary Activities and Fieldwork in Germany

The first significant efforts to make a start on realising the second wave were carried out in Germany. In order to ascertain the potential number of respondents in the planned follow-up sample, all respondents, who expressed their willingness to participate again, were contacted one year prior to the fieldwork of the second wave. This contacting was conducted by the German research team. 806 target persons confirmed their willingness, while 129 of them refused the second-wave-interview in the course of this activity, reducing the pool of potentially participants on the second wave. 332 respondents couldn't be reached at all. In order to obtain a preferably high survey-sample, it was decided to consider all target persons who have not explicitly refused to participate again, as the pool for the fieldwork of the second wave, including those telephone numbers with no successful contacting attempt. Thus, 1,138 contact details (806+332) were handed over to the German polling institute SUZ, which already realised the first wave sample in Germany.

The fieldwork took place from May to July 2010. It was conducted almost exactly three years after the fieldwork in 2007. The interviews were conducted using CATI technique. Up to 8 attempts were made to establish contact with the target person. Finally, 508 interviews were realised (cf. table 4). The average duration of the interviews was 32 minutes. The minimal duration was 18 minutes and the maximal duration was 83 minutes.

6.2 Preliminary Activities and Fieldwork in France

In France, respondents were contacted by the French polling institute TNS-SOFRES about 6 months after the first wave-interview, assessing the readiness to be interviewed again. TNS-SOFRES was the polling institute engaged to conduct the first wave in France. However, due to diverse reasons, it was decided not to engage TNS-SOFRES for carrying out the fieldwork of the second wave. Therefore, all respondents, who gave their permission to be re-asked again immediately after the first-wave-interview had to confirm once more their decision, knowing about the fact that the polling institute will change. This contacting was still conducted by TNS-SOFRES itself. 725 out of 1,048 people who had accepted immediately after the first-wave-interview accepted again. The fieldwork of the second wave in France was then assigned to the polling institute DemoSCOPE, which was already assigned to carry out the subsample in Switzerland. For France, DemoSCOPE thus started with contact information of 725 individuals. Approximately one week prior to the beginning of the fieldwork, a letter was sent to respondents whose postal address was found by DemoSCOPE in online directories. The letter introduced the survey and explained the procedures of the interview, such as the average length of the interview. This measure was undertaken to better inform potential respondents about the purpose and importance of the study and to improve response rates. Moreover, a research based on online directories allowed the polling institute to detect the change of addresses and phone numbers of some (but only few) target persons.

The fieldwork took place from December 2011 to February 2012. Thus, it was conducted more than four years after the fieldwork in 2007. The interviews were conducted using CATI technique. Up to 20 attempts were made to establish contact with the household. Finally, 254 interviews were realised (cf. table 4). The average duration of the interviews was 42 minutes.[10] The minimal duration was 20 minutes and the maximal duration was 89 minutes.

6.3 Preliminary Activities and Fieldwork in Switzerland

In Switzerland, the fieldwork was carried out by the polling institute DemoSCOPE, which already realised the Swiss sample in the first wave.

The polling institute had detailed contact information of all 856 respondents, who expressed their willingness to participate again immediately after the first-wave-interview in Switzerland. Approximately one week prior to the beginning of the fieldwork, a letter was sent to all of these respondents. As in France, the letter introduced the survey and explained the procedures of the interview, such as the average length of the interview. This measure was undertaken to better inform potential respondents about the purpose and importance of the study and to improve response rates. Moreover, a research based on phone books and on-line directories allowed the polling institute to detect the change of addresses and phone numbers of some target persons.

The fieldwork took place from October to November 2011. Thus, it was conducted more than four years after the fieldwork in 2007. The interviews were conducted using CATI technique. Up to 20 attempts were made to establish contact with the household. Finally, 444 interviews were realised (cf. table 4). The average duration of the interviews was 47 minutes. The minimal duration was 24 minutes and the maximal duration was 106 minutes.

[10] Compared to Germany, the interviews in France lasted ten minutes longer on average. In Switzerland, the interviews were even longer (cf. chapter 6.3). This difference can be explained by the fact that the French and Swiss questionnaires contained several questions which were not asked in Germany and Spain.

6.4 Preliminary Activities and Fieldwork in Spain

In Spain, there was no contacting of the respondents prior to the fieldwork of the second wave. Thus, all telephone numbers obtained from the respondents at the end of the first-wave-interview served as the basis for the sampling of the second wave.

The fieldwork took place from September to December 2011. Therefore, it has been conducted more than four years after the fieldwork in 2007. The fieldwork was carried out by the polling institute Metroscopia, which already realised the Spanish sample in the first wave. The interviews were conducted using CATI technique. Up to 19 attempts were made to establish contact with the household. Finally, 552 interviews were realised (cf. table 4). The average duration of the interviews was 32 minutes.[11]

7 Sample Drop-Outs and Response Rates of the Second Wave

The following table presents the quantum of the sample drop-outs, differentiated by reasons and stages of the panel-sampling.[12] In addition, the table reports the response rates of the follow-up study in each country. These rates express the ratio of the number of analysable panel interviews divided by the number of (full) interviews that were conducted in the first wave in each country.

Table 4: Sample Drop-Outs and Response Rates of the Second Wave (2010)

	Germany	France	Spain	Switzerland
full interviews in 2007 (first wave)	1,663	1,223	1,133	1,007
refusals immediately after the first wave interview	396	175	105	151
willingness immediately after the first wave interview	1,267	1,048	1,028	856
refusals during contacting between the waves [A]	129	323	-	-
telephone numbers remaining for fieldwork of wave 2	1,138	725	1,028	856
ineligible households (numbers of offices or fax numbers; target person unknown; difficulties to communicate)	60	21	-	38
no contact (non-existent phone number; phone never answered) [B]	414	384	175	190
refusals / abandons [C]	156	57	316	184
full Interviews	508	254	552	444
deleted cases due to inconsistent answers comparing both waves	4	0	15	4
analysable panel interviews	**504**	**254**	**537**	**440**
response rate [D]	30.3%	20.8%	47.4%	43.7%

Source: Job Mobilities and Family Lives in Europe.

[A] For France, this category might also entail respondents, who couldn't be reached anymore during the contacting six month after the first-wave-interview.

[B] This category contains unobtainable phone numbers (non-existent phone numbers) as well as free line signal or busy signal or answering machine at every attempt (phone never answered).

[C] This category contains refusals of the contact person or the target person as well as target persons who abandoned the interview.

[D] Response rate = analysable panel interviews divided by full interviews in 2007.

[11] For Spain, no information about the minimal or maximal interview-duration is available.

[12] As each polling institute has slightly different ways of coding drop-outs, the numbers are not perfectly comparable from one country to another.

The low response rates in France and Germany relatively to the rates in Spain and Switzerland are striking. Focussing on the drop-outs in France, mainly two reasons for the low response rate can be detected. Firstly, many respondents (n=323) refused to participate again (or couldn't be reached at all), when – six month after the first wave fieldwork was carried out – the polling institute TNS-SOFRES once more assessed the willingness to participate again at this survey (cf. section 6.2). Secondly, many contact attempts (n=384) stayed unsuccessful during the fieldwork of the second wave. As is know from findings based on the representa-tive sample of the first wave, a comparatively high share of relocation mobility can be found in France (cf. Lück/Ruppenthal 2010)[13].

For Germany, a relatively high rate of refusals immediately after the first wave interview can be observed (n=396; 24%). Moreover, a high number of unsuccessful contact attempts were recorded during the fieldwork of the second wave (n=414).

Overall, the study is characterised by some attributes which might contribute to high numbers of unsuccessful attempts to contact. Firstly, compared to other panel studies, the time interval between the waves was quite long. In addition, the sample of the first wave comprises to a large extent economically active people. As the first wave included an oversampling of people, who are job-related mobile, the (unweighted) sample of the first wave is characterised by a relatively high portion of job-mobile people. It seems reasonable to assume that economically active and – even more – job-mobile people spend large parts of the day away from home and thus are difficult to reach by landline phone. Moreover, as is known from empirical findings, people who have experienced relocations in their past, have a relatively high propensity for future moves (Viry/Hofmeister/Widmer 2010)[14]. Thus, people who experienced a long distance move within the last three years prior to the first wave interview might have dropped out of the panel sample above average due to repeated relocations.

The data were subjected to an extensive process of data cleansing, after the fieldwork was finished. Various plausibility checks were performed. Some respondents were then deleted from the panel data set due to contradictory information that came to the fore when comparing the answers of the two waves. These contradictions suggest that the person interviewed in the second wave was not the same person interviewed in the first wave in 2010.

8 Selectivity Analysis

In this section we will explore the question, if the sample is affected by selective drop-outs. The drop-outs are selective, if the probability to drop out of the sample is statistically correlated with certain attributes of the respondents.

For this purpose, the relation between the manifestation "asked again in the second wave" (respectively: "not asked again in the second wave") and the values of certain socio-demographic variables was ascertained by using contingency tables. Table 5 depicts the share of re-interviewed respondents (out of all respondents of the first wave) differentiated by socio-demographic variables.

Furthermore the effects of the socio-demographic variables on the probability to re-participate on the follow-up study was analysed by applying binary logistic regression analysis. The results of this multivariate analysis are presented in table 6 (odds ratios).

[13] Lück, Detlev; Ruppenthal, Silvia 2010: Insights into Mobile Living: Spread, Appearances and Charakteristics. In: Schneider, Norbert F.; Collet, Beate (eds.) (2010): Mobile Living Across Europe. Volume II. Causes and Consequences of Job-Related Spatial Mobility in Cross-National Perspective. Opladen: Barbara Budrich, 37-68.

[14] Viry, Gil; Hofmeister, Heather; Widmer, Eric (2010): Early Life Course Relocation. Effects on Motility, Mobility, and Social Integration. In: Schneider, Norbert F.; Collet, Beate (eds.) (2010): Mobile Living Across Europe. Volume II. Causes and Consequences of Job-Related Spatial Mobility in Cross-National Perspective. Opladen: Barbara Budrich, 153-172.

Table 5: Selectivity of the drop-outs – bivariate analyses[A]

		Asked again in second wave? („yes“ in %)			
		Germany	France	Spain	Switzerland
Total	30.3	20.8	47.4	43.7	
sex	male	29.0	22.6	44.5	43.3
	female	31.2	19.6	49.3	44.1
age	25-34 years	21.5	11.8	37.6	36.8
	35-44 years	32.5	24.0	51.8	41.3
	45-54 years	35.8	24.2	51.0	51.1
education [B]	ISCED 0-2	31.6	19.8	44.4	42.6
	ISCED 3-4	28.6	20.6	51.4	48.3
	ISCED 5-6	29.9	21.5	46.9	44.0
marriage-status	not married	25.9	13.7	41.5	34.1
	married	34.4	28.0	51.2	51.9
familial situation	living alone	25.2	14.7	42.2	31.8
	living with partner & without children	31.9	18.8	48.8	47.8
	living without partner & with children	30.3	16.7	34.1	41.2
	living with partner & with children	34.3	25.1	53.1	53.9
mobility [C]	non-mobile	32.0	25.3	52.1	45.9
	circular mobile	32.8	15.0	46.8	44.4
	relocation mobile	16.0	6.2	18.9	30.8
	relocation and circular mobile	12.2	6.7	22.2	23.3
region in Germany	West-Germany	29.7			
	East-Germany	33.3			
region in France	Île-de-France		14.0		
	Bassin Parisien		22.6		
	Nord-pas-de-Calais		22.4		
	Est		21.4		
	Ouest		25.5		
	Sud-Ouest		17.2		
	Centre-Est		25.4		
	Mediterranee		23.6		
region in Switzerland	Région Lémanique				56.9
	Espace Mitteland				44.8
	Nordwestschweiz				39.5
	Zürich				37.8
	Ostschweiz				37.0
	Zentralschweiz				43.4

Source: Job Mobilities and Family Lives in Europe.

[A] The values of all independent variables were measured at first wave.

[B] The various natinal school levels are recoded into camparable general categories, based on the ISCED-97 classification („International Standard Classification of Education“).

[C] circular mobile = Long Distance Commuters, Shuttlers, Long Distance Relationships, Vari-Mobiles; relocation mobile =Recent Relocator; relocation and circular mobile = Recent Relocator and at least one circular mobility type simultaneously.

Table 6: Selectivity of the drop-outs – multivariate binary logistic regression (odds ratios)[A]

		Asked again in second wave? (odds ratio[d])			
		Germany	France	Spain	Switzerland
sex	male *(ref.)*	--	--	--	--
	female	1.045	0.669*	1.143	1.018
age	25-34 years *(ref.)*	--	--	--	--
	35-44 years	1.510*	1.958*	1.481*	0.958
	45-54 years	1.680*	1.804*	1.385+	1.386+
education [B]	ISCED 0-2 *(ref.)*	--	--	--	--
	ISCED 3-4	0.962	1.274	1.425*	1.296
	ISCED 5-6	1.070	1.825*	1.304+	1.085
marriage-status	not married *(ref.)*	--	--	--	--
	married	1.152	2.248*	1.087	1.593*
familial situation	living alone *(ref.)*	--	--	--	--
	living with partner & without children	1.082	0.973	1.063	1.376+
	living without partner & with children	0.992	0.953	0.570	1.273
	living with partner & with children	1.121	0.889	1.269	1.602+
mobility [C]	non-mobile *(ref.)*	--	--	--	--
	circular mobile	1.069	0.545*	0.828	0.999
	relocation mobile	0.497*	0.222*	0.231*	0.755
	relocation and circular mobile	0.385*	0.191*	0.313*	0.358*
region in Germany	West-Germany *(ref.)*	--			
	East-Germany	1.155			
region in France	Île-de-France *(ref.)*		--		
	Bassin Parisien		1.799*		
	Nord-pas-de-Calais		1.544		
	Est		1.595		
	Ouest		2.199*		
	Sud-Ouest		1.280		
	Centre-Est		2.121*		
	Mediterranee		1.736+		
region in Switzerland	Région Lémanique *(ref.)*				--
	Espace Mitteland				0.578*
	Nordwestschweiz				0.464*
	Zürich				0.449*
	Ostschweiz				0.401*
	Zentralschweiz				0.557*
	Nagelkerkes R^2	0.041	0.130	0.074	0.093

Source: Job Mobilities and Family Lives in Europe.

[A] The values of all independent variables were measured at first wave.
[B] The various natinal school levels are recoded into camparable general categories, based on the ISCED-97 classification („International Standard Classification of Education").
[C] circular mobile = Long Distance Commuters, Shuttlers, Long Distance Relationships, Vari-Mobiles; relocation mobile = Recent Relocators; relocation and circular mobile = Recent Relocator and at least one circular mobility type simultaneously.
[d] level of significance: +p < 0.10; * p < 0.05

Regarding the results of the multivariate analysis (cf. Table 6), the explanatory power of the coefficients for certain characteristics varies between the countries. For example, "marriage status" plays a significant role in France and Switzerland, but not in Spain and Germany. Although we see a tendency toward a higher response rate for highly educated people, the effect of education is quite heterogeneous between the countries.

However, two variables affect the propensity to re-participate in all countries: the "age" and the "mobility status" of the respondent.

Respondents aged between 25 an 34 years have a higher-than-average drop-out rate in every country. This could be explained by the relatively high propensity of younger people to relocate (e.g. Heidenreich/Herter-Eschweiler 2002: 675)[15] in combination with the fact, that people, who changed their place of residence after the date of the first wave interview, most likely dropped out of the panel-sample (cf. section 2).

A higher probability to relocate between the waves can also be expected for people who have already experienced relocations in the past (cf. section 7). Consistent with this, people, who have relocated over a long distance within the last three years before the day of the first wave interview, were more likely to drop out of the panel sample. In three of the four countries, the highest drop-out propensity can be found in respondents who were identified as Recent Relocators and at the same time were practising circular mobility at the day of the interview in 2007. More in-depth analysis conducted with the German subsample has revealed that these mobile persons very often refused to participate again immediately after the first wave interview (Skora/Rüger/Schneider 2012)[16]. One reason for the increased propensity to refusing can be seen in the average interview-length of respondents who were mobile in multiple ways. The questionnaire contained specific questions for every type of mobility that was identified as being practiced by the respondent. Due to the relatively long interviews, some of those Multi-Mobiles might have refused to participate again. Only in France, being circular mobile without recent relocation experiences is lowering the probability for participating again in this study.

In France and Switzerland, the residence of the respondent is a strong predictor. In France, people living in the agglomeration of Paris (Île-de-France) are more likely to drop out of the sample. In Switzerland, the probability to drop out of the sample is lower in the region of the Geneva Lake (French-speaking) compared to the other regions of the country (bilingual or German-speaking).

9 Weighting

This section describes the building of a panel-weight and presents a comparison of the weighted and unweighted distribution of the panel data, differentiated by central socio-demographic attributes.

9.1 Weighting of the First Wave on the National Level

For the sample of the first wave, a weighting factor[17] was built to adjust biases which resulted either due to the sampling design or due to selective drop-outs (unit-non-response). The final

[15] Heidenreich, Hans-Joachim; Herter-Eschweiler, Robert (2002): Längsschnittdaten aus dem Mikrozensus. Basis für neue Analysemöglichkeiten. In: Wirtschaft und Statistik, 8/2002.

[16] Skora, Thomas; Rüger, Heiko; Schneider, Norbert F. (2012): Dokumentation der deutschen Stichprobe des Surveys Job Mobilities and Family Lives in Europe – Zweite Welle. JobMob and FamLives Working Paper 2012-01.

[17] The building of the weights for the first wave is described in detail in: Schneider, Norbert F.; Lück, Detlev; Ruppenthal, Silvia; Rüger, Heiko (2011): Code Book for the Job Mobilities and Family Lives Data Set. First Wave. JobMob and FamLives Working Paper (JFW), No. 11-02, available on: www.jobmob-and-famlives.eu.

weighting variable bases upon three weighting variables, each adjusting one specific bias.

a) The design weight, correcting the oversampling of mobile respondents in the data-set, composed of the two samples: S1 and S2.

b) The design weight, correcting differing selection probabilities of the respondent according to the number of household members, aged 25 to 54.

c) The adjustment weight, correcting biases resulting from unit-non-response.

a) The Design Weight, Correcting the Oversampling of Mobile Respondents

The research design implied an oversampling of job-mobile people (sample S2).

The "true" portion of job-related spatial mobile people in the target population should be in accordance with the portion of job-mobile people in the representative sample S1. Therefore, a weighting factor wa_i is necessary that adjusts the number of mobile cases of the total sample (S1 + S2) to the number of mobile cases of the subsample S1. In contrast, the number of non-mobile cases has to remain unchanged:

$$wa_i = \frac{n(Mobile)_{s1}}{n(Mobile)_{s1+s2}} \qquad \text{for mobile respondents}$$

$$wa_i = 1 \qquad \text{for non-mobile respondents}$$

b) The Design Weight, Correcting Differing Selection Probabilities of Household Members

According to the applied sampling technique, which was based on randomly generated landline phone numbers, every household with a landline number had the same chance of being selected. However, on the level of the household members, the chance of being selected differed according to the number of eligible people in the household. The more people aged 25 to 54 are living in a household the lower is the chance for each individual to be interviewed. Thus, the chance is reversed to the number of people aged 25 to 54 in the household. This number is referred to as the „reduced household size" (rhs). If the weight did not need to be case-neutral, it could simply be calculated as:

$$wb_i = rhs_i$$

However, using the reduced household size as a weighting factor would increase the sample size. Therfore, a correction factor was added that makes the weight wb_i case neutral:

$$wb_i = \frac{rhs_i * n}{\sum rhs_i}$$

The aim of weigthing is to generate a weighting factor, which allows for adjusting several biases simultaneously. Building a weighting variable wab_i that corrects the oversampling of job-mobile people (wa_i) and the differing selection propabilities of household members (wb_i) simultaneously, could have been adequately realised by multiplying both weighting factors, but only if they are statistically independent. Therefore, to make wa_i and wb_i statistically independent wb_i was calculated for mobiles and for non-mobiles separately. In each of the two subsamples, the respective number of cases and $\sum (\mathrm{rhs}_i)$ was used. Thereupon it was possible to multiply wa_i and wb_i in order to generate a weighting factor wab_i that corrects both design biases simultaneously. This weighting factor wab_i served as the basis weight for the subsequent building of a weigthing factor that additionally corrects selective unit-non-response.

c) The Adjustment Weight, Correcting the Unit-Non-Response Bias

After generating the design weight, an adjustment weight that corrects the bias caused by unit-non-response was created. For this purpose, census data provided by the national statistical offices of the participating countries were used as the reference. The same set of variables (with minor deviations) was used in all countries to adapt the distribution of the data-set to the distribution of the census data:

1) age, measured in 10-year brackets: 25-34 / 35-44 / 45-54
2) sex: female / male
3) education, based on the ISCED classification, collapsed to three categories: ISCED level 0-2 / level 3-4 / level 5-6
4) one aspect of family composition, with national variation, depending on available statistics:
   a) presence of children under 18 in the household (yes/no)
   b) presence of children in the household (yes/no)
   c) having children under 18 (yes/no)
   d) having children (yes/no)
   e) living with a partner in the same household (yes/no)
   f) marital status (married/not married)
5) one aspect of geographic distribution, with national variation

The weight was calculated by applying the SAS makro „Calmar". Calmar adjusts the margins of a defined set of variables simultaneously to predetermined distributions. This adjustment was realised by means of a calibration procedure which is also called „raking" or „iterative proportional fitting". The design weights wab_i were defined as the initial weights. In order to avoid an increased standard error, no adjustment weight was allowed to exceed 1.3.

These weighting factors ($wabc_i$) correct design-based biases and adjust the distribution of the data set to the distribution found in the national census data. In the final data set, these weighting factors are provided by the variable *w_nation*.

9.2 Weighting of the Panel on the National Level

Constitutive for building a longitudinal weight is the idea of weighting all respondents of the panel study by their inverse propability of being an element of the panel sample.

To be an element of the panel sample, an individual has to comply with two requirements: Firstly, the individual has to have already been a respondent of the first wave sample. Secondly, this person has to have participated at the second wave again. Therefore, each respondent's propability of being an element of the panel sample $P(w1_i \cap w2_i)$ can be ascertained by multiplying the individual's probability of being an element of the first wave $P(w1_i)$ by the individual's probability to reparticipate again in the second wave, referred to as the "staying probability" $P(w2_i \mid w1_i)$[18]:

$$P(w1_i \cap w2_i) = P(w1_i) * P(w2_i \mid w1_i)$$

[18] Generally speaking, this „staying probability" expresses the probability that a respondent of the first wave will participate again in the second wave.

The panel weight can be specified as:

$$wp_i = \frac{1}{P(w1_i) * P(w2_i \mid w1_i)}$$

Thus, information about $P(w1_i)$ and $P(w1_i \cap w2_i)$ are needed.

The individual's inverse probability of being an element of the first wave $[1/P(w1_i)]$ is equal to the respective weighting factor of the first wave $wabc_i$ (cf.section 9.1). We can therefore calculate wpa_i by multiplying this weighting factor by the inverse staying probability:

$$wpa_i = wabc_i * \frac{1}{P(w2_i \mid w1_i)}$$

Each respondent's staying probability $P(w1_i \cap w2_i)$ was ascertained by running a binary logistic regression analysis, taking into account all respondents of the first wave. This analysis was run separately for each country's subsample to account for country-specific drop-out patterns. The dependent variable was assigned the value 1, if the respondent has participated in the second wave; otherwise it was assigned the value 0. As covariates the following variables were included:[19]

1) sex: female / male
2) age, measured in 10-year brackets: 25-34 / 35-44 / 45 - 54
3) education, based on the ISCED classification, collapsed to three categories: ISCED level 0-2 / level 3-4 / level 5-6
4) marriage status: married / not married
5) familial situation: living alone / living with partner & without children / living without partner & with children / living with partner & with children
6) mobility status: Long Distance Commuter / Overnighter or Long Distance Relationship / Recent Relocator / Multi-Mobile / Experienced (non-mobile 1) / Rejector (non-mobile 2) / Unchallenged (non-mobile 3)
7) One aspect of geographic distribution for the subsamples of Germany, France and Switzerland (cf. table 6).

This weighting factor corrects biases due to selective drop-outs between the waves as well as biases that emerged from the sampling of the first wave and therefore adjusts the distribution of the panel sample to the distribution of the weighted first wave sample. But a weighting factor calculated in this manner also increases the reported sample size. If this weight would be applied, the reported sample size would be (approximately) equal to the sample size of the weighted first wave sample. To avoid this over-reporting, a correction term was added, that makes the weights case-neutral. The previously generated weight was multiplied by the ratio of unweighted and weighted sample size:

$$wpb_i = wabc_i * \frac{1}{P(w2_i \mid w1_i)} * \frac{n}{\sum(wpa_i)}$$

This weight corrects biases that can be ascribed to the sampling of the first wave and/or to selective drop outs between the waves. It adjusts the socio-demographic structure of the panel data to the structure of the weighted data of the first wave. Therefore, the weight allows for precise conclusions about the study's target population in a longitudinal perspective.

[19] For the variables age, sex and education, their trivariate distribution was used.

However, for some respondents of the Swiss subsample, high weighting factors were detected, with the highest weights having a value of more than 10. These weights resulted by multiplying a high weight of the first wave by a high value of the inverse staying propability. To avoid this, the 95%-percentile was chosen to be the limit. Every weighting factor that exceeded the weighting factor of the 95%-percentile (3.0761) was assigned to this value. This procedure led to a decrease of the reported sample size of the Swiss subsample (from 440 cases to 393 cases). Therefore, the weights of the Swiss subsample were made case-neutral again by multiplying all weights by the ratio of unweighted and weighted sample size (440/393). This correction implies an increase of all weights of the swiss subsample. The highest weight of the Swiss data after this transformation is 3.4430.

Table 7 shows the distribution of the final weights. Table 8 shows the distribution of the unweighted (A) and the weighted (B) panel sample. Additionally, the distribution of the weighted first wave sample (C) is depicted, which can be regarded as the target figure.

Table 7: Distribution of Final Weights

	Germany	France	Spain	Switzerland
Mean	1.000	1.000	1.000	1.000
90% decile	2.097	2.081	2.355	2.502
Median	0.814	0.640	0.581	0.719
10% decile	0.304	0.283	0.138	0.232

Source: Job Mobilities and Family Lives in Europe.

Table 8: Sample Descriptions Before and After Weightings

	Germany			France			Spain			Switzerland		
	A	B	C	A	B	C	A	B	C	A	B	C
sex												
male	39.1	49.8	50.5	42.9	50.5	49.1	38.9	52.4	50.8	47.5	51.4	50.4
female	60.9	50.2	49.5	57.1	49.5	50.9	61.1	47.6	49.2	52.5	48.6	49.6
age												
25-34 years	21.4	29.0	27.3	15.4	31.6	31.5	22.6	36.9	36.9	22.7	34.9	33.0
35-44 years	38.9	38.7	38.8	40.6	34.7	34.9	41.3	33.6	34.8	33.9	35.1	36.5
45-54 years	39.7	32.3	33.9	44.1	33.7	33.6	36.1	29.5	28.3	43.4	29.9	30.5
education												
ISCED 0-2	44.9	67.7	68.4	31.0	42.1	43.9	28.9	33.4	33.9	46.1	62.2	64.3
ISCED 3-4	25.4	15.1	14.8	18.1	20.4	20.2	30.2	44.6	44.1	10.0	6.2	7.9
ISCED 5-6	29.7	17.2	16.8	50.8	37.5	35.9	41.0	22.0	22.1	44.0	31.5	27.8
marriage-status												
not married	41.3	47.1	44.6	33.5	46.9	45.1	33.9	37.6	35.8	35.9	31.6	32.7
married	58.7	52.9	55.4	66.5	53.1	54.9	66.1	62.4	64.2	64.1	68.4	67.3
familial situation												
living alone	24.0	24.8	24.1	15.0	16.4	15.5	23.6	26.1	22.8	21.4	17.3	20.2
living with partner & without children	48.8	50.3	49.1	18.9	21.4	21.2	51.2	53.7	55.1	58.2	59.4	58.8
living without partner & with children	6.0	5.1	4.7	7.5	7.8	5.7	2.6	2.0	2.7	3.2	2.7	2.5
living with partner & with children	21.2	19.8	22.2	58.7	54.4	57.5	22.5	18.2	19.4	17.3	20.7	18.5
mobility												
non-mobile	79.2	82.5	83.6	81.5	82.7	85.7	65.5	87.4	88.2	67.5	86.9	88.2
circular mobile	15.7	12.2	11.1	14.6	9.0	8.5	30.4	10.3	9.6	25.5	9.8	8.4
relocation mobile	4.0	3.5	3.8	3.1	7.0	4.7	2.6	1.9	1.4	5.5	2.8	2.4
relocation and circular mobile	1.2	1.8	1.5	0.8	1.2	1.1	1.5	0.5	0.7	1.6	0.5	1.0

Source: Job Mobilities and Family Lives in Europe.
A = panel-sample unweighted; B = panel-sample weighted; C = first wave weighted. Values of all variables were collected in 2007 (first wave).

9.3 Weighting of the Panel on the European Level

The panel weights, calculated as described in the previous section, are suitable for analyses on the national level. They can be used if the analyses are either limited to one single country or differentiated by country (cross-country comparison). However, they may not be appropriate if statistics are calculated for two or more countries without differentiating between them, as they do not take into account the relative sample sizes of the four countries. In addition, the relative national subsample sizes are expected to have an effect on the results: the larger the relative subsamples size of a given country, the greater the influence of this country' ratios and relationships on the common results.

Thus, as it has been done for the sample of the first wave (cf. Schneider et al. 2011; Huynen/Hubert/Lück 2010), two additional weighting variables were created, each one relying on a different rule for adjusting the sample sizes: the "proportional weight" and the "equal weight".

The *proportional weights* adjust the relative national subsample sizes according the relative sizes of the four target populations (the numbers of inhabitans aged 25 to 54 in the year 2007 in each country). These weights allow analyses that are representative of the total target population. They are appropriate for any descriptive and univariate analysis (means and ratios) with regard to the four countries in total or any other collective of at least two countries. To build the proportional weights one national sample size (the German one) was left untouched as a reference. The proportional weights were calculated by multiplying the national panel weights of each national sample by 504 (the national sample size for Germany) and dividing it by the national sample sizes of the respective countries. To avoid that the size of each national sample is turned into n=504, the calculation was subsequently corrected by the size of the national target population in relation to the size of the target population in Germany, wich equals 35,552,222[20]:

$$wp_{prop} = wp_{nation} * \frac{\text{German sample size}}{\text{national sample size}} * \frac{\text{size of national target population}}{\text{size of German target population}}$$

The *equal weights* adjust all national subsamples to one size (n=430). This approach of sample size adjustment addresses the problem of unequal impacts of macro-level contexts on individual behaviour and thus on response behaviour, if analytical analyses (correlations between two ore more variables) are carried out based upon two ore more national samples jointly. Macro-level conditions, such as policies, infrastructure or cultural beliefs exert an influence on individual behaviour. As long as analyses are limited to one nation, these contexts are mainly kept constant. But they cause variance in response behaviour if two or more nations are jointly analysed: the results will be unequally affected by the national contexts, giving more importance to large countries' contexts. Thus, applying equal weights can be appropiate when analyses of two or more countries are concerned with correlations and relations between two or more variables.

For the equal weights it was decided to choose a sample size of n=430 for each country sample. This decision was motivated by the aim to keep the total sample size of the equally weighted "four country panel" (n= 1,720) close to the total sample size of the

[20] This way of calculating the proportional weights for the panel sample is basically identical to the method that was applied for calculating the proportional weights for the first wave data-set. Cf.: Huynen, Philippe; Hubert, Michel; Lück, Detlev (2010): Research Design. In: Schneider, Norbert F.; Collet, Beate (eds.) (2010): Mobile Living Across Europe. Volume II. Causes and Consequences of Job-Related Spatial Mobility in Cross-National Perspective. Opladen: Barbara Budrich, 25-36.

uweighted panel data set (n=1,735).[21] The equal weights were calculated by multiplying the national panel weights by 430 and dividing it by the unweighted national sample size:

$$wp_{equal} = wp_{nation} * \frac{430}{\text{national sample size}}$$

Table 9 presents an overview of the particular case numbers according to the weights, generated for the panel study.

Table 9: Case Numbers According to Various Weights

		Germany	France	Spain	Switzerland	Total
(1)	Sample sizes[A]	504	254	537	440	1,735
(2)	size of the target population (in 2007)	35,552,222	25,144,82	20,754,768	3,303,564	84,754,636
(3)	Sample sizes after proportional weighting	504	357	294	47	1,201
(4)	Ratio (3) to (1)	1.000	1.406	0.547	0.107	0.692
(5)	Sample sizes after equal weighting	430	430	430	430	1,720
(6)	Ratio (5) to (1)	0.853	1.693	0.801	0.977	0.991

Source: Job Mobilities and Family Lives in Europe.

[A] without weighting or with (case-neutral) national weighting

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[21] The unweighted sample sizes of the four countries are quite heterogeneous. Especially French cases are sparse in comparison to the other national sample sizes. To reach the sample size of n=430, the French sample gets upweighted by 69%, implying the risk of overestimating the reliability of results for this country. However, trying to avoid this up-weighting by choosing a much lower sample size for the equal weights would necessitate down-weighting the samples of Germany, Spain and Switzerland strongly, giving rise to the risk of underestimating the reliability of results for these three countries.

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