

European Data Watch

This section will offer descriptions as well as discussions of data sources that may be of interest to social scientists engaged in empirical research or teaching courses that include empirical investigations performed by students. The purpose is to describe the information in the data source, to give examples of questions tackled with the data and to tell how to access the data for research and teaching. We will start with data from German speaking countries that allow international comparative research. While most of the data will be at the micro level (individuals, households, or firms), more aggregate data and meta data (for regions, industries, or nations) will be included, too. Suggestions for data sources to be described in future columns (or comments on past columns) should be sent to: Joachim Wagner, University of Lueneburg, Institute of Economics, Campus 4.210, 21332 Lueneburg, Germany, or e-mailed to <wagner@uni-lueneburg.de>.

The German Socio-Economic Panel Study (SOEP) – Scope, Evolution and Enhancements

By Gert G. Wagner, Joachim R. Frick, and Jürgen Schupp*

For over a century, empirical research in the social sciences has been based not on data collected by researchers – as is the case in the natural sciences – but on official statistics. Thus, sociologists and economists, for example,

* We are grateful to Dean R. Lillard (PAM; Cornell University) and Stephen P. Jenkins (ISER, University of Essex) for comments on a first draft of this paper. All remaining errors, in particular gaps in our descriptions of other studies, are our own. We would like to emphasize that this paper is the result of teamwork of the SOEP-group in Berlin and the fieldwork agency TNS Infratest Sozialforschung Munich (Managing director Bernhard v. Rosenbladt), without which SOEP's continuing development would not be possible. We are particularly grateful to the founders and senior staff of SOEP in its early years, especially Hans-Juergen Krupp, Richard Hauser, Christof Helberger, Reinhard Hujer, Karl Ulrich Mayer, Horst Seidler, Wolfgang Zapf, Christoph F. Buechtemann and Ute Hanefeld (cf. Krupp, 2007) and various "generations" of SOEP Advisory Board members. Special thanks go to Bernhard Schaefers, Hartmut Esser, Klaus F. Zimmermann, Daniel S. Hamermesh and Gisela Trommsdorff, who all served as chairpersons of the Advisory Board.

relied solely on the statistical tables provided by federal agencies. Beginning in the 1960s, however, and in many countries even later, social scientists began to obtain limited access to statistical agencies' microdata on private households and individuals (and later on firms as well). These new data forced social scientists to concentrate on "objective" variables such as occupational status and income. The official data did not permit longitudinal analysis, although numerous social and economic theories and models were developed dealing with the life course. Today it is more apparent than ever that *longitudinal analysis is crucial* – not only to test life course models, but also to establish the causes of social phenomena and evaluate public policy programs.

Based on their experiences with the opinion polls conducted by private institutions, social scientists began as early as in the 1930s to design a new kind of longitudinal study: the panel study (Lazarsfeld / Fiske, 1938).

Today, some of the most widely used long-running household panel studies that seek to provide a representative view of the entire population of a given society include PSID (Panel Study of Income Dynamics), BHPS (British Household Panel Study), and the German Socio-Economic Panel (SOEP). These panels differ in both design and scope from the individual panel studies developed by sociologists primarily for their extended household concept. They also differ from the longitudinal cohort studies developed by epidemiologists and psychologists. Over the course of time, household panel studies have expanded in scope – driven by the experiences of their Principal Investigators (PI) and by the demands of their scientific users – and now encompass a number of new research questions, particularly questions dealing empirically with the utility of respondents and the parameters of their utility function (e.g., health and "other regarding preferences" like trust, fairness and reciprocity, risk aversion, control beliefs, inequality aversion). In other words, socio-economic panel studies are incorporating an increasing number of concepts from the fields of medicine and psychology. This development has been propelled by specific research questions, and its pioneers including the Health and Retirement Survey (HRS), the English Longitudinal Study on Aging (ELSA), and the Survey on Health, Ageing and Retirement in Europe (SHARE). The latter study provides a new comprehensive, international view on ageing, but does not cover the population under 50 years of age.

The German Socio-Economic Panel Study (SOEP) has undertaken major efforts to create a solid methodological basis for such expansions (with the hope that other panel studies will ultimately follow suit), making it a more open academic research tool than when it began in 1984. This has also included the introduction of new modes of data collection for SOEP.

The research community is unanimous that the more data are available on the individual life course within the household context, the better the opportunities for analyzing intergenerational transmissions of behavior and social

structures, and thus for disentangling the impacts of “nature” and “nurture”. Outside the social sciences, this kind of analysis is called “behavioral genetics”.¹ And, in fact, the possibilities for doing research along this line are improved by household panel data due to the variety of different intergenerational relationships captured by the households surveyed.

Panel data allows causal inferences to be drawn based on the natural experiments sometimes created through inherent differences between institutions and countries. Recent developments in statistical and econometrical methodology allow ambitious applied longitudinal research to be conducted on the basis of a panel data structure. The international comparability of data is therefore a central objective in the governance of social statistics and longitudinal studies, and this can only be guaranteed through the optimal design of organizational and financial structures. Two prime examples of “good governance” are the European Social Survey (ESS, a set of repeated cross-sectional surveys run by political scientists) and SHARE (a truly interdisciplinary longitudinal study of economics, sociology, and health). Both surveys provide internationally harmonized data sets that form an infrastructure for theory-driven research questions. Unfortunately, initiatives for cross-nationally harmonized household panels, which are more expensive than studies like ESS, are often not research-driven—for example, the ECHP (European Community Household Panel) providing annual panel data for the period 1994 to 2001. EU-SILC (Statistics on Income and Living Conditions), the follow-up survey of ECHP, will have a reduced panel component of just four waves focusing on short-term measurement of income and poverty dynamics. EU-SILC which is under control of EUROSTAT will not, however, allow the kind of in-depth life course analysis necessary for testing theoretical concepts and hypotheses in the social sciences.

All successful household panel studies under academic governance demonstrate that the real added value of panel studies can be harvested only after 10 waves and more. The Cross-National Equivalent File (CNEF, based at Cornell University) provides a common database derived from existing national panels, namely BHPS (UK), HILDA (Australia), PSID (USA), SLID (Canada), and SOEP.

To put it succinctly, the major household panel studies under academic direction stand for *theory-based data collection*, not just more data and better statistics. It is important to note that despite its context of multidisciplinary research questions, SOEP is, was, and will continue to be centered on the question of wellbeing over the life course. SOEP is not an “all-purpose study”. From the very beginning, (individual) wellbeing has been measured by two

¹ Jürgen Schupp and Gert G. Wagner are grateful to the Hanse Wissenschaftskolleg (HWK), which has provided us with a wealth of stimulating ideas, in particular at the “Evolutionary Anthropology” summer school in 2006.

types of indicators: [objective] income, the conventional approach of both economists and sociologists, and [subjective] satisfaction, an approach that in the 1980s was largely new to sociologists and still altogether foreign to economists. This twofold approach constitutes a major conceptual innovation compared to PSID, which concentrates on income (by interviewing only one person per household, its design and mode of data collection² clearly creates difficulties in obtaining reliable information on subjective indicators for other household members). In SOEP the joint measurement of both concepts (income and subjective well-being) created a unique database. New techniques of measurement have also been introduced over the years, especially for the beginning of the life course (childhood), which is now measured better than 25 years ago. Various psychological concepts have also been added in order to better explain the outcomes income and subjective well-being without changing the scope of SOEP.

This paper is organized as follows. In Section 1, we very briefly sketch out current theoretical and empirical developments in the social sciences. In our view, they all point in the same direction: toward the acute and increasing need for multidisciplinary longitudinal data covering a wide range of living conditions and based on a multitude of variables from the social sciences for both theoretical investigation and the evaluation of policy measures. Cohort and panel studies are therefore called upon to become truly *interdisciplinary tools*. In Section 2, we describe the German Socio-Economic Panel Study (SOEP), identifying recent improvements that approach this ideal but also pointing out existing shortcomings. Section 3 concludes with a discussion of potential future issues and developments for SOEP and other household panel studies.

1. Our Evaluation of Theoretical Developments

A comprehensive overview of the numerous theoretical and empirical developments that have taken place in the social, behavioral and life sciences in the last three decades is far beyond the scope of this paper. We focus on selected theoretical developments that are crucial for empirical testing and analysis and thus for data collection in the social sciences. We do not aim to review the literature nor do we claim to cite all the relevant sources.

Because SOEP is a *socio-economic* study, we take as our starting point developments in the social sciences. SOEP is designed to serve the research needs of economists and sociologists (and political scientists to some extent as well). As Diewald (2001) pointed out, there is an increasing interdisciplinarity of concepts within the social sciences. Many disciplines are dealing with the

² After starting with personal interviews, the PSID shifted to telephone interviews collecting proxy information from one respondent per household (Hill, 1992).

life course as a central element of their theoretical constructs. Sociology has begun incorporating elements of “rational choice” theory, which is in fact a basic paradigm of economics. And while, of course, economics is still dealing with “objective” concepts like employment, income, and wealth, economic models have expanded to incorporate even biological, “hard” concepts from genetics and neuroscience³ on the one hand and a wide array of “soft” sociological and social-psychological concepts on the other, such as tastes, values, personal traits, and expectations as indicators of “bounded rationality”.⁴

In the social sciences, many scholars are focusing on health variables in particular. The importance of controlling for health factors in empirical analyses has gained salience, in part because of the differing effects of health factors on different social groups (illness, for example, has been shown to affect less-educated people more severely than highly educated people).

Finally, empirical research in the social sciences suffers two major gaps that have been brought to light primarily through the release of new data sets: the issues of “ability” and “utility”. In the latter case, SOEP is one of the data sets that has always allowed for meaningful analysis of such issues. Utility is a basic concept in social sciences, described by economists in terms of its “outcome feeling”, by sociologists in terms of “cognitive well-being” (“satisfaction”), and by psychologists in terms of “affective well-being” (emotions). But due to severe measurement problems, this ultimate outcome has been a kind of black box for the last two centuries in economics and sociology.⁵

The same is true for “ability” and cognitive potentials. Social scientists (like everybody else) have long known that people – due to genetic codes, early experience (including education) and other factors as well – possess different “basic skills” (described as cognitive abilities and personal traits by psychologists). But these differences were never *explicitly* taken into account in social science theories. Ability was modeled as a distribution of “noise” or a source of bias in estimated effects. Personal traits were not even mentioned. The lack of possibilities for explicit modeling of personal traits limited the understanding of economic behavior. “Education” and “human capital” are likely to show differing impacts depending on individual ability levels, which in turn may be determined in part by individual differences in genetic makeup (because economists are aware of this, they take measurement error into account when modeling the correlation between the “noise” in their models with the variables of interest, but they do not model it explicitly).

³ See, e.g., Camerer et al. (2005), Borghans et al. (2005) and Hsu et al. (2005), De Quervain et al. (2004), McClure et al. (2004), Kuhnen/Knutson (2005), Knutson/Peterson (2005), Fehr et al. (2005a, b), Singer et al. (2006) and for a broader social science perspective, Freese et al. (2003).

⁴ For example, Kahneman (2003). For the importance of “Behavioral Economics”; see e.g., Camerer/Loewenstein (2003); and for an opposite view Gul/Pesendorfer (2005).

⁵ See, e.g., Bruni/Sugden (2007).

An important current development is the use of new kinds of data⁶ by social scientists, and in particular economists, as the basis for studies seeking to better understand the determinants of satisfaction („utility“)⁷ and the interrelation between economic behavior, success, and ability and personal traits.⁸ In order to disentangle natural effects and social environment, however, it will be necessary to study the methodological consequences of starting at the earliest possible point in the life course with the collection of data.⁹

Looking beyond the social sciences in the narrower sense, geographers too are interested in new kinds of data, in fact virtually every imaginable variable relating to spatial information (which may also be a control device for the clustering effect common to most survey samples). Researchers in psychology, public health, and epidemiology are very interested in “social” and “economic” control variables (which they call “environment”) and the rich data provided by large surveys. Furthermore, we expect that researchers in the field of traditional “behavioral genetics” will soon not only discover the social context¹⁰ but also begin to make use of household survey data to an increasing degree. What makes household survey data most interesting for this field of research is the mixture of different intergenerational relationships within as well as between households. Of particular interest are the similarities and differences in the behavior of siblings, twins, stepchildren, adopted children, and different groups of grandchildren. The analysis of “family networks” can help to disentangle the influence of genes and environment without studying genes directly.¹¹ The combination of “traditional” household panel data with new

⁶ In particular BHPS [British Household Panel Study] and SOEP are important data sources for the “psychological turn” in economics.

⁷ Measured by questions on “satisfaction” with life and certain domains of life (cf. Diener, 1994; Kroh, 2005). For this kind of analysis, see e.g., Frey / Stutzer (2002), and for a more interdisciplinary perspective (economics and psychology), see Lucas et al. (2003). For a skeptical evaluation from an economic perspective, see Hamermesh (2004). However, Hamermesh does not question the relevance of subjective outcomes themselves but raises the question as to whether it is wise for economists to do research in a field where economic tools are not as relevant as in other fields of human life. In line with this point of view, we argue that panel studies incorporating subjective outcomes can be very valuable for the scientific community outside economics.

⁸ Measured, for example, by test batteries like SAT (Scholastic Aptitude Test), ACT, GRE (Graduate Record Examination), GMAT (Graduate Management Admission Test, GED (General Educational Development Certificate), and the concept of the “Big Five” personal traits. See, e.g., Tyler et al. (2000), Lofstrom / Tyler (2004), and McCrae / Costa 1992. For these kinds of analyses, see, e.g., Denny / Sullivan (2004), Carneiro et al. (2005), Dolton et al. (2005), Green / Riddell (2002), Heijke et al. (2003), Nyhus / Pons (2005), Groves et al. (2007).

⁹ It will then no longer be necessary to rely on “twin studies” alone, which are often unsatisfying from a methodological point of view due to the limited number of twins separated at birth.

¹⁰ See, e.g., Shanahan et al. (2004).

¹¹ Baker (2004, 42).

kinds of data can turn household panel studies into powerful instruments for new kinds of studies in behavioral genetics.

Contextual information about networks, neighborhood, and the environment is in demand as well. Prominent examples of this focus are not only “linked employer-employee datasets” but also neighborhood effects studies (measured by geocode data). If we are successful in providing this kind of data, we will improve the empirical possibilities for distinguishing “genetic/biological” from “socially” motivated behavior.

In sum, social scientists – ranging from economists, sociologists, and demographers to epidemiologists and public health researchers, joined by increasing numbers of geographers, psychologists, and even life scientists – share an interest in obtaining the broadest possible multi-topic data sets. The variables of interest are not only those dealing with traditional “objective” concepts (employment status and income), or non-traditional “objective concepts” (doctor visits, physical health measures such as height and weight), but also “subjective” variables dealing with cognitive ability, tastes and traits, expectations as input and “throughput” variables, and satisfaction (“utility”) as the final “outcome variable”. As already mentioned above: Due to the multitude of family relations within household panel studies and their broad range of variables we anticipate that researchers interested in behavioral genetics will soon discover household panel data sets.¹²

Our (very) selective discussion of recent theoretical and empirical developments in the social sciences points to one strong conclusion: that to enable valid empirical testing of theoretical concepts in the social sciences and solid evaluation of policy measures, we need longitudinal data that not only cover variables from one discipline in the social sciences but from *multiple disciplines*. Cohort and panel studies must therefore become more interdisciplinary and must start as early as possible in the life course with the collection of individual data (see Diehwald, 2001). The potential in causally linking institutional features of societies to life course outcomes can be realized through cross-national comparative longitudinal data-sets (Mayer, 2005). For recent developments as well as still ongoing developments in other household panel studies, see Wagner et al. (2006).

The main research questions remain basically the same, however: How are human life courses structured within societies, and what makes each life course “a mess or a success” for the people themselves? For research in the social sciences, it is new to take biological facts (nature) into explicit consideration; for psychologists and life scientists, it is new to incorporate the social and economic environment (nurture). The “art” of designing and running sur-

¹² The PSID is now advertised as the “longest running *genealogical* panel on family and individual dynamics” (McGonagle / Schoeni, 2006).

veys is in finding instruments and variables that can satisfy those research needs within a sound theoretical and methodological framework.¹³

2. The Case of SOEP

The German Socio-Economic Panel Study (SOEP) is a household panel study like the PSID [Panel Study of Income Dynamics in the US] and the BHPS [British Household Panel Study]. SOEP was designed from the very beginning as a “research infrastructure” that should be used by national and international (socio-economic) researchers, not just a few Principal Investigators. But SOEP is far from being an “all-purpose study”: it is clearly centered on the analysis of the life course and well-being. From the outset, well-being was measured by the two concepts of income and life satisfaction.

Like its partner studies PSID and BHPS, the SOEP is carried out under full academic direction but with special funding from the German government (federal and state level) (see Krupp, 2007).¹⁴ To give a sense of the importance

¹³ See, for example, a debate in the USA about the best solution of getting data for the study of effects of genes and environments on US health (Collins / Manolio, 2007).

¹⁴ SOEP was originally conducted as a project of the Special Research Unit 3 “SfB 3: Micro-analytical Foundations of Social Policy”, which was financed by the German Science Foundation (DFG) at universities of Frankfurt, Mannheim and Berlin. The project also included the DIW Berlin, a non-profit, non-partisan think-tank (German Institute for Economic Research – *Deutsches Institut für Wirtschaftsforschung*). When the research of the Special Research Unit came to its scheduled conclusion in 1990, full responsibility for the SOEP project was handed over to the DIW Berlin, which now runs SOEP as a “public good” that supports the social sciences by collecting high-quality microdata. SOEP has become an integral part of the German and international research infrastructure. From 1982 to 2002, SOEP funding was provided mainly by the DFG (German Science Foundation – *Deutsche Forschungsgemeinschaft*). In addition, DIW Berlin supported the SOEP from the very beginning by providing rooms, information and telecommunication support (hard and software), and some research and service staff. The funds granted by the DFG came from the Federal Ministry of Education and Research (*BMBF*) and the State Ministries of Science via the *Senatsverwaltung für Wissenschaft und Forschung* (SenWiFo) in Berlin. In 1994, the German Science Council (*Wissenschaftsrat*) recommended that the SOEP group be financed in the future as an independent unit with the functions of a service institution within the DIW Berlin. After lengthy negotiations, the German Commission for Educational Planning and Research Promotion (*BLK*) followed this recommendation, and since 2003, the SOEP has been funded as a “Service Unit” (*Serviceeinrichtung*) of the *Wissenschaftsgemeinschaft Gottfried Leibniz* (WGL). It is set up as a special department of DIW Berlin. The funding agencies have remained the same as before (*BMBF* and Sen-WKF). Thus, on the federal side, the SOEP is funded by a different ministry (BMBF) than DIW Berlin (BMW, Ministry of Economic Affairs and Technology). The Federal Government funds two-thirds of the SOEP’s budget, the *Länder* (federal states) fund the remaining third. SOEP is now funded out of the basic budget (*Grundhaushalt*) of the DIW Berlin, but its budget makes up a separate part thereof. At DIW Berlin, the SOEP survey group

of this kind of infrastructural tool for the scientific community, one can compare SOEP and its funding with the large-scale telescopes and accelerators shared by astronomers and physicists around the world. Maybe the best analogy in the natural sciences is the worldwide network of weather stations (like our network of respondents) which gather data that are then shared by meteorologists all over the world. As such, SOEP data are not only analyzed in Germany, but to an increasing extent since the beginning of the 1990s by researchers abroad, often in a comparative context together with panel data or longitudinal cohort studies for other countries.

2.1 The Basic Design and Evolution of SOEP

As a household panel study, SOEP was designed according to the basic idea that all members of the first-wave survey households and *all* their offspring (including those not yet born) should be part of the sample for the purposes of long-term (including intergenerational) analysis, and that “Original Sample Members (OSM)” should be followed as long as possible over time and space. Because Non-Original Sample Members are important to OSM the Non-OSM are followed too (Pischner/Wagner, 2007). In order to obtain a less-biased view of the entire household and its members as well as to ensure high data quality, not just one respondent per household is interviewed (proxy interview) but *all* adult members (individuals 17 years and older). This constitutes a central difference between SOEP and the oldest household panel study, the US Panel Study of Income Dynamics (PSID).¹⁵

In order to give an idea about the sequencing of cohorts in SOEP, Figure 1 shows the relevance of grandchildren who were not born in the first wave of

designs the survey questionnaire, regularly incorporating suggestions from the SOEP advisory board and SOEP users around the world. The DIW Berlin, as the host institute of the survey, and its council, have no privileges whatsoever in designing the SOEP survey. The DIW Berlin is just one of many research institutions that use the data. SOEP fieldwork, cross-sectional data-editing, and coding are outsourced to a private sector survey institute (TNS Infratest Sozialforschung, Munich). This is the most efficient and effective method due to the skill and experience that professional interviewers from large survey institutes bring with them, in contrast to interviewers hired on a contractual basis. However, surveys like SOEP cannot be carried out by fieldwork institutes without extensive research experience and a well-trained staff equipped with the appropriate survey technologies. Nearly 600 interviewers are needed per wave for the SOEP survey; households are spread among nearly all counties (*Landkreise*) in Germany. However, *Infratest Sozialforschung*, Munich, is more than just a fieldwork organization with a large field staff; it is a high-quality survey research institute and, as part of TNS Global (Taylor Nelson Sofres), London, a global provider of market research, information, and consultancy operating in 70 countries worldwide.

¹⁵ This design was chosen based on the advice of Greg Duncan, who was a PSID Co-PI in the 1980s. See Wagner et al. (1993), Schupp/Wagner (1995, 2002), Burkhauser et al. (1997), and Haisken-DeNew/Frick (2005).

the 1984 survey. Grandchildren are defined here as children born to parents and one pair of grandparents who are respondents in the SOEP sample.¹⁶ The first SOEP grandchildren were born in 1985, and by 2005, a total of more than 1,000 grandchildren had been born into SOEP. About 700 of these are not yet respondents (i.e., children below the age of 17), and 50 are already individual respondents. This latter number will increase quite fast: with the enlargements of the overall SOEP sample due to new sub-samples added since 1984, future cohorts of grandchildren will be represented by more observations than the first ones.

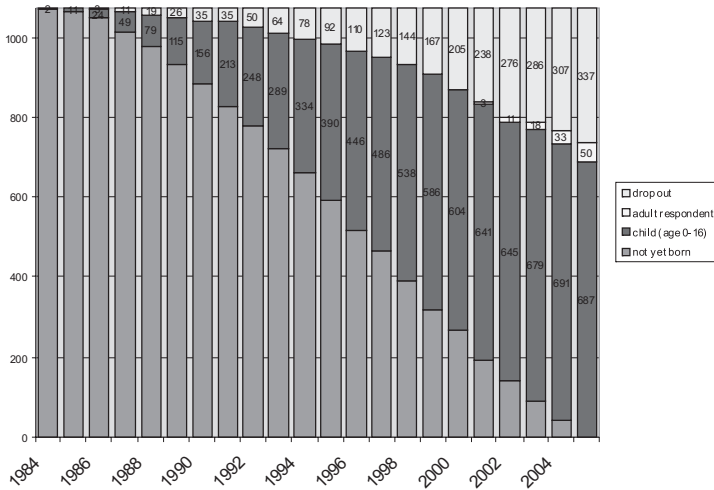


Figure 1: Evolution of Grandchildren in SOEP

SOEP was started in 1984 as a representative cross-section of the adult population living in private households in Germany. From the outset, SOEP has given high priority to the adequate coverage of specific groups by over-sampling immigrants (from the five most important countries of origin in 1984 with disproportional sampling frames for those five countries of origin) and later with a special subsample of recent immigrants (started in 1995). Furthermore, SOEP dealt with the expansion of its “survey territory” due to the fall of the Berlin wall in late 1989 by introducing the East German sample in June 1990. To tackle another major shortcoming of many surveys – insufficiently small numbers of respondents with high incomes – a subsample of

¹⁶ Due to the retrospective information which is collected from the grandparents in the sample about their own parents (Biographical Questionnaire), for the 1,074 “grandchildren” in the 2005 wave we even have some basic socio-economic information about great-grandparents, grandparents, parents and children (or about parents and grandparents from grandchildren and great-grandchildren).

high-income households was started in 2002. The number of cases was enlarged in 1998 and 2000 by additional samples that represent the entire population in Germany. A refresher sample conducted in 2006 stabilizes the cross-sectional number of cases at the level of about 25,000 individual respondents

In SOEP, children (up to the age of 16) have never been respondents on their own. For this reason, there is a considerable degree of left-censoring for most of the respondents in their first wave (which means information about the past is not as rich as for the present and future). And the retrospective information gathered for adult respondents does not go back to their birth but only to the beginning of adulthood. In the case of SOEP, entry to adulthood is defined as age 16. But for many theory-based research questions, which came up after 1984, information about the full life cycle of a respondent is needed. For the identification of causal effects, even more information is desirable, namely about the respondent's parents and the whole family history and social background.

In order to address life-course questions and research, SOEP started collecting retrospective information about childhood in 2001, when the first children born into a SOEP household since the survey began became individual respondents themselves. In 2003, we started collecting information on newborn babies (and specific information about their mothers' period of pregnancy) and in 2005 on children aged two to three (after reaching *Kindergarten*, or preschool, age). This method of collecting "proxy data" about the childhoods of future respondents to SOEP will be extended in the coming years to include asking age-group specific questions to five-year-olds (upon entry to school) in 2008, and to twelve-year-olds (at the transition from childhood to young adulthood) in 2015.¹⁷

Due to the increasing demand for "subjective data", we started integrating more psychological and "behavioral" concepts into the SOEP questionnaire in the 1990s, also adding behavioral experiments in 2003. In 2006, we introduced the first physical health measure (grip strength) and also began substantially improving the measurement of cognitive potential (ability).

2.2 Enhancing the Power of SOEP up to 2007

SOEP has been enhanced systematically over the years along two main lines. (1) Improving the representativeness of the sample by enlarging the number of cases and oversampling of special groups of interest. (2) Improving the questions asked and modes of data collection.

¹⁷ For up-to-date documentation on these data, see the relevant questionnaires at <http://www.diw.de/english/sop/service/fragen/index.html>, the general SOEP documentation on our website <http://www.diw.de/english/sop/service/doku/index.html>, and more specifically the comprehensive documentation of biography and life course data in the SOEP in Frick / Schupp (2006).

2.2.1 Data Collection

The SOEP survey was started in West Germany in 1984 with two subsamples: Sample A, the main sample, covering the population of private households, and Subsample B, which oversampled the “guest worker households” (with Turkish, Spanish, Italian, Greek and (Ex-)Yugoslavian heads of household) that were not covered by Sample A. The original sample size was slightly below 6,000 households and slightly above 12,000 individual respondents.

In 1989, Germany faced a historically unique situation: an enlargement of its national territory. With the fall of the wall, after more than 40 years of separation, Germany was reunited. The extension of SOEP to cover the former German Democratic Republic (GDR) was an exciting task, but also one that presented many challenges (regarding changes to the questionnaires and additional funding needs, but also new cooperation partners). From a sampling and methodological point of view, it was fairly easy to establish a new subsample for SOEP because sample C covered the GDR population completely, independent of the original SOEP, which was started in 1984 in West Germany (Federal Republic of Germany). We were thus able to simply add the new sample to the existing one (with independent weighting/expansion factors) in order to make SOEP not only representative for West Germany, but for the unified Germany as well.

Since the addition of this sample, all subsequent moves from East to West – and after a few years from West to East as well – have been thoroughly covered by our standard annual tracking procedures for households and individuals changing addresses between waves.

Subsample C, however, is unique in the sense that it is the only longitudinal microdata available allowing the analysis of the transition of an entire society from one regime to another. This is possible because we had already collected the first wave of SOEP data in June 1990, i.e., prior to official German unification on 1 July 1990, when the so-called “economic, social and currency union” was created.

Immigrants who do not move into an existing household have a sampling probability of zero and are thus not covered by SOEP, nor in fact by any other ongoing panel study such as PSID or BHPS. But because the huge wave of immigrants who arrived between 1985 (just after the start of SOEP) and the beginning of the nineties make up more than five percent of Germany’s population, we felt it was necessary to deal with this problem in a constructive manner and find an innovative solution. We therefore raised special funds to start a small subsample of households with new immigrants in 1994/1995. This is a random sample based on a screening of 20,000 households.

After a test-run in 1998 (based on subsample E, which included a methodological test of a new survey technology – computer assisted personal inter-

views, CAPI) we were able to begin raising additional money in 2000 to almost double the sample size of SOEP with the addition of subsample F. We did so to meet the urgent need – of the Federal Government among others – for data enabling better policy analyses of subgroups of the population (focusing on labor market integration, welfare recipients, family formation, etc.). Subsamples E and F are random draws from the whole universe of private households in Germany.

Even with a sample size of more than 10,000 households, it is almost impossible to draw valid conclusions for high-income households (the top 2.5 percent of the income distribution). We therefore started subsample G in 2002 representing “high-income households” in Germany. Like subsample D, this sample is also a random sample based on a screening of households. In order to get about 1,000 high-income households, we screened nearly 100,000 households (Wagner/Frick et al., 2007). In 2002 we introduced wealth measures for the first time at the *individual* level (in 1988 there had already been a wealth supplement as a drop-off questionnaire at the household level).¹⁸

In order to stabilize the cross-sectional number of cases we raised special money to introduce a refresher sample in 2006 (subsample H). Like subsamples E and F the refresher sample represents all private households in Germany on a random basis.¹⁹

It should be noted that introducing such additional representative samples has several advantages above and beyond merely adding observations: it also provides a tool for analyzing “panel effects” as well as taking account of ongoing changes in the underlying population due to continuous immigration.

In 2006 the effective case numbers of successfully interviewed observations were 12,499 households, 22,639 adult respondents and 5,143 children living

¹⁸ In 2003, we created a very special sample of “genuine fakes” that were identified in the existing SOEP interview (see Schraepfer/Wagner 2005; Schaefer et al., 2005). This was possible because data collected in the course of a panel survey often reveals itself to be “faked”, which would be never detected in a cross-sectional survey. Detection was possible, for example, because interviewers who made up interviews were unable to do so in a consistent manner over time, and because some households that were sent small gifts for participating in SOEP but never actually were interviewed called the fieldwork organization and asked why they had received the letters and gifts. Data users can thus analyze about 180 faked interviews (less than 0.5 percent of all interviews in the respective waves). These fakes are stored in a special file and they are deleted from the regular files being disseminated to users of SOEP.

¹⁹ The interviewers of this subsample were controlled – for the first time worldwide – by means of the “Benford Test”. This test compares the distribution of numerical digits in the survey file with the so-called “Benford Distribution”. Differences are an indication of cheating by interviewers (cf. Schräpfer/Wagner, 2005). By means of this method one out of 49 interviewers (who “interviewed” three households) was identified as a cheater (cf. Siegel/Stimmel, 2007). Those three records have been dropped from the final data delivery.

in SOEP households. Figure 2 gives an idea about the sizes of the different subsamples and their developments over the course of time.

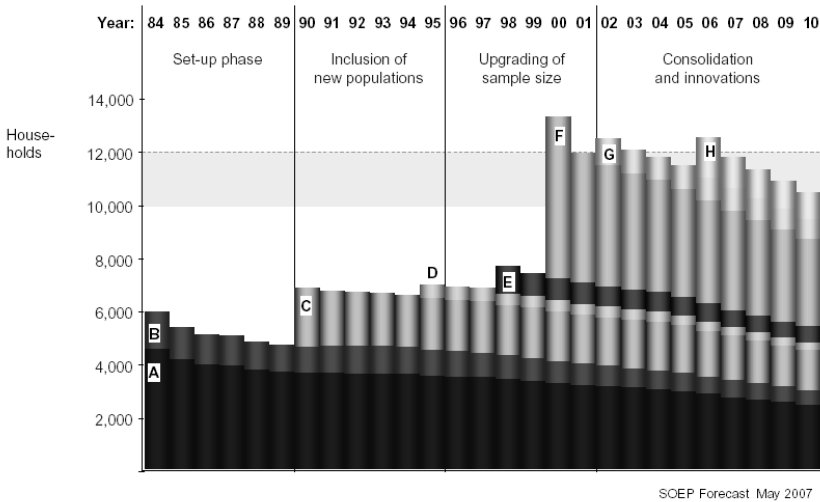


Figure 2: SOEP Sub-Samples 1984–2010

Beginning with subsample E, we introduced CAPI as an additional interview mode. We were able to do so in a controlled experiment. It luckily revealed none of the major mode effects (cited by Schräpler, 2006) when changing the interview mode in an ongoing panel survey from PAPI (paper and pencil interview) to CAPI. Subsample H was carried out using only CAPI. However, in order to minimize attrition, we will allow respondents to change to PAPI or self-administration in wave 2 and later. This kind of mixed-mode surveying is motivated by a desire to maximize response rates (Groves et al., 2004, 163).

In the 1990s, adding new subsamples was one of our major tasks in strengthening the analytical power of SOEP. We also started – on a very low level – to broaden the theoretical scope of our questionnaire. We introduced new questions and improved the scales for others with regard to preferences like expectations, personal values and self-control (locus of control). The basic research question that we have always intended to tackle with SOEP was about the life course: its structure and outcomes. To answer this question what we tried was to draw a more detailed picture of the life courses and life events of our respondents: to speak metaphorically, we broadened the range of brushes and added more colors to the palette. As a result, we now observe more people and can paint a much more detailed picture of each of them.

Overview 1 displays the main features along the life course of a hypothetical respondent who is observed over his entire life (in fact we observe parts of

the life course only; in 2008 we will have an observation window of 25 years for about 2,500 adult respondents). Column 2 shows the basic questions and instruments that were implemented in 1984. As one can see, since SOEP started it has covered the full life cycle from “conception” to “death”. However, the proxy information about children was initially not very precise or condensed, while proxy information on the deceased is gathered in detailed form from their relatives (subjectively, by surveying, e.g., life satisfaction, and objectively by measuring, e.g., widowers pensions). Due to this asymmetric information about different parts of the life cycle, we started to improve the instruments for observing children and teenagers (in 2001). These and other improvements are displayed in column 3.²⁰ As one can see an important area of improvement during adulthood was and is the health status of respondents (see below).

Overview 1

Surveying the Life Course in SOEP: Evolution and Enhancement of Survey Instruments and Micro Data

Part of Life Course	Basic Instruments	Major Enhancements up to 2007
Concept phase	Individual Questionnaire for Potential Parents	
Embryonic and fetal phase	Individual Questionnaire for Parents	Baby-Mother-Questionnaire (since 2003)
Birth and Childhood (up to age 16)	Household Questionnaire	Teenager-Questionnaire (since 2001) Child-Mother-Questionnaire (age 2 and 3; since 2005) Given Name File (since 1984; data accessible in DIW only)
Adult Life	Individual Questionnaire	Biography Questionnaire for Respondents and Partners (since 1988) Closing Gap Questionnaire (since 1985) Questions about Psychological Concepts (since 1994/2002) Physical Health Measure (grip strength) (since 2006) Test of Cognitive Abilities of 17-year-old teenagers (since 2006; not yet in data base) Behavioral Experiments (since 2003; data is not yet in data base)
Death	Address Protocol (since 1985)	
Life in Memories	Individual Questionnaire for the Bereaved	

²⁰ For documentation of the pre-tests and the background of the concepts and questions, see Schupp/Wagner (2007a, b). Most of the pretests were not financed through SOEP's basic funding but through additional third-party funds.

Continued Overview I

	Basic Instruments	Major Enhancements up to 2007
User-friendly Variables		
	Parent-children Pointers Pointers to Parents	Longitudinal Navigation (since 1984) Year of Death and Immigration (since 1984) Month of Pregnancy in Wave $t - 1$ before Birth (since 2003) Twin Identifiers (since 2006) Spell Data (since 1984)
Geo Codes	NUTS 1 (federal state)	NUTS 2 (ROR-level = spatial planning region) (since 1985) (restricted access) NUTS 3 (county level) (since 1985) (restricted access, remote access) Zip Codes (since 1993) (accessible in DIW only) Block Level Data (since 2000) (accessible in DIW only)
Special Data Sets		
Adult Life		Faked Data File (Household and Individual Questionnaire) (since 1984) Questionnaire “Re-Test after 6 Weeks” (2006 only; not yet in data basis) Ultra Short Test of Cognitive Abilities (2006; not yet in data basis) Questionnaire “Living Outside Germany” (2007 only; not yet in data basis) Re-Contact Questionnaire (2007 only; not yet in data basis)
Data on Interviewers	Bookkeeping data Interviewer Survey about foreigners 1984 (not available as micro data)	Interviewer-Survey 2007

(year): survey year.

In order to improve information about childhood and teenage years, in 2001 we started with “age-triggered questionnaires”, which contain in-depth questions that are only asked if a respondent has reached a specific age. We started these in-depth interviews in 2001, the first year in which children born into a “SOEP household” since 1984/1985 reached respondent age. Since 2001, young people have been given a special “Youth Questionnaire” at this age to collect retrospective information about childhood, school performance indicators, in-depth information about living conditions, and “feelings” as a teenager (including a baseline measure of personal traits, values, etc), relationship to

parents (social capital), cultural capital and sports, and expectations about family, work and their future.

Since 2003, the quality and quantity of SOEP data have been improved with respect to the coverage of the event of “birth”, its causes and consequences, all of which had previously been vastly underinvestigated in SOEP and other household panel studies. Such studies have a great advantage compared to cohort studies: they observe not only mothers but also women who do not become mothers. Household panel data make it easy to analyze the selectivity of fertility (and thus childhood) and its impact on mothers and children if the questionnaire used is sensitive to this aspect. With our “Mother and Child” questionnaire, we now collect information about newborn babies, the time of pregnancy, and an initial evaluation of motherhood, the “care setting” of the babies, and support by the partner. In addition we use the information on the total period of pregnancy to calculate the point in the pregnancy at which the mother-to-be was interviewed in the previous wave (Schmitt et al., 2007). Thus, analyzing the time of pregnancy is not only possible by means of retrospective data (given in the “Mother and Child” questionnaire after the birth of a child) but by means of actual panel data as well.

Starting in 2005, we followed up birth events by another triggered questionnaire: a special “Infant” questionnaire that asks for information on two and three-year-old children (again with health indicators, activities with child, „care setting“, support by the partner and third parties and 20 items about ability and fitness from the Vineland Adaptive Behavior Scale. This means that we collected these data on children whose birth we had observed in SOEP two waves before. In other words, we have started to collect data about the birth cohorts 2003 and later. In 2008 we will introduce a questionnaire for five or six-year-old children. Later we will also introduce questionnaires for older children before they reach respondent age (17 years). At this age they begin receiving the standard SOEP adult questionnaire (and the special Youth Questionnaire). The first cohort of newborn sample members with completely enriched life-course data will be interviewed in person in 2018. By then, SOEP will be in its 34th year (which is not an inconceivably old age for a household panel study, as PSID shows).

Our users’ publications and developments in other longitudinal studies provided evidence that we should strengthen SOEP data by introducing broader self-reported health measures and new self-reported measures of our respondents’ personal traits and social capital.²¹ So in 2002/2006, we introduced new health indicators (height and weight, smoking and alcohol consumption²²), which are collected on a bi-annual basis (Andersen et al., 2007).

²¹ For an early discussion (in German) of what was envisioned for surveys from a theoretical point of view, see Wagner (1988).

In 2006, we introduced the physical health measure of grip strength (for a subsample only, after a successful pre-test in 2005).²³ Changes in grip strength are a predictor for changes in health status and are more accurate than the self-reported health scales that are standard in most household panel studies. The grip strength measure is already used, for example, in SHARE.

In 2003 – following SOEP tradition, as a panel designed mainly for economic and sociological research – we began introducing specific personal trait concepts into the questionnaires that are of particular interest to economists and sociologists. These concepts included trust, trustworthiness, and fairness, and in 2004, indicators on risk aversion. In 2005 we added indicators for reciprocity and a short version of the NEO Personality Inventory: the “Big Five Inventory” (BFI) of personal traits (Gerlitz / Schupp, 2005). This is a purely psychological concept, but with the potential to “rekindle the dialogue between sociology and personality psychology” (Roberts et al., 2004, 592). In 2006, we started to repeat some of these new indicators for the first time (namely, risk aversion), and starting in 2008 we will repeat the psychological concepts at a five-year replication frequency.²⁴

Because of major discussion as to whether personal traits can be measured in a valid manner by “ordinary” survey questions, we added some selected “behavioral experiments” to the new survey questions that have been used, e.g., by experimental economists and psychologists in laboratory settings. Starting in 2003, on a random subsample of nearly 1,500 households, we ran experiments on “trust and trustworthiness” (a two-step social dilemma experiment of two randomly paired individuals) and in 2006, an experiment on “time preferences” (a one-step experiment with randomly chosen winning chances for each 9th person in the sample). These concepts are personal traits that are conceptualized in economics and sociology (and are more specific than the “Big Five Traits” of psychologists).

²² Based on the experience that questions about height, weight and smoking (since 2002) were not a reason for higher drop-out rates we made the questions about behavior relevant to health more comprehensive by adding a question about alcohol consumption in 2006.

²³ For first results of the grip strength measures see Schupp (2007). In 2006 we also collected “physical” information about twins who can be identified as such in the SOEP samples. We asked adult twins or the mothers of young twins whether they are monozygotic or not. This marginal investment (in terms of costs) in better information will improve the potential for analyses in the research tradition of “behavioral genetics” considerably. These new features were financed through special funding awarded by the Leibniz Association from its competitive program “Pact for Research and Innovation”.

²⁴ In 2006 the so-called Inglehart Index was also surveyed again after 1984–86 and 1996. This makes SOEP the first long-term panel survey worldwide to study period, cohort and age effects on this established and important index introduced by a political scientist but used by many sociologists to study value changes in modern societies (Kroh, 2007).

In 2006, as a test, we also introduced measures or tests of respondents' "cognitive abilities".²⁵ One test given only to teenagers in their first year as respondents takes a maximum of 30 minutes and covers three dimensions of ability (verbal potentials, numerical potentials, and figural potentials). Two ultra-short tests (enumerating animals and a symbol-digit test with three time stops each after 30, 60 and 90 seconds), which take less than five minutes, were given to a subsample of the adult respondents.

Because the data on life satisfaction in SOEP since the beginning are being used increasingly by psychologists, and because new psychological concepts have also been added, we did two retest studies in 2005 and 2006 which allow us to compile test-retest statistics like those common in the psychological literature. Special retest studies were useful because the normal ones are based on cross-sectional surveys where respondents do not have experience with the questions asked. But in SOEP we have numerous very experienced respondents who might respond differently from first-time respondents.²⁶ Thus we did a retest based on the fresh cross-section, i.e., the 2005 pretest, and another pretest within the main wave in 2006. Case numbers are small (about 300 persons), but these numbers are sufficient for the usual test-retest calculations.²⁷

The addition of psychological concepts to the SOEP questionnaires make "interviewer effects" more likely, i.e., interviewers with certain traits may influence respondents' participation rates and answers. We therefore used some special funding we had received to carry out an "Interviewer Survey – Now it's your turn!" at the end of 2006 (Schupp et al., 2007). The data we obtained from the interviewers allow an in-depth analysis of the interaction between interviewers and participants, which goes beyond the analysis possible based on the "register data" (on file at Infratest) covering all SOEP interviewers from the beginning on (e.g., Schräpler/Wagner, 2001). No results based on the interviewer survey are available yet. We will add the interviewer information to the longitudinal SOEP database and encourage use of this unique data set on interviewers.

2.2.2 Data Preparation, Documentation and Access

For a long-term panel study, data preparation, documentation and access are just as important as the collection of microdata (cf. Collins, 2006, 524). Here

²⁵ See Solga et al. (2005), Schneider et al. (2006), Lang (2005), and Lang et al. (2007). These measurements are financed with special money from the Leibniz Association's "Pact for Research and Innovation".

²⁶ Frick et al. (2006) identify panel effects especially for questions on income and satisfaction over the first three waves of the sample F added to SOEP in 2000.

²⁷ See Schupp/Wagner (2007a), Schupp/Krause/Wagner (2007), and Schimmack et al. (2007).

we cannot provide anything close to a comprehensive overview of these aspects,²⁸ but would like to mention some highlights and features of SOEP data that are new and not yet commonly known.

The longitudinal weighting of SOEP is based on a sound attrition analysis and on certain assumptions about the survey probabilities of respondents who join the survey for the first time by moving into existing households (i.e., living with original sample members). In this context, it is worth noting that in 2005, 22 waves after the start of SOEP, the share of newly founded households in Samples A and B was 47% and 57% respectively.

Like the PSID and BHPS data, SOEP data are available free of charge as “scientific use files”. Together with Cornell University, the SOEP Group has compiled all data and documentation in English (and German).

An extensive documentation of SOEP-data is available via the project’s homepage (www.diw.de/soep) including the “Desktop Companion, DTC” (cf. Haisken-DeNew/Frick, 2005), a detailed description of the set-up of the biographical information (cf. Frick/Schupp, 2006) and various introductory papers for using prominent statistical software packages (SPSS, Stata, SAS) with SOEP. The most important of these is SOEPinfo, a web-based information system that allows users to identify information at the variable level (including frequencies and an item’s correspondence across time) and gives support in setting up data retrievals (in Stata, SPSS, SAS) for generating rectangular analysis files from the underlying 250 SOEP micro-data files (<http://panel.gsoep.de/soepinfo/>).

A statistical primer for longitudinal statistics applications with examples of the SOEP database for the statistical package Stata is available as a book in English as well as in German (cf. Kohler/Kreuter, 2005, 2006).

The SOEPmonitor publishes statistical time series information based on SOEP data (<http://www.diw.de/english/sop/service/soepmonitor/index.html>). We provide data series for the years 1984 to 2006, disaggregated for East and West Germany since 1990, for selected cross-sectional and longitudinal information at the level of households and persons. This gives interested parties relevant information on how “Life in Germany” has changed since the mid-1980s, but may eventually also provide users with benchmark information for their own research.

Much of this kind of information is embedded in the data but difficult to “find” and analyze. We have made a significant effort to generate user-friendly

²⁸ For more comprehensive documentation of attrition and weighting, cf. Pannenberg et al. (2005) and Spiess/Kroh (2005). For a fuller discussion of item non-response cf. Spiess/Goebel (2004), and Schräpler (2005, 2006). For a discussion of the quality of income data, see Becker et al. (2003). For imputations related to income and wealth data cf. Frick/Grabka (2005) and Frick et al. (2007).

data, for example, by identifying variables like “tenure with current employer” that are straightforward and in high demand (see the bottom panel in overview 1). We also provide data files with extensive biographical information on parents, fertility, migration, marital status history, employment history, social origin, youth, etc. (cf. Frick/Schupp, 2006) as well as status variables with a focus on demographics like “year of death”, time-invariant migration-related variables (such as “where did you live in 1989 by the time the Berlin wall came down”, “country of birth” and “year of first migration to Germany” for immigrants), and link variables such as pointers to parents, partners, children and to twin siblings as well as to other households at the same postal address (the latter only available since 2005).²⁹

In 2001, we started compiling spatial context data given by detailed geo-code information that can be matched to the micro data in SOEP (cf. Spiess, 2005). At the moment, this is possible at the level of the sixteen federal states (NUTS1), the 95 German spatial planning regions (*Raumordnungsregionen*), the almost 400 counties (NUTS2) and at the zip-code level (reduced information only). Finally, we are in the process of preparing geo-coded data at the block level (*Strassenabschnitte*).

In 2007 and 2008 we will prepare better data (“pointers”) about family relations within SOEP, that is, among persons who are no longer living in the same household. As mentioned above, we have already created a new variable that specifies the week of pregnancy in which the mother-to-be was interviewed in the previous wave (cf. Schmitt et al., 2007).

The imputation of missing income values has been a major undertaking in recent years. This was particularly crucial for improving cross-country comparability within the various member datasets of the Cross National Equivalent File (CNEF) (see below). For the analysis of income inequality and mobility, it appeared most important to include longitudinal information in the imputation process (if available), which yields more reliable imputation results than purely cross-sectional imputation techniques (cf. Frick/Grabka, 2005)³⁰.

Up to now, individual non-respondents within responding households have been treated as missings, which can bias household income structures. Following other surveys in the CNEF, we will invest in the imputation of missing

²⁹ In panel studies like SOEP, the focus is on standardized answers. But we always collect some “qualitative data” in our studies as well, for example, questions on worries or an open “cool-down question” at the end of a questionnaire. In SOEP, we also ask – mainly for intra-household and longitudinal control purposes – for the given name of all sample members. These data are of interest for special research questions. In 2004, we started putting these answers into data formats and codes that allow for user-friendly access in line with data protection regulations.

³⁰ Frick et al. (2007) describe the *multiple* imputation strategy of item and partial unit-non-response in the 2002 SOEP wealth data.

income values for these temporary non-respondents (as we had already done for the 2002 wealth data), also considering their income structure from previous waves.

In the more than 20 years of running the SOEP, we have learned a vast amount about the analysis of dropouts. For example, over the years, more and more variables have been taken into account for attrition analyses. We will check whether these improvements can be used to improve attrition analyses and the longitudinal weighting of the first waves (in the 1980s). A special project will be the analysis of non-response of individual household members within participating households (“partial unit-non-response”). This will also entail analysis of elderly respondents approaching death (observed over the course of time), which will be of special interest.

Since the beginning of 2006, online access to the sensitive geo-codes has been made possible through a “secure interface”. The software we use, called SOEPreremote, is basically adopted from the LIS remote system LISSY, which is more tailored to our aims than, for example, NESSTAR. For a description of SOEPreremote see Goebel (2006).

SOEP plays an important and active role in international networks working on the construction of cross-nationally comparative databases (of both a cross-sectional and a panel nature) (cf. Burkhauser/Lillard, 2005). SOEP data is available for such comparative academic research and policy analyses in the following datasets and projects:

- cross-sectional databases:
 - Luxembourg Income Study (LIS), <http://www.lisproject.org>
 - Luxembourg Wealth Study (LWS), <http://www.lisproject.org/lws.htm>
- longitudinal databases:
 - Cross-National Equivalent File, CNEF (1984–2005), <http://www.human.cornell.edu/che/PAM/Research/Centers-Programs/German-Panel/cnef.cfm>
 - Consortium of Household Panels for European Socio-Economic Research, CHER (1990–2000+), <http://www.ceps.lu/cher/accueil.cfm>
 - European Community Household Panel, ECHP (1994–2001), http://epunet.essex.ac.uk/ECHP_USER_GUIDE_28-11-2005.pdf

In order to achieve this goal, it is of utmost importance to apply international coding and classification standards in compiling national microdata. We have identified the following as prime examples of user-friendly data produced using “flexible2” concepts in our questionnaires and doing ex-post harmonization:

- education: ISCED, CASMIN
- labor market: ISCO88, NACE
- regional information: NUTS

- annual income: defined and constructed along the recommendations by the Canberra Group (2001) by also tackling the issue of non-cash income components.³¹

2.3 Data Use and Publications

Up to now more than 1,700 users have signed a user contract, which is necessary for data protection reasons. Each year, about 500 users ask for the new releases of the study. Users are working in the fields of economics, sociology, survey methodology and statistics, demography, psychology, public health, political science, geography and sport science.

More than 4,000 SOEP-related publications (in peer-reviewed and other journals, collected volumes, etc.) have been entered into our literature database SOEPLIT (<http://www.diw.de/english/sop/soeppub/soeplit/index.html>). For a short listing of highlights see Wagner et al. (2006, section 4) and the papers published in this issue of *Schmollers Jahrbuch – Journal of Applied Social Science Studies*.

Beginning in 2007, we launched our new discussion paper series “SOEPpapers on Multidisciplinary Panel Data Research” at DIW Berlin. This series publishes papers based either directly on SOEP data or using SOEP data as part of an international comparative dataset (for example CNEF, ECHP, LIS, LWS, CHER/PACO). The series is designed to open up ongoing research work to an international audience for discussion and debate (see: <http://www.diw.de/soeppapers/>).

The SOEP group is organizing an annual training session for new SOEP data users at DIW Berlin, and is helping with the training courses on the use of the CNEF-Files being held at Cornell University. In 2007, the SOEP group is starting a new initiative as well: SOEP@campus, a set of training modules that provide advanced courses at different universities to foster better knowledge transfer on longitudinal data analysis for students and new SOEP-users.

3. Outlook

Household panel studies offer unparalleled opportunities to address the major social science research questions that will have sweeping effects on society in the near future, from the local to the global level: aging, migration, globalization, and childhood development.

We have learned a great deal from the process of developing SOEP and implementing new features over the years. Household panel studies, which cover

³¹ This includes the generation of “imputed rent” for owner-occupied housing, which is especially relevant to cross-national analyses (cf. Frick / Grabka, 2003).

more people and relationships than traditional cohort studies, not only follow respondents from the cradle to the grave; they can follow people from “conception” (pre-pregnancy and fetal phase of life) to “heaven” (by capturing the financial estate of the deceased and the memories of the survivors).³² One of SOEP’s particular strengths is that it has always been more than just an “all-purpose” study. Despite the multidisciplinary research questions on which it was founded, SOEP is and always will be focused on the central question of well-being over the life course. For this reason, one of the major challenges facing SOEP in the future will be that of opening it up even more to new theory-driven scientific concepts from both within and outside the mainstream of social and behavioral sciences.

Recent theoretical and empirical developments in the social sciences and related fields provide strong evidence that for valid empirical testing of social science theories and for reliable evaluation of policy measures, we need longitudinal data that cover variables from not just one but many disciplines. Cohort and panel studies must therefore expand continuously to become more interdisciplinary devices, and must begin with data collection on individuals as early as possible in the life course.

Panel studies under academic direction will undoubtedly continue to provide an important data source for policy analyses in the future, so some division of labor between official statistics and academic data collection would be conceivable in the next few decades (at least in Europe). Official statistics will run short-term panels (like EU-SILC) that satisfy the short-term needs of policymakers, whereas panel studies under academic direction could emphasize the life course of respondents including intergenerational aspects and transmission in particular.

Major current concerns with longitudinal analysis include how to provide researchers with appropriate concepts that enable them to make full use of the data, and how to design the organizational infrastructure to facilitate and improve access to the data. The SOEP team is currently grappling with these issues and will continue to seek solutions in line with the past enhancements. Above and beyond this, through our ongoing interaction with other producers of panel data, we are currently discussing methodological (e.g., pre-testing, new modes of data collection, panel-maintenance, tracking and incentives) and substantive issues (e.g., timing of special topical modules) that can simplify future data harmonization and thus support cross-national analyses as the

³² A special means of studying the end of life is the analysis of wellbeing with “distance to death” (remaining years of life) as an independent variable (cf. Gerstorf et al., 2007). These kinds of research questions revolve around time trajectories that usually start in the past and move into the future. In this case, however, one looks back from the future to the past. This kind of analysis demands some re-arrangement of data records. If the number of studies using SOEP in this way increase, we might supply some new variables that make this kind of analysis more user-friendly.

most efficient means for identifying the “best practice” in various policy fields. In any case, a successful ex-ante coordination of further survey improvements will also facilitate future ex-post harmonization, and will help to increase the number and quality of comparative analyses and publications as well.

SOEP is currently discussing issues of data collection and analysis with the teams that run PSID and BHPS (and the new UKLHS, which will include BHPS as a subsample), and these discussions will intensify in the future. Expanding the existing network of active panel data providers and analysts from official statistics and the academic community by pooling their experiences will improve not only the quality of the international panel data infrastructure but also the analytic competencies of SOEP users. This may even foster the emergence of new panels, as can be seen in the case of New Zealand (SOFIE) and the Australian HILDA survey.

References

- Andersen, H. H./Mühlbacher, A./Nübling, M./Schupp, J./Wagner, G. G.* (2007): Computation of Standard Values for Physical and Mental Health Scores Using the SOEP Version of SF-12v2, *Schmollers Jahrbuch* 127 (in this issue).
- Baker, C.* (2004): Behavioral Genetics, Washington, D.C.: <http://www.aaas.org/spp/bgenes/publications.shtml>.
- Becker, I./Frick, J. R./Grabka, M. M./Krause, P./Wagner, G. G.* (2003): A Comparison of the Main Household Income Surveys for Germany: EVS and SOEP, in: R. Hauser/I. Becker (eds.), *Reporting on Income Distribution and Poverty*, Berlin, 55–90.
- Boersch-Supan, A./Juerges, H.* (eds.) (2005): *The Survey of Health, Ageing and Retirement in Europe – Methodology*, Mannheim: <http://www.mea.uni-mannheim.de>
- Borghans, J. A. M./Borghans, L./Weel, B.* (2005): Is there a Link between Economic Outcomes and Genetic Evolution? Cross-Country Evidence from the Major Histo-compatibility Complex, IZA Discussion Paper No. 1838, Bonn
- Bruni, L./Sugden, R.* (2007): The Road Not Taken: How Psychology was Removed from Economics, and How It Might Be Brought Back, *The Economic Journal* 117, 146–173.
- Burkhauser, R. V./Lillard, D. R.* (2005): The Contribution and Potential of Data Harmonization for Cross-National Comparative Research, *Journal of Comparative Policy Analysis*, 7 (4), 313–330.
- Burkhauser, R. V./Kreyenfeld, M./Wagner, G. G.* (1997): The German Socio-Economic Panel – A Representative Sample of Reunited Germany and its Parts, *Vierteljahrshefte zur Wirtschaftsforschung* 66 (1), 7–16.

- Camerer, C. F./Loewenstein, G.* (2003): Behavioral Economics: Past, Present Future, in: C. F. Camerer/G. Loewenstein/M. Rabin: *Advances in Behavioral Economics*, Princeton University Press, 3–51.
- Camerer, C./Loewenstein, G./Prelec, D.* (2005): Neuroeconomics: How Neuroscience Can Inform Economics, *Journal of Economic Literature* 43 (1), 9–64.
- Canberra Group* (2001): *Expert Group on Household Income Statistics: Final Report and Recommendations*, Ottawa.
- Carneiro, P./Heckman, J./Masterov, D.* (2005): Labor market discrimination and racial differences in premarket factors, IFAU Working Paper Series 3, Uppsala.
- Collins, L. M.* (2006): Analysis of Longitudinal Data; The Integration of Theoretical Model, Temporal Design, and Statistical Model, *Annual Review of Psychology* 57, 505–528.
- Collins, F. S./Manolio, T. A.* (2007): Merging and emerging cohorts: Not worth the wait, *Nature* 445, 257–258.
- De Quervain, D./Fischbacher, U./Treyer, V./Schellhammer, M./Schnyder, U./Buck, A./Fehr, E.* (2004): The Neural Basis of Altruistic Punishment, *Science* 305, 1254–1258.
- Denny, K./O’Sullivan, V.* (2004): Can education compensate for low ability? Evidence from British data, IFS Working Paper No. W04/19, London.
- Diener, E.* (1994): Assessing Subjective Well-Being: Progress and Opportunities, *Social Indicators Research* 31 (2), 103–157.
- Diewald, M.* (2001): Unitary social science for causal understanding? Experiences and prospects of life course research, *Canadian Studies in Population: Special issue on Longitudinal Research* 28 (2), 219–248.
- Diewald, M./Lüdicke, J./Lang, F./Schupp, J.* (2006): Familie und soziale Netzwerke. Ein revidiertes Erhebungskonzept für das Sozio-oekonomische Panel (SOEP) im Jahr 2006, DIW Research Notes 2006–14, Berlin.
- Dohmen, T. et al.* (2005): Individual Risk Attitudes: New Evidence from a Large, Representative, Experimentally-Validated Survey, DIW Discussion Paper No. 511, Berlin.
- Dolton, P./Makepeace, G./Marcenaro-Gutierrez, O.* (2005): Career progression: Getting-on, getting-by and going nowhere, *Education Economics* 13 (2), 237–255.
- Fehr, E./Kosfeld, M./Heinrichs, M./Zak, P./Fischbacher, U.* (2005a): Oxytocin increases Trust in Humans, *Nature* 435, 673–676.
- Fehr, E./Fischbacher, U./Kosfeld, M.* (2005b): Neuroeconomic Foundations of Trust and Social Preferences, *American Economic Review – Papers & Proceedings*, 346–351.
- Fehr, E./Fischbacher, U./von Rosenblatt, B./Schupp, J./Wagner, G. G.* (2002): A Nation-Wide Laboratory: Examining Trust and Trustworthiness by Integrating Behavioral Experiments into Representative Surveys, *Schmollers Jahrbuch* 122 (4), 1–24.
- Freese, J./Allen Li, J.-C./Wade, L. D.* (2003): The Potential Relevance of Biology to Social Inquiry, *Annual Review of Sociology* 29, 233–256.

- Frey, B. S. / Stutzer, A. (2002): Happiness & Economics. Princeton and Oxford.
- Frick, J. R. / Grabka, M. M. (2003): Imputed Rent and Income Inequality: A Decomposition Analysis for Great Britain, West Germany and the U.S., *The Review of Income and Wealth* 49 (4), 513 – 537.
- Frick, J. R. / Grabka, M. M. (2005): Item-non-response on income questions in panel surveys: incidence, imputation and the impact on inequality and mobility, *Allgemeines Statistisches Archiv* 89, 49 – 60.
- Frick, J. R. / Schupp, J. (2006): Biography and Life History Data in the German SOEP, DIW Berlin: <http://www.diw.de/deutsch/sop/service/doku/docs/bio.pdf>.
- Frick, J. R. / Göbel, J. / Schechtman, E. / Yitzhaki, S. / Wagner, G. G. (2006): Using Analysis of Gini (ANOGI) for Detecting Whether Two Sub-Samples Represent the Same Universe: The German Socio-Economic Panel Study (SOEP) Experience, *Sociological Methods and Research* 34 (4), 427 – 468.
- Frick, J. R. / Haisken-DeNew, J. P. / Spiess, M. / Wagner, G. G. (2005): Overview of the SOEP, in: J. P. Haisken-DeNew / J. R. Frick (eds.): Desktop Companion to the German Socio-Economic Panel (SOEP) – Version 8.0, Berlin: <http://www.diw.de/deutsch/sop/service/dtc/dtc.pdf>.
- Frick, J. R. / Grabka, M. M. / Marcus, J. (2007): Editing and Multiple Imputation of Item-Non-Response in the 2002 Wealth Module of the German Socio-Economic Panel (SOEP): SOEPPapers on Multidisciplinary Panel Data Research at DIW Berlin, No. 18 / 2007, Berlin: DIW Berlin. http://www.diw.de/deutsch/produkte/publikationen/soeppapers/docs/papers/diw_sp0018.pdf.
- Gerlitz, J.-Y. / Schupp, J. (2005): Zur Erhebung der Big-Five-basierten Persönlichkeitsmerkmale im SOEP, DIW Berlin Research Notes 2005 – 4, Berlin.
- Gerstorff, D. / Nilam, R. / Ryne, E. / Schupp, J. / Wagner, G. G. / Lindenberger, U. (2007): Life Satisfaction Shows Terminal Decline in Old Age: Longitudinal Evidence from the German Socio-Economic Panel Study, Berlin (submitted manuscript).
- Giele, J. Z. / Elder, G. H. Jr. (1998): *Methods of Life Course Research. Qualitative and Quantitative Approaches*, Thousand Oaks-London.
- Green, D. A. / Riddell, W. C. (2003): Literacy and earnings: an investigation of the interaction of cognitive and unobserved skills in earnings generation, *Labour Economics* 10, 165 – 184.
- Groves, R. M. / Fowler, F. J. / Couper, M. P. / Lepkowski, J. M. / Singer, E. / Tourangeau, R. (2004): *Survey Methodology*, Hoboken, NJ.
- Gul, F. / Pesendorfer, W. (2005): The Case for Mindless Economics. Levine's Working Paper Archive [2005 – 11 – 13].
- Haisken-DeNew, J. P. / Frick, J. R. (eds.) (2005): Desktop Companion to the German Socio-Economic Panel (SOEP) – Version 8.0, Berlin: <http://www.diw.de/deutsch/sop/service/dtc/dtc.pdf>.
- Hamermesh, D. S. (2004): Subjective outcomes in economics, NBER Working Paper 10361, Cambridge.

- Hank, K. / Jürges, H. / Schupp, J. / Wagner, G. G.* (2006): Die Messung der Greifkraft als objektives Gesundheitsmaß in sozialwissenschaftlichen Bevölkerungsumfragen: Erhebungsmethodische und inhaltliche Befunde auf Basis von SHARE und SOEP, DIW Berlin Discussion Paper 577, Berlin.
- Heijke, H. / Meng, Ch. / Ris, Ch.* (2003): Fitting to the job: the role of generic and vocational competencies in adjustment and performance, *Labour Economics* 10, 215–229.
- Hill, M. S.* (1992): *The Panel Study of Income Dynamics*, Newbury Park.
- Hsu, M. / Bhatt, M. / Adolphs, R. / Tranel, D. / Camerer, C. F.* (2005): Neural Systems Responding to Degrees of Uncertainty in Human Decision-Making, *Science* 310, 1680–1683.
- Kahneman, D.* (2003): A Psychological Perspective on Economics, *AEA Papers and Proceedings* 93 (2), 162–174.
- Knutson, B. / Peterson, R.* (2005): Neurally reconstructing expected utility, *Games and Economic Behavior* 52, 305–315.
- Kohler, U. / Kreuter, F.* (2005): *Data Analysis using Stata*, College Station / Texas.
- Kohler, U. / Kreuter, F.* (2006): *Datenanalyse mit Stata: Allgemeine Konzepte der Datenanalyse und ihre praktische Anwendung*, 2. Auflage, Oldenbourg.
- Kroh, M.* (2005): *An Experimental Evaluation of Popular Well-Being Measures*, DIW Berlin Discussion Papers, Berlin.
- Kroh, M.* (2007): *A Sibling Study of Value Preferences: Twenty-Year Panel Data on Post-Materialism*, Berlin: mimeo.
- Krupp, H.-J.* (2007): *The German Socio-Economic Panel (SOEP): How It All Began*. DIW Berlin SOEPpaper, Berlin (forthcoming).
- Kuhnen, C. M. / Knutson, B.* (2005): The Neural Basis of Financial Risk Taking, in: *Neuron* 47, 763–770.
- Lang, F. R.* (2005): Erfassung des kognitiven Leistungspotenzials und der “Big Five” mit Computer-Assisted-Personal-Interviewing (CAPI): Zur Reliabilität und Validität zweier ultrakurzer Test und des BFI-S, DIW Berlin Research Note 9/2005, Berlin.
- Lang, F. R. / Weiss, D. / Stocker, A. / Rosenblatt, B. v.* (2007): Assessing Cognitive Capacities in Computer-Assisted Survey Research. *Schmollers Jahrbuch* 127 (in this issue).
- Lazarsfeld, P. / Fiske, M.* (1938): The “Panel” as a New Tool for Measuring Opinion, in: *Public Opinion Quarterly* 2 (4), 596–612.
- Lofstrom, M. / Tyler, J. H.* (2004): Measuring the Returns to the GED: Using an Exogenous Change in GED Passing Standards as a Natural Experiment, IZA Discussion Paper No. 1306, Bonn.
- Lucas, R. E. / Clark, A. E. / Georgellis, Y. / Diener, E.* (2003): Reexamining Adaptation and the Set Point Model of Happiness: Reactions to Changes in Marital Status, *Journal of Personality and Social Psychology*, 84(3), 527–539.
- Lucas, R. E.* 2005. Times Does Not Heal All Wounds. In: *Psychological Science* 16 (12), 945–950.

- Mayer, K. U.* (2005): Life Courses and Life Chances in a Comparative Perspective, in: St. Svallfors (ed.): *Analyzing Inequality – Life Chances and Social Mobility in Comparative Perspective*. Stanford, CA, 17–55.
- McClure, S. M./Laibson, D. I./Loewenstein, G. et al.* (2004): Separate Neural Systems Value Immediate and Delayed Monetary Rewards, in: *Science* 306, 503–507.
- McCrae, R. R./Costa, P. T. (Jr.)* (1992): Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory – Professional Manual, Psychological Assessment Resources, Odessa.
- McGonagle, K. A./Schoeni, R. F.* (2006): The Panel Study of Income Dynamics: Overview and Summary of Scientific Contributions After Nearly 40 Years. Paper presented at the conference Longitudinal Social and Health Surveys in an International Perspective, Montreal, January 25–27, 2006.
- Nyhus, E. K./Pons, E.* (2005): The Effects of Personality on Earnings, *Journal of Economic Psychology* 26, 363–384.
- Osborne Groves, M.* (2005): How Important is your Personality? Labor Market Returns to Personality for Women in the US and UK, *Journal of Economic Psychology* 26, 827–841.
- Pannenberg, M./Pischner, R./Rendtel, U./Spiess, M./Wagner, G. G.* (2005): Sampling and Weighting, in: J. P. Haisken-DeNew/J. R. Frick (eds.), *Desktop Companion to the German Socio-Economic Panel (SOEP) – Version 8.0*, Berlin: <http://www.diw.de/deutsch/sop/service/dtc/dtc.pdf>
- Pischner, R./Wagner, G. G.* (2007): Original Sample Members (OSM) and Non-Original Sample Members (Non-OSM) in the German Socio-Economic Panel Study (SOEP). DIW Berlin Data Documentation (forthcoming).
- Roberts, B. W./Robins, R. W./Trzesniewski, K. H./Caspi, A.* (2004): Personality Trait Development in Adulthood, in: T. J. Mortimer/M. J. Shanahan (eds.): *Handbook of the Life Course*, New York, 579–595.
- Sampson, R. J./Morenoff, J. D./Gannon-Rowley, Th.* (2002): Assessing “Neighborhood Effects”: Social Processes and New Directions in Research, *Annual Review of Sociology* 28, 443–478.
- Schaefer, Ch./Schräpler, J.-P./Müller, K.-R./Wagner, G. G.* (2005): Automatic Identification of Faked and Fraudulent Interviews in Surveys by Two Different Methods, *Schmollers Jahrbuch* 125 (1): 183–193.
- Schimmack, U./Schupp, J./Wagner, G. G.* (2007): The Influence of Environment and Personality on the Affective and Cognitive Component of Subjective Well-Being Toronto and Berlin (submitted manuscript).
- Schmitt, Ch./Schupp, J./Wagner, G. G.* (2007): Data about Twins in the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation (forthcoming).
- Schräpler, J.-P./Wagner, G. G.* (2001): Das Verhalten von Interviewern – Darstellung und ausgewählte Analysen am Beispiel des Interviewer-Panels des Sozio-oekonomischen Panels, *Allgemeines Statistisches Archiv* 85 (1), 45–66.

- Schräpler, J.-P./Wagner, G. G.* (2005): Characteristics and Impact of Faked Interviews in Surveys: An Analysis of Genuine Fakes in the Raw Data of SOEP, *Allgemeines Statistisches Archiv* 89 (1), 7–20.
- Schräpler, J.-P.* (2005): Respondent Behavior in Panel Studies: A Case Study for Income Nonresponse by Means of the German Socio-Economic Panel (SOEP), *Sociological Methods & Research* 33 (1), 113–156.
- Schräpler, J.-P.* (2006): Explaining Income-Nonresponse: A Case Study by Means of the British Household Panel Study (BHPS), *Quality & Quantity* 40, 1013–1036.
- Schräpler, J.-P./Schupp, J./Wagner, G. G.* (2007): Who are the Nonrespondents? An explanation of nonresponse in the Socio-economic Panel (SOEP) using additional microgeographic characteristics of the respondents and nonrespondents. Paper presented at the BHPS Conference, July 5–7 Essex.
- Schupp, J.* (2007): Greifkraftmessung im Sozio-oekonomischen Panel (SOEP), DIW Berlin Data Documentation (forthcoming).
- Schupp, J./Krause, P./Wagner, G. G.* (2007): Reliability and Relevance of Events: Two Re-Test Studies within the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation (forthcoming).
- Schupp, J./Siegel, N./Wagner, G. G.* (2007): The Interviewer Panel of the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation (forthcoming).
- Schupp, J./Wagner, G. G.* (1995): The German Socio-Economic Panel – a Database for Longitudinal International Comparisons, *Innovation* 8 (1), 95–108.
- Schupp, J./Wagner, G. G.* (2002): Maintenance of an Innovation in Long-Term Panel Studies: The Case of the German Socio-Economic Panel (SOEP), *Allgemeines Statistisches Archiv* 86 (2), 163–175.
- Schupp, J./Wagner, G. G.* (2007a): New Sources for Theory-Based Socio-Economic and Behavioral Analysis: The 2002–2007 Pre-Tests for the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation (forthcoming).
- Schupp, J./Wagner, G. G.* (2007b): New Concepts and Questions in the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation (forthcoming).
- Shanahan, M./Hofer, S. M./Shanahan, L.* (2003): Biological Models of Behavior and the Life Course, in: J. T. Mortimer/M. J. Shanahan (eds.); *Handbook of the Life Course*, New York, 597–622.
- Singer, T./Seymour, B./O'Doherty, J. P./Stephan, K. E./Dolan, R. J./Frith, C. D.* (2006): Empathic neural responses are modulated by the perceived fairness of others, in: *Nature* doi:10.1038/04271.
- Siegel, N./Stimmel, S.* (2007): Ergebnisbericht zur Interviewerkontrolle, Munich: mimeo.
- Solga, H./Stern, E./von Rosenbladt, B./Schupp, J./Wagner, G. G.* (2005): The measurement and importance of general reasoning potentials in schools and labor markets, DIW Research Note 10/2005, Berlin.
- Spiess, C. K.* (2005): Das Sozio-oekonomische Panel (SOEP) und die Möglichkeiten regionalbezogener Analysen, in: G. Grözinger/W. Matiaske (eds.), *Deutschland regional*, München und Mering, 57–64.

- Spiess, M./Goebel, J.* (2004): A Comparison of Different Imputation Rules, in: U. Rendtel/M. Ehling et al. (eds.), *Harmonisation of Panel Surveys and Data Quality*. Stuttgart, 293–316.
- Spiess, M./Kroh, M.* (2005): Documentation of Sample Sizes and Panel Attrition in the German Socio-Economic Panel (SOEP) (1984 until 2004), DIW Data Documentation 6. Berlin.
- Tyler, J. H./Murnane, R. J./Willett, J. B.* (2000): Estimating The Labor Market Signaling Value Of The GED, *The Quarterly Journal of Economics* 115 (2), 431–468.
- Wagner, G. G.* (1988): Zur Notwendigkeit empirischer Analysen für die ökonomische Fundierung staatlicher Versicherungs- und Sozialpolitik, in: G. Rolf/P. B. Spahn/G. G. Wagner (eds.), *Sozialvertrag und Sicherung – Zur ökonomischen Theorie staatlicher Versicherungs- und Umverteilungssysteme*, Frankfurt am Main/New York, 275–317.
- Wagner, G. G./Burkhauser, R. V./Behringer, F.* (1993): The English Language Public Use File of the German Socio-Economic Panel, *The Journal of Human Resources* 28 (2), 429–433.
- Wagner, G. G./Frick, J. R./Schupp, J.* (2006): Enhancing the Power of Household Panel Studies – The Case of the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation No. 13, Berlin.
- Wagner, G. G./Frick, J. R./Goebel, J./Grabka, M. M./Pischner, R./Schupp, J.* (2007): High Incomes in Household Surveys: Sample G of the German Socio-Economic Panel Study (SOEP), DIW Berlin Data Documentation, Berlin (forthcoming).
- Wagner, G. G./Siegel, N./Schupp, J.* (2007): Living Outside Germany – A Feasibility Study for Surveying Abroad, DIW Berlin Data Documentation (forthcoming).

