
**LONGITUDINAL DATA COLLECTION IN
CONTINENTAL EUROPE: EXPERIENCES FROM
THE SURVEY OF HEALTH, AGEING AND
RETIREMENT IN EUROPE (SHARE)**

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1. Population Ageing is a Social (Science) Challenge – The Need for a Longitudinal Survey of Health, Ageing and Retirement in Europe

To cope with the challenges of Europe's rapid population ageing, it is important to improve our understanding of the complex linkages between economic, health, and social factors determining the quality of life of the older population. These interactions take place at the individual level in the first place, they are dynamic – as ageing is a process, not a state in time – and they must be related to a country's welfare regime. So far, however, cross-nationally comparable, longitudinal micro-data on the economic, social, and health situation of older people in Europe were missing.

The '*Survey of Health, Ageing and Retirement in Europe*' (SHARE) is closing this gap. So far, SHARE collected data on the health, social, and economic situation of more than 30,000 individuals aged 50 or older. In 2004, a baseline wave of data collection was conducted in 11 countries, ranging from Scandinavia (Denmark and

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Sweden) through Central Europe (Austria, France, Germany, Switzerland, Belgium, and the Netherlands) to the Mediterranean (Spain, Italy, and Greece). In 2005-06, further SHARE data were collected in Israel. For the second wave of data collection, which was conducted in 2006-07, two 'new' EU member states – the Czech Republic and Poland – as well as Ireland joined SHARE. The survey's third wave, which is scheduled for 2008-09, will focus on the collection of detailed life-histories of respondents who participated in previous waves. Further waves are being planned to take place on a biennial basis.

Substantively, SHARE provides an infrastructure helping researchers to understand better the individual and population ageing process: where we are, where we are heading to and how we can influence the quality of life as we age – both as individuals and as societies (cf. Börsch-Supan et al. 2005; 2008). *Methodologically*, SHARE provides a unique opportunity to address a broad range of survey- research issues against the background of an ongoing large-scale cross-national study with a longitudinal perspective (cf. Börsch-Supan & Jürges 2005). This chapter focuses on methodological issues of SHARE. It begins with a history of the SHARE baseline wave (Section 2), focussing on efforts made to ascertain cross-national comparability. We then describe the 'longitudinal' experiences from the survey's second round (Section 3), followed by an overview of the preparations for collecting life-histories in wave 3 (Section 4). The final Section 5 concludes with an outlook on the future of SHARE.

2. Getting Started – The 2004 SHARE Baseline Wave

Based on the models of the U.S. Health and Retirement Study (cf. Juster & Suzman 1995) and the English Longitudinal Study of Ageing (cf. Marmot et al. 2003), the SHARE development process started in January 2002 (see Börsch-Supan & Kemperman, 2005, for details). Draft versions of the questionnaire were tested in a series of pilot and pretest studies, which eventually resulted in the final SHARE baseline instrument in September 2004 (see Börsch-Supan & Jürges, 2005: Appendix B, for the main questionnaire). Already during this design stage, ascertaining cross-national comparability was a major concern for SHARE, which is particularly reflected in the project's efforts regarding (a) survey software, (b) translation, and (c) sampling design.

(a) *Survey software* (see Das et al., 2005, for details): The SHARE data were collected using a centrally-developed, Computer-Assisted Personal Interviewing (CAPI) program, which allowed each country involved to use exactly the same underlying structure of meta-data and routing. The only difference across countries was the language. This mechanism, where question texts are separated from question routing, enforces the comparability of all country-specific translations with a generic questionnaire. The CAPI program was written in Blaise, a computer-assisted interviewing system and survey processing tool developed by Statistics Netherlands. The generic CAPI instrument was directly implemented in Blaise, and the generic texts (in English) were stored in an external database. The different countries translated their versions of the instrument using the Internet and a newly developed Language Management Utility (LMU). Another program was written converting all translated text from the LMU database into a country-specific survey instrument,

based on the blueprint of the generic version. There were only few exceptions to the generic blueprint of the questionnaire. Country-specific parts were introduced if institutions were fundamentally different or by skipping irrelevant answer categories (by adding new country-specific answer categories, respectively) in the LMU. These exceptions never led to a different sequence of questions for a specific country. Another new software development was a Sample Management System (SMS) to manage the co-ordination of the fieldwork. Only three countries used their own system: France, Switzerland, and The Netherlands. The SMS basically consists of a list of all households in the gross sample that should be approached by the interviewer. Contact notes and registrations, appointments with respondents, and area and case information could be entered in the system, and the system enforced common procedures for re-contacting respondents and how to handle non-response.

(b) Translation (see Harkness, 2005, for details): Although each country participating in the project organised its own translation effort, the SHARE co-ordinator initiated several activities to support the individual translation efforts and to ensure cross-national comparability. SHARE countries were provided with general guidelines for the translations process, similar to those used in the European Social Survey, for example. The guidelines advocated organising a team to complete the translation and to review translations. The team would then bring together the language and translation skills, survey questionnaire know-how and substantive expertise needed to handle the SHARE questionnaire modules. Eventually, the co-ordinator commissioned a professional review of a sample of the first draft of SHARE translations. SHARE countries were provided with feedback from an external set of translators. The translators commented in detail on selected questions and submitted a

brief general appraisal of the translation draft. This procedure was repeated for a later draft of the questionnaire and feedback again provided to SHARE participants. The pilot-and-pretest design of the SHARE study, coupled with the translation guidelines and appraisals, provided the SHARE project with a rare opportunity to refine and correct the source questionnaire and the translated versions.

(c) *Sampling design* (see Klevmarken et al., 2005, for details): In the participating SHARE countries the institutional conditions with respect to sampling are so different that a uniform sampling design for the entire project was infeasible. Good sampling frames for our target population of individuals 50+ and households with at least one 50+ individual did not exist or could not be used in all countries. In most countries there were registers of individuals that permitted stratification by age. In some countries these registers were administered at a regional level. Germany and the Netherlands are two examples. In these cases, we needed a two or multi-stage design in which regions were sampled first and then individuals selected within regions. In the two Nordic countries Denmark and Sweden we could draw the samples from national population registers and thus use a relatively simple and efficient design. In France and Spain it became possible to get access to population registers through the co-operation with the national statistical office, while in other countries no co-operation was possible. In three countries, Austria, Greece and Switzerland, we had to use telephone directories as sampling frames and pre-screening in the field of eligible sample participants.¹ As a result the sampling designs used vary from simple

¹ While the share of the target population which is automatically excluded from the sampling frame because the household does not own a telephone is relatively small, non-coverage resulting from unlisted numbers could be a somewhat more serious issue. In Switzerland, for

random selection of households to rather complicated multi-stage designs. In the three countries that used telephone directories and in Denmark the final sampling unit was a household, while in all other countries the final unit of selection was an individual.

Table 1: Description of 2004 SHARE sample and response rates (Release 2)

| Country | Total | Male | Female | Under 50 | 50 to 64 | 65 to 74 | 75+ | Household Response Rate* | Individual Response Rate* |
|--------------|---------------|---------------|---------------|--------------|---------------|--------------|--------------|--------------------------|---------------------------|
| Austria | 1,893 | 782 | 1,111 | 44 | 949 | 544 | 356 | 55.6% | 87.5% |
| Belgium | 3,827 | 1,739 | 2,088 | 178 | 1,991 | 986 | 672 | 39.7% | 90.6% |
| Denmark | 1,707 | 771 | 936 | 92 | 916 | 369 | 330 | 63.2% | 93.0% |
| France | 3,193 | 1,386 | 1,807 | 155 | 1,648 | 759 | 631 | 79.2% | 92.3% |
| Germany | 3,008 | 1,380 | 1,628 | 65 | 1,569 | 886 | 486 | 60.8% | 86.4% |
| Greece | 2,898 | 1,244 | 1,654 | 229 | 1,458 | 712 | 499 | 63.4% | 92.4% |
| Israel | 2,598 | 1,139 | 1,459 | 142 | 1,416 | 690 | 347 | 68.1% | 83.9% |
| Italy | 2,559 | 1,132 | 1,427 | 51 | 1,342 | 785 | 381 | 52.8% | 79.1% |
| Netherlands | 2,979 | 1,368 | 1,611 | 102 | 1,693 | 713 | 459 | 60.6% | 88.0% |
| Spain | 2,396 | 994 | 1,402 | 42 | 1,079 | 701 | 573 | 54.3% | 73.7% |
| Sweden | 3,053 | 1,414 | 1,639 | 56 | 1,589 | 816 | 592 | 47.3% | 84.4% |
| Switzerland | 1,004 | 462 | 542 | 42 | 505 | 251 | 204 | 38.8% | 86.9% |
| Total | 31,115 | 13,811 | 17,304 | 1,198 | 16,155 | 8,212 | 5,530 | 60.6% | 85.0% |

* Weighted average. *Source:* <http://www.share-project.org>.

During the fieldwork period of the SHARE baseline study, which was mainly conducted from May through October 2004, field progress and quality of the incoming data were monitored thoroughly, contributing to ensuring cross-national comparability of the data also at this stage of the project (see de Luca & Lipps, 2005, for details). After completion of the fieldwork period, considerable efforts were made

example, about 1.5% of all private households do not own a telephone, whereas about 8% of those which do are not registered in the telephone directory. Although the exclusive use of cell phones becomes an increasing problem for sampling frames based on phone directories, this should yet be a rather negligible issue for SHARE with its relatively old target population aged 50 and older.

to transform the SHARE raw data into a user-friendly database, resulting in a preliminary public Release 1 in May 2005 and a further Release 2 in June 2007 (see Table 1 for descriptive statistics).² Post-fieldwork activities included (i) extensive data cleaning, (ii) generation of user-friendly indicators (e.g., Jürges 2005), (iii) computation of calibrated design weights (Klevmarken et al. 2005), (iv) non-response analysis (cf. de Luca & Peracchi 2005; Kalwij & van Soest 2005), and (v) imputation of missing income and asset information (cf. Brugiavini et al. 2005; Christelis et al. 2005).

3. SHARE Goes Longitudinal – The Second Wave of Data Collection in 2006-07

When preparing and conducting the second wave of data collection (cf. Börsch-Supan et al. 2008), a major concern for the SHARE team was to maintain in the panel study the high level of cross-national comparability achieved in the baseline wave. The main fieldwork period of SHARE's second round lasted from October 2006 until September 2007. In some countries the fieldwork period was prolonged, as the specific sample requirements of SHARE – following respondents who had moved to their new residence (including nursing homes) and end-of-life interviews – required in some cases very time-consuming (administrative) efforts by survey agencies.

² Researchers may download the currently available SHARE data free of charge from the project's website at <http://www.share-project.org>. This website also provides users with a detailed documentation, including questionnaires in all languages and an overview of country-specific deviations from the generic survey instrument.

The survey software developed for the SHARE baseline wave was carefully adapted to serve the needs of a longitudinal survey. First, in some countries institutions had changed: new pension options have been introduced, particularly in the private market; some countries had health-care reforms; the set of available financial instruments has changed; transfer incomes have been reformed. We thus adapted the country-specific parts of the questionnaire in which these options and institutions are mentioned. Second, we adapted and improved the flow of the instrument by using pre-loaded information from the first wave. Such pre-loading, although it involves a lot of programming and testing effort, has several advantages in terms of data quality. For instance, it allows matching respondents easily across waves, to record changes in household composition, to monitor changes in labour market status, or to learn about the incidence of chronic conditions.

A longitudinal study requires a permanent-status update of all involved panel respondents. First, one wants to keep track of respondents who are moving. To this end, we maintain regular contact to panel members (“panel care”), for instance by sending a Spring/Easter postcard each year with a response card attached that will be sent back in the case of a move with the new address, or by sending a brochure with new results from SHARE-based research that is of general interest.

Second, it is crucial to have a reliable account of what has happened to panel members who do not re-appear in the next wave, where one needs to distinguish between moving, temporary illness and death, in particular when respondents live by themselves and in isolation from relatives, friends and neighbours as is often the case with the oldest old. Interviewers have been advised and trained to verify the status of each sample person. In some countries, interviewers or fieldwork agencies had access

to death certificates or registration records, being able to cross-reference the respondent data base with register data. In other countries, such records are inaccessible or do not exist, requiring a co-ordinated approach of tracking panel members, for instance by sending interviewers to addresses of respondents with unknown status and to ascertain the vital status of previous respondents.

Several methodological innovations have been introduced in wave 2, with cross-national comparability being a major concern. First, we added two new health measurements (respiratory peak flow and chair stand³) to our existing gait-speed and hand-grip strength measurements (cf. Hank et al. 2008). Second, we included a set of anchoring vignettes (e.g., King & Wand 2007) not only for a wide range of health domains but also for work disability; quality of life, employment and health care, and satisfaction with political institutions. In a diverse continent like Europe, cross-national comparisons using surveys among households and individuals often from differences across countries and socio-economic groups in the way people answer survey questions, particularly self-evaluations of, for example, health or quality of work. Anchoring vignettes aim at solving this problem. Anchoring vignettes are short descriptions of, for example, the health or job characteristics of hypothetical persons. Respondents are asked to evaluate the hypothetical persons on the same scale on which they assess their own health or job. Respondents are thus providing an anchor, which fixes their own health assessment to a predetermined health status or job

³ The chair stand test measures strength and endurance in legs and lower body as well as speed and coordination. A stop watch is used to measure the time (in seconds) it takes a person to stand up from a sitting position and sit down again five times, while holding the arms crossed over the chest.

characteristic. These anchors can then be used to make subjective assessments comparable across countries and socio-economic groups. We have collected vignette ratings for a sub-group of about 600 respondents per country. The results are currently being used to construct improved cross-nationally comparable indicators of health, well-being, job satisfaction, and so on (see www.compare-project.org for detailed information).

Another innovation in wave 2 was the introduction of an "end of life" interview, also called exit interview. These data will give the analyst the rare opportunity to follow the lives of people right until the time of their death. In the exit interview, we have collected information on health, social well-being and economic circumstances in the last year of life of all our first wave respondents that have died between the first two rounds of data collection. Overall we have so far conducted more than 500 end-of-life interviews (for 274 men and 247 women) with so-called proxy-respondents, mostly with relatives, but also with neighbours, friends, or social workers. The average time between the decedent's death and the end of life interview was 14 months. We expect the exit interview data to be of good quality because our proxy respondents had very frequent contact with the decedent: 75.7 percent had daily contact with the deceased in the last year of his or her life, 13.3 percent had contact several times a week and only 11 percent had less frequent contact. Frequency of contact clearly varies by proxy reporter type (i.e. relationship to the deceased). Quite naturally, immediate family had the most frequent contact with the decedent. However, even among other relatives and non-relatives, more than 40 percent of the proxy reporters had daily contact.

4. SHARELIFE – Preparing a Retrospective Survey Instrument for SHARE’s Wave 3

The third wave of SHARE – under the project name “SHARELIFE” – will differ from the previous two conceptually, because here questions are asked about events that happened *throughout the respondents’ lives* with the goal of constructing a detailed life history. Although the study is conducted with the same respondents to keep the longitudinal aspect of the survey, a completely new questionnaire will be administered. SHARELIFE consists of five focus points, which correspond to the areas of interest from the regular SHARE questionnaire: Children, Partners, Accommodation, Work, and Health. For each of these different areas, we will collect the dates of certain events and the corresponding surrounding information. For example, we do not only collect the date of a residential move, but also information on region, ownership and purchasing means of the specific residence.

Similar to any survey, SHARELIFE relies on the respondent’s ability to remember events in the past. Since the respondents have at least 50 years (and some much more than that) to look back upon, good techniques are needed to reduce the potential recall error. The method of questioning that is employed in SHARELIFE is based on a so-called life history calendar (LHC; e.g., Belli 1998). The respondent’s life is basically represented graphically, with a grid that is filled through the course of the interview (see Figure 1). The idea of the LHC is to help the respondent remember by asking those life events first, that are very likely to be remembered accurately. Thus the interview usually starts with the names and birthdates of the respondent’s children and is followed by the partner history. As soon as an event is entered in the LHC, it can be referred to by the interviewer to help: for example, when a respondent

is not sure about the date of a job change, a useful probe may be: “Was that before or after your second child was born?” This principle extends to all other modules and is flexible as well: there is no need for the respondents to start with the children’s module, if they feel that they better remember another part of their life history.

Figure 1: Part of a completed Life History Calendar

| | 1962-1971 | | | | | | | | | | 1972-1981 | | | | | | | | | |
|---------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Year | '62 | '63 | '64 | '65 | '66 | '67 | '68 | '69 | '70 | '71 | '72 | '73 | '74 | '75 | '76 | '77 | '78 | '79 | '80 | '81 |
| Age | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| Children | | | | | | | | | | | | | | | | | | | | |
| Partner | | | | | | | | | | | | | | | | | | | | |
| Accommodation | | | | | | | | | | | | | | | | | | | | |
| Work | | | | | | | | | | | | | | | | | | | | |
| Health | | | | | | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | | | | | | |

Source: authors’ representation.

The process of reaching the final SHARELIFE instrument can be described easily as a combination of those steps that were completed in wave one and two. As in the first wave, the questionnaire is developed with the use of generic English tests versions followed by country specific versions, which are tested in pilot and pretest studies. After each test, the questionnaire is evaluated using the results and improved accordingly. Similar to the development in the second wave, we will use the pre-load of previously obtained information and develop further the possibilities to follow our

respondents, including the exit interviews that were already successfully used in wave two.

The SHARELIFE project started in the spring of 2007 with the first stages of questionnaire design, and will go into the field in the fall of 2008. The whole project will be finished by the end of 2009.

5. A Long-Term Data Infrastructure for Research on Ageing in Europe and Beyond – Prospects of SHARE

In 2007, SHARE was selected to be included on the roadmap of the European Strategy Forum on Research Infrastructures (ESFRI) as one of the 35 crucial pillars of the European Research Area. This allows a major upgrade of SHARE along two dimensions: *First*, it will prolong SHARE over the decade 2010-2020, generating a genuine eight wave, biennial panel that follows individuals for up to 15 years as they age and react to the changes in the social and economic environment. From a research viewpoint, the time dimension is crucial since ageing is a process that can only be understood if we observe the same individual at different points in time. *Second*, SHARE will expand to all 27 EU member states plus associated Switzerland and Israel.

Further methodological innovations are related to the envisaged inclusion of two fundamental sources of information which are currently not included in the instrument: social security numbers of respondents and so-called biomarkers. Social security numbers allow merging the SHARE data with economic data processed by various branches of the social security system. Biomarkers include physical measures

such as body mass index, grip strength, lung volume, or blood pressure, as well as biochemical measures of saliva and blood. They significantly increase the precision of health measurement, and allow important insights into the health history of the very old and the determinants of morbidity in old age.

It is the aim of a two-year ‘preparatory phase’, which started in January 2008, to bring the SHARE prototype to the level of financial, legal, governance and technical maturity required to fill important knowledge gaps in individual and population ageing. It will involve all stakeholders necessary for the major upgrade described above, among them research institutes and universities; national science ministries and foundations; two Directorates General of the European Commission; and the U.S. National Institute on Aging.

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