

Session Number: Plenary Session 5

Time: Thursday, August 28, AM

**Paper Prepared for the 30th General Conference of
The International Association for Research in Income and Wealth**

Portoroz, Slovenia, August 24-30, 2008

Draft

**The Relevance of the German Household Budget Survey for
National Accounts**

Albert Braakmann, Joachim Schmidt and Norbert Schwarz,

Federal Statistical Office of Germany

For additional information please contact:

Albert Braakmann

Federal Statistical Office of Germany

Statistisches Bundesamt, 65180 Wiesbaden, Germany

Email address: <albert.braakmann@destatis.de>

This paper is posted on the following website: <http://www.iariw.org>

1 Introduction

In German national accounts, the household budget survey (HBS) is used in two areas: Firstly for calculating household final consumption and secondly for enlarging the income accounts. This paper highlights some important conceptual differences between national accounts and German HBS, gives an overview of the use of the HBS in German national accounts and compares results between both.

After a brief overview of methodological features of the German HBS (chapter two) chapter three describes general conceptual differences between national accounts and the German HBS. Chapter four focuses on household final consumption expenditure und chapter five on income calculation. Both chapters illustrate specific conceptual differences between national accounts and the German HBS, compare selected results and evaluate the differences. Regarding the calculation of household final consumption the focus is on particular expenditure categories. Concerning income accounts the focus is on the calculation of income of employees and the calculation of entrepreneurial and property income.

Concluding remarks point out the role of household budget surveys for national accounts in general. Possibilities and limitations of using survey based micro data for calculating macro aggregates and for disaggregating existing macro data are discussed.

2 Key features of the German household budget survey

The sample survey of income and expenditure (German HBS) provides statistical information on household income, property and debt as well as on final consumption of private households, the use of owner occupied dwellings and household's equipment with durable consumer goods in Germany.

The survey is carried out every five years and collects data for a sample of about 75 000 households covering roughly 0.2 % of all households in Germany. It has been conducted in the former territory of the Federal Republic since 1962 and, after German unification, in the New Länder since 1993. The last HBS was carried out in 2003. The next (2008) survey is currently being conducted.

The German HBS is carried out in close co-operation between the Federal Statistical Office and the statistical offices of the Länder. While the Federal Statistical Office prepares the survey in organisational and technical terms, the Länder offices recruit the sample households and conduct the relevant interviews. The data collected in the survey are further

processed by the Federal Statistical Office, which also calculates the results for the federal level.

The German HBS is based on quota sampling. All households are selected for and included in the survey on the basis of a specified quota plan. The population of households is subdivided into individual groups on the basis of specific quota variables. The quota for each group is specified as the number of households to be interviewed. As with the German microcensus, a 1% population sample survey, the population of households is first allocated to the individual Länder. In a second step, the total of households in each Land is grouped by the following quota variables: type of household, social status of the main income earner and household net income. The number of households to be interviewed is determined for each of the quota cells obtained in this way. Participation is on a voluntary basis.

As regards the survey process and design, the sample survey of income and expenditure comprises three components. At the beginning of the year, a reference day-based introductory interview (including a supplement to the interview) is aimed at collecting the basic socio-demographic and socio-economic data of households and individuals as well as information about their housing situation and equipment with consumer durables. Unlike in previous surveys, the introductory interview of the 2003 HBS was mostly not held by interviewers. Instead, the households themselves completed the questionnaires they had received by mail. The supplement of the introductory interview comprises questions about property and the financial wealth as well as about consumer credit and mortgage debts of households.

The second component of the HBS is the household diary where each of the participating households records its income and expenditure over the period of three months. To this end, the overall sample of households is subdivided into four parts, with every part having to record the data for a given quarter of the reference year. The last component of the survey is the so-called "detailed log book" where every fifth participating household enters its detailed expenditure on food, beverages and tobacco products by quantity and price for a given month of the year.

Owing to the large number of households covered in the HBS and to plausibility checks carried out during the processing stage, the survey results are considered reliable. Representative data are obtained for almost all households since nearly all social groups are covered by a quota plan and the results obtained are grossed up on the basis of the relevant microcensus figures. However, the sample survey of income and expenditure does not

provide data on persons living in communal establishments and institutions since, in accordance with the applied definitions of households, they are not covered. The German HBS does not provide data on households with high income as the number of these households participating in the survey is usually not sufficient to provide reliable information on their standards of living.

3 General differences between HBS and national accounts

- **Coverage of households**

As already mentioned, the German household budget survey does not cover high-income households (households whose monthly net income exceeded 17.895 Euro in 1998 and 18.000 Euro in 2003 and 2008) and institutional households like prisons or nursing homes. Consumption expenditures and income of these households have to be estimated separately as far as possible and added to the survey results to allow a comparison with national accounts aggregates.

- **Grossing up**

National accounts combine various statistical sources in order to provide a consistent picture of the economy as a whole on a macroeconomic level. In contrast, household budget surveys produce data on specific economic aspects for a sample of households that has to be grossed up to total population in order to calculate macro-aggregates. The comparability of household budget data and national accounts aggregates, therefore, depends also on the grossing up framework applied to household budget data. The original grossing up framework of the German HBS is not consistent with national accounts at first. However, in the context of a detailed comparison between national accounts and HBS, the original grossing up framework was modified by using additional detailed information on how the population is distributed among different socio-economic groups of households. Estimates for household final consumption based on the modified grossing up framework for example are 2.9 billion Euros (0.3%) lower than figures based on the original framework of the HBS 1998.

- **Domestic concept versus national concept:**

The German HBS collects data for resident households. Grossed up household final consumption expenditure derived from this survey, therefore, reflects the national concept. In national accounts, however COICOP (Classification of Individual Consumption by Purpose) relies on the domestic concept, household final consumption expenditure in a breakdown by purpose according to, which includes consumer spending of non-residents in Germany and excludes consumer spending of German residents abroad. To achieve comparable results,

either national accounts data have to be adjusted to the national concept or household budget data have to be adjusted to the domestic concept. For this study, the former option was chosen. Rough estimates on consumption patterns of non-residents in Germany and German residents abroad were used to adjust household final consumption expenditure from national accounts to the national concept. Results show that total household final consumption expenditure based on the national concept was about 25.8 billion Euros (2.4%) higher in 1998 than the corresponding figure based on the domestic concept. However, this conceptual difference applies only for the comparison of household final consumption expenditures and not for the comparison of income aggregates as the latter are based on the national concept in national accounts.

Besides these general differences there are additional conceptual and methodological differences specifically related to income accounts and the calculation of household final consumption. This will be covered in the respective chapters.

4 Household final consumption

Household final consumption expenditure is by far the most important component of gross domestic product (GDP) on the uses side, accounting for almost 60% of the German GDP. Therefore, accuracy and reliability in calculating household final consumption expenditure substantially affects the quality of GDP estimates. In German national accounts, household final consumption is mainly calculated from the supply, i.e. particularly retail trader side based on turnover figures available for commercial enterprises. Additional direct data from the consumer side provided by household budget surveys can help to improve the quality and ensure the completeness of household final consumption in national accounts. In this connection, the following part composes the compilation of household final consumption (1) in national accounts and (2) based on the HBS. Methodological aspects as well as empirical findings for Germany will be discussed. The results presented in this chapter are derived from a research project carried out in 2005/2006, when the latest survey available was the 1998 HBS. The following findings therefore refer to the year 1998.

4.1 Conceptual differences concerning consumption expenditure

Conceptual differences between household budget survey and national accounts regarding private consumption expenditure can be roughly divided into two categories:

- conceptual differences affecting (more or less) all items of private consumption
- conceptual differences concerning only particular items of private consumption

The first category refers to general differences between HBS and national accounts (coverage of households, grossing up and domestic concept vs. national concept) described in chapter 3.

The second category can be further subdivided into

- conceptual differences with an impact on the level of household private consumption expenditure and
- conceptual differences affecting the classification but not the level of household final consumption expenditure.

The first type of differences involves expenditures that are not included in the household budget survey as well as items that are included in the HBS though based on concepts different from national accounts (for example sales and purchases between private households are included in the HBS, but excluded in national accounts). The second type relates to differences in the assignment of certain expenditure types to COICOP categories in national accounts and in the HBS.

4.2 Empirical results for selected expenditure items

Empirical discrepancies between household budget data and national accounts data on household final consumption expenditure vary quite strongly across the different COICOP positions. In the following section, these item-related discrepancies and possible reasons are exemplified in detail for three expenditure categories. The ratios of HBS to national accounts expenditure levels for 1998 are specified in brackets

- 01 Alcoholic beverages, tobacco and narcotics

It is common feature, that certain expenditures are systematically understated in household budget surveys. Particularly noticeable is the low value for tobacco in relation to the corresponding national accounts figure (35 %) which is based on tax figures covering all tobacco sales in Germany. The low values of the 1998 survey are no exception. In fact, coverage rates have fallen continuously from 42 % in 1973 to 35 % in 1998. In case of alcoholic beverages, a reason given for the low coverage (63 % in 1998) is surely due to low social acceptability of these goods.

- 12 Miscellaneous goods and services

This category covers a wide range of different goods and services. Differences between survey results and national accounts figures must therefore be examined on a more detailed level. Given below are sub-categories on a three-digit-level of COICOP.

12.1 Personal care (78 %)

Considering the representation of expenditure on personal care in the HBS, two aspects have to be considered. On the one hand, payments for services like hairdressing reported in that category also include tips. On the other hand, the survey covers a proportion of illicit employment in this part of the service sector that can not be quantified.

12.3 Personal effects n.e.c. (68 %)

Expenditures for personal effects are likely to be underreported as this category covers, amongst others, expenses for funeral items. It is reasonable to assume that sample households affected by death tend to “forget” to report expenditures, especially those in connection with tragic events like funerals.

12.4 Social protection (67 %)

In national accounts, private consumption expenditure on social protection includes services of institutions such as nursing homes paid by persons living in them. In the HBS, these expenditures are excluded as the survey does not cover persons living in institutions. In order to allow a comparison with national accounts figures, expenditures of persons living in institutions were estimated and added to the original survey results. However, even after adjusting for consumption expenditures of people living in institutions, results of the HBS for this category are substantially lower than the corresponding national accounts figure (the ratio of 67 % refers to adjusted results). The remaining difference is at least partly explained by the fact that household spending for childcare in nursing schools and children’s homes was not included in this category in the 1998 HBS.

12.5 Insurance

The representation of expenditures related to the insurance industry differs fundamentally between national accounts and HBS. In national accounts, the category “insurance service” comprises a so called “implicit service charge” with is normally unknown by households. Household budget surveys can only report gross premiums generally. In the German HBS, these are categorised as “other expenditure” not as “consumption expenditure”. Expenditures in connection with claim settlements are reported only in case households pay bills in advance (e. g. car repair bill in connection with a car accident claim) and receive

reimbursement from the insurance company afterwards. Claims settled directly by insurance companies do not appear as expenditures in the household diary. In national accounts, expenditures in connection with claim settlements (non-life insurances) are included in household final consumption irrespective of whether bills are paid by the household or by the insurance company. HBS data and national accounts data on insurance-related household final consumption expenditures are therefore not comparable. It is worth noting that whilst the different representation of insurance services (gross premium vs. implicit service charge) affects only the COICOP-category 12.5, the different treatment of expenditures in connection with claim settlements affects different COICOP-categories depending on the type of risk covered (e. g. "Health", "Transport").

12.6 Financial services n.e.c.

For two reasons, national accounts and survey results for this category are not comparable. Firstly, this category in national accounts includes the so-called Financial Intermediation Services Indirectly Measured (FISIM). This item can per se not be assessed by household budget surveys. Secondly, direct financial services like bank charges or tax consultancy are presumably underestimated by the survey as high income households are less represented in the sample.

12.7 Other services n.e.c. (35 %)

This is a heterogeneous category which covers services that do not fall in the above mentioned categories. In the German 1998 HBS, the item "Other services n.e.c." includes expenses that are not part of household final consumption expenditure according to national accounts, e. g. membership fees, donations and fines. On the other hand prostitution services, which also fall into this category, are likely not to be reported by households for social acceptability reasons. The above specified ratio for this category is all in all not very reliable and should not be over-interpreted.

04.2 Imputed rentals for housing

Results on this item differ substantially between the two data sources. According to national accounts, imputed rent for dwellings occupied by their owners was 110.7 billion Euro in 1998. The HBS produced an estimate of 137.3 billion Euro for the same year. This discrepancy can mainly be traced back to differences in the calculation models used to impute rents for owner occupied dwellings in national accounts and in the HBS respectively.

In the German HBS, an imputed rent is assigned to each "owner household" (household occupying a dwelling that he himself owns) that should reflect the average rent actually paid

for a similar dwelling. The imputed rent is then reduced by current expenses for maintenance and repair of the owner occupied dwelling.

In national accounts, estimates for imputed rents are based on a detailed calculation model. As a first step, dwelling characteristics that determine the level of rentals are identified. Both, owner occupied dwellings and rented dwellings are then stratified by these characteristics. To compile imputed rents for owner occupied dwellings, actual rents per square meter are calculated for each stratum and multiplied by total floor space of owner occupied dwellings. This calculation is done for the Old Länder in a breakdown by 500 strata and for the New Länder in a breakdown by 360 strata for the base year. The results for the base year (based on comprehensive census data) are continuously updated by using detailed strata-specific information on both price and quantity development.

Compared to the national accounts approach, the imputation method used in the HBS is altogether less differentiated. In addition, a tendency towards an overvaluation of imputed rentals in the HBS may be explained by the following methodological aspects:

- Absence of a differentiated valuation of owner occupied dwellings at market rents.
- Participating households classify themselves as owners.
- Household types with a high proportion of owners, like households of civil servants and employees, tend to be over-represented in the sample.

4.3 Evaluation of the results

Even after allowing for the conceptual differences described above, grossed up consumption expenditure according to the HBS is substantially lower than the corresponding national accounts figure. This study revealed a discrepancy of 13.5 % in the overall level of household final consumption expenditure between the two data sources in 1998.

Comparisons based on former household budget surveys show that this discrepancy has increased continuously (about 6 percentage points) since 1973.

The most important criteria for evaluating the reliability and accuracy of the HBS and thus also possible reasons for discrepancies between survey and national accounts data can be attributed to the survey design of the HBS:

- parts of population not covered by the survey (high-income households, institutional households) as described above
- The target sample size (roughly 74.000 households) for the 1998 HBS is based on the (earlier) 1995 microcensus. As a consequence, the grossed up number of households in

1998 according to HBS would underestimate the actual number of households presuming the number of households had risen between 1995 and 1998, and vice versa.

- The method used in Germany to design the sample, the quota sampling method, may lead to distortions as not all households have the same inclusion probability.
- Regarding the survey and recording method, it should be considered that the sample is not evenly distributed over the four recording periods of the year due to varying quarterly response rates. As this can only partly be adjusted by weighting, distortions may be expected in case of infrequent expenditures or expenditures subject to seasonal variation.
- Alongside the sampling errors described above, non-sampling errors deserve closer attention. A crucial aspect in this connection is the fact that participation in the survey is voluntary. As a consequence, certain types of households, like dual-income households, young families and households including long term care patients, are not adequately represented in the sample. This also holds true for households with distinct leisure time activities such as hobby gardening. These systematic differences with regard to participation have a bearing on the expenditure patterns produced by the survey. However, improved grossing up methods and comprehensive plausibility checks helped to substantially reduce systematic errors in the 1998 survey.
- As mentioned above, the original grossing up method of the 1998 survey is based on population structures of the previous year (1997) taken from microcensus. As a consequence, the factors used for grossing up lower income classes are too high, be it that incomes have raised. In addition, the original grossing up method is not consistently integrated in the national accounts framework. These problems could largely be solved by using a modified grossing up method for this study.
- Conceptual differences concerning certain goods and services: Major discrepancies between national accounts and HBS occur in the category “housing” due to different concepts used for calculating imputed rents for owner-occupied dwellings.
- Reporting behaviour, for example underreporting of socially not accepted goods like alcohol or tobacco, also came a bias in the expenditure patterns produced by the survey.

The above mentioned aspects all influence the grossed up result for household final consumption expenditure. However, their impacts can only partly be quantified. The possibilities for estimating the accuracy and reliability of grossed up household budget data are therefore limited. Nevertheless, it is useful and possible to differentiate between survey-related factors and non survey-related factors and to relate quality considerations to these categories.

Regarding survey-related factors, the standard error may be used to measure the accuracy of results derived from probability samples. In case of a sample quota, standard error analyses rely on the assumption that error levels equal those of a stratified probability sample. A disaggregated standard error analysis of the 1998 household budget produced the following results:

- Relative standard errors in the main expenditure categories, broken down by socioeconomic status of the household's main income earner, are mostly below 5 %. If moving from main expenditure categories to more detailed ones, error values raise. But even on a detailed level they seldom exceed 5 %.
- Standard errors are significantly higher in case of small absolute frequencies and infrequently purchased expenditure categories such as cars or package holidays.

It should, however, be considered that standard error analyses is restricted to sampling errors. Non-sampling can only be detected by extensive control surveys that have not been conducted in Germany so far.

Non survey-related factors refer to estimations for components and population groups not covered by the HBS in order to achieve comparability with national accounts concepts. As there is often a lack of precise information about these factors, the quality of these estimates can not be evaluated in terms of statistical error analysis but only by means of alternative scenarios.

5 Income calculation

German national accounts have a long tradition in calculating disposable income of socio-economic household groups within the national accounts framework according to international standards specified in the System of National Accounts (SNA 93). In this context the German HBS is the main basis for the breakdown of macroeconomic income aggregates. However, these survey data can not adopt as it stands in national accounts because of conceptual and empirical differences.

Differences include constraints of household surveys like underestimations of certain types of income (e.g. property income) and conceptual differences like differing definitions and classifications. Moreover, methodical aspects of the survey also deserve closer attention. An important aspect is the degree, in which all population groups are representatively covered by the survey. Some empirical comparisons will show the relevance of such differences for

Germany. The findings presented in this chapter reflect to a great extent typical conceptual and empirical differences between micro and macro approaches.

5.1 Main income categories: Calculation method and special conceptual differences

Wages and salaries

Wages and salaries according to national accounts include bonuses for difficult working conditions, additional monthly salaries, vacation pay, commissions, tips and gratuities and similar items in addition to basic wages and salaries. Also included are benefits in kind in the form of goods and services provided by the employer free of charge or at discount rates such as private use of company cars or free food provided to agricultural employees.

Calculation of wages and salaries in national accounts is based on various statistical sources. Primary data sources are employers' monthly, quarterly and annual returns and special surveys of employers that are conducted every few years, such as the survey on labour costs. For industries in which returns from employers are limited or non-existent, collective labour agreements provide an important basis for the estimation of current wage trends. In addition, social insurance statistics provide data on total compensations subject to social contributions and on current contribution rates. For the general government sector calculation is based on cash data from public finance statistics. Figures from tax statistics and household surveys are used to estimate minor components like wages and salaries of household employees.

Concepts and definitions used in the German HBS are based on the national system of income and expenditure (SEA 1998), which comprises, in addition to expenditure categories derived from COICOP, a classification of income. All employed members of participating households keep detailed records on their monthly income in the household diary.

Employers' social contributions which are paid directly to the compulsory social security scheme are not covered by the questionnaire. Therefore, only wages and salaries can be compared between HBS and national accounts. Compensation of employees, which includes employers' social contributions, can not be estimated based on HBS data. Regarding wages and salaries there are only minor conceptual differences between both sources:

- Family-related allowances such as children's and spouses' allowances are part of wages and salaries in the HBS. In national accounts, these components are recorded under social benefits and, as a counterpart, under employers' imputed social contributions. Employers'

social contributions are part of compensation of employees and deducted from the latter to calculate wages and salaries.

- Employers allowances for long term care insurance premiums to employees, which are voluntary members of the compulsory long term care insurance scheme or members of a private insurance, are part of wages and salaries in the HBS, but in national accounts classified as employer's contributions (included in compensation of employees but not in wages and salaries as described above), because membership is compulsory by any means. The same applies to employer's allowances for health insurance premiums to employees, which are voluntary members of the compulsory health insurance scheme. By contrast, employer allowances for private health insurance premiums to employees are part of wages and salaries in both HBS and national accounts. In national accounts private health insurance premiums are assigned to non-life-insurance premiums.
- Some expense allowances like allowances for travel and accommodation expenses are part of wages and salaries in the HBS. In national accounts, expense allowances are to the extent to which the expenses are in the interest of the employer (e. g. travel expenses) intermediate consumption, not compensation of employees.

Entrepreneurial and property income

National accounts distinguish between entrepreneurial and property income. Property income of private households includes interests, dividends, withdrawals from income of quasi corporations, property income attributed to insurance policy holders and rents from letting of land. Entrepreneurial income of private households consists of income of sole proprietorships, self-employers and partnerships without independent legal status (e.g. partnerships of lawyers, doctors, architects). In accordance with ESA 95 entrepreneurial activities are part of the household sector if distributive and financial transactions in connection with the enterprise are not separate from those of their owner. Dwelling services have an exceptional position. Letting of dwellings is part of all sectors. Imputed rents of owner occupied dwellings as well as letting of dwellings by private households are part of entrepreneurial income of private households.

In addition to differing income concepts used in national accounts and in the HBS, both sources vary in the assignment of certain income components to entrepreneurial income or to property income.

In the German HBS, self-employed persons are asked to record withdrawals from the business (quasi-corporations like partnerships, sole proprietorships, other forms of self

employment) owned by them. Data are collected both on withdrawals in cash and withdrawals in kind (withdrawals of assets and production for private use in the household). In addition, farmers and other self-employed persons are asked to estimate their quarterly gross profit and to specify their quarterly tax prepayments

Data on withdrawals by self-employed persons are collected in the household diary. Estimated quarterly gross profits and quarterly tax prepayments of farmers and other self-employed persons are assessed by a supplementary questionnaire. The information from the supplementary questionnaire is used to check the plausibility of the data on withdrawals obtained from the household diary. As a further control procedure, the balance of income and expenditures is checked for each sample household. Sample households are only included into the data set if the balance of total income and total expenditure (including saving) is within a certain tolerance range (divergence of maximum plus or minus 20%). In case of self-employed and farmer households, the balance of income and expenditure is not recorded as a "statistical discrepancy" but as "retained earnings", which can be positive or negative in the HBS. However with the introduction of ESA 1995, retained earnings are not recorded any longer in national accounts.

In addition to sole proprietors, farmers and self-employed persons, which are all part of the sector private households in national accounts, the definition of self-employed persons applied in the HBS also covers working owners of partnerships. According to ESA 95 concepts, partnerships are quasi-corporations and therefore part of the corporation sector (non financial and financial corporations). Withdrawals of income of quasi-corporations by their owners are treated just like dividends of actual corporations in national accounts. They are recorded in the household sector as property income received. Therefore, a comparison of income from entrepreneurial activity between HBS and national accounts is only possible on the basis of entrepreneurial income plus withdrawals of income of quasi-corporations by private households.

As in national accounts, income from disposal of business assets is not part of income from self-employment in the HBS.

Income from letting of own property is categorised as property income in the German HBS. In national accounts income from letting of own property is - except from letting of land - recorded as income from entrepreneurial activity. This also applies for imputed rents for owner occupied dwellings. To calculate income from rent and lease in the HBS, income is reduced by expenditures for property maintenance and by side costs such as property tax,

expenses for garbage removal, street cleaning, property insurance, elevator et cetera and, if these are included in gross income, the expenditure for heating and hot water supply.

In addition to differences in classification there are major differences in the definition of these income categories between the two sources. Letting of own property and imputed rents for owner occupied dwellings are according to HBS definitions inclusive of depreciation and interest paid on mortgage loans. In national accounts, net entrepreneurial income is recorded after consumption of fixed capital and mortgage interest payments. As a consequence, a comparison can only be made on a basis before deduction of depreciation and mortgage interest payments (gross income before interest payments). Income from subletting, which is shown as a separate item in the HBS, does not appear in national accounts as rents from subletting paid and received by private households balance to zero within the household sector.

The value of own-account construction and major renovations of dwellings carried out by dwelling owners themselves are part of entrepreneurial income in national accounts but not treated as income of self-employed in the HBS.

Regarding income in kind, different valuation methods are used in HBS and national accounts. In addition to agricultural products retained by farmers, the German household survey collects data on income in kind from agricultural goods produced by private households for own consumption. This income is valued at market prices, i.e. at prices that would have to be paid for equivalent goods on the market. In national accounts benefits in kind are valued at basic prices.

5.2 Empirical results

Apart from conceptual differences described above, definitions as well as empirical results for wages and salaries do not differ substantially between national accounts and the German HBS. The HBS to national accounts ratio for wages and salaries was roughly 94 % in 2003. Considering that high income earners and people living in institutions do not participate in the household survey this ratio seems to be plausible.

Significant differences between HBS and national accounts occur in case of entrepreneurial income. Entrepreneurial income of private households adds up to just under 100 billion euros in 2003 according to HBS. To allow a comparison between HBS and national accounts

results, entrepreneurial income according to national accounts must be adjusted to the HBS definition as follows:

Entrepreneurial income of private households in national accounts

- rent and imputed rents for dwellings
- + Withdrawals of private households from quasi-corporations
- imputed income for own account construction and major renovations of dwellings

= Modified entrepreneurial income for a comparison with HBS.

Entrepreneurial income according to national accounts, modified as above, was around 310 billion euros in 2003 and thus three times as high as the corresponding HBS figure. Even after taking into account that national accounts results are subject to some statistical uncertainties it is reasonable to assume that the HBS significantly underestimates the actual level of entrepreneurial income. One doubtless reason is the fact that the HBS does not cover high income households. Entrepreneurial income of high income earners can roughly be estimated on the basis of income tax statistics. However, if an estimate for high income earners is added to the original survey results, entrepreneurial income based on the HBS (130 billion euro instead of 100 billion euro), still accounts for less than half the amount in national accounts.

Income from dwelling services is treated as property income in the HBS and as entrepreneurial income in national accounts. Nevertheless, a comparison is possible based on income from dwelling services including paid mortgage interests and consumption of fixed capital (gross income before interest payments). Imputed rents for owner occupied housing according to the HBS, without an estimate for high income earners, is 30% higher than according to national accounts in 2003. Possible reasons for this discrepancy are described in chapter 4.2. However, in case of income from letting of dwellings, the HBS estimate is 26% lower than the corresponding national accounts figure. This is to some extent explained by the fact that high income earners are excluded from the HBS. There may also be some underreporting. Anyhow, the differences between HBS and national accounts results on letting of dwellings and imputed income of dwellings are noticeable.

Regarding property income, the focus is on dividends and received interest payments. For a comparison of interest flows and dividends three aspects have to be considered: Firstly, high income earners, who are excluded from the HBS, account for a disproportionately high share of total property income. Secondly, the HBS records dividends and received interest payments after retained capital yields tax. Finally, received interests can only be compared before deduction of FISIM in national accounts. With the exception of the first mentioned

aspect (property income of high income earners), satisfactory adjustments can be made for these conceptual differences in order to allow a comparison. Nevertheless, the HBS to national accounts ratio for property income received by private households compared to national accounts figures is only 33% in case of interest payments and 29% in case of dividends in 2003. After adding rough estimates for high income earners the ratios are 37% (interest payments) and 49% (dividends).

5.3 Evaluation of the results

The empirical findings suggest that income of dependent employment is covered much better by the HBS than property and entrepreneurial income. One explanation is the exclusion of high income earners in the HBS. High income earners account for a considerable amount of property and entrepreneurial income. However, considerable discrepancies remain even after adjustments for income of high income earners by means of additional estimations. Because definitions are otherwise largely comparable or can be harmonized, these discrepancies are presumably due to methodical difficulties to cover entrepreneurial and property income in household surveys.

Apart from the methodical aspects laid out in chapter 2, 3 and 4.3, an under-representation of entrepreneurial and property income in the HBS may result from the following survey related factors:

- general difficulties to capture income items subject to erratic variations like entrepreneurial and property income,
- respondents misinterpret certain items of the questionnaire and possibly do not (or do not completely) report certain types of income and
- difficulties to cover entrepreneurial households in the survey sample.

As a concluding remark, it is worth noting that national accounts can not be seen as an accurate benchmark for household survey data because of statistical uncertainties and source data gaps. Basically, the household survey data should be a source for national accounts. As other, more adequate and timely statistics are available especially on wages and salaries and interest flows the HBS is not used to determine the level of the income aggregates of current national accounts in Germany. It is, however, used for the calculation of disposable income by socioeconomic household groups within the national accounts framework, together with other statistics like the income tax statistics and the German microcensus.

6 Concluding remarks

The results of household budget surveys, i.e. surveys providing data on households' expenditure and income, are a valuable source for national accounts. On the one hand these data may be used as a basis to compile private consumption expenditure as well as certain income aggregates. On the other hand, if other sources are used in national accounts for consumption and income estimates, the HBS-data may be employed to substantiate these estimates.

To improve the usefulness of HBS-data for national accounts purposes, the definitions and concepts of the two statistics should be as close as possible. Obviously certain specific macro-concepts, like FISIM or the insurance service charge, cannot be implemented at the micro-level. In cases where definitions and concepts differ, specific compilations have to be carried out.

A decisive factor for the usefulness of HBS-data concerns the representativity of the sampled households. A first issue is, whether the population distribution of the reporting year is properly reflected in the sample design as well as in the grossing-up procedure. Another issue is to avoid limitations in coverage, like low or high income earners, persons in institutions or foreign households. This may require additional compilations.

Special attention has to be paid to the fact that a HBS is carried out in a given social environment. Therefore, certain expenditure items have a strong tendency to be underreported. In European countries such items for instance are alcoholic beverages, tobacco or narcotics, but this may vary in other countries. In this case, additional sources should be exploited to portray the reality.

In German national accounts the HBS-data are at present mainly used to estimate private consumption in service as well as a basis to compile income data by socio-economic group. In addition, HBS-data are particularly important to substantiate private consumption figures. Improvements in the application of household budget data in national accounts may be expected in the next years, due to an upcoming methodical revision of household statistics in Germany.