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# RatSWD

## *Working Paper Series*

Working Paper

No. 112

### Provisions for old age

Income provisions and retirement

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Tatjana Mika, Uwe Rehfeld, Michael Stegmann

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## Working Paper Series of the Council for Social and Economic Data (RatSWD)

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Provisions for old age  
**Income provisions and retirement**

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**Abstract**

Research on the income situation of today's and future retirees requires often record based data. Because of their accuracy in the life-course information they can also, if they are linked to survey data, make interviews shorter and less demanding for the interviewed persons. Process produced data from the pension fund are already available for these research topics. The data include details about the employment career and other life-course events as far as they are considered in the pensions' calculation. Nevertheless, additional sources are needed if research projects address the income situation more in detail, in particular the question of poverty or high income in old age. The pension reforms of the past decade have strengthened the second and third pillar in the importance, thereby increasing their importance of occupational pensions and private savings for future old age income. There exist already some detailed and inclusive data for research on old age income and retirement collected for government reports, but not all this data is yet available for scientific research. Furthermore should the exchange of data between social security and/or tax institutions more often be combined with the collection of statistical data in order to improve the possibility of record-to-record linkage.

**Keywords:** Retirement, old age provisions, public pension fund, process produced data, data linkage

## **1. Research questions**

A main interest of research on old age provision is income after retirement for today's, but also for future retirees. For the analysis of the current retired generation comprehensive data on all income sources are therefore needed. For in-depth research on reasons for a given income situation of retired persons the data should include life-course information on employment and income over the life-cycle until retirement. Process produced data from the pension fund are especially useful for these research topics because the public pension scheme is the most inclusive old age provision which contributes furthermore the main part of old age income. The data include details about the employment career and other life-course events as far as they are considered in the pensions' calculation. The life-course information is very broad, because of the far reaching evaluation of social situations and activities in past and current pension law. Nevertheless, additional sources are needed if research projects address the income situation more in detail, in particular questions of poverty or high income in old age. The occupational pension and private saving are important additional components of old age provisions. The pension reforms of the past decade have strengthened the second and third pillar in the importance, thereby increasing their importance for future old age income. The overall low old age income of women, especially in West Germany, requires in addition the household income in order to assess the real economic situation.

Central focus of social research is also retirement age, which is highly determined from social security law. The pension law determines overall retirement behaviour for those who are socially insured. Process produced data are the best choice for this kind of research question including legal background information even unknown to the pensioners themselves. However, process produced data do not include subjective information on the motives of early retirement. The data are not accurate for persons who retired as life-time employed civil servants or as self-employed earlier, but received their public pension only later. Pension fund data alone lead therefore to an overestimation of retirement age.

To assess future old-age income requires a different approach with adequate data. The forecast of future income requires in the first step a thorough collection of all information about undertaken old age provisions up to the date like acquired social security rights, private insurances and other savings and occupational pensions. This data are then a basis for estimates of future old age income.

## **2. Data base and access to data**

### *2.1 Data base for current old age income*

Data on the current income situation of the aged population are available in many surveys like the GSOEP, the Micro census and the EVS. The different income structure of retired people requires nevertheless a special survey design. Difficulties may arise because persons over a certain age have difficulties to conduct an interview with and hard to reach if they live in an institution and no longer in a private household. Process produced data are therefore helpful to estimate the number of elder people who are not or no longer available for surveys. They offer furthermore information about the legal conditions of a granted pension.

#### **2.1.1 Sample of the pension records (RTBN) and Sample of the completed insured life-courses (VVL)**

The sample of the pension records includes all pensions paid from the German Pension fund at the last day of the year. This data are a useful basis for validation of other sources on the retired part of the population. Participation in the statutory pension insurance scheme is mandatory in Germany for all persons employed in the private or public sector. Additionally, contributions are paid out of unemployment insurance in the case of the unemployed, out of health insurance in the event of long-term illness, and from the state for people in military or civilian national service. The majority of the population thus comes into contact with the pension insurance system at some point or another in life, and the pension insurance system has data on about 90% of the entire population. The statutory old age and disability pension – due to its income replacement tasks and broad social basis – provides the main income source after retirement. Survivors' pensions are the main source of income for widowed women.

The special levy 'Completed insured life-courses' (VVL 2004) is a useful source for empirical analysis about retirement age and income in relation to the life-course. A 20% sample of newly granted pensions of a particular year is the basis of this longitudinal data. The calculation of the pension is one important source of information in combination with the longitudinal dimension of the past life from the age of 14 until retirement. The sampling of data of one year of newly granted pensions enables to compare different life courses ending in the social status of becoming a pensioner in the same year in East and West Germany and abroad. At retirement, the pension fund has gathered all information on the life-course as far as the activities, contributions and legal entitlements are relevant for the pension benefit. The moment of retirement is the point of time in life at which people hand over all necessary proofs to the pensions fund in order to receive a pension on the basis of all relevant facts. From the statistical point of view, it is therefore the point in time when the information about

the life course is most accurate. The sample drawn from all newly granted pensions is so large that all social strata and many different types of life-courses are represented in sufficiently large numbers to enable empirical research on many different questions. Only pensions based on own contributions are selected for this sample.<sup>1</sup> These are old age and disability pensions.

For the data set ‘Completed Insured Life Courses’ all pension funds send the information on the completed biography from school time up to the moment of retirement to the data centre of the pension fund (Stegmann 2007). The scientific use file for social research combines the longitudinal life-course information with the result of the pension calculation as a cross sectional part of the data set. The cross-sectional part includes further demographic information. This means that demographic variables mirror the social situation at retirement. However, the socio-demographic position might in some cases have changed over the lifetime, e.g. immigrants with foreign nationality might be naturalised at retirement and also the marital status might have changed over the lifetime. The longitudinal information is presented on a monthly basis. For each month the data shows if the person was gainfully employed or had another social situation like unemployment, care-giving or sickness. Child-care is assumed to be the main occupation if the birth of a child is registered and no gainful employment has taken place afterwards.<sup>2</sup> Employment has priority status in the data and all other social situations are second in rank. A lack of information means that a person is in none of these social status situations at this time in Germany. Such a gap in information can stand for self-employment without social insurance obligation, unemployment without being entitled to benefits from the Federal Employment Agency or working abroad. However, in most female biographies a missing information stands for a period of housekeeping.<sup>3</sup> The main drawback of these data is the lack of information on other sources of income before retirement and after.

The data are accessible at the Research Data Centre of the German Pension Fund. A smaller sample is drawn for the scientific Use File, which can be ordered for use in research institutions, but larger samples up to full samples in the case of data on recorded pensions can be used on the spot in the RDC.

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1 This excludes survivors pensions.

2 The birth of a child is registered in the pension record of one of the parents. This is in most cases the mother, because there is an income tax that hinders higher earners to profit from the child benefit. The child benefit in the German pension fund accounts for children born before 1992 1 credit point, for children born after 1992 the contribution is 3 credit points.

3 This fact can be proven with the data from the AVID 1996 project, where process produced data were combined with survey data.

### 2.1.2 Survey on old age income (ASID)

It is the aim of the research project called 'Old-age pensions in Germany' (ASID) to provide up-to-date and representative data organised according to various socio-demographic groups describing the income situation of the elder population in West and East Germany. The first survey was realized in 1986, the last and actual study was carried out in 2007. The law requires that the ASID survey should be conducted once every legislative period, because it is the basis for an official government report on the income of the elder population (Alterssicherungsbericht). The study has so far been carried out six times. The population from the age of 55 is covered by the study, including those living in residential homes.

Centrepiece of the survey is the collection of data on over 25 types of income, in cases of couples for both spouses and in cases of widows disaggregated by self-acquired and derived benefits. The ASID collects information on income from the various sources like all old-age pension provision systems, but also private sources like private insurances. Thus ASID shows not only the level of overall gross and net income but also allows for varied analyses of income patterns. This is supplemented by information about the course of working life and the current life situation. In case of couples are relevant data gained for both spouses, in case of widows also the late husband is taken into consideration. The gross incomes are finally converted into net incomes by way of an income tax and social insurance contribution model.

For the ASID, a representative sample is taken for this particular purpose from the local registers, where all people living in Germany must register. This is the best and most expensive method of sampling survey data. It can only be used if there is a public interest in the conducted survey. Irrespective of their marital status both men and single, i.e. widowed, divorced and unmarried women were chosen at random as target persons. The data of married women were collected together with the data gained from their spouses. The level of survey comprised married couples and single persons. The data of the ASID '92, '95 and '99 can be ordered via the GESIS-Zentralarchiv in Cologne by the keyword 'Alterssicherung in Deutschland'. For the later surveys the data have not been published and a date of publication it is yet not announced.

### 2.2 *Old age provisions of future pensioners*

Estimation of future old age income as a result of today's acquired pension rights and savings is a particular daunting task. It requires the assessment of contributions to public, occupational and private schemes up to the date and the prospect of future old age income steaming from these sources.



### 2.2.1 Sample of the insured population pension fund records (VSKT)

The sample of all actively insured person of a specific year, called ‘Sample of the insured populations records’ is the best source for acquired rights in the public pension scheme. The longitudinal information is presented in the same format as in the ‘Completed Insured Life-Course’ data, but sample includes 500.000 people from the insured population aged between 17 and 67. Foreigners are over sampled because, but they have a high percentage of incomplete records because of migration. Transnational mobility causes in this case a severe limit to the collection of complete life-course information.

The social situations are recoded from the original mainframe data into similar social situations as in the ‘Completed Insured Life-Courses’ described above. Future old age income is estimated in the data on the basis of the contributions paid up to the time of sampling. The estimated pension included in the data is calculated as if the insured person retired with a disability pension for health reasons at the date of sampling. All information which is used for the calculation of a pension from the public pension scheme is also included for this estimate. This includes raising children, periods of education and training as well as phases of unemployment and care-giving. The sample size and the accurate information on employment and socially insured gainful employment make the VSKT attractive for social research, but the lack of information on other sources of income and the household income are a drawback for research on future old age income. A selectivity problem arises in so far as people who were employed as life-time civil servants after less then 5 years of socially insured employment are not registered. Self-employed professionals have on the other side very incomplete socially insured life-course, but are often covered by other compulsory old age provision schemes. The selectivity problem could only be undone if all compulsory old-age provision schemes would send their data to a common statistical collection point. For occupational pension schemes data are still lacking, but the Federal Statistical Office is conducting a feasibility study about the future collection of data on this retirement income source.

### 2.2.2 Combination process generated with survey data in Pension provision schemes in Germany (AVID)

The last decades have shown a diversification and growing heterogeneity of (empirical) life courses in Germany as well as in many other welfare states. Facing this evolution the German Pension Insurance and the Federal Ministry for Labour and Social Affairs commissioned to carry out an elaborate study on future old age incomes with a strong biographical focus named “Retirement Pension Provision Schemes in Germany” (Altersvorsorge in Deutschland).

The target persons of the first AVID-Study (AVID '96) stem from a representative random sample selection drawn from the panel of samples of statutory pension insurance accounts. A tailor-made projection of the data guarantees that the outcome of analyses of those contributors of the statutory pension scheme aged 40 up to 60 and their spouses will have representative character. The projection method chosen makes both single person and spouse-related evaluations possible. The universe of analysis of the AVID 2005 was extended to include the entire population of Germany born in between 1942 and 1961 (and their spouses) irrespective of any entitlements to pensions from the Statutory Pension Insurance. As a result of this decision the representative sample had to be derived from a different source and was in this instance taken from an access panel. The record to survey data match of the first wave had the advantage that the data quality of the pension fund data was the same as for the 'Sample of the insured populations' records'. The price for this was that the data were representative only for the population who had a pension fund account at the data of sampling. The second survey to record path ensured representativeness for the whole population, but created a more troublesome process to collect the process produced data afterwards (Frommert and Heien 2007Stegmann and Bieber 2002).

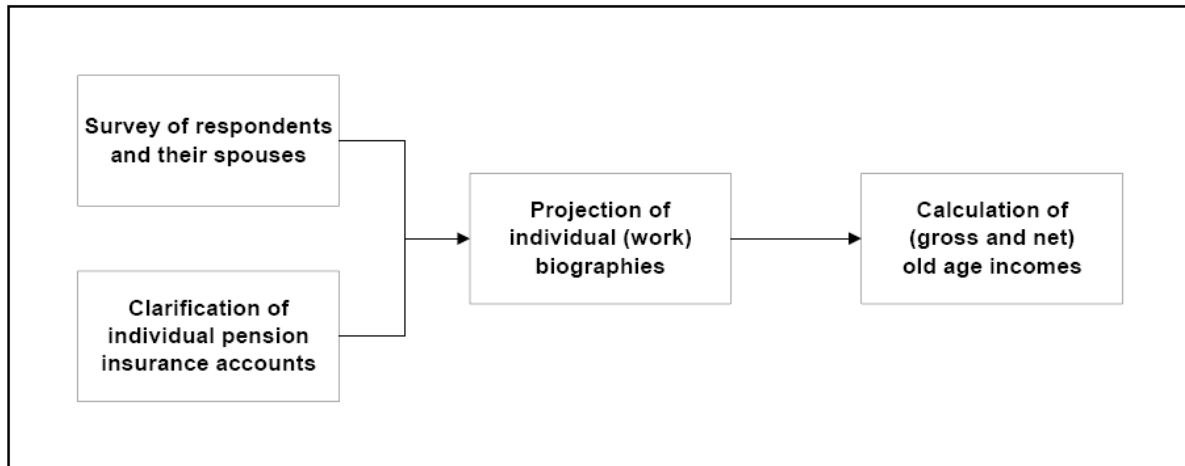
The study aims to identify the type and amount of entitlements to old-age income for individuals and married couples, i.e. for pension-insured persons between 40 and under 60 years of age (age-groups born between 1936 and 1955, Germans living in Germany and – irrespective of nationality and age – their spouses). Thus, in AVID '96 for the first time entitlements to payments from the statutory pension insurance for those between 40 and under 60 years of age for married couples are shown, accumulation of entitlements within the statutory pension insurance are covered, including entitlements arising from other standard and supplementary pension systems, previously unavailable information as to gaps in the insurance biographies of the statutory pension insurance is gathered, and extrapolation data are supplied for the analysis of future developments. Moreover various data concerning life and working biographies are being supplied which are not included in the individual pension accounts.

The AVID studies are characterized by an innovative mix of methods and data sources. They are composed of several steps, each of them and the combination being rather unique in the context of old age security research.

The survey comprises all the important schemes for retirement in Germany, i.e., apart from the statutory pension insurance as the most significant system, private and public supplementary systems, civil servants' pension scheme, farmers' old-age pension scheme as

well as schemes for the independent professions. Private provisions such as life insurance and private pension insurances, ownership of property as well as maintenance payments made by children and partners are also taken into account.

Data sources of the AVID:



Source: Dina Frommert and Thorsten Heien (2007)

After the deduction of income tax and statutory contributions for health and old-age insurance, the net old-age income shown is the sum of benefits due to personal entitlements arising from the pension schemes described above, including private provisions such as life insurances and private pension insurances and survivors' income or benefits, if any, arising from such schemes. Other sources of income such as earned income or transfer payments, i.e., housing subsidies, welfare benefits, and other forms of unearned income, are not taken into account. In a second step the individual pension insurance accounts of the AVID respondents are clarified by the (federal or regional) institutions which manage the accounts, the entire process taking about 18 months. These two datasets are then matched with the respondents' consent and checked extensively for consistency PT resulting in a highly valid and reliable dataset on (past) life courses and pension provisions. The design of the survey also allows the identification of married couples so that at least some measure of "household context" can be included in the analyses. In a third step the individual (work) biographies are projected to the age of 65 – at the time of the surveys the legal retirement age in Germany – using a specially developed micro simulation model. Biographical events like unemployment and long-term illnesses are taken into account as well as individual decisions to interrupt or end employment such as housekeeping, childcare or looking after relatives in need of care. The projection is based on a projection corridor using individual data on the years 1992 to 1996 for the AVID 1996, the projection corridor for the new study is correspondingly longer (1992 to 2002). The

simulation model does not take into account socio-demographic processes, so the marital status represents the status of the survey-year and any mortality is excluded.

The findings are based on the projected old-age-income that is calculated in the last step: the gross old age incomes at the age of 65 are calculated on the basis of the individual biographies, taking all relevant pension schemes – the SPI, the civil servants' pension scheme, the farmers' old-age pension scheme, special schemes for the liberal professions, the public and private supplementary systems and private provisions for old age (life insurances, private pension insurances) – into account. Finally, the net incomes are generated by taking into account current income tax regulations and a specially designed social insurance contribution model.

The results of the AVID-Studies are published as reports and charts. The data have not been published for the scientific community. However, for the combination of process produced data from the pension fund's record with survey data is the AVID the example for further steps.

### **3. Future developments**

#### *3.1 Record-to-record linkage*

Record-to-record linkage can improve the data, if other social security or tax institution gathers information unknown to the pension fund. In the case of the Federal Employment Agency this are data on training and other benefits from the unemployment insurance. In the case of the public health insurance these would be information on prescriptions and health treatments.

The record to record linkage is not an easy task for the research data centre of the pension fund, because the social security number is not known for the persons included in the data gathered for statistical purposes like the 500.000 persons included in the 'Sample of the insured population' (VSKT). The public pension fund itself is composed of several regional and two federal insurances, which keep the records of the persons insured by them. For statistical purposes all pension insurers send data to the central statistical collecting point not including the social security number. The research data centre is therefore unable to re-identify the persons included in the data provided for scientific research. Record-to-record linkage must therefore be supported from all pension insurers by sending the data including the social security number for a particular research project and a particular year and data source. These projects must therefore be thoroughly prepared in order to highlight the gain for all participating parties and presented in the self-government boards. Strict data privacy rules

apply additionally, because the research data centre is not allowed to have the social security number in its reach. A regular procedure is not yet in place for record-to record-linkage, but in case of convincing new results from research project using the improved data a recurrent regular procedure seems to be possible. The next step of record to record linkage would be the match with data that have other identifiers than the social security number. These could be tax data or data from the old age provision schemes.

### *3.2 Match of process generated data with survey data*

The linkage of pension fund records with survey data would improve the life-course information of many surveys, which suffer from recollection errors of the interviewed persons or left censoring. Research on retirement or disability would on the other hand gain from subjective information gathered via survey. Self assessed health and retirement planning would give crucial inside in early retirement, a research topic of utmost importance. Objective indicators on the health status could also be included (biomarkers). However, also for survey-to-record linkage is reidentification not easily done. The self-government boards of the pension fund have to give their consent to the project, because the cooperation of all pension insurances is again essential. The survey must include the informed consent of the interviewed person, who must also provide his or her social security number. The collected number must than be searched for in the central register of all socially insured persons. The next step is the collection of the data from the pension fund records.

## **4. Future Developments: European and International Challenges**

The pension fund exchanges data with most public pension funds worldwide, because social security treaties require that migrants should not be discriminated against and should have an easy one-step procedure to apply for their pension in just one country. Most important partners in data exchange are the member states of the European Union, who act under the common framework of the same regulation. The exchanged information is only to a small part included in the statistics. A common effort to gather more information on transnational working biographies could be a further step to improve the data.

A common international pool of data on public or publicly supported old age provisions could be a further step to support comparative research. This would require improved multilingual meta data and a very accurate documentation, because the differences between the national security systems could easily lead to misconceptions.

## **5. Conclusions and Recommendations**

Research on the income situation of today's and future retirees requires often record based data. Because of their accuracy in the life-course data they can also, if they are linked to survey data, make interviews shorter and less demanding for the interviewed persons. However, the projects leading to this improved data are time-consuming, because the privacy law demands extensive data protection requirements. Social security law requires furthermore that the data are collected for research projects on social security related topics like health status and early retirement. Record-to-record linkage does not require informed consent to protect privacy, but extensive technical provisions that separate the data at an early stage from the identifier. Both ways of matching provide much improved data quality at reasonable price, but require an established infrastructure able to handle the procedure required from privacy laws and regulations.

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