# Eurosystem Household Finance and Consumption Survey 2014

## First results for Austria (second wave)

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*This report presents results from the second wave of the Eurosystem Household Finance and Consumption Survey (HFCS) for Austria. The focus of the report is on the wealth components of household balance sheets, the risk-bearing capacity of indebted households and changes in the main wealth components between the 2010 and 2014 waves. The composition of household balance sheets and the distribution of net wealth are found to have been stable over time. The risk-bearing capacity of households is high.*

In 2006, two years before the global financial and economic crisis unfolded, the European Central Bank (ECB) initiated the Household Finance and Consumption Network (HFCN) comprising survey specialists, statisticians and economists from the ECB, the national central banks of the Eurosystem and a number of national statistical institutes. The HFCN was tasked with collecting harmonized household balance sheet data for the euro area. Until the HFCN embraced this task, microdata on euro area household wealth and debt had been lacking – which matters because the available national accounts aggregates for the household sector are ill suited to analyze the monetary policy transmission mechanism and financial stability.

The HFCN modeled its Household Finance and Consumption Survey (HFCS) on existing household wealth surveys like the Survey of Consumer Finances (SCF) conducted by the Federal Reserve (Fed), the Encuesta Financiera de las Familias (EFF) of the Banco de España and the Survey on Household Income and Wealth (SHIW) operated by the Banca d'Italia.[2] Before the HFCS was launched, the data on household wealth and debt were inadequate in most euro area countries. In Austria, the OeNB had conducted surveys on Austrian households' financial wealth in 2004 and on their housing wealth in 2008, which facilitated the introduction of the HFCS.

One great challenge facing the HFCN was to devise a survey that introduced new features while building on existing surveys and that collected harmonized data while taking into account national differences, with a view to providing comparable data on household balance sheets in the euro area. Considering the range of institutions involved and the range of assets and social circumstances to be explored and judging from previous experience with collecting household-level financial data, numerous practical obstacles had to be overcome.

The outbreak of the financial crisis in the U.S.A. in 2008 patently showed that even a small share of the population could have a significant influence on market developments when highly indebted and lacking sufficient risk-bearing capacity. The global economic and financial crisis that ensued heightened the need for disaggregated euro area data, especially on the indebtedness and risk-bearing capacity of households. Furthermore, household-level data were also found to be indispensable when analyzing the effects of non-standard monetary policy measures on the finances of households.

Consequently, the HFCS became a key resource for analyzing households' debt as well as their saving and investment behavior, reaching far beyond the areas for which it had been designed (see ECB, 2009). The rapid transformation of the financial sector and the ongoing economic crisis signal that the importance of the HFCS will in fact grow.

The results from the first wave of the Austrian HFCS country survey (Fessler et al., 2012a) and the related methodological notes (Albacete et al., 2012) were published in late 2012. Shortly thereafter, the ECB released the first results from all country surveys and the results for the euro area as a whole, as well as a methodological report (ECB, 2013a and 2013b). The publication of the euro area HFCS results was met with considerable media attention and triggered numerous economic policy debates. The common denominator of all public debates was the issue of wealth concentration in national economies. Ever since the groundbreaking studies of Kennickell (2006), Alvaredo et al. (2013), Atkinson (2015), Piketty (2014), Zucman (2015), Saez and Zucman (2016) and others, these issues have reemerged as a topic

of interest for academic researchers. Statistical initiatives are working on re-introducing a distribution dimension to the national accounts, returning to the national accounts' historical roots. After all, Simon Kuznets argued already in his 1933 article for the Encyclopedia of Social Sciences that what mattered more than generating the mere total in measuring the national income was the analytical work of allocating national income to households, regions and industries (Halsmayer, 2016, p. 73f).

Moreover, many commentators on the first-wave results focused on national wealth comparisons. An allegedly rich "south" was contrasted with a supposedly poorer "north." The difficulties inherent in such country comparisons are evident. In particular because of institutional differences, Fessler and Schürz (2013) argued against a focus on country rankings. This line of reasoning was also taken up by the German Council of Economic Experts in its annual economic report for 2014/15 (see also Andreasch et al., 2013; Fessler et al., 2014, German Council of Economic Experts, 2014/15).

The Austrian HFCS (both in 2010 and 2014) did not manage to oversample the wealthy. Hence the precision of estimates based on HFCS data for Austria has remained weak at the top end of the wealth distribution. Wealth is likely to be considerably underreported, and the top tail of the distribution is likely to be affected by an unknown degree of undercoverage. Yet reliable estimates of the top tail would be crucial in order to examine many wealth distribution-related research issues. Furthermore, inadequate top tail estimates make it harder to conduct comparisons with those countries that succeeded in effectively oversampling the wealthy, owing to adequate sampling frames. Especially Spain, France and

Box 1

**Coverage and underreporting problems in the Austrian HFCS country survey**

*Effectively capturing both the entire target population and all wealth components is a major problem in voluntary wealth surveys.*

*The coverage problem results from the fact that specific fractions of the wealth distribution are insufficiently represented because some households are not easily accessible or refuse to participate in the survey. This problem arises especially at the top and bottom ends of the distribution. Whereas the impact of undercoverage on the measures of distribution may be negligible at the lower end of the wealth distribution, it is crucial at the upper end, given the extreme positive skewness of the distribution. The wealthiest household surveyed in the HFCS for Austria holds far less wealth than people on rich lists (as published by Forbes, Credit Suisse or Trend). According to the Austrian business magazine Trend, the wealth of Austria's richest people totaled some EUR 145 billion in 2016, with about EUR 78.2 billion being concentrated in the hands of the ten richest individuals/families. Wealthy households at the upper tail of the wealth distribution are lacking in the Austrian HFCS results. Moreover, one can safely assume that the upper half of the distribution is subject to a nonresponse bias — a problem that can be addressed, to some extent, by means of nonresponse weights.*

*The problem of underreporting denotes the fact that some assets will not be reflected in the survey, to some degree because of insufficient survey coverage. Additionally, though, it must be assumed that households fail to identify some wealth components and/or their values, be it through oversight, misunderstanding or on purpose. If households simply report the existence of an asset without stating its value, this omission can be addressed through multiple imputation. But if specific assets are very rare, imputations may not be a reliable option.*

*For reasons of both undercoverage and underreporting, estimates of aggregate wealth and wealth inequality are downward biased, especially at the upper end of the distribution. This is compounded by the great uncertainty attached to some estimates. Estimates — specifically estimates of inequality indicators that include the top tail, like the Gini coefficient — or percentile ratios such as P99/P1 are also subject to high uncertainty. In particular, the scope of such problems may differ between two HFCS waves or among countries, making comparisons difficult. We cannot determine how large the lack of coverage and the degree of underreporting actually are, but there are clear signs that they have increased as nonresponse rose in the second wave (see chart 20). The response rate declined from 55.7% in the HFCS Austria 2010 to 49.8% in the HFCS Austria 2014. The extent of the problem can be gauged only roughly, even when consulting the few other available data sources on wealth aggregates.*

*Even if the stock of financial assets as shown in the national accounts is not identical to financial wealth as identified in the HFCS, neither with respect to the target population nor with respect to the exact definition of the components, the huge differences observed in individual components indicate a clear underreporting (see Andreasch and Lindner, 2016; and Vermeulen, 2016). Various wealth reports by private insurance companies and other enterprises suggest far higher financial wealth values for affluent people than reported in the HFCS. Austria's estimated 3,200 private foundations alone hold wealth (including real estate) of about EUR 55 billion (see Andreasch et al., 2015). Assuming that individual households do not have multiple foundations, this means that 5% of total privately held wealth in Austria is in the hands of fewer than one in 1,000 Austrian households. Again, the HFCS data far from reflect such measures. In addition to these individual examples, a body of literature attempts to approximate the actual wealth concentration by using statistical methods (see Eckerstorfer et al., 2015; Vermeulen, 2014 and 2016). This research reinforces the notable downward bias of survey-based estimates of wealth inequality.*

*At the same time, the HFCS succeeds in capturing the predominant share of the wealth distribution in Austria, in particular the important segment of debt. For most of the more complex statistical applications, underreporting at the upper tail plays a subordinate role. What remains is that descriptive observations of inequality at the upper tail based on random samples with voluntary participation are problematic.*

Germany recorded oversampling rates exceeding 100% for the top 10%, but also the Netherlands, Finland, Cyprus and Luxembourg managed to reach oversampling rates exceeding 50%. The first publication of results from the first wave in Austria (Fessler et al., 2012a; Fessler and Schürz, 2013) already drew attention to the problems resulting from a lack of oversampling. The continued criticism of the economic research community regarding this aspect of the Austrian HFCS country survey remains justified, even more so as no other data sources are available for Austria that would permit reliably estimating the top end of the wealth distribution in line with international standards. Box 1 broadly summarizes the implications of the undercoverage and underreporting of wealth.

The HFCS is the first and only set of household-level data for the joint analysis of wealth (real and financial assets) and debt in Austria. Moreover, the HFCS provides information on income, consumption and numerous related socioeconomic and sociodemographic variables. The HFCS data for Austria are cross-sectional rather than panel data, which means that new representative samples of households are selected for every survey.

The OeNB's primary objective as the producer of Austrian HFCS data is to ensure high data quality. Therefore, our goal consists of three parts: an extensive documentation of the HFCS methodology (Albacete et al., 2016b), adequate support of data users in the economic research community, and transparent communication of the strengths and above all the weaknesses of the survey. With regard to the latter, the problem of estimating the upper

tail of the wealth distribution based on surveys has been extensively documented for the HFCS. Surveys on distributional questions come with a fundamental "problem of confidentiality," as Nowotny already stated in 1979. *"In practice, in many important areas that would basically be accessible for empirical researchers, such as many areas of income distribution, 'market power' and the like, empirical work is not viable or involves very difficult and risky research, representing a restriction whose eminent importance for the development of national economy research has to my mind definitely not been recognized sufficiently"* (Nowotny, 1979, p. 32; translation). The household surveys that have gained recognition since the 1980s deal with this issue by ensuring strict anonymity of personal data, providing extensive data protection, and making participation voluntary. The logical consequence of such an approach, however, is a middle-class bias in such surveys.

The focus of our report is to provide robust statistical indicators,[3] like medians and percentiles, and information on the relations between them. As the HFCS is a random sample survey, considerable uncertainty is attached to nonrobust measures such as means[4] or Gini coefficients. Nevertheless, we report such nonrobust measures as well. Mean values provide information about overall volumes and, in combination with medians, indicate inequality; and they also show areas affected by marked underreporting. Last but not least, the first second-wave results from the HFCS presented here permit us to review the orders of magnitude and correlations observed during the first wave.

In our report, chapter 1 deals with the importance of the HFCS for various

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[3] Robust measures are measures whose influence function is bounded (see Huber and Ronchetti, 2009).

[4] In our report, mean is synonymous with the arithmetic average.

economic agents and topics. Section 1.1 explores the significance of the HFCS for the OeNB and the Eurosystem. Section 1.2 addresses the usefulness of the HFCS for empirical economic research in Austria. Section 1.3 discusses the HFCS with regard to cross-country comparisons. Section 1.4 provides an assessment of the future standing of the HFCS, given imminent changes in the financial sector. Chapter 2 presents the first results from the second wave for net wealth and its components in household balance sheets. Chapter 3 analyzes net wealth with regard to its socioeconomic household context. Chapter 4 examines the risk-bearing capacity of indebted households, an issue monitored closely by central banks. Chapter 5 draws comparisons between the first wave (2010) and the second wave (2014). Chapter 6 provides a concise summary.

Methodological issues and, in particular, changes between the two waves are addressed wherever appropriate in the report and in detail in the respective methodological notes (Albacete et al., 2016b).

## 1 The HFCS and its significance for scientific research

Data on the key economic aggregates, such as income, wealth and consumption are the basis for empirical research in economics. The recommendations of the Stiglitz-Sen-Fitoussi Commission (2009) on the Measurement of Economic Performance and Social Progress encourage emphasizing the household perspective and assessing income, wealth and consumption in tandem with each other as well as their distribution: *"Income and consumption are crucial for assessing living standards, but in the end they can only be gauged in conjunction with information on wealth."* The HFCS is the only data pool in Austria that permits a joint analysis of these

three variables at the household level. Also, thanks to the second-wave HFCS Austria 2014, it is possible to compare household assets and liabilities from 2010 and 2014.

The availability of income and wealth data in Austria remains inadequate, though. For example, no data source adequately reflects the distribution of income and/or wealth at the individual and household level. The available register data, such as social security or tax register data, lack key income data components as well as information on socioeconomic and sociodemographic variables that is frequently needed for analyses at the household level. Relevant register data on wealth are not available for the simple reason that wealth is not taxed or that other reporting methods are used. The available random sample surveys, such as the EU Statistics on Income and Living Conditions (EU SILC) for income data and the HFCS for wealth data, all suffer the weaknesses typical of such surveys: nonreporting or underreporting of individual population segments and of some income and wealth components. These flaws make it difficult to provide empirical facts. As Thomas Piketty wrote, *"Indeed, the distribution of wealth is too important an issue to be left to economists, sociologists, historians, and philosophers. It is of interest to everyone, and that is a good thing"* (Piketty, 2014, p. 2). A central bank cannot fulfill such broad demands with its microdata, but researchers may use the HFCS data freely available from the ECB to explore a number of important issues. While answering specific central banking questions may not require full coverage of the wealth distribution as the most important objective, inadequate stocktaking of the wealth distribution does not allow for a fully informed social and economic policy debate.

## 1.1 The importance of the HFCS for the Eurosystem

The crisis has really driven home the importance of a micro perspective at the household level to financial supervisors and central banks. In its handbook (ESRB, 2014), the European Systemic Risk Board repeatedly underlines the importance of an individual debtor perspective. The key targets for macroprudential risk management are debtor-level indicators: debt service-to-income ratios, debt-to-income ratios, debt-to-asset ratios, loan-to-value ratios and loss given default. Most of the relevant risk indicators have to be available at the debtor level to allow supervisors to perform financial stability analyses at the household level and to take targeted macroprudential measures (Albacete and Lindner, 2013 and 2015; Albacete et al., 2014).

Generally, it is not enough to look at aggregate levels of liabilities and assets, which often serve to collateralize debt; identifying specific risks and addressing adverse developments in due time requires analyzing the joint distribution of assets and liabilities. As the crisis has manifestly shown, more extensive data need to be collected for this purpose, especially from banks. Many pertinent data pools are currently under development,[5] and the HFCS dataset, relevant as it may be, will need to be developed further as well. Whereas the HFCS contains an abundance of information suited to analyzing general financial stability issues, a purpose for which it was designed, relatively small random sample surveys are unsuitable as a basis for the work of financial supervisors and for microprudential and macroprudential management. Here, larger datasets, e.g. on individual banks and their customers, are required.

Private sector wealth is influenced by public sector activities and public institutions. After all, public institutions affect the saving ratio of the private sector, their choice of financial products and who takes out how much debt. In other words, both the volume and the distribution of private wealth are subject to public sector influence.

Households mainly save out of precaution, for old age, or to finance expensive purchases of homes, consumer goods (see section 3.3), education or vacations. In Austria, the bulk of old-age provision, unemployment provision and health care, but also education, is managed by the government. The larger the role of government in welfare provision, the lower the importance of private wealth is for broad segments of the population. The different scope of welfare systems hence influences both the levels and the distribution of household wealth (Deutsche Bundesbank, 2015; Fessler and Schürz, 2015; Pham-Dao, 2015). For the Austrian financial system, this means that most households have fewer financial assets and are more risk averse in investing than households in countries where the government plays a lesser role in welfare provision.

In Austria, sight and savings accounts, life insurance policies and savings plans with building and loan associations are held by households across the wealth distribution. Instruments on which households in other countries lean heavily to fund retirement, such as stocks, bonds and mutual funds, play a lesser role. In Austria, it is much rather

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[5] See e.g. AnaCredit www.ecb.europa.eu/stats/money/aggregates/anacredit/html/index.en.html.

the wealthy households which use such investment vehicles in addition to classical forms of saving.

The link between government activities and risks to financial stability is also apparent on the debt side. Government-subsidized housing (municipal and provincial housing, government-subsidized cooperative housing, etc.) and sweeping tenant protection represent substitutes for household wealth accumulation. Given that households in the lower half of the wealth distribution in Austria tend to rent their main residence, the share of households holding mortgages and the risk to financial stability arising from household debt is relatively low.

Households that invest in home ownership assume considerable risk; most of them put nearly their entire financial wealth in a single investment and frequently also take out high debt to finance this investment. This approach is diametrically opposed to the diversification concept of portfolio risk management. Nonetheless, investing in an own home may be a good strategy for many households in the long term, above all because of the preferential tax treatment of owner-occupied homes. Whereas all capital gains in Austria are subject to taxation, income from owner-occupied real estate – imputed rent – is not taxed. In addition, all rental payments are also subject to value added tax (from the tenant's perspective) and income tax (from the landlord's perspective). Consequently, households that own their residence have a clear tax advantage. If the demand for rental property surpasses supply, households are forced to incur debt to acquire real estate property, which can become a problem if the repayment and debt-bearing capacity of these households is too low, as was the case with the real estate crisis in the U.S.A.

or in Spain. Such a crisis may lead to the mutualization of previously individualized risks. What matters ultimately is the risk-bearing capacity of individual households, not the size of debt (see Albacete et al., 2016a).

The purpose of deposit insurance is to insure savings deposits, to foster trust in the banking system and, ultimately, if this trust is at risk of being compromised, to prevent bank runs. Given the lack of data on the distribution of financial wealth among households, it is very difficult to determine the economically and politically prudent extent of deposit insurance, which will vary from country to country.

Evaluations of the recoverability of debt and of asset impairment, but also of the possible impact on the real economy, will be needed in connection with insolvencies or bank resolutions. Such evaluations also require knowledge of the composition of financial wealth and of its distribution among households.

The HFCS data can be used to show the differences in the size, composition and distribution of household wealth. The data facilitate comparisons within Austria and with other euro area countries, among specific household groups and over time (2010 to 2014), thus allowing for an analysis of the potentially different impact of various monetary and financial policy measures on households. For example, the influence of monetary policy measures on particular asset prices has specific effects not just on various countries, but also on different households (Deutsche Bundesbank, 2016; Adam and Zhu, 2015; Adam and Tzamourani, 2015; Lindner, 2015). The impact of monetary policy measures on real estate prices plays a special role and is analyzed in depth on the basis of HFCS data in the OeNB's July 2016 Financial Stability Report (Albacete et al., 2016a).

## 1.2 Significance of the HFCS for the public debate and empirical social research

The initial publication of the first-wave HFCS results (see Fessler et al., 2012a; Fessler and Schürz, 2013; ECB, 2013a and 2013b) was followed by an intense media and public debate. This debate centered above all on the inequality of net wealth and on international comparisons, i.e. country rankings using means or medians of net wealth or using inequality indicators. In Austria, the debate on the wealth distribution was especially intense, as the 2010 HFCS data pool for Austria was the very first set of data for Austria to permit wealth distribution analyses. Other countries had well-established surveys allowing for the analysis of household-level wealth distribution before the HFCS was launched. In Germany, for instance, the Panel on Household Finances (PHF) – the German part of the HFCS – came on top of the Socio-Economic Panel (SOEP) of the German Institute for Economic Research and the Income and Consumption Survey (EVS) of the German Federal Statistical Office, both of which are conducted at the household level.

In Austria, the HFCS has been repeatedly criticized for being merely a household survey. This criticism is not warranted, as household surveys do not profess to offer more than they do or to replace full reporting of household wealth. In the case of the HFCS, the multitude of survey problems has always been transparently communicated. However, there is no other way to collect such an abundance of household-level information, including data on personal expectations and assessments. Besides, random sample surveys form the basis for many other official statistics. For instance, the inflation rate is derived from a combination of two kinds of samples: Inflation measures are based on a standardized basket of goods and services, which is updated at five-year intervals through consumer surveys based on random samples. To calculate current inflation rates, the prices of these goods and services are then established at regular intervals with a sample of prices that is not probabilistic. Similarly, household-level surveys are used to collect statistical data on the labor market, housing, unemployment and education (microcensus), on income, poverty, living conditions (EU SILC), on the situation of older people (Survey of Health, Ageing and Retirement), on the population's state of health, health behavior and health care, but also on tourism and even electricity and gas consumption. Even outside of the household sector, questionnaires are used to collect data from companies, agricultural businesses, and educational and health institutions.[6]

The big advantage of such surveys is that the statistical survey process can be controlled very well. Therefore, it is possible to make an informed judgment on the uncertainty attached to the estimates derived by calculating standard errors. The national accounts framework does not offer the option of calculating uncertainty based on such statistical methods. For example, it is not possible to determine a confidence interval for GDP growth.

Nevertheless, analyses must take account of the problems inherent in random sample surveys. For this reason, it is particularly important to adopt a cautious and especially a transparent

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[6] See www.statistik.at/web_de/frageboegen/index.html (German only).

approach that openly shows the limits and uncertainties of statements made on the basis of the data pool.

Wealth held by households is not to be equated with "riches" or "affluence." In his 1900 work "The Philosophy of Money," Georg Simmel states that wealth itself holds out the promise of *"being a means to an end,"* offering innumerable possibilities for use, and that *"a rich man has an influence not only by what he does but also by what he could do"* (Simmel, 2011, p. 234). In contrast, the concept of wealth used in the HFCS refers only to quantifiable wealth components.

Yet knowing the extent of inequality of household wealth in itself does not allow for any conclusions to be drawn about the distribution of "affluence" or the degree of "fairness" in a society. Legitimizing wealth inequality is also a crucial social policy issue, as personal achievement can play only a minimal role in inherited and gifted wealth compared with labor income (see Piketty, 2014). Information on the importance of inheritances is thus eminently important (see Fessler and Schürz, 2015).

## 1.3 Cross-country comparisons of HFCS data

To continue the inequality argumentation, differences among countries in the size and distribution of household wealth do not show "richer" or "poorer" countries or their households, nor do they indicate countries with a "fair" or "unfair" distribution of wealth. Such analyses may be misleading, in particular if only parts of wealth or arbitrary indicators are compared rather than the entire distribution.

In the same vein, ad hoc explanations of wealth discrepancies, such as portfolio allocation differences or ad hoc estimates of "missing" components, such as pension wealth (see box 2), are unsuited to understanding differences observed between various countries. A multitude of factors determines the wealth differences between households even within one country. Yet, in a cross-country comparison, additional influences, like institutional and historical differences, also play a role. Many of these influences cannot be derived from the HFCS data pool itself, as the HFCS is a cross-sectional survey; moreover, much of the information required, e.g. about institutions, is not available at the household level.

In detail, the following influences on the differences between net wealth and its distribution must be taken into consideration:

- *Methodological differences*: Despite broad harmonization, essential elements of the data production process (such as the sample design, the degree of coverage, reporting, data editing, weighting and imputation) cause the process and the results to differ across countries. Above all, non-robust measures may be affected comparatively strongly by the methodological differences.

- *Historical differences*: Wars, currency reforms, phases of high inflation, fundamental changes like German reunification or transition after the collapse of the Eastern Bloc have left a mark on privately held wealth felt by several generations. One example is the very low main residence ownership ratio in (East) Germany versus the particularly high ratio in Slovakia.

- *Institutional differences*: The pension, tax, legal, educational and unemployment insurance systems, housing market subsidies and in general government welfare measures determine the function and importance of wealth for households.

- *Structural differences in the reference unit (households)*: The size and (multi-generational) composition of households vary considerably from country to country. As a case in point, average household size is larger in southern euro area countries than in northern ones.

In this study, we describe household finances in Austria, answering questions like "What differences can be observed in the net wealth of owners of main residences and tenants?"; "How many tenants or owners have received inheritances in the respective age category of household reference persons?" This does not, however, indicate that households have more or less wealth than other households because they own their main residence, nor can

household age be construed to indicate whether a household has received an inheritance or not. Rather than establishing cause-and-effect relationships, the HFCS reflects observations. Even complex statistical methods would barely enable us to adequately identify causality within such a dataset.[7]

Despite these qualifications, the HFCS has been instrumental in facilitating empirical social research in Austria for several years. Accordingly, the Austrian research community's interest in the HFCS data is keen. Most of the euro area requests to use the anonymized HFCS micro dataset that the ECB makes available to researchers worldwide have come from Germany, directly followed by Austria. Apart from the OeNB, the Financial Market

### Pension wealth in the Austrian HFCS

The ECB's definition of household wealth does not include future entitlements under public/social security pension plans, because accrued benefits cannot be turned into liquid assets, are not eligible as collateral and are not transferable. Still, the HFCS does include information about pension wealth, namely data on public, occupational and private pension provisioning for retirement. With regard to occupational pension plans, the HFCS data contain information on the number of plans, account balances as well as payout modalities. With regard to public/social security pension plans, the data contain information on the number of contribution years and on the expected future pension payments.[1] With regard to private pension plans, the data contain information on the current value of those plans; this wealth component is included in the ECB's net wealth definition.

The approach used in the HFCS to measure wealth is based on international standards as defined by Davies and Shorrocks (2000) and the OECD (2013, p. 71):

"The exclusion of entitlements in social security schemes, as recommended here for micro statistics on household wealth, is primarily for practical reasons and to maintain consistency with the SNA's definition of financial assets. … It may be argued that, even where estimates of pension entitlements in social security schemes can be derived for individual households, they would be of limited use in cases where a government can change the basis on which the entitlements are determined in order to keep them within the bounds of what is feasible from a budget perspective."

In particular for cross-country comparisons, it is important to adequately reflect the possible impact of public pension provisioning substituting for private wealth. For details, see also Fessler and Schürz (2013 and 2015).

[1] The variables with this information are not part of the internationally accessible user database, as they are not suited to international comparisons.

[7] For an explanation of the problem, see Morgan and Winship (2007) or Angrist and Pischke (2009). For more detailed information, see Pearl (2000) or Imbens and Rubin (2015).

Box 3

## The HFCS user perspective

*See below verbatim feedback from researchers on the significance of the HFCS for their work and their "wish lists" for the HFCS.*

### On the significance of the HFCS

*"The HFCS data represent an important addition to social reporting in Austria and provide very useful insights into wealth distribution in Austria. At Statistics Austria, the key user of the HFCS data is the Expert Group on Disparities in National Accounts (EG DNA)." (Richard Heuberger, Statistics Austria)*

*"I am using the HFCS data for a research project financed by the Vienna municipal government. The HFCS data allow me to examine the connection between real estate ownership and income, which is important for drawing conclusions. Moreover, the dataset is so comprehensive that it provides motivation to research further issues in the future. As we do not collect data at the university ourselves, data such as the HFCS are essential for applied research at the university." (Ulrich Morawetz, Vienna University of Natural Resources and Life Sciences)*

*"We used the data to compile so-called national transfer accounts. In this context, national accounts data are classified by age, with the intention in particular of capturing the redistribution of resources across age categories and generations." (Bernhard Hammer, Austrian Academy of Sciences and TU Wien)*

*"As an analyst for a policy-oriented, independent expert institution, I consider high-quality data very important, as they support us in doing our job. The data are very well edited and documented, making them easy to work with." (Paul Eckerstorfer, Parliamentary Budget Office)*

*"Great significance for wiiw research on wealth, debt and economic inequality in euro area country comparisons." (Mario Holzner, Stefan Jestl and Sebastian Leitner, wiiw)*

*"For sociologists, the HFCS is a key data source for conducting research in inequality. The broad range of data provided by the HFCS on family forms, debt, income, jobs and inheritances enables us to test a wide variety of sociological theories and – what is of eminent importance – to undertake international comparisons, because the national datasets have been harmonized." (Philipp Korom, Department of Sociology, University of Graz)*

### Challenges, criticism and requests

*"I see a wide gap between the meticulous methodology of the dataset (especially the multiple imputations) and user-friendliness, which is a stumbling block above all for young researchers. It would be crucial for research purposes to make participation in the HFCS survey mandatory for those households that are being drawn into the sample to reduce asymmetric nonresponse behavior." (Matthias Schnetzer, Vienna Chamber of Labour)*

*"There is great interest in using HFCS data also for writing seminar papers and graduate theses. Especially compared to the simple access to the Fed's SCF, the formal application to the ECB for data use and the resulting waiting periods are often a disincentive, though." (Wilfried Altzinger, Stefan Humer and Matthias Moser, Vienna University of Economics and Business)*

*"Of course a larger sample size would be desirable, considering the policy relevance of wealth data and the fact that such data are generally difficult to compile and valuate." (Johannes Berger and Ludwig Strohner, EcoAustria)*

*"While we are aware of the challenges resulting from the existing institutional and legal framework and of the need for additional financing, oversampling of very wealthy households and a panel component (perhaps also in the form of a special survey every three years, like in the case of the SCF) would enormously support our research projects." (Wilfried Altzinger, Stefan Humer and Matthias Moser, Vienna University of Economics and Business)*

Authority, numerous universities (e.g. Johannes Kepler University Linz; TU Wien; Vienna University of Economics and Business; Vienna University of Natural Resources and Life Sciences), and the Austrian Academy of Sciences and Statistics Austria, Austrian users of the comprehensive dataset include above all economic research institutes (e.g. the Austrian Institute of Economic Research (WIFO); EcoAustria; The Vienna Institute for International Economic Studies (wiiw); the Institute for Advanced Studies (IHS)).

Austrian HFCS data have also fed into many analyses compiled outside of Austria. In addition to international organizations like the OECD or the IMF, mainly universities, such as Harvard University or Oxford University, have used the data.

Box 3 presents statements by users of first-wave HFCS data at research institutions relevant for Austria. To sum up, the HFCS data are helpful for examining a number of research issues, which is considered positive. At the same time, users view correct use of the data as a methodological challenge, and the relatively small sample size alongside the lack of oversampling as well as the restrictive handling of access are regarded as problematic.

### 1.4 Outlook for the HFCS

In the future, the importance of the HFCS is bound to increase further for several reasons. Changes in the financial sector are resulting in a steady rise of disintermediation, diminishing the role of banks. This process has been under way for quite some time; it has accelerated in recent years and is very likely to gain further momentum (see Andreasch et al., 2015). Disintermediation goes hand in hand with a wider distribution of financial wealth and household debt among a growing num-

ber of economic agents and notably more and more nonbanks. These developments must be taken into account in analyses of financial stability and monetary policy transmission. So far, the HFCS represents the only data source that allows for an analysis of the distribution of household debt while factoring in real and financial assets as well as income. Register data, for example from taxation of wealth or inheritances, are not expected to become available for Austria in the next few years. As HFCS data are collected directly from households, it does not play a role which institutions extend loans or accept investments and if they are required to report any data. Austria does not have a credit register that would allow for large-scale analyses of bank lending, as banks are obligated to report only retail loans of EUR 350,000 or more to a central credit register. What is more, even such large credits cannot be matched with the respective household-level wealth or income. Hence, the credit register dataset is unsuited for use in analyses of household-level risk-bearing capacity.

Additionally, the faster disintermediation proceeds, the smaller the share of debt and financial assets becomes that is captured by the reporting framework for banks. A recent Financial Stability Review of the Banque de France (2016) discusses new risks arising from financial sector innovations. A key conclusion is that the development of the financial sector and the availability of granular data will have to go hand in hand. Data requirements will grow as financial products become more complex, have a wider range and are more strongly digitized.

The importance of wealth and debt will also change at the household level. As indicated in section 1.1, households appear mainly to follow precautionary

motives in saving. Savings are tapped to finance e.g. dental surgery, a new washing machine or car repairs. Other important saving motives include old-age provision or a home purchase. These saving motives are codetermined by the wealth substituting functions covered by the welfare state. The functions of wealth include provision, use, transfer, status and power (see Fessler et al., 2012b). Welfare benefits in the event of unemployment, an inability to work, sickness or for similar reasons partly replace private wealth accumulation. Much the same applies to public pension provision and the public education and child care systems. Additionally, subsidized housing, municipal and provincial housing, rent control and many other direct and indirect state (welfare) benefits are to be considered substitutes for the accumulation of private wealth.

The more the state pulls out of these welfare state activities, the more important private wealth becomes for households and the more important the extent of inequality in the wealth distribution becomes. The more wealth households must save to provide for old age, health care, unemployment and education, the more important it will be to keep invested wealth safe and secure. Losing one's savings would be painful even for households living in municipal apartments, benefiting from public health insurance, public pensions and statutory jobless benefits. But if the level of pension and health care depends on how well a household has saved, the loss of private wealth may jeopardize its existence. As long as voluntary private pension provision remains a hallmark of the middle class and the wealthy, who need to top up their public pensions to sustain their lifestyle, poor investment performance is not devastating. The relationship between risk and yield sometimes develops to investors' advantage and sometimes to their disadvantage, reflecting normal market mechanisms. However, if the lower half of households is at risk of poverty in old age if its private wealth is lost, private wealth acquires a greater importance for them and for society at large.

As a result, protection of privately held assets becomes more important and the functions of the state are subject to change. Governmental efforts to promote financial literacy and deposit insurance are also to be seen against this backdrop.

The HFCS is conducted regularly every three years, which makes it possible to observe the composition of household wealth over time and to flag problems in a timely manner.[8] The abundance of socioeconomic and sociodemographic variables in the dataset in addition to household balance sheet data paves the way for comprehensive analyses of potential risks to the financial system, but also of hazards to society and to particular household segments, like excessive debt or poverty in old age.

The international HFCS dataset may also serve to examine the link between welfare state activities and (the distribution of) private wealth. It can be shown that an effective, highly evolved welfare state coincides with lower levels of privately held financial assets. However, measured private wealth inequality is frequently found to be higher in countries with a relatively stronger welfare system, because the wealth substitution effect is (relative to the level of wealth) more pronounced in the lower range of the distribution.

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[8] *Starting with the third wave in 2017, the timing of the survey should be broadly harmonized across all euro area countries.*

A scenario of declining welfare benefits hence calls for more stringent regulation and more powerful consumer protection. Financial literacy measures are unable to sufficiently prepare households for the transfer of risk from governments to individuals and for the assumption of greater responsibility (Campbell, 2016).

In summary, the absolute size and the relative distribution of private wealth must always be analyzed against the backdrop of the social system. "Who owns how much?" is a deceptively simple question that leads to a string of sweeping inquiries. Seeking to answer the question "Why?" leads to the examination of institutional influences such as the tax system, the labor market and the welfare state. To put the HFCS data into the right context, it is particularly important to account for the extent of the substitution effect of state activities for private wealth accumulation. This applies both to the field of financial stability analysis, which is specifically relevant to central banking, and to the broader context of social and economic policy questions on the wealth distribution. In light of current developments and as yet missing alternatives, the importance of the HFCS will increase further in this context.

## 2 Net wealth and its components

The primary units of analysis of the HFCS are the individual households. A household is defined as one person living alone, with no one to split the cost of life's essentials; or a group of people who live together in the same private dwelling and share expenditures, including the joint provision of the essentials of living. For a detailed definition of households, see the report on the results from the first wave in Austria (Fessler et al., 2012a, p. 10) and the most recent methodological notes (Albacete et al., 2016b). The target population excludes households or individuals in institutions, i.e. hospitals, nursing homes, old persons' homes, student residences, boarding schools, convents, correctional facilities, barracks or the like. A key difference between the HFCS and other surveys in Austria, in particular the microcensus or the EU SILC conducted by Statistics Austria, is that the HFCS definition of households is not limited to households living at a property registered as their main residence in the centralized residence registry; it also comprises households in dwellings for which there is no main residence record. At 55,000 (or 1.4% of all households), the estimated number of such households is quite large and partly explains the gap between the number of households covered by the HFCS (3.86 million) and identified by Statistics Austria records for 2014 (3.77 million). The gap is made up of households that are part of the household population according to the HFCS definition, but live at a property registered as their second home or not registered at all. Part of the gap may also be explained by short delays in processing new records in the centralized residence registry. By 2015, the household population measure of Statistics Austria had reached 3.827 million.

The household-related questions of the survey were put to the person deemed to be most familiar with the household's finances and referred to as the financially knowledgeable person (FKP).[9] Focusing on the financially knowledgeable person increases the probability of receiving detailed and

[9] For details, see Albacete et al. (2016b).

qualitatively valuable information about the respective household's finances.

In a survey on private wealth, the interviewers' role cannot be overstated. Arthur B. Kennickell, the authority on wealth-related research, has consistently emphasized that interviewers are key to eliciting truthful answers from respondents (see e.g. Kennickell, 2006). Hence, his research has also had a great impact on the design of the HFCS.

In its dataset, the HFCS does not define a reference person, as individual attributes can be directly associated with the household only if that household is a one-person household. Therefore, the FKP's personal characteristics

Infographic 1

## HOUSEHOLDS' BALANCE SHEET

| ASSETS | LIABILITIES |
|---|---|
| Real assets: | Collateralized debt: |
| • Main residence | • by main residence |
| • Other real estate property | • by other real estate property |
| • Investments in self-employment businesses | |
| • Vehicles | |
| • Valuables | |
| + | + |
| Financial assets: | Uncollateralized debt: |
| • Sight accounts | • Bank overdrafts |
| • Savings deposits | • Credit card debt |
| • Savings plans with building and loan associations | • Other uncollateralized loans |
| • Life insurance policies | |
| • Mutual funds | |
| • Debt securities | |
| • Publicly traded stocks | |
| • Money owned to household | |
| • Other | |

| GROSS WEALTH | DEBT |
|---|---|

**GROSS WEALTH minus DEBT = NET WEALTH**

are truly representative of the household in the case of one-person households only. If several people live in a household, determining a single reference person for the household or calculating measures based on the attributes of several household members (e.g. average age) remains unsatisfactory, failing to adequately represent the diversity of household structures. Taking all socioeconomic characteristics of all household members into account at the same time would call for the application of different types of regression analysis or (re)weighting (see Fessler et al., 2014). For this report, we use the FKP as the reference person.

The definition of household wealth in the Eurosystem HFCS is not theory-based but rather oriented on the information households can reasonably be expected to supply in a voluntary survey. The main aggregates are real assets, financial assets and debt. Gross wealth is the sum of real assets and financial assets; net wealth is gross wealth minus debt. Infographic 1 provides an overview of the key components of this household balance sheet. For detailed definitions, see the report on the results from the first wave in Austria (Fessler et al., 2012a) and the most recent methodological notes (Albacete et al., 2016b).

A first approach to the issue of wealth distribution in Austria is to look at wealth from the household perspective. One HFCS question on households' perception of their wealth position was:

*"Looking at your household's entire net wealth, where in the distribution would you classify your household on a scale from 1 to 10 (1 denotes the bottom 10% category with the lowest wealth and 10 the top 10% with the highest wealth in Austria)?"*

As this question was posed at the end of the interview and followed a number of detailed questions on all wealth items of the household, the FKP may be expected to have kept in mind all wealth components mentioned during the survey. Thus, misestimations are unlikely to result from a lack of awareness of respondents' own finances; much rather they will reflect a lack of knowledge about other peoples' finances.

Chart 1 compares respondents' self-assessment of their net wealth position in the distribution with their actual allocation to deciles as identified by the red horizontal line (i.e. each wealth class comprises 10% of all households). As is evident from the chart, respondents' awareness of the distribution of wealth in Austria remains limited, notwithstanding extensive media debates. Correctly ranking one's own household within the overall wealth distribution continues to be a challenge.

Table 1 shows the ratio of correct self-assessment as well as the extent of average misestimation. Only about one-third of respondents in the lowest net wealth decile correctly estimate their classification in that decile. The degree of correct self-assessment declines further in successively higher net wealth deciles. From the 7th net wealth decile, we observe a marked drop in

Chart 1

**Self-assessment of household's position in net wealth distribution**

*% of households*
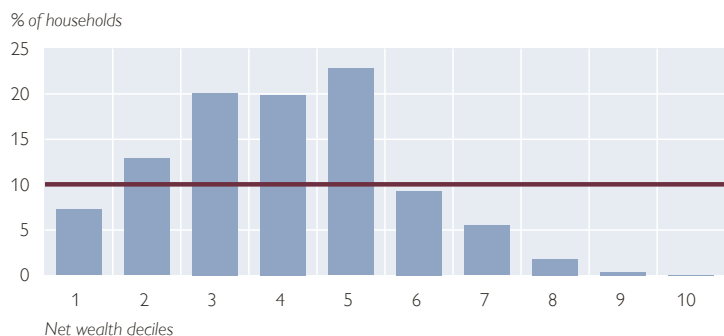


*Net wealth deciles*

Source: HFCS Austria 2014, OeNB.

**Self-assessment by net wealth deciles**

| | All households | Households with incorrect self-assessment | |
|---|---|---|---|
| | Correct self-assessment | Average misestimation | Average estimated decile |
| *Actual decile* | % | *Deciles* | |
| 1 | 32.7 | 1.6 | 3 |
| 2 | 23.5 | 1.1 | 3 |
| 3 | 26.1 | 0.5 | 4 |
| 4 | 22.1 | −0.1 | 4 |
| 5 | 18.4 | −1.0 | 4 |
| 6 | 12.1 | −2.0 | 4 |
| 7 | 3.2 | −2.8 | 4 |
| 8 | 1.2 | −3.4 | 5 |
| 9 | 0.2 | −4.2 | 5 |
| 10 | 0.0 | −4.7 | 5 |

*Source: HFCS Austria 2014, OeNB.*

the already low self-assessment accuracy. Only 3.2% of respondents in the 7th net wealth decile make a correct assessment. In the highest net wealth decile, not a single respondent is able to correctly assess his or her own rank.

This result corroborates the sheer relevance of transparency about household wealth data to enable an informed economic policy debate about this topic. Economic policymaking is focused on the so-called middle (class) of society, which matches people's mostly incorrect self-assessment, as many people see themselves belonging to the "middle (class)." The self-assessed wealth inequality in Austria lies far below actually measured inequality, and inequality as measured by the HFCS underestimates actual inequality considerably (see box 1; Vermeulen, 2014 and 2016). However, if people's perception of reality is distorted, so are their preferences with regard to economic and fiscal policy, in particular wherever taxation issues are involved.

We present the main components of net wealth in charts below. Charts 2 through 5 show the distribution of household real assets, financial assets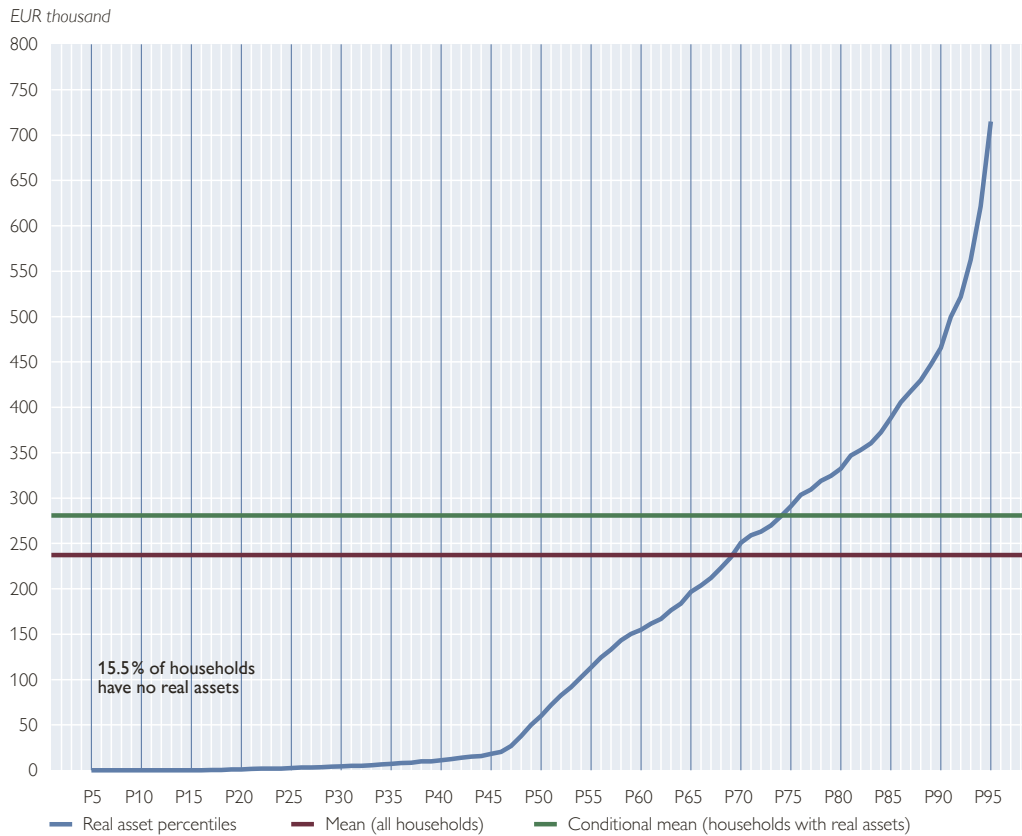, debt and net wealth. Household net wealth is calculated by summing up real assets and financial assets and subtracting debt from the total.

Chart 2 shows the distribution of real assets from the 5th to the 95th percentile. The calculation covers all households, with households that do not own any real assets having been assigned a real asset value of zero. We select the interval from the 5th to the 95th percentile for the chart to largely exclude coverage problems at the upper and lower tails of the distribution and uncertainties arising from the strong positive skewness of the distribution (see chapter 5 and especially chart 20 for an illustration of this issue).

Zero ownership of real assets reported by a fairly large share of households (15.5%) may reflect the underreporting of lesser items. In particular, the low rate of reported valuables may reflect a growing anxiousness to disclose information about valuables kept e.g. at respondents' main residences, i.e. the place of the interview (see chapter 5). Not until the middle of the distribution do real asset holdings begin to increase markedly. 47.7% of households own their main residence. The conditional mean of real assets, which

Chart 2

## Distribution of real assets from the 5th to the 95th percentile

*EUR thousand*



15.5% of households
have no real assets

Real asset percentiles — Mean (all households) — Conditional mean (households with real assets)
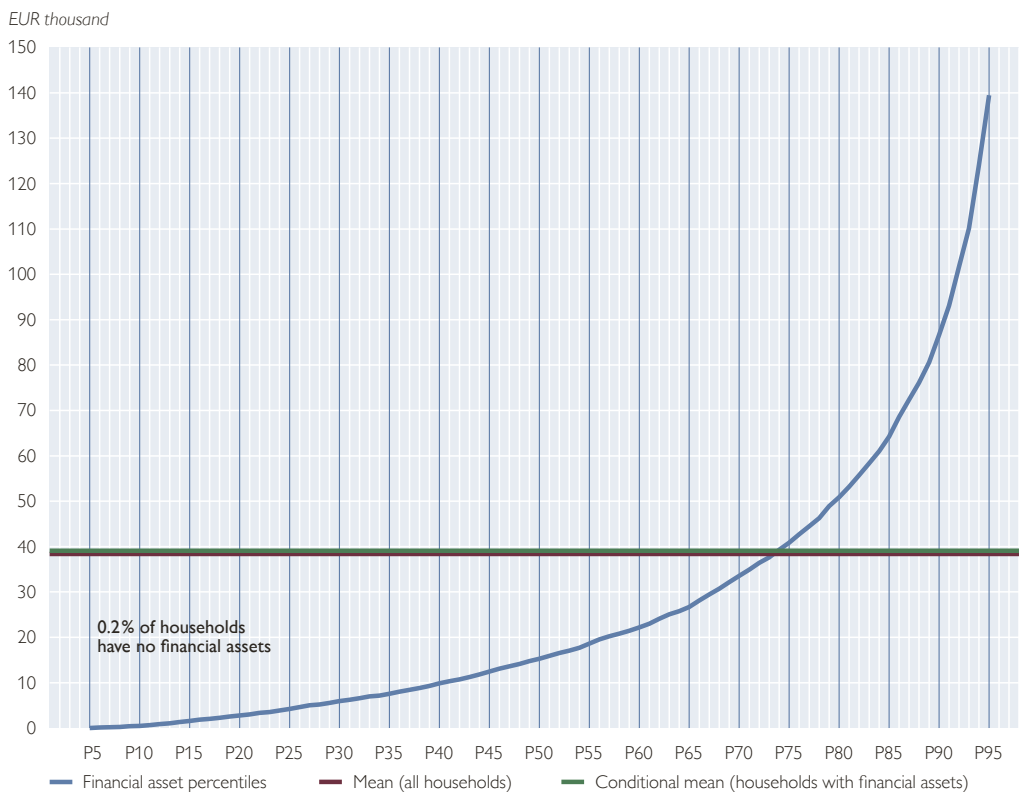
*Source: HFCS Austria 2014, OeNB.*

is calculated on the basis of households with real assets only, comes to about EUR 280,000. This value lies substantially above the unconditional median, which shows a mid-distribution value of about EUR 60,000. Real asset holdings rise fairly evenly between the middle and the 90th percentile, reflecting the relatively evenly distributed current values of households' main residences. Real asset values rise noticeably more from the 90th percentile, especially the values above the 95th percentile, which the chart does not show. In this range of the distribution, other real estate property and investments in self-employment businesses begin to play a key role in addition to main residences. Ownership of woodland and agricultural property of farmers is

also recorded in this segment of the distribution. To sum up in broad terms, about half of all households own only low amounts, if any, of real assets. An additional 40% share owns its main residence and little else. Some 10% have real assets totaling about EUR 470,000 that — besides household main residences — consist mainly of other real estate property and investments in self-employment businesses.

Chart 3 shows the distribution of financial assets. Only very few households (0.2%) own no financial assets at all. For this reason, the conditional and unconditional means are nearly identical at around EUR 38,000. Once again, both these values are far higher than the (unconditional) median (some EUR 15,000), which indicates a pronounced

Chart 3

**Distribution of financial assets from the 5th to the 95th percentile**

*EUR thousand*



0.2% of households
have no financial assets

Financial asset percentiles    Mean (all households)    Conditional mean (households with financial assets)

*Source: HFCS Austria 2014, OeNB.*

positive skewness of the distribution. The financial wealth of roughly three-quarters of all households falls short of the mean, and fewer than 10% have financial assets of more than EUR 100,000. Underreporting is especially high for financial wealth in general and is likely to be most pronounced in the upper range of the distribution (see also chapter 5, Andreasch and Lindner, 2016; Vermeulen, 2016).
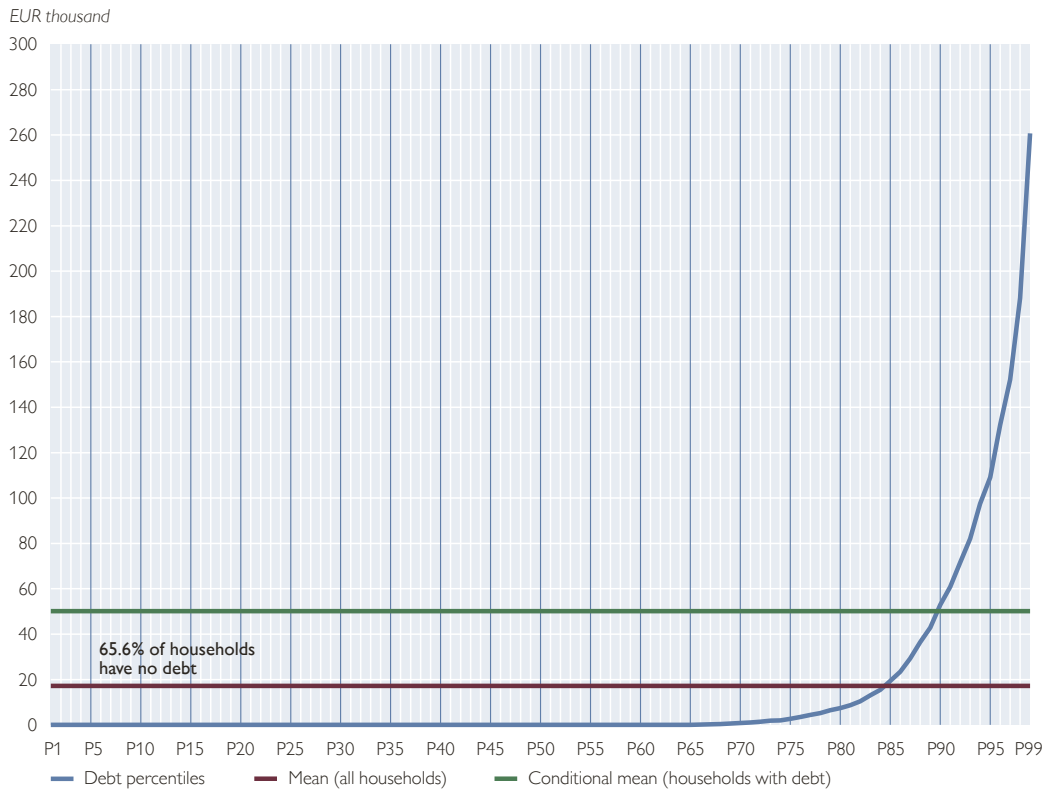
Chart 4 shows the distribution of debt from the 1st to the 99th percentile. While debt tends to be positively correlated with wealth, top-wealth households in particular, which are underrepresented in the HFCS, rarely have particularly severe debt. Therefore, observations at the upper tail of the debt distribution of the HFCS are less problematic. Nearly two-thirds of Austrian

households (65.6%) do not have any debt. The unconditional mean of debt comes to approximately EUR 17,000, the conditional mean to about EUR 50,000. Small liabilities are primarily unsecured loans or, in a few instances, secured loans that have been almost paid off. Large debt amounts mainly reflect mortgage loans at various stages of repayment.

Chart 5 shows the distribution of net wealth. By definition, a household's net wealth is either negative, zero or positive, which is why the conditional measures coincide with the unconditional measures. Some 6.3% of households have negative or no net wealth. As real assets predominate among net wealth, the result is similar to that in chart 2. At about EUR 258,000, the mean is considerably higher than the

Chart 4

## Distribution of debt from the 1st to the 99th percentile

*EUR thousand*



65.6% of households have no debt

Debt percentiles — Mean (all households) — Conditional mean (households with debt)
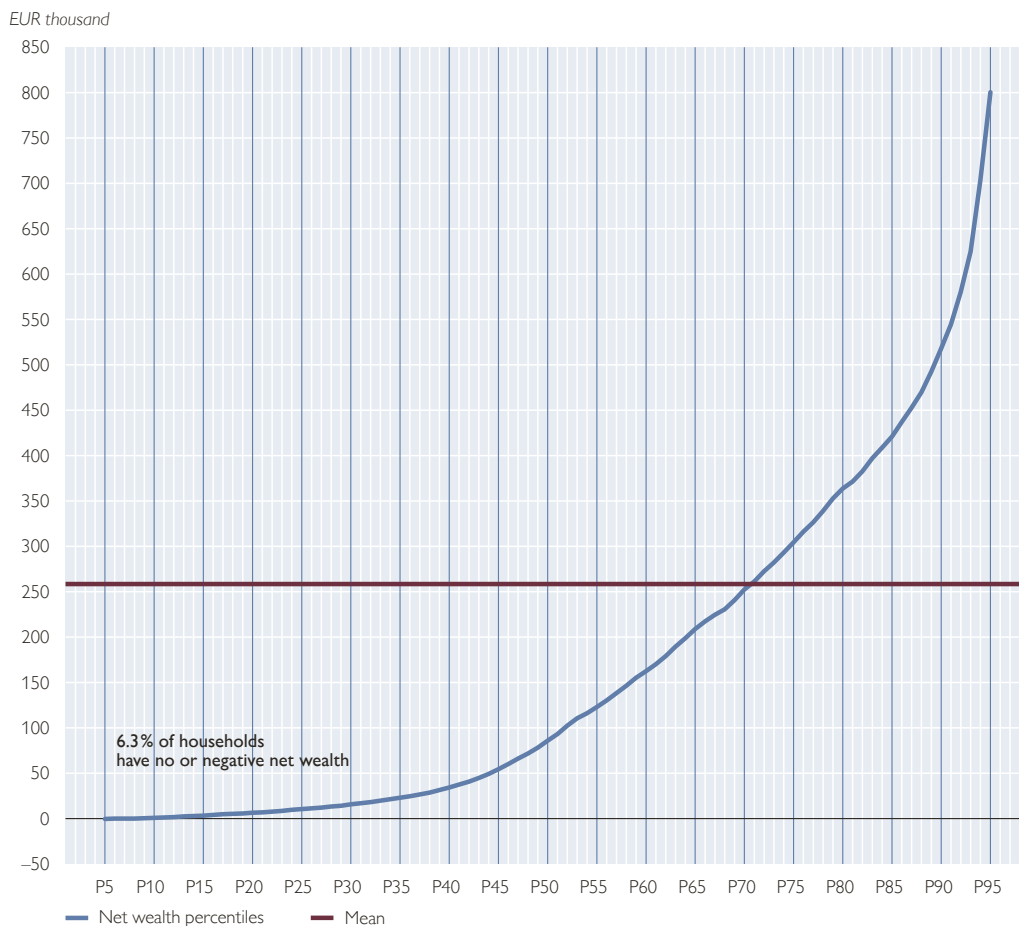
*Source: HFCS Austria 2014, OeNB.*

median of around EUR 86,000. Only 10% of households have net wealth in excess of some EUR 518,000. Net wealth of over EUR 1 million is observed only in the top 5% of households, which are not shown in the chart. In this fraction of the distribution, skewness compounded by reporting problems (see box 1 and Vermeulen, 2016) results in pronounced data uncertainty (see chapter 5 and in particular chart 20 for an illustration of this problem).

The three components of net wealth (real assets, financial assets and debt) can be analyzed in detail at the level of their subcomponents. We perform this analysis in two steps: First, we deter-mine household participation in a specific wealth component, i.e. we establish how many households have a given asset or liability. Second, we compute the median and the mean for the households with this component. Thus, these values are conditional. The median divides the conditional distribution into two halves. The arithmetic mean is the value that would result for every household if the entire volume of wealth were equally distributed. The median is a robust statistical measure; the mean is not. Additionally, the mean-to-median ratio is computed as an indicator of the skewness of the distribution within the wealth class under review.[10]

[10] *For reasons of simplicity, we state the mean-to-median ratio here as a simple division of the estimated mean by the estimated median. The underlying means and medians were estimated on the basis of the five multiply imputed datasets. In line with Rubin's rule, the mean-to-median ratio does not have to exactly correspond to the division result of both estimated values.*

Chart 5

**Distribution of net wealth from the 5ᵗʰ to the 95ᵗʰ percentile**

*EUR thousand*



6.3% of households
have no or negative net wealth

— Net wealth percentiles        — Mean

*Source: HFCS Austria 2014, OeNB.*

Table 2 provides an overview of the key components of net wealth. The further the mean is from the median, the more skewed the distribution is. All wealth components have a positively skewed distribution. Accordingly, the mean is higher than the median.

**2.1  Real assets**

Vehicles are by far the most common real asset among Austrian households. More than three-quarters of Austrian households own at least one vehicle. The average value of such vehicles is about EUR 11,000. The mean-to-median ratio of 1.4 indicates a relatively equal distribution of wealth.

Some 48% of households have at least partial ownership of their main residence.[11] In this component of wealth, the median value of the main residence of owner households is around EUR 250,000, and the average wealth of owner households amounts to about EUR 289,000. Main residence ownership represents the most important real asset in terms of volume.

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[11] *Partial ownership of one's main residence may result from inheritance of a home, where one of the heirs lives in this home but is not (yet) its sole owner.*

About 16% of households also own other, lesser valuables, such as gold, works of art, jewelry, collections, etc, with a median value of around EUR 4,000.

About 12% of households own other real estate assets in addition to the household main residence, above all houses, apartments and undeveloped land. In the HFCS, real estate property of farming households that is part of their agricultural business is, as a rule, recorded under investments in self-employment businesses rather than under other real estate property. However, as other real estate property may also be identified as being used for business, some real estate assets also qualify as property for business use. This share should be considered when analyzing businesses-related assets. With a mean of some EUR 331,000 – more than two-and-a-half times the median – this component of wealth exhibits a relatively unequal wealth distribution compared to that of main residences.

Around 7% of households have investments in self-employment businesses (including agricultural businesses), i.e. businesses in which at least one household member has an active function. Both the median (around EUR 163,000) and the mean (around EUR 688,000) of this component of wealth are relatively high. Silent partnerships, i.e. ownership of part of a business in which no household member has an active function, qualify as financial assets.

## 2.2 Financial assets

Sight accounts are the most common financial asset and the one with the lowest values. Almost all households (99%) say they have at least one sight account. The median of this component of finan-cial wealth is no more than around EUR 1,000, the mean value is around EUR 2,600.

Savings accounts, which in the HFCS Austria include savings plans with building and loan associations and life insurance contracts, are by far the most common savings variant. About 85% of households have at least one savings account, 49% have at least one savings plan with a building and loan association, and 38% have at least one life insurance contract. The median of savings accounts comes to around EUR 14,000 and the mean to some EUR 27,000.

Roughly 15% of households have made voluntary private pension provisions. This component of wealth contains state-sponsored retirement provision plans and other dedicated private savings plans for retirement, identified as such by households. The median runs to roughly EUR 9,000, the mean to about EUR 25,000, values that are quite similar to those of savings accounts.

Some 10% of households have invested in mutual funds. The median of this component of wealth is around EUR 15,000, the mean value about EUR 44,000.

Debts owed to households represent another component of financial wealth and are therefore recorded as such in the HFCS.[12] About 8% of households state that they have lent money to others. The sums involved (median: about EUR 2,100; mean about EUR 12,900) are not negligible.

Stocks are held by some 5% of households, bonds by around 4%. The medians run to about EUR 10,000 (stocks) and around EUR 12,000 (bonds). The respective means run to about EUR 25,000 (stocks) and around

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[12] *However, money owed to households is not recorded as financial assets in the financial accounts.*

EUR 34,000 (bonds). The residual measure "other financial assets," for which about 1.5% of households reported values, comprises financial assets that are not recorded in any other category. This includes, for instance, silent partnerships, deferred compensation, trademark rights and accounts managed by trustees. The median amounts to about EUR 10,000, the mean to some EUR 72,000.

## 2.3 Debt

About 16% of households (some 32% of households that have at least partial ownership of their main residence) have debt for which they use their home as collateral. The difference between the median of about EUR 60,000 and the mean of around EUR 90,000 in part reflects the current status of repayment of mortgages taken out to finance homes and not only the differences in original mortgage values.

Only about 2% of households have loans using other real estate property as collateral; in terms of their values, however, these loans are similar to loans using the main residence as collateral.

About 21% of households have unsecured debt, which has a significantly more skewed distribution but whose total value is far smaller than that of collateralized debt. For instance, about 12% of households have overdrawn at least one of their accounts by a median of about EUR 1,000; the average value of this component is EUR 2,300. Uncollateralized loans, amounting to an average of about EUR 17,000, represent the largest component of unsecured debt.

Table 2

### Components of net wealth

| | | Participation | Conditional median | Conditional mean | Mean-to-median ratio |
|---|---|---|---|---|---|
| | | % | EUR thousand | EUR thousand | |
| Real assets | vehicles | 76.6 | 7.5 | 10.9 | 1.4 |
| | main residence | 47.7 | 250.0 | 288.7 | 1.2 |
| | other valuables | 16.2 | 3.8 | 19.0 | 5.0 |
| | other real estate property | 12.1 | 124.4 | 330.5 | 2.7 |
| | investment in self-employment business (incl. farms) | 7.0 | 163.0 | 688.4 | 4.2 |
| Financial assets | sight accounts | 99.3 | 1.0 | 2.6 | 2.6 |
| | savings accounts | 85.3 | 13.5 | 26.9 | 2.0 |
| | savings plan with building and loan associations | 49.2 | 4.0 | 6.7 | 1.7 |
| | life insurance contracts | 38.3 | 12.4 | 22.4 | 1.8 |
| | voluntary private pension plans | 14.5 | 9.1 | 24.7 | 2.7 |
| | mutual funds | 10.0 | 15.1 | 44.1 | 2.9 |
| | money owed to household | 8.3 | 2.1 | 12.9 | 6.3 |
| | stocks | 5.4 | 10.4 | 24.5 | 2.4 |
| | bonds | 4.0 | 11.7 | 34.0 | 2.9 |
| | other financial assets[1] | 1.5 | 10.0 | 71.6 | 7.2 |
| Debt | collateralized debt | 16.7 | 60.4 | 89.5 | 1.5 |
| | main residence | 15.5 | 59.9 | 89.0 | 1.5 |
| | other real estate property | 1.5 | 53.0 | 75.7 | 1.4 |
| | uncollateralized debt | 20.6 | 2.9 | 11.1 | 3.9 |
| | overdrafts | 12.3 | 1.0 | 2.3 | 2.4 |
| | uncollateralized loans | 11.7 | 6.2 | 16.8 | 2.7 |
| | loans from family and friends | 4.8 | 2.9 | 7.8 | 2.7 |
| | outstanding balance on credit cards | 1.4 | 1.3 | 2.7 | 2.1 |

Source: HFCS Austria 2014, OeNB.

[1] The presentation has been slightly altered compared with the report on the results from the first wave. For details, see table 20 in this report.

Outstanding credit card balances play a minor role in Austria, with only about 1% of households holding such debt and with the median and the mean coming to a comparatively low level of around EUR 1,300 and EUR 2,700, respectively. Austrians generally continue to use credit cards rather like debit cards, settling their bills in full every month.

## 2.4 Net wealth

Chart 6 presents means and medians by net wealth deciles. While the means are consistently above the medians except in the first decile, net wealth obviously does not rise sharply until the 10th decile. The median doubles from the 9th to the 10th decile (i.e. from the 85th to the 95th percentile; see also chart 5). At the same time, a marked skewness of the distribution does not occur until the 10th decile.

The components of net wealth can also be shown in deciles. The means of net wealth depicted in chart 7 are indicative of average portfolios. We see the pattern of charts 2 and 5 repeated:

real assets predominate. Whereas households in the bottom half of the distribution hold comparatively low volumes of real assets, more or less valuable main residences predominate from the 6th through the 9th decile. In the 10th decile, large volumes of other assets are increasingly relevant, too.

Financial assets and debt develop along similar lines, meaning that as real assets expand, debt and financial assets tend to grow as well. However, calculating averages of debt, and of real assets and financial assets, is fraught with problems. Prior to the purchase of a main residence, households will hold relatively large financial assets but hardly any real assets or debt. Following the purchase of real estate property, real assets in the form of a household's main residence and debt incurred to finance ownership will be the predominant components of wealth. Accumulating new financial assets takes time. Mean values across wealth deciles mask the fact that the net wealth composition may differ strongly among households within deciles. At the same time, aver-

Chart 6

### Median and mean net wealth by net wealth deciles

*EUR thousand*
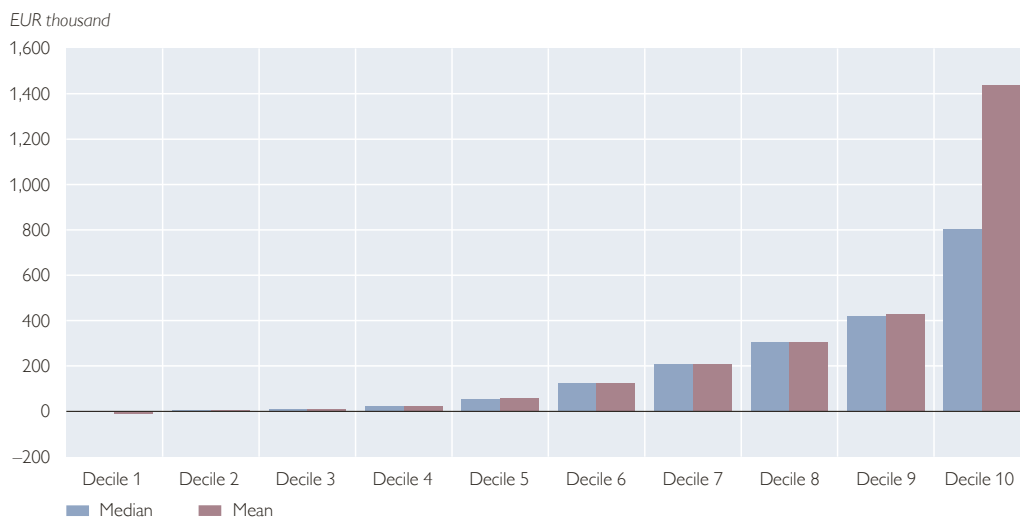


Source: HFCS Austria 2014, OeNB.

ages have the benefit of yielding the total average net wealth of Austrian households once they are added up and correctly weighted. What is more, the relations also show the composition of the total net wealth of the respective decile.

Table 3 presents the respective wealth figures underlying chart 7. Noticeable differences between deciles are recognizable at the lower end. The 1st decile is striking for the fact that households have higher real assets than in the 2nd and 3rd deciles, and higher debt than in the 2nd through 5th decile. The lowest decile is therefore suited to showcasing the limits to analyses of averages. The composition of this decile is heterogeneous, on the one hand containing households that income is too

low for them to take out debt and that have hardly any real or financial assets. These households' net wealth is close to zero. At the same time, this decile also contains households with high debt primarily resulting from the acquisition of real estate property; the related debt is higher than the current value of the property. Finally, the lowest net wealth decile also contains consumer debtors with a low level of wealth but sufficient income to obtain a corresponding amount of consumer loans. This combination of households produces a somewhat higher level of average real assets and a noticeably higher level of average debt in the 1st decile than in the next highest deciles.

Another discernible finding in table 3 is the absolute rise in debt

Chart 7

**Mean net wealth components by net wealth deciles**



*EUR thousand*
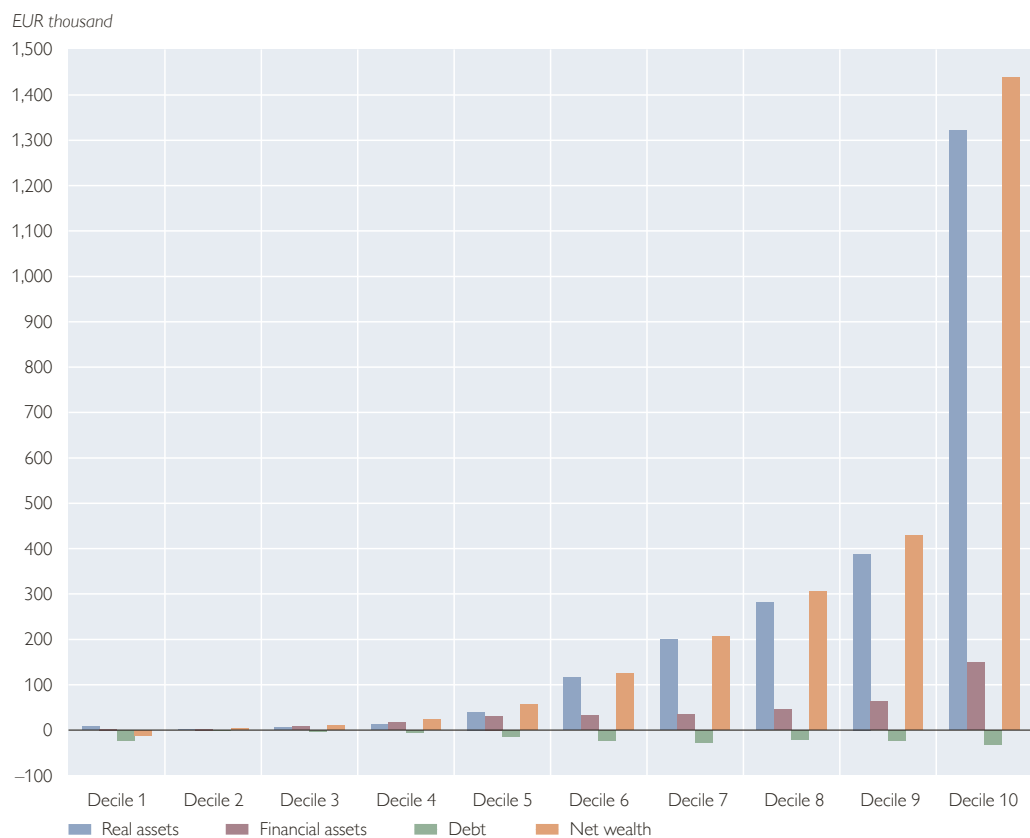
Source: HFCS Austria 2014, OeNB.

from the $2^{nd}$ through the $10^{th}$ decile. Wealth and debt are thus usually correlated – very wealthy households frequently have more and higher debts. These data provide vital information for financial stability analysis (see chapter 4).

## 2.5 Measures of wealth inequality

The most common inequality measure used in the literature is the Gini coefficient. By definition, it assumes a value on the inequality scale between 0 and 1, with 0 indicating perfect equality and 1 expressing maximum inequality, where one individual or one household holds all wealth and all others have nothing. The closer the Gini coefficient is to 1, the higher the inequality of the distribution.

But the Gini coefficient displays a number of drawbacks in describing wealth distribution. For instance, an indebted household may have negative net wealth, so in theory, the Gini coefficient could exceed 1. A wealth distribution curve often displays different patterns in different parts of the curve: wealth may be more equally distributed at the bottom and less equally at the top of the distribution, or vice versa. A given Gini coefficient may reflect an infinite number of patterns. Furthermore, the Gini coefficient is not a robust statistical measure. The generalized entropy index with an alpha of 2, GE(2), puts more weight on the tails of the distribution. The GE(2) index lies between zero and infinity. The higher the value is, the greater the inequality is. In general, we prefer robust statistics – such as percentile ratios – and analyses across the entire distribution (see charts 2 through 5 and chapter 5). Moreover, the three ratios chosen (see table 4) exclude the tails of the distribution, which are difficult to measure. Yet they only provide insights into the

center, but not the full range, of the net wealth distribution.

The P75/P25 ratio measures the range between the $75^{th}$ percentile (25% of households have more wealth) and the $25^{th}$ percentile (25% have less wealth) of the distribution.

The P90/P50 ratio measures the range between the $90^{th}$ percentile (10% have more wealth) and the $50^{th}$ percentile (50% have less wealth) of the distribution. This narrow definition of the upper middle spans a group with a fairly homogeneous wealth profile.

The P90/P10 ratio measures the range between the $90^{th}$ percentile (10% of households have more wealth) and the $10^{th}$ percentile (10% have less wealth) of the distribution.

Piketty (2014) advocates the use of shares to describe distributions, with the top shares drawing attention to the groups that were long neglected in inequality analyses for a lack of available data and for economic policy reasons (see Atkinson, 2015). While the availability of data for this group has hardly improved, since Piketty's work, Pareto distributions and other estimates of top wealth shares, e.g. on the basis of income taxes or inheritances, have become an integral part of the literature.

Table 3

## Mean values across net wealth deciles

| | Real assets | + Financial assets | − Debt | = Net wealth |
|---|---|---|---|---|
| | *EUR thousand* | | | |
| Decile 1 | 8.4 | 2.4 | 22.3 | −11.6 |
| Decile 2 | 2.1 | 2.8 | 1.4 | 3.6 |
| Decile 3 | 5.2 | 7.9 | 2.4 | 10.7 |
| Decile 4 | 11.4 | 16.7 | 4.4 | 23.7 |
| Decile 5 | 40.2 | 31.1 | 14.8 | 56.5 |
| Decile 6 | 116.1 | 32.4 | 24.3 | 124.2 |
| Decile 7 | 200.4 | 33.6 | 27.0 | 206.9 |
| Decile 8 | 281.1 | 45.8 | 20.8 | 306.1 |
| Decile 9 | 388.1 | 63.2 | 23.1 | 428.2 |
| Decile 10 | 1,321.5 | 148.5 | 31.7 | 1,438.4 |

Source: HFCS Austria 2014, OeNB.

Table 4

## Inequality measures and top shares

| | | Gross wealth | Net wealth |
|---|---|---|---|
| Inequality measures | Gini coefficient[1] | 0.71 | 0.73 |
| | GE(2)[2] | 10.2 | 11.5 |
| | P75/P25 | 27.0 | 28.6 |
| | P90/Median | 5.4 | 6.0 |
| | P90/P10 | 251.8 | 521.2 |
| | | % | |
| Top shares | Top 1 | 23.9 | 25.4 |
| | Top 5 | 41.6 | 43.4 |
| | Top 10 | 53.5 | 55.5 |
| | Top 20 | 70.0 | 72.1 |
| | Lower half | 4.0 | 3.2 |

Source: HFCS Austria 2014, OeNB.

[1] The Gini coefficient may take a value greater than 1 if the data contain negative values.
[2] GE(2) is a generalized entropy index where $\alpha = 2$.

Table 4 shows all common statistical measures currently used in the literature to present gross and net wealth figures for Austria. Note that the Gini coefficient, GE(2) and the top shares are not robust measures, though, and that these measures are particularly affected by insufficient coverage of the tails. What is also relevant is that wealth distribution measures based on household surveys tend to underestimate inequality. This applies above all to the right tail of the distribution, which is not effectively covered by the survey at all (i.e. it is covered in principle but not in effect), but also to the top in particular, which can be measured only in very crude terms without substantial oversampling, not just because of undercoverage,[13] but also because of its actual skewness (see chapter 5, chart 20).

The Gini coefficient for gross wealth distribution in Austria comes to 0.71, that for net wealth distribution to 0.73. The P75/P25 ratio is 28.6 for net wealth. The spread in the upper middle section of the observed distribution is less pronounced. The P90/P50 ratio comes to only 6.0 for net wealth. This result again reflects the issue of ownership of the main residence. In the upper middle segment of the distribution, between P50 and P90, the main residence is the single biggest asset. The values for the main residence are predominantly spread in a range from EUR 100,000 to EUR 400,000 (see chart 2) and confirm a relatively equal distribution of wealth in the upper middle section.

With a value of 521, the P90/P10 ratio shows a considerable spread of net wealth. The household at the boundary to the wealthiest 10% of households thus holds 521 times the net wealth of the household at the lower boundary.

Households observed in the HFCS in the top 1% hold 25.4% of net wealth, the top 5% households have 43.4%, and the top 10% have a share of 55.5%. By contrast, households in the lower half hold only 3.2% of all Austrian households' net wealth.

To illustrate the regional wealth differences between and within countries, box 4 compares selected HFCS results for Germany and for Austria and box 5 examines selected results for Vienna and Austria excluding Vienna.

[13] For a detailed discussion of the undercoverage of wealth in the HFCS compared with the national accounts data, see Andreasch and Lindner (2016), a study published in the Journal of Official Statistics.
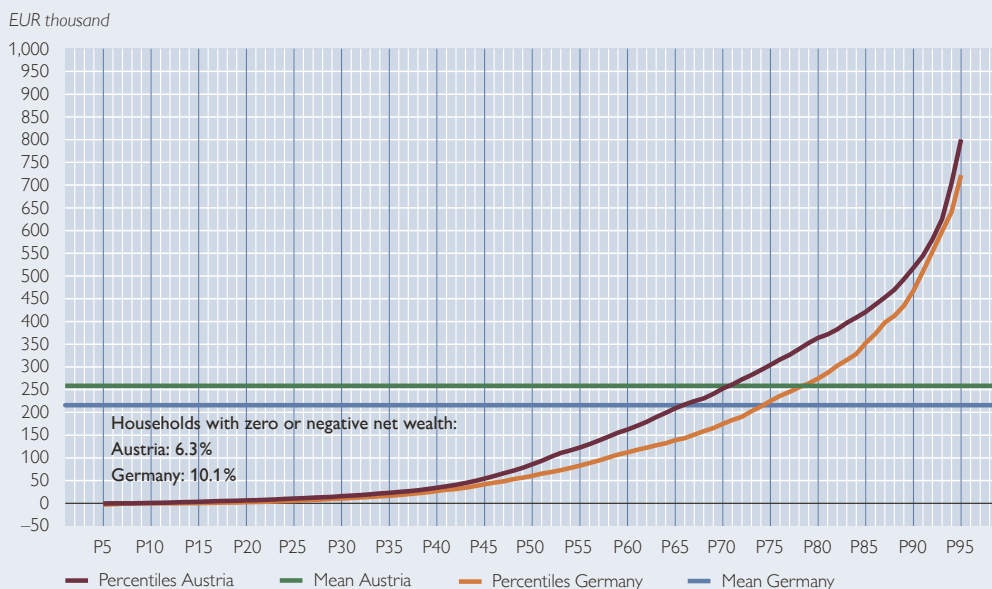
Box 4

## A comparison of household net wealth in Germany and in Austria[1]

*Both the composition and the distribution of wealth in Germany and in Austria exhibit considerable similarities. During the first wave of the HFCS, Germany[2] and Austria featured as the countries with the highest wealth inequality in the euro area: in terms of net wealth, they both had a Gini coefficient of 0.76. They had the lowest main residence ownership ratios of all euro area countries, low levels of stock ownership and relatively low levels of household debt.*

*During both waves, Austrian and German central bank staff experts cooperated closely. This notwithstanding, some methodological differences between the two surveys need to be taken into account: The HFCS for Germany uses panel data for some households whereas the HFCS for Austria uses cross-sectional data only. Furthermore, the HFCS for Germany performs oversampling of households more likely to be wealthy, whereas the HFCS for Austria does not. At the same time, the survey response rate in Germany is markedly lower (19%) than in Austria (50%).*

*Overall, the net wealth percentiles identified for Austria and Germany are broadly similar from the 5th to the 95th percentile, except for the following differences. The slope of the distribution is somewhat steeper for Austria from the 40th percentile, remaining stable until the higher percentiles. The gap between the two distributions widens slowly, peaking at around the 80th percentile, where it corresponds to close to EUR 90,000, and then narrows again. At the 80th percentile, the net wealth of an Austrian household is about EUR 365,000, that of a German one around EUR 275,000. Between the median and the 90th percentile, the slope of the Austrian quantile function is perceptibly flatter, reflecting a higher equality of wealth distribution in Austria than in Germany. In turn, wealth is more unequally distributed in Austria than in Germany between the 90th and the 95th percentile. In general, Austrian households are found to have higher wealth levels from the 5th to the 95th percentile than their German counterparts across the wealth distribution. This comparison is subject to uncertainty, though, as coverage and reporting may differ in the two countries, which is a problem above all at the tails of the distribution. However, the more equal distribution in the upper middle section appears to be fairly characteristic for Austria compared with Germany.*

### Austria versus Germany: distribution of net wealth from the 5th to 95th percentile

EUR thousand



Households with zero or negative net wealth:
Austria: 6.3%
Germany: 10.1%

Percentiles Austria   Mean Austria   Percentiles Germany   Mean Germany

*Source: HFCS Germany 2014 (PHF), HFCS Austria 2014, OeNB.*

*The following table shows selected participation rates of various net wealth components along with their conditional medians, means and mean-to-median ratios.*

*Except with regard to debt, the participation rates are very similar in both countries. In Germany, roughly 44% of households own their main residence, compared to 48% in Austria, but about 20% of households in Germany hold collateralized debt compared to some 17% in Austria. Apart from the somewhat higher share of debt using the main residence as collateral (about 39% of households that own their main residence in Germany compared to 32% in Austria), this higher figure for Germany also reflects the perceptibly higher share of households with debt using other real estate property as collateral (about 6% of all households in Germany, 2% in Austria).*

*In Germany, nearly one in three households has unsecured debt against about one in five households in Austria. Looking at the size of wealth components, above all real assets holdings are higher in Austria. The median value of a main residence owned by an Austrian household is about EUR 250,000, some EUR 90,000 above the corresponding German figure. As fewer than half of all households in both countries own their main residence, and as owner households are predominantly to be found in the upper half of the net wealth distribution, above all these differences in the values of main residences account for the gap between the two countries' net wealth distributions. With a median of about EUR 15,000 in Austria and some EUR 17,000 in Germany, financial asset holdings of households are fairly closely aligned in both countries. The differences between the respective mean values indicate a more unequal distribution of financial assets in Germany, but could also result from a coverage or reporting problem in this area as well. Debt contributes to the lower net wealth of German households, not just in terms of participation, but also size; both the median and the mean are higher in Germany, especially in the more substantive category of collateralized debt.*

### Austria versus Germany: components of net wealth

| | | Partici-pation | Conditional median | Conditional mean | Mean-to-median ratio |
|---|---|---|---|---|---|
| | | % | EUR thousand | EUR thousand | |
| **Austria** | | | | | |
| Real assets | | 84.5 | 139.7 | 280.9 | 2.0 |
| | main residence | 47.7 | 250.0 | 288.7 | 1.2 |
| Financial assets | | 99.8 | 15.4 | 38.5 | 2.5 |
| Debt | | 34.4 | 12.4 | 50.1 | 4.0 |
| | secured debt | 16.7 | 60.4 | 89.5 | 1.5 |
| | unsecured debt | 20.6 | 2.9 | 11.1 | 3.9 |
| Net wealth | | 100.0 | 85.9 | 258.4 | 3.0 |
| **Germany** | | | | | |
| Real assets | | 81.0 | 90.7 | 231.5 | 2.6 |
| | main residence | 44.3 | 160.0 | 231.4 | 1.4 |
| Financial assets | | 99.4 | 16.7 | 54.2 | 3.2 |
| Debt | | 45.1 | 15.0 | 57.0 | 3.8 |
| | secured debt | 20.4 | 76.6 | 111.0 | 1.4 |
| | unsecured debt | 32.8 | 3.5 | 9.5 | 2.7 |
| Net wealth | | 100.0 | 60.4 | 215.7 | 3.6 |

*Source: HFCS Germany 2014 (PHF), HFCS Austria 2014, OeNB.*

[1] *This box was compiled in cooperation with Tobias Schmidt (Deutsche Bundesbank).*
[2] *In Germany, the HFCS study is conducted under the label "Panel on Household Finances (PHF)."*

Box 5

## A comparison of household wealth in Vienna and in Austria excluding Vienna
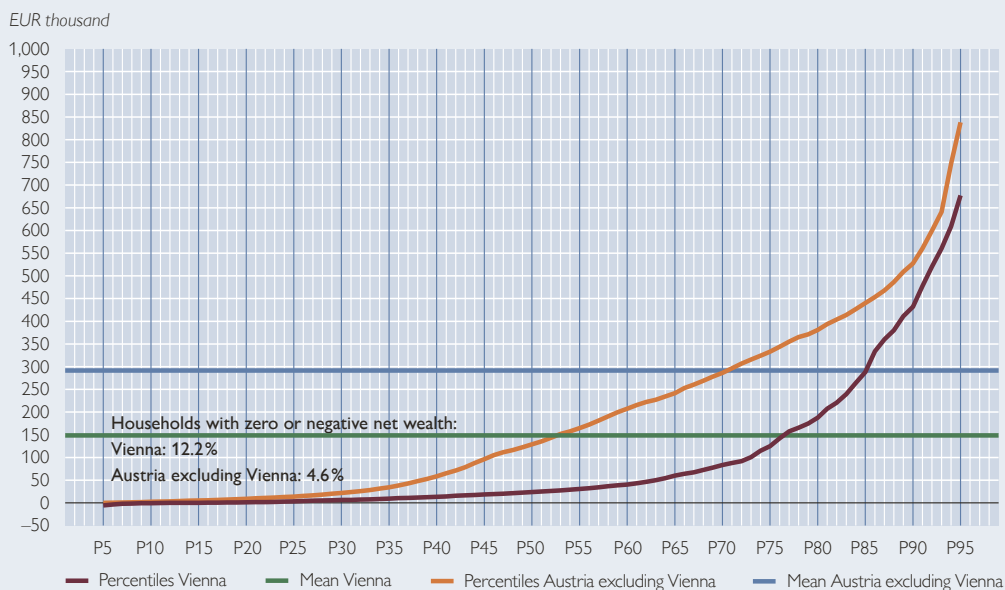
*Household net wealth is found to be different in urban and rural areas. Households in cities have a different structure; above all, the number of one-person households is higher in cities. Personal attributes like occupation or education are also dissimilar, as are institutional aspects like the supply of rental apartments or the cost of real estate assets.*

*To illustrate the urban-rural divide in Austria, we compare the wealth distribution of households in Vienna and in Austria excluding Vienna.*

*Examining the respective net wealth distribution from the 5th through the 95th percentile, we note a distinct divergence from the 20th percentile upward. In the lower part of the distribution, this widening gap may be attributed, inter alia, to the higher number of one-person households in Vienna (some 51%) than in Austria excluding Vienna (35%).*

*The median household in Vienna has a net wealth of about EUR 24,000, but that of a household living somewhere else in Austria is much higher, namely about EUR 129,000. The two net wealth values do not begin to converge until the upper range. In the middle, Austria excluding Vienna shows a relatively equal distribution of household net wealth, which is attributable to the high share of owner households. Among these households, the main residence is by far the largest asset. In this part of the distribution, wealth differences stem mainly from the contrasting values of the respective main residences.*

### Vienna versus Austria excluding Vienna: distribution of net wealth from the 5th to the 95th percentile

EUR thousand



Households with zero or negative net wealth:
Vienna: 12.2%
Austria excluding Vienna: 4.6%

■ Percentiles Vienna    ■ Mean Vienna    ■ Percentiles Austria excluding Vienna    ■ Mean Austria excluding Vienna

*Source: HFCS Austria 2014, OeNB.*

*The table below shows selected participation rates of various net wealth components as well as their conditional medians, means and mean-to-median ratios.*

*While about 57% of all households in Austria excluding Vienna own their main residence, the comparable share in Vienna lies below 18%. The conditional medians and means show that main residences in Vienna are considerably more expensive than in Austria without Vienna. The relatively large supply of municipal apartments for rent in Vienna gives most households an attractive alternative to owning their main residence. Consequently, the share of*

*households in Vienna that holds collateralized debt is below 6%. Moreover, the share of indebted households among main residence owners is substantially lower in Vienna, and their debt, whose median of about EUR 60,000 corresponds to that of households in Austria excluding Vienna, is collateralized by higher-value main residences. Therefore, the financial stability risk arising from households in Vienna is especially low. Even though households in Vienna are noticeably smaller than households outside Vienna, annual gross income is roughly the same for both groups (about EUR 35,000 for Viennese households, about EUR 36,000 for households in Austria excluding Vienna). Also, the respective financial asset medians and means are highly similar. Both results imply that the net wealth differences between both groups are primarily attributable to the larger share of renting households in Vienna and their lower share of mortgage debt. Households that take out a loan to finance the purchase of their main residence must save to pay off debt. At the same time, the large supply of afford-able rental housing has a direct impact on household size, because it makes it easier to run a one-person household.*

### Vienna versus Austria excluding Vienna: components of net wealth

| | | Partici- pation | Conditional median | Conditional mean | Mean-to- median ratio |
|---|---|---|---|---|---|
| | | % | EUR thousand | EUR thousand | |
| **Vienna** | | | | | |
| Real assets | | 69.7 | 13.4 | 170.5 | 12.7 |
| | main residence | 17.8 | 300.0 | 409.1 | 1.4 |
| Financial assets | | 99.9 | 14.7 | 39.1 | 2.7 |
| Debt | | 33.5 | 4.1 | 27.5 | 6.7 |
| | secured debt | 5.5 | 60.3 | 97.9 | 1.6 |
| | unsecured debt | 30.5 | 2.8 | 12.6 | 4.6 |
| Net wealth | | 100.0 | 23.8 | 148.6 | 6.2 |
| **Austria excluding Vienna** | | | | | |
| Real assets | | 88.9 | 164.4 | 306.9 | 1.9 |
| | main residence | 56.6 | 246.9 | 277.3 | 1.1 |
| Financial assets | | 99.7 | 15.6 | 38.3 | 2.5 |
| Debt | | 34.7 | 16.7 | 56.7 | 3.4 |
| | secured debt | 20.1 | 60.4 | 88.8 | 1.5 |
| | unsecured debt | 17.7 | 2.9 | 10.3 | 3.6 |
| Net wealth | | 100.0 | 128.8 | 291.3 | 2.3 |

*Source: HFCS Austria 2014, OeNB.*

*The upshot is that the regional net wealth differences within a single country are large, often larger than between countries (see box 4). Moreover, also within a country, historical and institutional differences are a key aspect in explaining the differences in net wealth distri-bution among households. Municipal housing in Vienna and the large number of subsidized and rent-controlled apartments in Vienna are illustrative of such key institutional differences. The institutional factors influencing the net wealth distribution have to be analyzed in greater depth, as they represent the framework within which individual differences in savings and investment behavior (e.g. risk orientation) arise in the first place. If differences in behavior are analyzed out of context, their importance is easily overrated.*

## 3 Wealth in the household context

In addition to analyzing the size of wealth and its distribution and components, wealth may also be analyzed in terms of the socioeconomic characteristics of household members. While the sources of wealth – income and intergenerational transfers – relate to individuals, the HFCS gathers information on assets almost exclusively at the household level, mainly for practical reasons. One of the exceptions is private old-age provision.

Therefore, households, the units of analysis, need to be examined closely when comparing wealth between households. Households made up of several people usually have several sources of income. Older households will have received inheritances more often. In addition to household size, households are characterized by the age, gender, education and occupation of the individuals living in a household. Two-dimensional measures are inadequate when it comes to capturing the characteristics of all household members; this requires more complex statistical methods. For reasons of simplicity, we therefore exclusively focus on the financially knowledgeable person (FKP) with regard to personal characteristics in this report. This constitutes a gross simplification. Scientifically, it would be necessary to take account of all the characteristics of all household members as well as the correlations existing between them (see Fessler et al., 2015). The advantage of a simplified analysis consequently entails the disadvantage of potential misinterpretation because these relations are not sufficiently revealed in this report. As a case in point, it is not possible to see whether wealth increases because of age or education. Moreover, some relationships run in opposite directions

– take the expansion of education that started in the 1960s, which allows younger people today to attain comparatively higher levels of education. Hence, the correlation of education with wealth is difficult to distinguish from age in this report.

A merely descriptive analysis considers the joint distribution of the measures observed, leaving the question about the causes of the shape of the wealth distribution aside. Nevertheless, section 3.1 below provides a first overview of the information generated by the HFCS to document the fundamental aspects, leaving in-depth analyses for future research.

### 3.1 Household structure and net wealth

Table 5 shows a breakdown of household net wealth by household size, indicating that net wealth rises sharply with household size. For one-person households (the most common household size at around 38%), the median wealth is approximately EUR 18,000. This contrasts with a median wealth of about EUR 144,000 for two-person households, reflecting the fact that two-person households are more likely to own their main residence. Mean net wealth does not rise steadily with household size. This is related to the different age structures of household

Table 5

**Net wealth by household size**

|  | Share | Median | Mean | Mean-to-median ratio |
|---|---|---|---|---|
|  | % | EUR thousand | EUR thousand |  |
| 1 person | 38.3 | 17.6 | 117.9 | 6.7 |
| 2 persons | 33.6 | 144.4 | 334.0 | 2.3 |
| 3 persons | 11.6 | 157.9 | 276.8 | 1.8 |
| 4 persons | 10.4 | 240.8 | 353.8 | 1.5 |
| 5 or more persons | 6.1 | 248.9 | 525.7 | 2.1 |

Source: HFCS Austria 2014, OeNB.

Table 6

### Net wealth by age of reference person

| | Share | Median | Mean | Mean-to-median ratio |
|---|---|---|---|---|
| | % | EUR thousand | EUR thousand | |
| 16–29 years | 11.3 | 13.3 | 89.1 | 6.7 |
| 30–39 years | 14.0 | 29.9 | 132.1 | 4.4 |
| 40–49 years | 17.0 | 129.0 | 276.1 | 2.1 |
| 50–64 years | 28.2 | 168.3 | 410.2 | 2.4 |
| 65–74 years | 17.6 | 119.2 | 227.6 | 1.9 |
| 75 years and over | 11.9 | 82.8 | 227.4 | 2.7 |

Source: HFCS Austria 2014, OeNB.

types. The group of two-person house-holds is dominated by young couples and relatively older couples, whereas three-person households frequently consist of middle-age couples with one child. This raises heterogeneity with regard to net wealth. In the breakdown of households by household size, the distribution of net wealth is especially unequal among one-person households. In this group, mean household net wealth is 6.7 times higher than the median value, whereas for bigger households the mean-to-median ratio is less than half as high. This is, among other things, due to the specific age distribution of one-person households, among which the share of younger (under 30 years of age) and older (over 60) persons is above average. Middle-aged

Table 7

### Net wealth by education level of reference person

| | Share | Median | Mean | Mean-to-median ratio |
|---|---|---|---|---|
| | % | EUR thousand | EUR thousand | |
| Compulsory education or below | 16.6 | 24.5 | 128.6 | 5.3 |
| Apprenticeship, vocational school | 37.1 | 47.1 | 160.0 | 3.4 |
| Upper secondary, school-leaving certificate | 31.8 | 147.6 | 293.6 | 2.0 |
| University, technical college | 14.4 | 228.6 | 584.3 | 2.6 |

Source: HFCS Austria 2014, OeNB.

persons are underrepresented in this household type.

Table 6 is a breakdown of household net wealth by age. Net wealth tends to be lower for households with a younger reference person. Both the median and mean values rise considerably up until the 50- to 64-year age group, whereas they are markedly lower for households with an older reference person. This result cannot be interpreted as indicative of typical changes in net wealth over the life cycle. On the one hand, these patterns reflect different household sizes. On the other hand, different age cohorts are faced with different economic developments, volumes of inheritances and diverging social contexts that have an impact on the wealth they accumulate.

Inequality within the different age groups tends to decline with age. The mean-to-median ratio drops from 6.7 among those aged 16 to 29, to just 1.9 among people aged 65 to 74.

Table 7 is a breakdown of household net wealth by the reference person's educational level. It shows that net wealth increases sharply with the reference person's educational attainment. When the reference person has only completed compulsory education (or less), the household's median net wealth is about EUR 25,000, whereas it is around EUR 228,000 when the reference person holds a tertiary education degree (university or technical college). The mean-to-median ratio falls with increasing education levels, halving from 5.3 to 2.6.

The variation in net wealth is comparatively low in the group of people who completed upper secondary education. With regard to education, correlations with other important characteristics have to be considered as well: Wealth tends to rise with age, and younger reference persons account for a

disproportionately large share of higher education degrees due to the expansion of education.

Comparisons between the net wealth of men and women can only be made for one-person households. The share of one-person households is 38%, with around 23% female and around 15% male households being one-person households in Austria (see table 8). Due to household formation and life expectancy, the gender-specific differences of one-person households are very small in terms of median and mean net wealth, but considerable with regard to characteristics like age or education. Studies that investigate these relations in greater detail using appropriate statistical methods find a significant disparity to the detriment of women (Schneebaum et al., 2014).

Ownership of the main residence marks a distinct divide when it comes to the size of household net wealth.[14] Table 9 shows that households owning their main residence hold substantially larger assets than home renters. At around EUR 483,000, the mean net wealth of homeowners is almost ten times that of households that rent their home. The median net wealth of tenants is as low as approximately EUR 11,000, whereas it is EUR 300,000 among homeowners, i.e. more than 27 times as high.

The mean-to-median ratio is markedly higher for tenants than it is for homeowners, as the former are a highly heterogeneous group with regard to wealth. The group of households that do not pay for the use of their main residence is not uniform either. Apart from young people using homes owned by somebody else for free as their main residence, this group also includes wealthy households that have already

transferred ownership of their main residence to their children. This is why the spread is considerable in this group as well (table 9).

Table 10 is a breakdown of net wealth by the reference person's occupation. Self-employed people hold the second-highest median wealth and the highest mean wealth. In part, this may reflect their need to invest more in private old-age provision than employed people to sustain their lifestyle in old age.

Because this breakdown results in relatively small subpopulations for some groups, mean values have to be treated with special caution, while median values are clearly more reliable for obtaining an indication of relative differences in wealth by occupation. The breakdown by occupation identifies farming households as the wealthiest occupational group in Austria, with a median net wealth of around EUR 659,000. The richest households, however, are among the self-employed,

Table 8

## Net wealth of one-person households by gender

|  | Share | Median | Mean | Mean-to-median ratio |
|---|---|---|---|---|
|  | % | EUR thousand | EUR thousand |  |
| Men | 15.1 | 18.8 | 115.7 | 6.2 |
| Women | 23.2 | 16.9 | 119.4 | 7.1 |

Source: HFCS Austria 2014, OeNB.

Table 9

## Net wealth by main residence

|  | Share | Median | Mean | Mean-to-median ratio |
|---|---|---|---|---|
|  | % | EUR thousand | EUR thousand |  |
| (Partly) owned | 47.7 | 300.6 | 483.3 | 1.6 |
| Rented | 45.4 | 11.3 | 49.7 | 4.4 |
| Free use | 7.0 | 17.0 | 79.3 | 4.7 |

Source: HFCS Austria 2014, OeNB.

[14] See also the explanations provided on chart 2.

Table 10

**Net wealth by occupation of reference person**

| | Share | Median | Mean | Mean-to-median ratio |
|---|---|---|---|---|
| | % | EUR thousand | EUR thousand | |
| Self-employed | 4.5 | 365.6 | 1,320.3 | 3.6 |
| (Skilled) blue-collar worker | 12.2 | 25.7 | 123.0 | 4.8 |
| White-collar worker | 28.4 | 79.2 | 207.1 | 2.6 |
| Civil servant | 3.6 | 171.1 | 318.2 | 1.9 |
| Farmer | 1.2 | 659.2 | 897.1 | 1.4 |
| Pensioner | 40.0 | 110.0 | 226.5 | 2.1 |
| Unemployed | 3.7 | 2.2 | 40.1 | 18.5 |
| Other | 6.4 | 97.3 | 178.1 | 1.8 |

*Source: HFCS Austria 2014, OeNB.*

whose mean net wealth totals EUR 1,320,000. The group with the lowest wealth is that of the unemployed. With a median net wealth of around EUR 2,000, they hardly have any reserves (left), and their mean net wealth (EUR 40,000) is not even one-third of that of blue-collar workers (EUR 123,000). However, the median net wealth of blue-collar workers is around EUR 26,000, which reveals a considerable inequality within this occupational group. Retirees, who are the largest group, and white-collar workers, who are the second-largest occupational group, are rather close to the overall HFCS results with their median wealth positions (EUR 110,000 and EUR 79,000) and mean values (EUR 227,000 and EUR 207,000). The category "Others" includes, for example, pupils and students, people incapacitated for work, homemakers and other nonactive individuals.

### 3.2 Income and wealth

While income is one of the most important sources of wealth, there is no direct link between current household income and household wealth. Income itself is subject to variations and ruptures over time, and career histories have become more fragmented. Factors like age, household composition and expected future income will influence households' saving behavior and their ability to save. Moreover, there are other sources of wealth, notably inheritances and gifts, that have a substantial influence on household net wealth.

In the following, we first look at households' gross annual income (chart 8) and its composition (see table 11 and chart 9) and then at income and wealth together (table 12 and chart 10 through chart 14).

Chart 8 shows the distribution of households' gross annual income (percentiles and mean). We see that income is distributed much less unequally than wealth. Around one-half of Austrian households have an income of less than some EUR 36,000, and 90% have less than around EUR 80,000. Just over 60% of households earn less than the average of around EUR 43,000.

To better understand the importance of gross wages across the income distribution, it is important to differentiate by the different sources of income, such as labor, government transfers and wealth (table 11). The broad definition of income related to labor used here covers income from employment and self-employment, statutory and private old-age provision, other private sources (such as private transfers) and unemployment benefits. Income from government transfers includes assistance to the long-term jobless who have become ineligible for unemployment assistance, means-tested benefits, childcare benefits, education allowances, family allowances, rent subsidies and other social benefits. Investment income comprises income from renting and leasing as well as from financial assets and private businesses. Imputed rents are not included here.

While labor income continuously rises across income deciles, govern-

**Gross annual income of households from the 1st to the 99th percentile**

EUR thousand
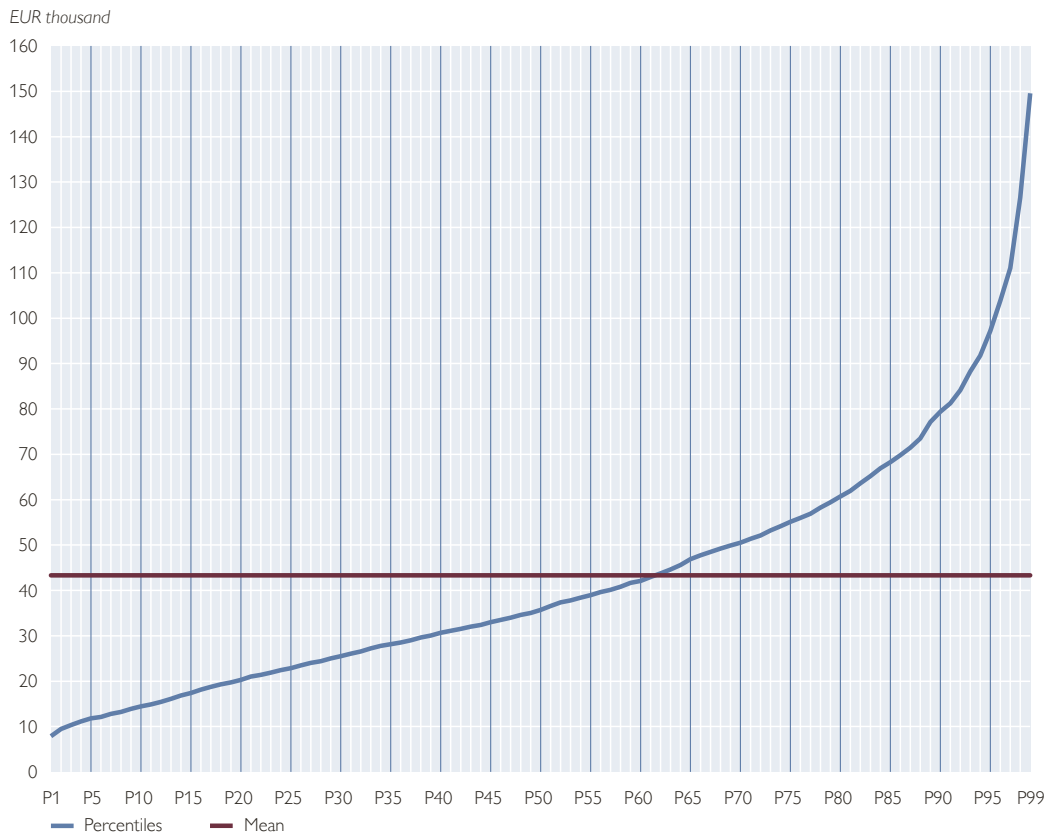


Source: HFCS Austria 2014, OeNB.

ment transfers decline from the 1st to the 5th decile. Investment income tends to increase up to the 9th decile, eventually reaching as much as EUR 6,400 in the top decile. It is only among the top 10% that investment income plays a significant role.

Chart 9 gives a more detailed view of the top 10% in which investment income plays a more important role. The composition of household gross income in the top decile shows that investment income remains concentrated in the top percentiles. Hence, the top decile represents a mixed picture, and the significance of investment income in relation to labor income is likely to increase further among the super-rich who are not included in the HFCS sample. At the very top of the true

(as opposed to observed here) income distribution, it likely accounts for the majority of income (see Piketty, 2014).
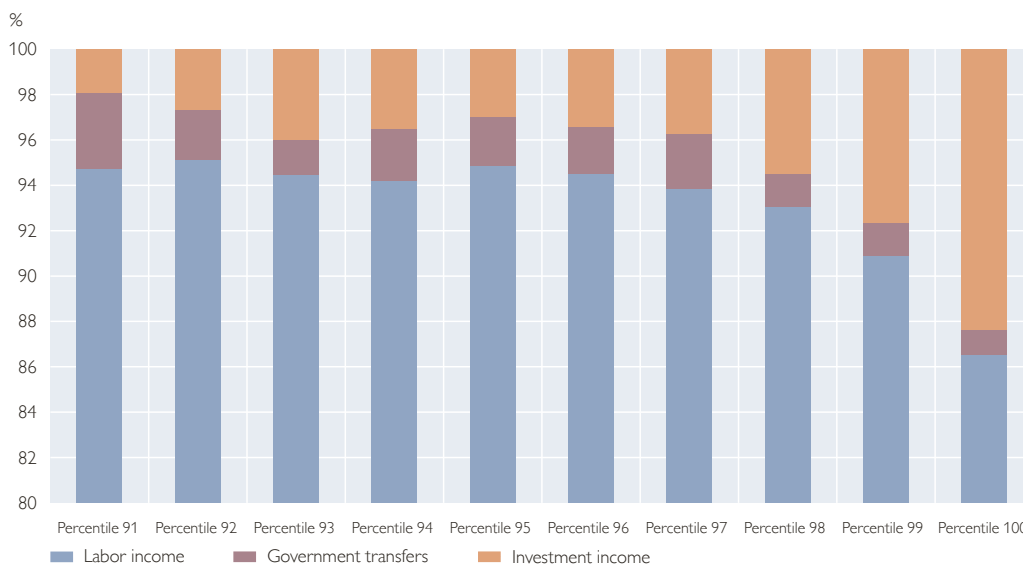
**Mean values across gross income deciles**

| | Labor income | + Government transfers | + Investment income | = Gross income |
|---|---|---|---|---|
| | EUR thousand | | | |
| Decile 1 | 10.1 | 1.0 | 0.1 | 11.2 |
| Decile 2 | 16.5 | 0.7 | 0.2 | 17.4 |
| Decile 3 | 22.2 | 0.6 | 0.2 | 22.9 |
| Decile 4 | 27.1 | 0.7 | 0.3 | 28.1 |
| Decile 5 | 31.6 | 1.0 | 0.5 | 33.0 |
| Decile 6 | 37.2 | 1.1 | 0.7 | 39.0 |
| Decile 7 | 44.6 | 1.1 | 1.0 | 46.6 |
| Decile 8 | 52.9 | 1.5 | 0.9 | 55.2 |
| Decile 9 | 66.3 | 1.4 | 1.1 | 68.8 |
| Decile 10 | 102.8 | 2.1 | 6.4 | 111.2 |

Source: HFCS Austria 2014, OeNB.

Chart 9

**Composition of gross income in the 10 percentiles of the highest gross income decile**

%



Source: HFCS Austria 2014, OeNB.

Next, we take a look at income in conjunction with wealth. Table 12 shows the mean values of individual wealth components across deciles of gross household incomes. In analogy with table 3, we focus on average values, which allow for adding up weighted wealth components at the decile level to entire net wealth. Again, it is important to remember that averages mask the joint distribution of components. In each decile, one household could, in theory, own all real assets, another household all financial assets and yet another household the entire debt. The mean values would be just the same in this hypothetical case.[15]

We find wealth and income to be strongly correlated. Real assets increase across all deciles and in particular from the 9th to the 10th decile, where they more than double. This cannot be explained by investment income alone, as we have seen in chart 9.

Financial assets also tend to rise across deciles, but the increase is markedly flatter. Especially in the middle deciles this also has to do with the acquisition of real estate property. Households with similar income and net wealth have often accumulated fairly large financial assets before they buy their main residence, while displaying a sharp decrease in financial assets shortly afterwards. Before the purchase, they had to save money and owned very little real assets, while reporting very little financial assets but relatively large real assets and substantial debt thereafter.

Debt also tends to rise with income, however at a lower rate. Compared with the 1st decile, the 10th decile holds 18.0 times the real assets, 14.5 times the financial assets but only 8.4 times the debt of the 1st decile. Overall, this results in slightly more than 18.5 times the net wealth. This is because debt in

[15] See also the explanations on table 3.

relation to wealth in the 1st decile (10% of gross wealth) is twice as high as in the 10th decile (5% of gross wealth).

Chart 10 illustrates the data from table 12 and again clearly shows the dominance of real assets across income deciles.[16]

A "typical" household can be reflected neither by mean values (which do not constitute robust statistics) nor by median values. Charts 11 to 14 serve to illustrate the enormous heterogeneity of asset levels masked by the measures of table 12 and chart 10. They show that, when it comes to wealth, a "typical" household does not exist even across incomes. In those charts, we indicate the mean values of the individual wealth components from table 12 and chart 10 and add three items from the conditional (in terms of income deciles) distribution of the relevant component within the deciles of gross household

incomes. In those charts, we take into account all the households of all income deciles, i.e. also households with zero ownership of a given asset. This matters above all when we analyze the debt situation, as around two-thirds of all households do not have any debt. We

Table 12

## Mean values across deciles of household gross income

| | Real assets | + Financial assets | − Debt | = Net wealth |
|---|---|---|---|---|
| | *EUR thousand* | | | |
| Decile 1 | 49.7 | 7.6 | 5.6 | 51.8 |
| Decile 2 | 64.5 | 14.5 | 3.2 | 75.8 |
| Decile 3 | 94.4 | 16.0 | 4.5 | 105.9 |
| Decile 4 | 132.9 | 33.9 | 9.0 | 157.8 |
| Decile 5 | 143.4 | 24.5 | 10.2 | 157.7 |
| Decile 6 | 181.7 | 34.9 | 11.6 | 205.1 |
| Decile 7 | 231.9 | 42.5 | 18.2 | 256.3 |
| Decile 8 | 237.0 | 46.3 | 31.1 | 252.1 |
| Decile 9 | 344.0 | 53.4 | 32.4 | 365.0 |
| Decile 10 | 895.7 | 110.5 | 46.9 | 959.4 |

*Source: HFCS Austria 2014, OeNB.*

Chart 10

## Mean net wealth components by household gross income deciles

*EUR thousand*
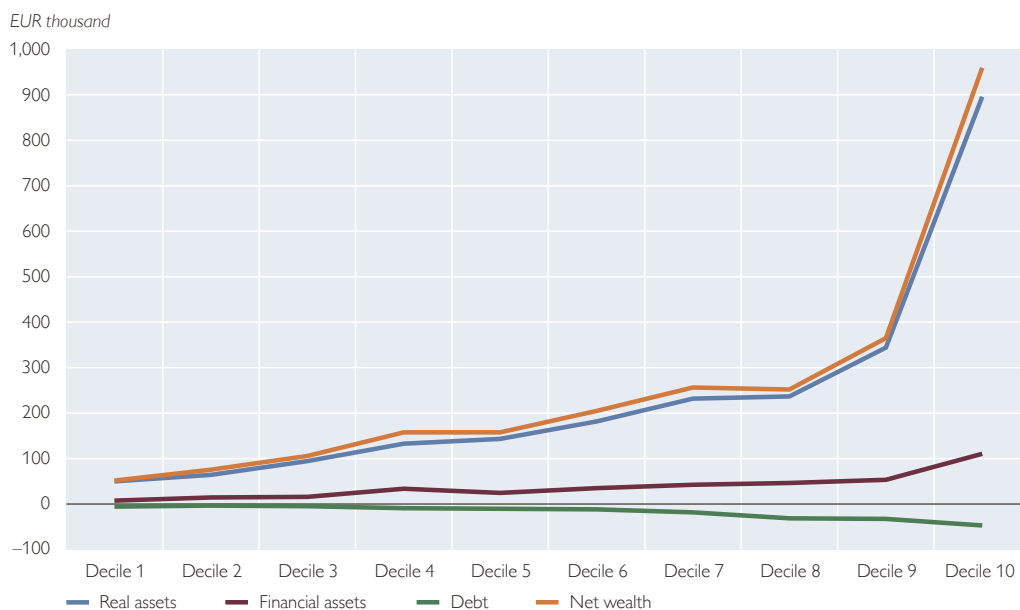


*Source: HFCS Austria 2014, OeNB.*

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[16] *See chapter 2 on the underreporting of financial assets and chapter 1 on links to the welfare state.*

Chart 11

**Real assets by household gross income deciles**

*EUR thousand*
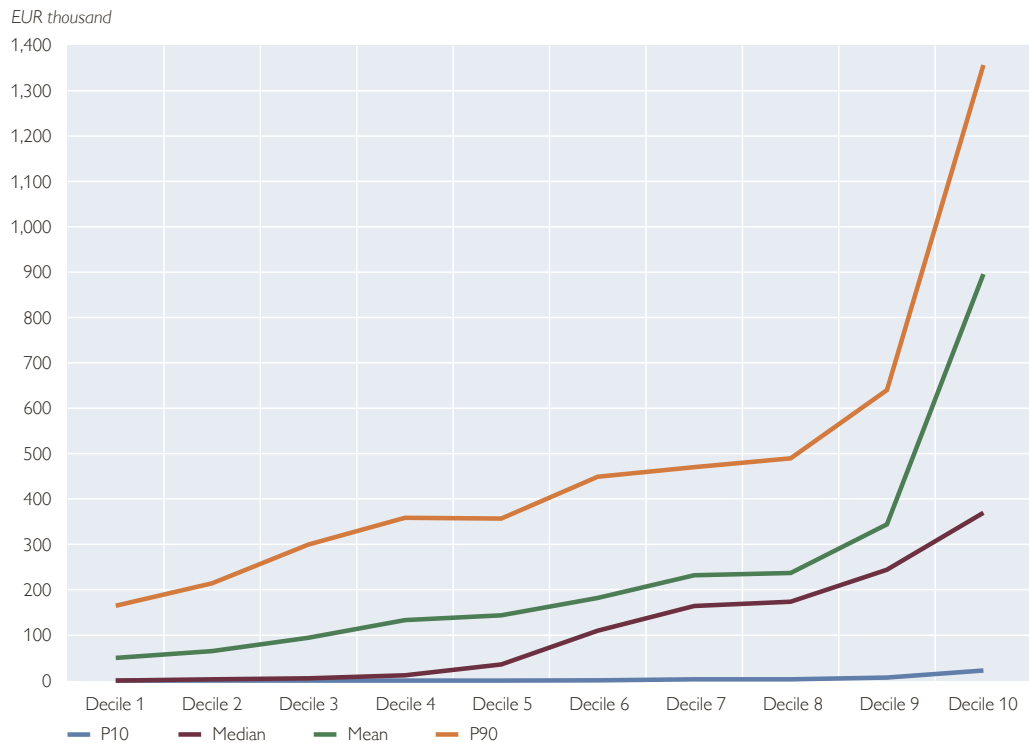


Source: HFCS Austria 2014, OeNB.

show the 10th, 50th (median) and 90th percentile, i.e. the values indicating the thresholds surpassed by 90% (10th percentile), 50% (50th percentile, median value) and 10% (90th percentile) of households.

Chart 11 presents the real assets of households. The 10th percentile of real assets is close to zero up to the highest income decile. The sample also includes households with very high incomes but very little real property. The median rises markedly from the 5th decile onward, quadrupling from the 5th to the 7th decile. This reflects the growing share of households owning their main residence. Real estate owners are also responsible for pushing the P90 ratio to a real asset level of almost EUR 200,000 even in the lowest income decile. If we compare this value with the median for the 8th decile, we see

that at least 10% of the lowest-income households hold more real assets than around one-half of the households in the 8th decile. Among high-income households, the strong increase of the mean value from the 9th to the 10th income decile that was apparent already in table 12 is driven by relatively few households. The P90 ratio rises even more steeply than the mean across the two top deciles. The median grows at a clearly lower rate.

Chart 12 shows the change of financial asset distributions across income deciles, which differs visibly from the change of real asset distributions, which was characterized by increasing medians from the middle deciles upward, reflecting ownership of the main residence. Financial assets increase relatively steadily up to the 9th income decile, with the gap between the

Chart 12

**Financial assets by household gross income deciles**

*EUR thousand*
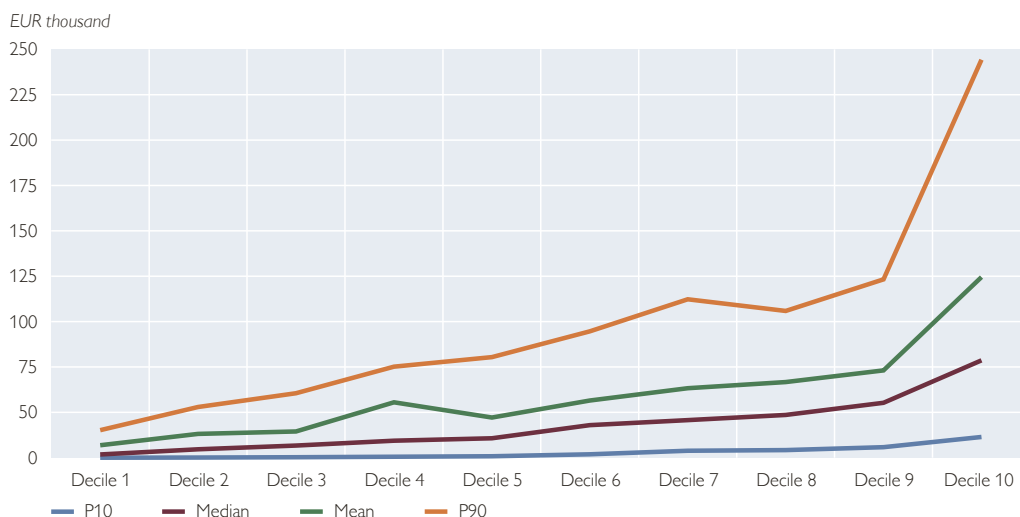


Source: HFCS Austria 2014, OeNB.

median and the mean – which narrowed visibly for real assets from the middle deciles onward – remaining relatively stable until the 10th decile, where the gap widens, as it did with real assets. Even more so than for real assets, the strong increase of the mean is driven by relatively few households in the case of financial assets. The median of financial assets is only slightly higher than EUR 50,000 even in the 10th income decile. When we compare the P90 ratio in the 1st decile with the rise of the medians, we find at least 10% of the lowest-income households to hold more financial assets than around one-half of the households in the 6th decile, which is again different from the real asset patterns.

Chart 13 presents the debt percentiles across deciles of gross household incomes. Both the P10 ratio and the median of debt are zero across all income deciles, i.e. regardless of their income decile, more than one-half of households do not have any debt. Up to the 4th decile, the mean and P90 values are closely aligned at a very low level of less than EUR 10,000. In the 4th decile,

the mean is even above the 90th percentile, which implies that the mean is driven by a few heavily indebted households. Typically, it takes a certain income level to be eligible for larger mortgages, while lower-income families mainly live in rented homes. While the mean debt values rise slowly from the 6th decile, the P90 ratios already increase from the 4th decile. In this medium income bracket, we find a mix of smaller consumer loans and larger mortgages. The P90 ratio markedly rises from the 6th decile upwards as mortgages crowd out consumer loans. The mean values remain well below the P90 ratio because up to the top income decile more than one-half of households do not (or no longer) have outstanding loans, so they enter the calculation with a value of zero. In the top half of the income distribution, the spread mainly results from the current repayment levels for mortgages taken out to finance the main residence. The smaller the amounts borrowed and the further the purchase of the main residence dates back, the lower the outstanding amounts tend to be.

Chart 13

**Debt by household gross income deciles**

*EUR thousand*



| | P10 | Median | Mean | P90 |
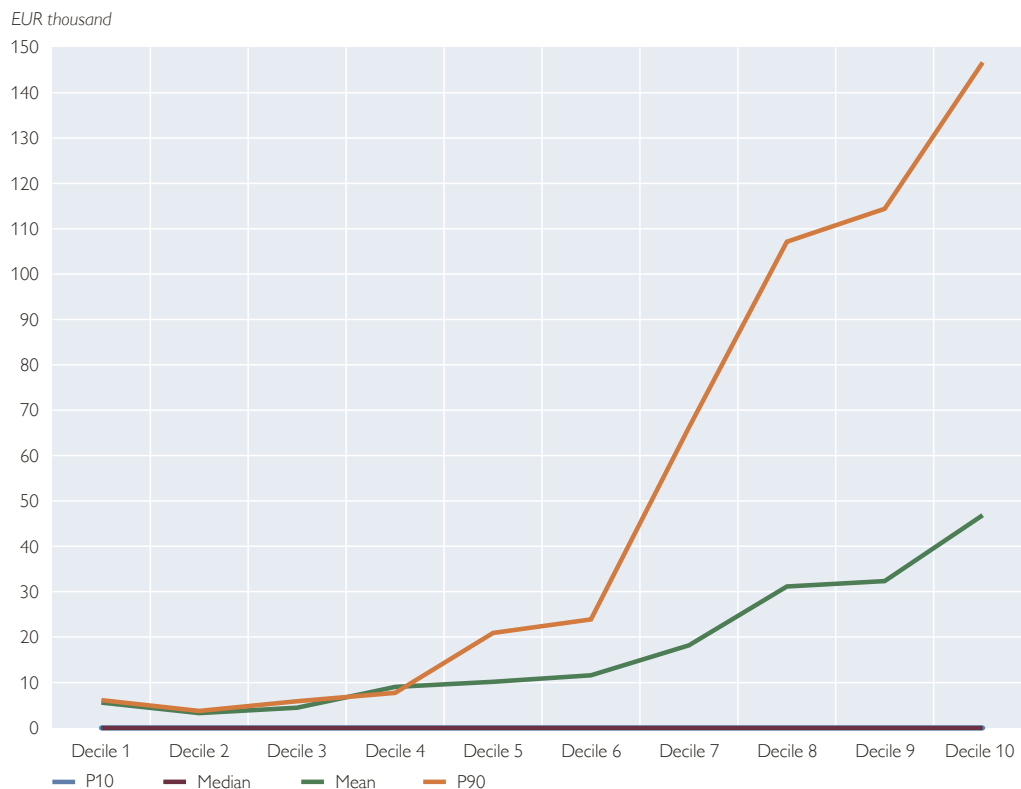
Source: HFCS Austria 2014, OeNB.

Summarizing the individual wealth components, chart 14 illustrates the heterogeneity of net wealth across gross household income deciles. Again, real assets dominate the picture, with financial assets dampening the rise of the medians to some extent.

A key finding is that while income and wealth are positively correlated, low-income households with relatively great wealth coexist with high-income households with relatively little wealth. For example, 10% of households in the 1st decile of the income distribution have more net wealth than 50% of households in the 8th decile, while 10% of households in the 10th decile of the income distribution are less wealthy than 50% in the 5th decile. There are high-income, low-wealth households, and there are high-wealth, low-income

households. In other words, the distribution of net wealth is highly uneven also within income deciles.

**3.3 Saving and consumption**

Private consumption is a variable that is difficult to capture in household surveys as it is very complex both conceptually and in terms of measurement. While the analysis of wealth is fraught with valuation problems, consumption can only be measured adequately when the relevant questions are answered completely. The problem with consumption expenditures is that they are easily forgotten or overlooked, that consumption varies a lot, and that regular expenses (food, energy, etc.) must be differentiated from irregular purchases. Most consumer purchases are for small amounts, but every now and

Chart 14

**Net wealth by household gross income deciles**

*EUR thousand*
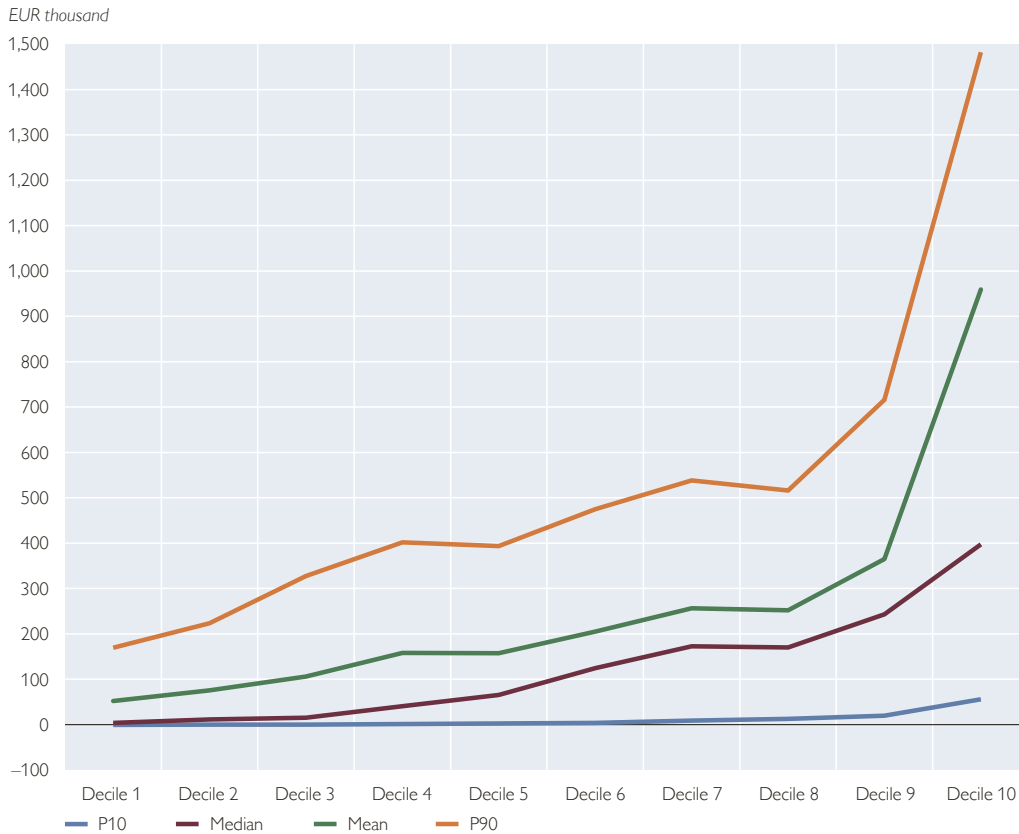


Source: HFCS Austria 2014, OeNB.

then consumers will also buy big-ticket items, such as a car or a washing machine. Lower-income households will spend almost their entire income on nondurable consumer goods (food, energy, housing, etc.), which account for a comparatively small share of higher-income households' consumption expenses.

The HFCS gathers data on consumption expenses in the 12 months preceding the survey. Therefore, the likelihood that respondents may forget to mention purchases made long ago, a typical problem with questions on inheritances and gifts, is rather limited. Nonresponse is much less common with consumption-related questions than with wealth/income-related questions. Households will typically be less sensitive about disclosing consumption habits than about sharing information on income and, in particular, wealth.

Chart 15 shows monthly consumption expenses as estimated by households, excluding housing costs, loan repayments, insurance premiums and one-off payments such as vehicle purchases. Accordingly, 20% of households spend less than some EUR 600 per month on consumption, and 65% of households spend less than about EUR 1,000. Consumption expenses very much depend on the number of people living in a household. What becomes clear is that monthly consumption is less unequally distributed than income and wealth. This shows that lower-income and less wealthy households tend to spend more on consumption relative to their income

Chart 15

**Distribution of monthly consumption expenditure from the 1ˢᵗ to the 99ᵗʰ percentile**

*EUR thousand*



— Consumption percentiles  — Mean
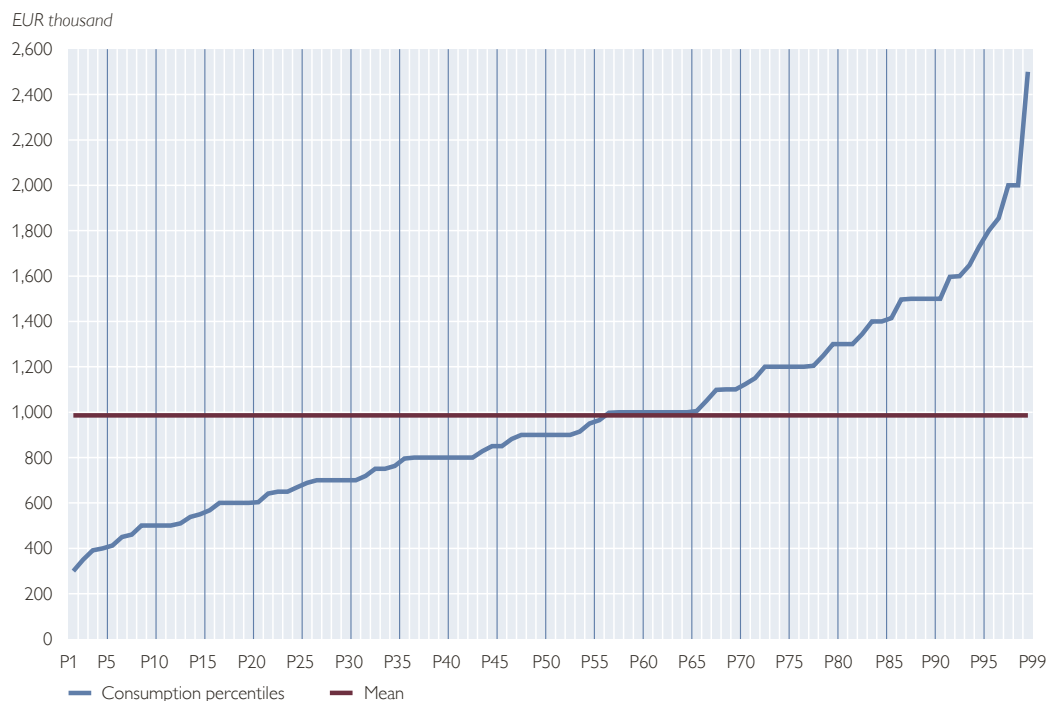
*Source: HFCS Austria 2014, OeNB.*

*Note: Consumption expenditure of a typical month, excluding rent, taxes, financial payments (e.g. loan repayments, insurance premiums, payments into pension plans) and one-off payments (for purchasing, e.g., valuables, cars, major household appliances or furniture).*

(and wealth) than higher-income and wealthier households, even though they are comparatively older.

Apart from surveying household portfolios, the HFCS also identifies the range of purposes for which households save. Identifying saving motives is helpful in assessing how much money people save and how regularly they put money aside.

Table 13 provides a breakdown of the saving motives that respondents identified as their main motive.

More than half of respondents (52.2%) mentioned precautionary saving as their main reason to save. Those respondents typically have little wealth and lower incomes than other respondents. They put money by with a view to building an emergency buffer, in case they were to lose their job, etc. The second-largest group of respon-

dents (around 10%) mainly saves for retirement. This group is wealthier and has higher incomes.

The comparatively youngest group saves to buy real estate and has relatively little wealth as yet, but high incomes. In contrast, those saving to support their children or to finance their education are comparatively well off and also relatively young. The highest-income, high-wealth group must save to be able to pay off debt at a later stage. Those are typically borrowers who have taken out bullet loans and save toward a repayment vehicle. The next-to-youngest and least wealthy group with relatively low incomes saves to buy a car. Finally, a small (2%) and relatively old group (around 68 years) of households saves to leave money for their heirs.

Table 13

**Households' main saving motives**

| | Saving motives | Median | | |
|---|---|---|---|---|
| | | Net wealth | Gross annual income | Age of reference person |
| | Share in % | EUR thousand | EUR thousand | Years |
| Provision for unexpected events | 52.2 | 104.3 | 33.5 | 59.0 |
| Old-age provision | 9.8 | 134.1 | 39.6 | 56.0 |
| Purchase of house/apartment as main residence | 7.0 | 72.4 | 50.2 | 40.0 |
| Education of/support for children and grandchildren | 6.7 | 120.0 | 42.2 | 46.6 |
| Major purchases except vehicles | 4.8 | 30.9 | 31.9 | 46.0 |
| Purchase of vehicles | 4.5 | 21.9 | 32.1 | 40.2 |
| Travel/holidays | 3.9 | 27.1 | 33.5 | 51.6 |
| Repayment of loans/debt (e.g. repayment vehicles) | 3.5 | 210.8 | 52.4 | 45.2 |
| Bequests | 2.0 | 41.0 | 33.4 | 67.6 |
| Renovation/maintenance of a property | 1.6 | 238.2 | 34.0 | 60.8 |
| Other | 4.0 | 48.3 | 30.7 | 58.6 |

Source: HFCS Austria 2014, OeNB.

Hence, saving motives depend on what a household has: Different levels of wealth, income and age result in different motives for saving.

## 3.4 Inheritances

There are two ways in which people may acquire wealth: They either save from their income or they receive gifts or inheritances from other people. Inheritances and gifts play a key part in creating wealth (e.g. financing the main residence, businesses or other investments), and accumulated wealth, in turn, provides the basis for future gifts and inheritances (see Fessler and Schürz, 2005).

Inheritances are usually intergenerational transfers within a family. Larger gifts are less common and usually of a lower value than inheritances. Inheritances and gifts are positively correlated: people whose parents were able to support them financially already during their lifetime are also more likely to inherit. Usually people receive gifts much earlier in life than inheritances.

Survey questions about inheritances touch upon a number of taboos. By definition, people who have received inheritances have also suffered a bereavement, which causes ambivalence and may create unwillingness to disclose things which may appear too personal to share. Nonresponse is especially high with regard to questions about the size of inheritances. In addition, surveys on inheritances typically come with a number of difficulties which need to be taken into account when interpreting the results. As a case in point, people may fail to recall the absolute size of gifts or inheritances. The recall bias increases for inheritances received a long time ago. Respondents may have forgotten the value of inheritances or the year when they received them. Furthermore, not all respondents can be expected to neatly differentiate between inheritances and gifts.

Wealthier households, which have a higher incidence of inheritances, are generally underrepresented in household surveys and are more likely to decline to respond if they do participate. Therefore it is safe to assume that household survey-based estimates of inheritances, like wealth itself, are downward biased and that inheritances indeed play an even more important role in the accu-

Table 14

**Share of households that have received inheritances by household size**

| | Inherited main residence | Other inheritances | Overall |
|---|---|---|---|
| | *Share in %* | | |
| 1 person | 8.5 | 24.8 | 32.2 |
| 2 persons | 14.4 | 29.3 | 39.1 |
| 3 persons | 19.8 | 31.0 | 43.3 |
| 4 persons | 18.6 | 29.4 | 39.0 |
| 5 or more persons | 25.9 | 36.0 | 50.0 |

Source: HFCS Austria 2014, OeNB.

mulation of wealth than the observed data suggest.

For the sake of simplicity, we limit the analysis of inheritance data in this report to household-related inheritances. Moreover, we look at the combined sum of inheritances and gifts and neglect their sources. Since calculating the present value of past inheritances would also require numerous assumptions, we confine ourselves to the question whether households have received inheritances or not and to related descriptive statistics.

As inheritances are typically made by individuals rather than households (see also chapter 3.1), it is important to take household size into account in particular. The share of households that have inherited tends to increase with household size. Moreover, the main

residence plays a significant role: one-quarter to one-half of all inheritances relate to the main residence.

Another factor that plays a major role is age, because the likelihood of having received an inheritance from one's parents or grandparents by definition increases with age.

Table 14 shows the share of households that have received inheritances by household size broken down by main residence and other inheritances (such as the home of one's parents in case respondents do not use it as their main residence). As throughout this study, the main residence refers to the household's main residence at the time of the survey.

Table 15 indicates the share of households that have received inheritances by the age of the reference person. The older the reference person is, the higher the likelihood that the household has received inheritances – except for the oldest age group. Here, it remains unclear whether respondents "forgot" to report inheritances or whether it is a post-war phenomenon. While it is obvious that inheritance values should have increased sharply as people were able to build up wealth after World War II, it is not clear whether the incidence of inheritance should have risen as well. In any event, a substantial share of inheritances reaches the recipients at a relatively advanced age.

Table 16 shows the share of households that have received inheritances by the educational attainment of the reference person. The higher the education of this person, the higher the share of households that received inheritances. Again, it is important to remember that this relationship has weakened markedly given the expansion of education. People with a higher level of educational attainment are mainly found among younger reference

Table 15

**Share of households that have received inheritances by age of reference person**

| | Inherited main residence | Other inheritances | Overall |
|---|---|---|---|
| | *Share in %* | | |
| 16–29 years | 9.9 | 18.7 | 25.8 |
| 30–39 years | 9.4 | 22.5 | 28.4 |
| 40–49 years | 14.7 | 28.2 | 37.3 |
| 50–64 years | 18.5 | 31.1 | 43.0 |
| 65–74 years | 11.7 | 35.2 | 44.1 |
| 75 years and over | 14.1 | 26.5 | 37.9 |

Source: HFCS Austria 2014, OeNB.

persons who have lower inheritance ratios than in households with older reference persons (see table 15).

Table 17 identifies the share of households that have received inheritances, by tenure status of their main residence (homeowners and others). Here we find only around 22% of tenants, more than one-half of homeowners (53.1%) and 34.3% of respondents who do not pay for the use of their main residence to have received inheritances. Moreover, the data show that almost one out of three households (29.1%) living at and owning their main residence have inherited it. This also goes toward explaining the relatively low debt ratio in Austria that we already discussed in chapter 2 and will examine in greater detail in chapter 4.

When we analyze the share of households that have received inheritances by age of reference person and tenure status of main residence (i.e. a combination of tables 16 and 17), we find young people who own their main residence to have the highest incidence of inheritances. Almost two-thirds of households with reference persons aged 16 to 29 years have inherited their main residence. This suggests that reference persons who have come to own their main residence at a very young age have done so primarily through inheritance. Among tenants, the incidence of inheritance is consistently below the inheritance share of homeowners in all age groups.

Inheritances play a key role in whether households own their main residence or not. Beyond the share of households (29.1%) who were observed to have inherited their main residence, table 18 implies that inheritances are instrumental in financing ownership of the main residence for the remaining households.

## 4 Risk-bearing capacity of indebted households

According to table 2, 34.4% of all households are indebted and about 16% of households (some 32% of all households that have at least partial ownership of their main residence) have incurred debt for which they use their main residence as collateral. The median of about EUR 60,000 and the mean of around EUR 90,000 mainly reflect the current status of repayment of loans taken out to finance homes.

Some 21% of households have unsecured debt. For instance, around 12% of households have overdrawn at least one of their accounts by a median of EUR 1,000 (in total). In the segment of unsecured debt, uncollateralized loans account for the highest share, about EUR 17,000 on average (see chapter 2).

Heavily indebted households are not necessarily those that pose a risk to financial stability. They are typically

Table 16

**Share of households that have received inheritances by level of education**

| | Inherited main residence | Other inheritances | Overall |
|---|---|---|---|
| | Share in % | | |
| Compulsory education or below | 12.0 | 23.2 | 31.2 |
| Apprenticeship, vocational school | 13.4 | 22.9 | 32.3 |
| Upper secondary, school-leaving certificate | 15.1 | 33.1 | 43.3 |
| University, technical college | 14.7 | 37.0 | 46.3 |

Source: HFCS Austria 2014, OeNB.

Table 17

**Share of households that have received inheritances by tenure status of main residence**

| | Inherited main residence | Other inheritances | Overall |
|---|---|---|---|
| | Share in % | | |
| (Partly) owned | 29.1 | 33.3 | 53.1 |
| Rented | 0.0 | 21.9 | 21.9 |
| Free use | 0.0 | 34.3 | 34.3 |

Source: HFCS Austria 2014, OeNB.

well able to service their debt or have sufficient financial assets to clear their debt. In fact, the households that are most likely to have difficulties in meeting payments are usually those with very small consumer loans – and for this very reason they do not constitute a high risk to financial stability. However, it is the perspective that matters. From a household perspective, even a small amount of debt may be a very heavy burden or even constitute an existential threat.

Risks to financial stability arise from households only if their risk-bearing capacity is not ensured, causing them to default on their loans. The lower the recoverability of the outstanding amounts – for example, by selling collateral –, the more costly such defaults are for creditor banks. For financial stability to be jeopardized, the size and the number of defaults would need to reach a critical mass. Austrian law is very strict in this respect. The cost of defaulting on a loan is very high. Hence, creditors are in a comparably strong position. Homeowners defaulting on, say, a mortgage, cannot simply hand over the key to the home they use as collateral to their creditor – as they would be able to do in many states of the U.S.A. The liability of defaulting debtors is not limited

to the collateral involved, i.e. the home in question, but extends to their entire wealth and income, including future income up to the protected earnings limit in the case of wage execution. This is one of the reasons why loan defaults are very rare in Austria.

Overall, household debt is in general relatively low in Austria. This is true both for the share of indebted households and the level of debt, reflecting the high share of rental housing in the country. The high share of rental housing results from the high share of public housing as well as cooperative housing and the relatively large segment of homes subject to stringent rent control. Only 47.7% of households own their main residence. Almost one-third of these has inherited their property and only another third continues to have outstanding mortgages, taken out to finance the property. Beyond those mortgages, it is very rare for Austrians to use their home as collateral for other loans – the only exception being mortgages on other real estate property. The loan-to-value ratios are also fairly moderate in Austria, i.e. only very few households have more debt than their main residence is worth at present. Furthermore, domestic banks seem to be rather restrictive when it comes to setting loan instalments in relation to

Table 19

## Debt covered by assets

|  | With debt (not covered) | Share in total debt |
|---|---|---|
|  | % |  |
| Debt | 34.4 | 100.0 |
| Debt minus sight account balance | 31.5 | 96.6 |
| Debt minus sight and savings accounts balance | 21.4 | 73.4 |
| Debt minus financial assets | 19.0 | 65.6 |
| Debt minus financial assets and other real estate property | 17.2 | 55.3 |
| Debt minus financial assets, other real estate property and main residence | 7.4 | 8.9 |
| Debt minus total gross wealth | 5.6 | 6.9 |

*Source: HFCS Austria 2014, OeNB.*

Chart 16

**Debt and debt coverage by selected wealth components**

*EUR thousand*



Debt
Debt minus sight account balance
Debt minus sight and savings accounts balance
Debt minus financial assets
Debt minus financial assets and other real estate property
Debt minus financial assets, other real estate property and main residence
Debt minus total gross wealth
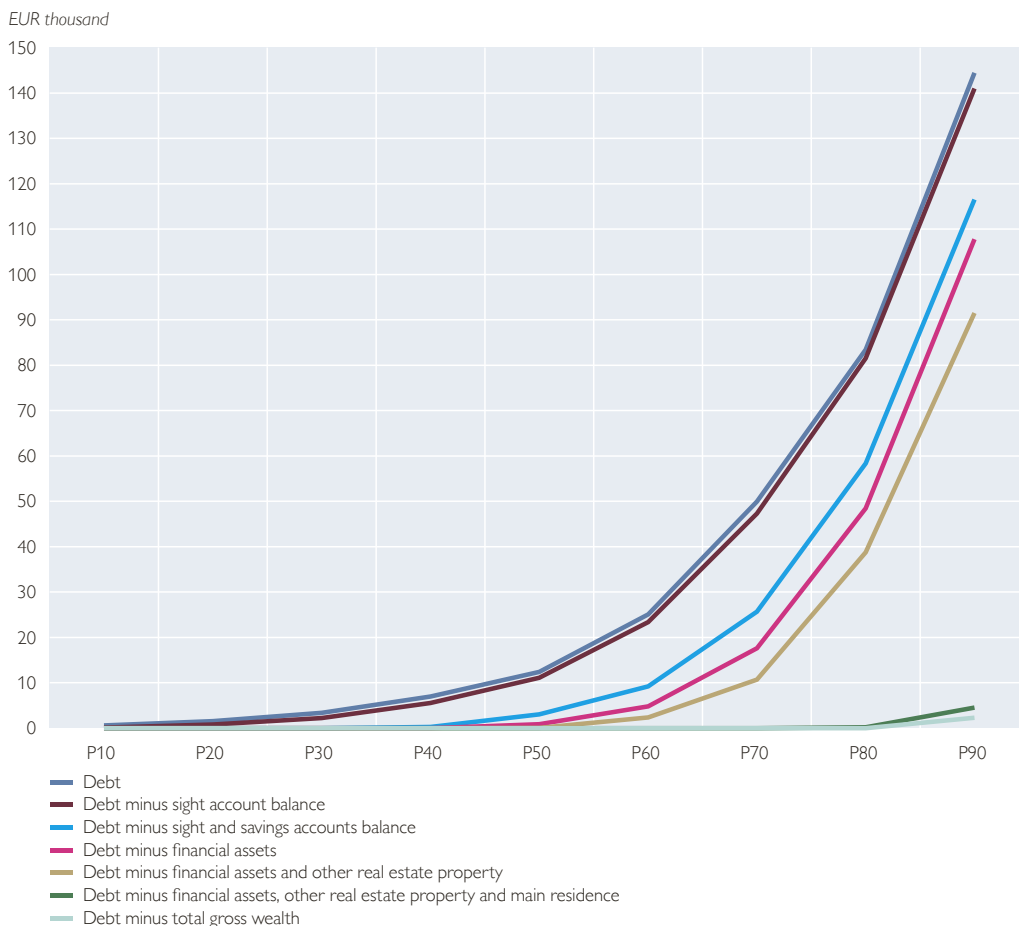
*Source: HFCS Austria 2014, OeNB.*

prospective income – at least for Austrian consumers.

Table 19 compares the debt of indebted households with the individual components of their gross wealth. Step by step, asset components are deducted from household debt, carrying forward only those households with outstanding debts that are not secured by the relevant assets.

Many indebted households have considerable financial assets. Almost 35% of debt is already covered by relatively liquid funds, leaving only 65.6% of total debt not secured by financial assets. When real estate property and other real assets are deducted as well,

the share of indebted households goes down to 5.6%, accounting for 6.9% of total debt.

Chart 16 presents these observations broken down by the level of debt across the distribution of debt. In this view, 70% of indebted households (remember that 34.4% of households are indebted) have debts amounting to less than EUR 50,000. In other words, only around 10% of all households have debts exceeding EUR 50,000. When adjusted for financial assets, this value decreases to 7%. All distributions refer to those households that continue to have outstanding liabilities following the netting of debt (see table 19).

Overall, the debt of households therefore poses only a low risk to financial stability. The OeNB plans to carry out several analyses and studies on this issue, as has been the case in the past (Albacete and Lindner, 2013 and 2015; Albacete et al., 2014). Most recently, we addressed the implications of changes in housing prices for financial stability in the OeNB's July 2016 Financial Stability Report (Albacete et al., 2016).

## 5 Comparison of wealth levels 2010/2014

This chapter compares the key wealth components as identified by the HFCS 2010 and the HFCS 2014. It is crucial to note that the response rate of the second wave was almost 6 percentage points lower (49.8%, versus 55.7% in the first wave). Given selective nonparticipation, nonresponse weights served to offset the lower response rate only to some extent. Differences in measures may also arise at random, especially with measures that are influenced strongly by individual observations. Hence, comparisons over time must be treated with caution.[17] Again, robust statistics (e.g. medians or percentiles) will be more reliable than nonrobust measures (e.g. mean values), because they are less sensitive to problems that are typical of household surveys. Furthermore, the meaningfulness of comparisons at the top end of the distribution is limited because, given the skewness of the distribution in that range, even small changes in the coverage of the household population or in the under- reporting of high-value assets could improve or deteriorate results considerably (see chart 20). Finally, potential sampling errors as a result of a lack of oversampling of the top tail should not be underestimated.

The literature and the scientific community diverge on the question of whether net wealth should be adjusted for inflation. Such adjustments are regularly performed for incomes, but they are problematic even in the case of income microdata. Inflation is measured on the basis of a standardized basket of goods and services. By definition, this basket does not cover the entire distribution of different inflation rates actually faced by individual households (Fessler and Fritzer, 2013).

Transferring this consumption-oriented concept to wealth is even more problematic (see box 6). For example, it could be argued that past real estate prices should be adjusted with a real estate price index and that stock prices should be adjusted with a stock exchange index rather than with the consumer price index. Therefore we do not apply any adjustments in this chapter at all and only report the values observed as they were collected at the given time. As a result, this comparison focuses on the data structure in 2010 and 2014 and on a rough description of major changes. As discussed in chapter 1.2, changes may be due to a variety of reasons, which need to be evidenced by research.

Given the complex survey design, multiple imputations and the use of replicate weights, variance estimation constitutes a particular challenge. In general, it was possible to considerably increase precision through various improvements to the survey design of the second wave. For details, see the respective methodological notes (Albacete et al, 2016b). Here, we report variance estimates for a few selected statistics in appendix A2[18] to document the uncertainty linked with the estimates.

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[17] See also box 1 for problems that may arise when comparing data from two HFCS waves.

[18] Variance estimates were calculated for all statistics in this report and considered accordingly when interpreting the data.

Box 6

### Household balance sheets and inflation[1]

*Real and nominal changes in economic data differ because of price developments. An increase in nominal household income by, say, EUR 100 does not necessarily imply that households actually had an extra EUR 100 to spend. Changes in household purchasing power depend on the rise and fall of prices that are relevant for the household's basket of good and services. If these prices rise by more than EUR 100 in total, households suffer a drop in real income. In some finance and consumption surveys, the results from previous waves are adjusted for comparison over time, to get a rough idea of the goods and services a household's finances would buy.*

*Apart from permitting future consumption, however, wealth also fulfills other important functions for which the distinction between nominal and real values is of lesser importance than for the income from which households largely finance current consumption. These functions include ownership of homes, improvement of social status and transfer of wealth. Inflation adjustment would be conceptually consistent only where a wealth component is sold and the money received is used for consumption corresponding to the standardized basket of goods and services. It makes little sense to use a standardized basket of goods and services to adjust the value of real estate property that is usually held for a long time and accounts for the majority of household wealth in Austria. Furthermore it is unclear which index should be used for adjustments. Inflation rates differ depending on the spending behavior of households (see Fessler and Fritzer, 2013). Thus, different inflation rates could be used for different groups of households. But how to define those groups when there is an infinite number of options? As the HFCS essentially deals with components of the household balance sheet, it would make sense to use different indexes to adjust individual household wealth components for changes over time. This implies, however, a different understanding of inflation, i.e. among other things, the use of asset price inflation instead of consumer price inflation, thus breaking the usual link to consumption.*

*In this publication of first results from the second HFCS wave in Austria, the focus is on presenting the data collected. Hence, we compare nominal values as reported.*

[1] *In analogy with the inflation rate, adjustments for purchasing power parities or exchange rates may be discussed for different countries.*

Table 20 shows participation rates at the level of wealth components. These rates hardly changed against the HFCS 2010. Interestingly, the value reported for other valuables under real assets – which constitute a relatively minor wealth component, though – has gone down. It remains an open question whether the decline in the participation rate, from 23.6% to 16.2%, may reflect a growing anxiousness to disclose information about valuables kept e.g. at respondents' main residences, i.e. the place of the interview.

There has also been a decline in the reported levels of investments in self-employment businesses. Here, the participation rate, including agricultural businesses, decreased from 9.4% to 7.0%. This component does not cover all direct investments in self-employment businesses, though; silent participations in which no household member has an active function are included under "other financial assets." Other real estate property, for which participation also slightly decreased, covers assets that are not held via a company but nevertheless used for business purposes. Especially for these less common components, differences may also arise from sampling errors and problems related to the coverage of the population. Overall, participation rates seem to be very stable for real assets.

Participation rates have also remained stable for the components of financial wealth, with two exceptions: The share of households with saving plans with building and loan associations appears to have gone down somewhat, from 54.7% to 49.2% – a decline that has also been reflected in the total for savings accounts. The share of voluntary savings plans for retirement has also dropped, from 17.7% to 14.5%. However, these figures also very much depend on which savings instruments respondents actually identify as retirement savings plans other than state-sponsored retirement provision plans.

There has been a slight decline in the shares of households with secured debt and unsecured debt. Overall, we found the patterns to be highly stable, though. What stands out is the substantial increase in participation for loans from family and friends (from 0.9% to 4.8%). This may be a crisis phenomenon, yet the increase is also likely to reflect that loans from family and friends were a separate question in the second wave. The questionnaire was adjusted to this effect because loans from family and friends were found to be a relevant debt component in the first wave.

Table 20 also compares conditional medians. Under real assets, the conditional median increased distinctly for real estate property. For the main residence, the conditional median increased by 25%, from around EUR 200,000 to some EUR 250,000. For other real estate property, the conditional median rose even more substantially, by about 32%. The median for direct investments in self-employment businesses fell from around EUR 181,000 to around EUR 163,000. This may reflect a more pessimistic sentiment among owners of private businesses, which may have prompted them to report lower market values for their businesses. However, when we add real estate property directly owned by households but used for business, the overall value of investments in self-employment businesses reported in the second wave was actually slightly above the value reported in the first wave.

The median values for financial assets tended to increase slightly. For savings accounts, the median value rose from around EUR 12,000 to around EUR 14,000. For higher-risk investments, such as mutual funds and shares, the median values grew somewhat more. Only publicly traded shares saw a slight decrease. Even robust median values, however, have to be interpreted with caution for less common components, not least because higher-risk assets are mainly held by wealthier households for which coverage and underreporting problems are of special relevance.

With regard to debt, developments diverged in different directions between secured and unsecured debt. While outstanding amounts of secured debt and its components were substantially higher in the HFCS 2014, the median values for unsecured debt and its components remained broadly stable. For example, the median value for outstanding loans using the main residence as collateral increased from around EUR 37,000 to around EUR 60,000 and for loans secured by other real estate from around EUR 36,000 to around EUR 53,000. Yet these increases may result not only from additional new loans; they may also be related to the phenomenon of bullet loans, which are very often foreign currency loans. Here, the amounts borrowed remain outstanding until the loans are cleared in full upon maturity. However, the euro equivalent of those outstanding amounts has since increased given the unfavorable development of the Swiss franc.

Under unsecured debt, the two most important components in relative terms – unsecured (consumer) loans and overdrafts (sight account credits) – decreased slightly. The median of unsecured debt fell from around EUR 8,000 to some EUR 6,000. Overdrafts only saw a minor decline, from around EUR 1,200 to EUR 1,000.

The mean values are strongly influenced by the values recorded at the upper tail of the distribution. This also becomes evident in the variance estimations (see table A2 in the annex). This effect is stronger for wealth components that are held by just a few households and typically households at the top of the wealth distribution, such as bonds. Their mean value dropped sharply from about EUR 103,000 to about EUR 34,000, probably due to a combination of the two aforementioned phenomena. Only very few households are invested in bonds. As a result, the conditional mean value can be pushed up sharply by a few randomly sampled households with particularly high holdings. At the same time, bonds are mainly held by wealthy households. Lower coverage of this group will not only affect the mean value; at the right tail of the distribution even robust statistics might be affected quite strongly given the skewness of the distribution. We illustrate this problem in chart 20.

In general, the lower response rate (around 6 percentage points) in the second wave of 2014, its selectivity and necessarily imperfect corrections using weights would imply that the top end of the distribution is subject to lower coverage and higher underreporting (especially for financial assets) than in the first wave of 2010. For this reason, the comparability of the respective means or totals is limited.

In the case of real assets, the conditional means of real estate property have risen sharply. In particular, the mean value of main residences – albeit strongly influenced by very high values – is based on almost the entire upper half of the net wealth distribution and therefore is less problematic than the mean value of other real estate property. The latter is characterized by a low participation rate and is mainly held by very wealthy households. The mean value of investments in self-employment businesses is slightly lower in the HFCS 2014 than in the HFCS 2010. This may reflect a more pessimistic economic sentiment among business owners, or a comparatively larger allocation of businesses to other real estate property used for business than in 2010. Again, this is a particularly sensitive measure since investments in self-employment businesses have been made by only a few, but especially wealthy households.

In the case of financial wealth, the mean values are lower in the HFCS 2014 than in the HFCS 2010 almost across the board. This must mainly be due to HFCS survey problems because we know from the national accounts data that the total stock of financial assets held by the household sector in fact increased in the reference period (namely to EUR 604.7 billion by the end of 2015). It has to be assumed that the problem of underreporting of financial assets (especially at the right tail of the distribution) is even higher in the HFCS 2014 than it was in the HFCS 2010.

In the case of sight and saving accounts, the medians rose while the mean values fell. These wealth components are held by almost all the population, and valuation problems were very rare during the survey. The data thus point to underreporting, especially at the top end of the distribution.

This type of uncertainty does not constitute a major problem for

Table 20

## 2010 versus 2014: components of net wealth

| | | 2010 | | | 2014 | | |
|---|---|---|---|---|---|---|---|
| | | Participation | Conditional median | Conditional mean | Participation | Conditional median | Conditional mean |
| | | % | EUR thousand | | % | EUR thousand | |
| Real assets | vehicles | 74.9 | 8.0 | 13.1 | 76.6 | 7.5 | 10.9 |
| | main residence | 47.7 | 200.0 | 258.1 | 47.7 | 250.0 | 288.7 |
| | other valuables | 23.6 | 3.9 | 12.8 | 16.2 | 3.8 | 19.0 |
| | other real estate property | 13.4 | 94.0 | 227.9 | 12.1 | 124.4 | 330.5 |
| | investment in self-employment business (incl. farms) | 9.4 | 180.6 | 731.4 | 7.0 | 163.0 | 688.4 |
| Financial assets | sight accounts | 99.0 | 0.7 | 3.2 | 99.3 | 1.0 | 2.6 |
| | saving accounts | 87.1 | 11.7 | 30.1 | 85.3 | 13.5 | 26.9 |
| | savings plans with building and loans associations | 54.7 | 3.4 | 5.3 | 49.2 | 4.0 | 6.7 |
| | life insurance contracts | 38.0 | 11.1 | 26.9 | 38.3 | 12.4 | 22.4 |
| | voluntary private pension plans | 17.7 | 8.1 | 23.4 | 14.5 | 9.1 | 24.7 |
| | mutual funds | 10.0 | 11.2 | 55.4 | 10.0 | 15.1 | 44.1 |
| | money owed to household | 10.3 | 2.6 | 15.8 | 8.3 | 2.1 | 12.9 |
| | stocks | 5.3 | 7.1 | 26.9 | 5.4 | 10.4 | 24.5 |
| | bonds | 3.5 | 13.8 | 102.9 | 4.0 | 11.7 | 34.0 |
| | other financial assets[1] | 1.6 | 7.7 | 64.5 | 1.5 | 10.0 | 71.6 |
| Debt | collateralized debt | 18.4 | 37.5 | 76.3 | 16.7 | 60.4 | 89.5 |
| | main residence | 16.6 | 37.3 | 72.7 | 15.5 | 59.9 | 89.0 |
| | other real estate property | 2.4 | 36.4 | 80.2 | 1.5 | 53.0 | 75.7 |
| | uncollateralized debt | 21.4 | 3.0 | 12.7 | 20.6 | 2.9 | 11.1 |
| | overdrafts | 13.6 | 1.2 | 2.3 | 12.3 | 1.0 | 2.3 |
| | noncollateralized loans | 11.1 | 8.0 | 21.5 | 11.7 | 6.2 | 16.8 |
| | loans from family and friends | 0.9 | 3.2 | 10.1 | 4.8 | 2.9 | 7.8 |
| | outstanding balance on credit cards | 1.5 | 0.5 | 1.0 | 1.4 | 1.3 | 2.7 |

Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.

[1] The presentation has been slightly altered compared with the report on the results from the first wave. The values reported under "other financial assets" in the first wave were 2.3%
for participation, EUR 4,722 for the conditional median and EUR 45,846 for the conditional mean. The differences between these values and those published in this report are due to a
change in definition. In the first wave, households with trust accounts who said that they had reported the values under other individual positions were included in "participation," but
their values were set to zero to avoid double counting; in this report, by contrast, these households are set to zero already under "participation," i.e. they are treated like households
without trust accounts. Using the old definition would yield the following values: participation: 2.3%; conditional median: EUR 4,157; conditional mean: EUR 47,138.

economic models in which a high number of variables is used in parallel. It is however a serious problem for estimating mean values and other nonrobust statistics and population parameters, such as the Gini coefficient and top shares. This problem could only be remedied with oversampling on the basis of a priori information on the actual distribution of wealth in combination with a mandatory survey.

In the following, we compare conditional medians for selected socioeconomic household characteristics.

Chart 17 shows that households with older reference persons have rela-

tively higher net wealth than households with younger reference persons in the HFCS 2014 compared with the HFCS 2010.

Chart 18 presents the medians of net wealth by tenure status of the household main residence for the HFCS 2010 and the HFCS 2014. While the median net wealth was around EUR 241,000 for homeowners in the HFCS 2010, it reached around EUR 301,000 in the HFCS 2014. This increase of about 25% roughly corresponds to the increase in the value of the main residence. In contrast, tenants had a median net wealth of around EUR 11,500 in

Chart 17

**2010 versus 2014: median values of net wealth by age of reference person**

*EUR thousand*
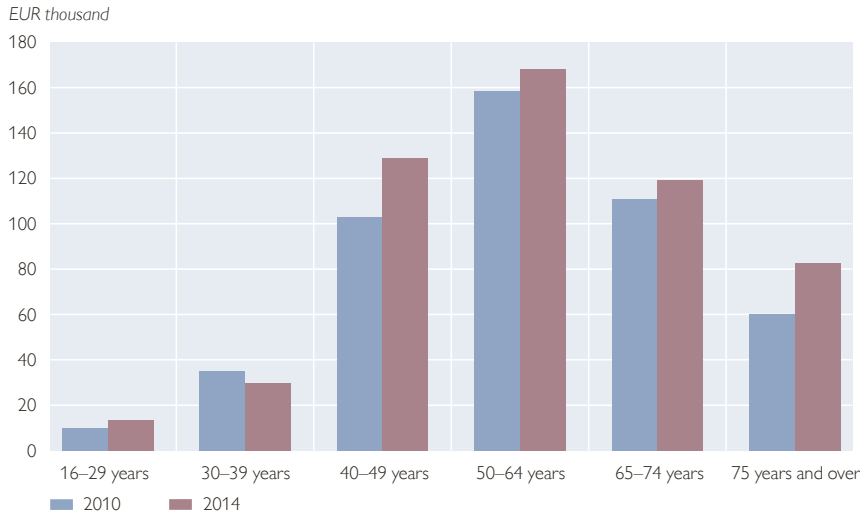


Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.

the HFCS 2010, which remained broadly unchanged in the HFCS 2014 (EUR 11,300). When interpreting this result, it has to be borne in mind that the HFCS samples of 2010 and 2014 do not include the same tenants and that the population has changed, given deaths and household fluctuations (new households and changes in household members). Nevertheless, both samples are representative of Austrian tenant households at the relevant time.

When it comes to wealth, we must think of two worlds: the world of main residence owners and the world of tenants. The latter have some financial assets but very little real assets. Their wealth has not increased since the HFCS 2010 and they cannot keep up with homeowners in a comparison of wealth. The group of nonowners is among the losers of the financial and economic crisis, whereas the group of homeowners is among the winners. The absence of wealth increases among tenants shows that building ownership cannot provide short-term economic policy solutions in a world polarized

with regard to wealth. The assets of tenants are too low to build ownership, and such low assets are needed to offset short-term income fluctuations.

A comparison of wealth inequality based on the HFCS 2010 and the HFCS 2014 evidences the need for differentiated statistical analyses. It would be wrong to give a simple answer to the question as to whether inequality in

Chart 18

**2010 versus 2014: median values of net wealth by main residence**

*EUR thousand*
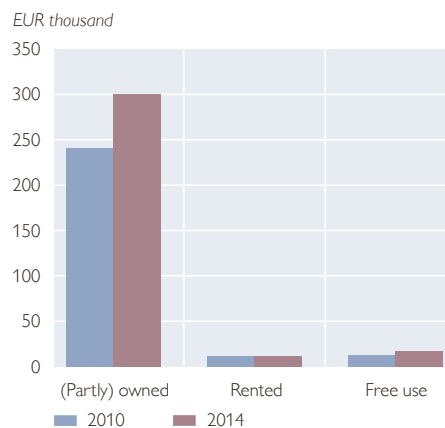


Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.

Table 21

**2010 versus 2014: inequality measures**

| | | 2010 | | 2014 | |
|---|---|---|---|---|---|
| | | Gross wealth | Net wealth | Gross wealth | Net wealth |
| Inequality measures | Gini coefficient[1] | 0.73 | 0.76 | 0.71 | 0.73 |
| | GE(2)[2] | 4.0 | 4.5 | 10.2 | 11.5 |
| | P75/P25 | 22.4 | 24.3 | 27.0 | 28.6 |
| | P90/Median | 6.2 | 7.1 | 5.4 | 6.0 |
| | P90/P10 | 233.7 | 581.1 | 251.8 | 521.2 |
| | | % | | | |
| Top shares | Top 1 | 21.7 | 22.9 | 23.9 | 25.4 |
| | Top 5 | 45.5 | 47.6 | 41.6 | 43.4 |
| | Top 10 | 58.8 | 61.1 | 53.5 | 55.5 |
| | Top 20 | 74.4 | 76.6 | 70.0 | 72.1 |
| | Lower half | 3.9 | 2.8 | 4.0 | 3.2 |

*Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.*

[1] *The Gini coefficient may take a value greater than 1 if the data contain negative values.*
[2] *GE(2) is a generalized entropy index where $\alpha = 2$.*

wealth has increased or decreased in Austria since 2010. The Gini coefficient of net wealth shows a reduction (statistically not significant at a 5% level of significance[19]) from 0.76 in 2010 to 0.73 in 2014. At the same time, though, there has been a significant increase in the GE(2) measure, which is more sensitive to development at the tails.

When we compare HFCS 2010 and 2014 data, we find the top shares in wealth – top 1, top 5, top 10 and top 20 – to have developed in different directions. While most top shares in overall wealth have declined, pointing to a more equal distribution, the top 1% share has increased, pointing to an increasing concentration of wealth. Especially with such small shares (top 1 = some 30 households surveyed), the risk of sampling errors must be considered. Moreover, there is the problem of covering the population at the right tail, as discussed above, which appears to have worsened in the HFCS 2014.

Charts 19 and 20 illustrate the significance of the coverage problem at the right tail. As discussed, the nonresponse rate increased by 6 percentage points in the second wave of 2014, and this increase is likely to have affected mainly the upper half of the distribution.[20] Charts 19 and 20, which compare the wealth distributions as identified by the 2010 and 2014 HFCS surveys, also show the impact of a hypothetical 1-percentile shift in the 2014 distribution. This is to illustrate how nonresponse by a small percentage of households changes the distribution when occurring at the upper tail.
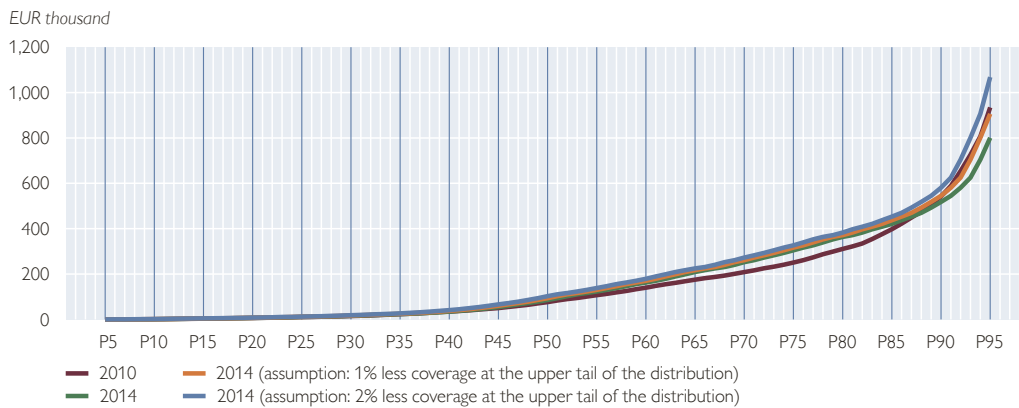
The wealth distributions of 2010 and 2014, shown from P5 to P95, intersect several times. This means that certain parts of the distributions became more unequal and others more equal. The slope of the curve perceptibly flattens in the upper middle section, reflecting above all the rising value of main residences. However, at

[19] *Testing whether the difference of the two statistics significantly differs from zero is questionable anyway, given the likelihood of differences in coverage and reporting (see Manski, 2003, and American Statistical Association, 2016).*

[20] *See explanations for table 20.*

Chart 19

**2010 versus 2014: distribution of net wealth from the 5th to the 95th percentile**

*EUR thousand*



Legend:
— 2010
— 2014 (assumption: 1% less coverage at the upper tail of the distribution)
— 2014
— 2014 (assumption: 2% less coverage at the upper tail of the distribution)

*Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.*

the very top of the distribution (not shown in the chart), the distribution curve for 2014 steepens again, intersecting the distribution curve for 2010 once more in the top percentile. In the case of such diverging developments reflected by intersecting quantile functions (or Lorenz curves), the Gini coefficient is of little use. Shifting the distribution curve for 2014 to the left by a mere 1 or 2 percentiles to illustrate uncertainty – assuming, say, more non-responses and therefore poorer coverage at the top tail of the distribution[21] – puts the 2014 curve clearly above the 2010 curve at the top end.

Chart 20 shows the absolute differences between the percentiles of 2010 and 2014, indicating the distances between the lines shown in chart 19. Again, the chart does not depict the final reversal of the differences measured at the top of the distribution, causing the blue curve (distribution observed in 2014) to return to a level above zero. Likewise, the intersections occurring at the bottom tail cannot be made out because the differences are too small. What the chart clearly
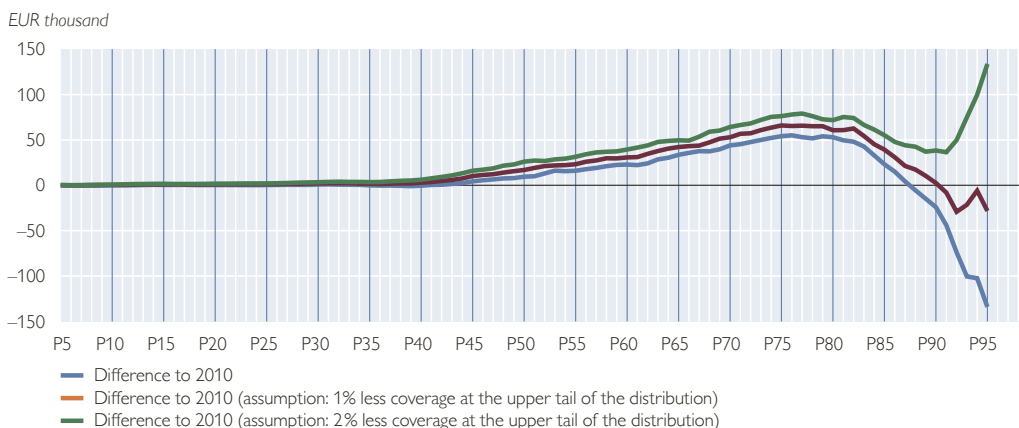
shows, though, is that the impact of a shift of the 2014 distribution by 1 or 2 percentiles to the left, i.e. slightly poorer coverage at the top tail, remains highly limited up to the 85th or 87th percentile or so. By the 95th percentile, though, the distribution is so skewed that this shift would result in a considerable increase, by around EUR 150,000, rather than the actual decline by roughly EUR 150,000. In other words, the picture would be reversed. Essentially, this hypothetical shift underlines the uncertainty to which the estimates are subject with regard to coverage and underrepresentation. However, conditional on coverage, the replicate weights (see table A2 in the appendix) provided for the HFCS dataset allow for the correct estimation of the variance for all estimators, taking into account the realized complex sample and multiple imputations.

Having analyzed the data generated in the HFCS for Austria, we do not conclude that it is impossible to make any judgments about the wealth distribution, but rather that the data primarily warrant middle-range analyses, and

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[21] *The simple shift applied here implies that the coverage of the population included in the top 5% share of the actual distribution is lower by 1.01% or 2.04%.*

Chart 20

**Difference in net wealth between 2010 and 2014 from the 5ᵗʰ to the 95ᵗʰ percentile**

*EUR thousand*



Difference to 2010
Difference to 2010 (assumption: 1% less coverage at the upper tail of the distribution)
Difference to 2010 (assumption: 2% less coverage at the upper tail of the distribution)

*Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.*

that better data are needed to analyze the top tail of the distribution. While estimations for the top tail (see Vermeulen, 2016) may provide indications of actual inequality, they are no substitute for the combined distributions of various characteristics existing for other ranges of the distribution and do not permit analyses of wealth in a socioeconomic context. See Manski (2003) for a detailed theoretical overview of the issue of coverage and its consequences for estimating population parameters.

## 6 Concluding remarks

This report gives a first overview of the results from the second wave of the Eurosystem HFCS in Austria. The HFCS has essentially been designed to provide insights into the balance sheets of households, i.e. into their wealth and debt situation. The HFCS generates an extensive set of data which enable the analysis of a broad range of issues related to the maintenance of monetary and financial stability as well as general economic policymaking. This first report, together with the methodological notes (Albacete et al., 2016b), presents key findings and offers an introduction to research based on HFCS data.

The main HFCS results for Austria are as follows:

The distribution of the individual components of net wealth varies considerably. While almost all households hold financial assets, less than one-half of Austrian households own their main residence or have partial ownership thereof (about 48%). Only about 34% of households have debt, most commonly in the form of mortgages taken on the household main residence or other property. The size of real assets exceeds the size of financial assets. Among real assets, investments in self-employment businesses are particularly unequally distributed. Among financial assets, riskier investments with lower participation rates are less equally distributed.

Household wealth tends to increase with age, income and education. Debt is positively correlated with wealth and high income. Households with unsecured and comparatively low small loans tend to struggle most with their finances. Therefore, the risks arising from household debt to financial stability are low in sum.

All in all, the distribution of net wealth is very unequal in Austria. Amid the financial and economic crisis, the distribution has remained stable.

HFCS-based estimates of the inequality of wealth distribution in Austria are downward biased. Problems of inadequate statistical coverage of wealth persist because of coverage and underreporting problems. For economic measures of such importance for society at large, like wealth, data availability is inadequate. Improving data availability must therefore become a policy objective.

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# Appendix

## Wealth and debt percentiles

|  | Real assets | Financial assets | Debt | Net wealth |
|---|---:|---:|---:|---:|
|  | *EUR thousand* | | | |
| P5 | 0.0 | 0.0 | 0.0 | −0.3 |
| P10 | 0.0 | 0.5 | 0.0 | 1.0 |
| P20 | 1.0 | 2.8 | 0.0 | 6.4 |
| P30 | 4.3 | 6.0 | 0.0 | 15.8 |
| P40 | 11.2 | 9.9 | 0.0 | 34.4 |
| P50 | 60.0 | 15.3 | 0.0 | 85.9 |
| P60 | 155.0 | 22.2 | 0.0 | 162.5 |
| P70 | 250.8 | 33.5 | 0.8 | 252.5 |
| P80 | 332.5 | 50.9 | 7.4 | 363.8 |
| P90 | 465.4 | 86.6 | 52.9 | 518.1 |
| P95 | 715.0 | 139.5 | 109.1 | 800.6 |

*Source: HFCS Austria 2014, OeNB.*

## Variance estimation: participation, median and mean of selected wealth components

|  |  | 2010 | | | 2014 | | |
|---|---|---:|---:|---:|---:|---:|---:|
|  |  | Participation | Conditional median | Conditional mean | Participation | Conditional median | Conditional mean |
|  |  | % | *EUR thousand* | *EUR thousand* | % | *EUR thousand* | *EUR thousand* |
| Real assets |  | 84.8 | 107.0 | 277.4 | 84.5 | 139.7 | 280.9 |
|  |  | (1.02) | (7.46) | (60.52) | (0.64) | (7.18) | (37.55) |
|  | main residence | 47.7 | 200.0 | 258.1 | 47.7 | 250.0 | 288.7 |
|  |  | (1.33) | (3.94) | (11.93) | (0.58) | (8.38) | (11.37) |
| Financial assets |  | 99.5 | 13.5 | 46.9 | 99.8 | 15.4 | 38.5 |
|  |  | (0.14) | (0.86) | (6.68) | (0.12) | (0.64) | (1.97) |
| Debt |  | 35.6 | 13.8 | 47.0 | 34.4 | 12.4 | 50.1 |
|  |  | (1.36) | (3.15) | (11.31) | (1.06) | (1.57) | (3.23) |
|  | secured debt | 18.4 | 37.5 | 76.3 | 16.7 | 60.4 | 89.5 |
|  |  | (1.05) | (11.36) | (21.71) | (0.73) | (5.82) | (6.16) |
|  | unsecured debt | 21.4 | 3.0 | 12.7 | 20.6 | 2.9 | 11.1 |
|  |  | (1.17) | (0.37) | (2.07) | (0.94) | (0.45) | (1.46) |
| Net wealth |  | 100.0 | 76.4 | 265.0 | 100.0 | 85.9 | 258.4 |
|  |  | (x) | (10.96) | (47.85) | (x) | (5.59) | (32.06) |

*Source: HFCS Austria 2014, OeNB.*

*Note: Standard errors are based on 1,000 replicate weights.*