Wealth as a Distinct Dimension of Social Inequality

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Most importantly, I thank my family for their great and constant support.

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1   PREFACE

In recent times, the topic of wealth inequality has attracted a lot of media attention. In 2011, the two psychologist *Michael Norton* and *Daniel Ariely* published an article about a survey they conducted (Norton and Ariely 2011). In this survey, they asked a nationally representative online panel of US American citizens about their perception of the actual and about their desired level of wealth inequality in the USA. They found firstly, that respondents think that wealth is substantially more evenly distributed in the United States than it actually is. While the respondents expected the top quintile of the US American wealth distribution to hold 60 per cent of total net worth, in fact the authors report them to hold 80 per cent. Secondly, respondents at all income levels said that they would prefer wealth to be even more equally distributed than they expected it to be. These findings triggered a wide-ranging discussion about the societal consequences of high levels of wealth inequality.

A second study that attracted large media attention, this time especially in Europe, was the "*Household Finance and Consumption Survey*" (HFCS). The first wave of the HFCS has been conducted in 2010 and 2012. In early 2013, the national central banks published first results of this survey. These results triggered a wide-ranging discussion on the adequateness of rescue packages for the financially troubled Mediterranean countries in the Eurozone area. The German Central Bank (GCB) results showed that "the households in bailed-out countries have more net assets than those in countries which paid out funds for the rescues" (Reuters 2013). Most notably, in Germany, "the bloc's paymaster" (Reuters 2013) households possess less than a third of median net worth of those households in Italy or Spain. The GCB names the low home-ownership rate, low house prices and a high number of single-person households in Germany as compared to Italy and Spain as the main reason for these differences in levels of private wealth (Deutsche Bundesbank 2013).

Only a couple of months ago, the French economist *Thomas Piketty* (2014) published an English version of his book "Capital in the Twenty-First Century" (the original French version was published in 2013 under the title "Le Capital au XXIe siècle"). In this book, the author focuses on

wealth and income inequality in Europe and the USA since the 18th century. The argumentation of the book is based on the formula $r>g$, derived from economic growth theory, which states that over the long run, the rate of return on capital *(r)* is greater than the rate of economic growth *(g)* meaning that wealth grows faster than economic performance, which means that inherited wealth will grow faster than earned wealth. Thus, capitalism leads to extreme inequalities in wealth that can cause discontent and undermine democratic values, unless these inequalities are offset by political forces. This publication caused a lot of critical feedback, regarding Piketty's theoretical argumentation (e.g. Bofinger 2014; Rogoff 2014; Sinn 2014), as well as the database he used for his empirical analyses (e.g. by Giles 2014). Due to the large impact of this book, I will give a more detailed overview of Piketty's main arguments and findings, but also on the main points of critique of his work here. In my conclusions section, I will then discuss my findings in the light of Piketty's work.

Piketty's book is a collection of extremely rich and informative work on the role of personal wealth and inheritance for economic inequality. His detailed description of the distribution and concentration of wealth starts in the eighteenths century covering all continents, with comprehensive information for France, UK, USA, Germany, Canada and Sweden. With this book, Piketty is continuing the extensive work on the concentration of income, which he conducted in the past, documented in a number of journal publications (e.g. Piketty and Saez 2003; Atkinson, Piketty, and Saez 2009; Atkinson and Piketty 2007; Atkinson and Piketty 2010). In "Capital in the Twenty-First Century" Piketty expands his perspective to a much broader topic: an analysis of capitalism.

The book consists of four parts, divided into 16 chapters. The first part ("Income and Capital") lays the foundation for the following parts and consists mainly of basic ideas, among them definitions and important relationships, which are repeatedly used throughout the book. The second part ("The Dynamics of the Capital/Income Ratio") focuses on the long-run evolution of the capital-income ratio as well as the functional distribution of national income, differentiating between labor income and capital income. The third part ("The Structure of Inequality") is an

analysis of inequality and distribution of wages, property income and wealth at the individual level. Moreover, Piketty describes the historical dynamics in inequalities in income and wealth. This part finishes with prospects for the global distribution of wealth. Finally, in the fourth part ("Regulating Capital in the Twenty-First Century"), Piketty derives normative lessons and policy implications from the findings of his book.

The main objective of Piketty, though not stated by himself, "is nothing less than a unification of growth theory with the theories of functional and personal income distributions, and thus a comprehensive description of capitalist economy" (Milanovic 2014: 520). The similarity of Piketty's book to the work of Marx is not by chance. In the tradition of the classics of economics like Marx, Malthus or Ricardo, Piketty develops a model of the capitalist economy which he then uses to describe and explain the past and present and, most importantly, to predict the future. Piketty's model comprises one definitional relationship, two fundamental economic laws of capitalism (termed so by Piketty himself), and one inequality relationship (cf. Milanovic 2014).

The definitional relationship links the stock of capital (K) (or wealth) to the flow of income (Y): $K/Y=\beta$. The ratio between K and Y is termed β (Piketty 2014: 50f.). Based on historical data from France, the United States and the United Kingdom, Piketty states that β until today has followed a U-shaped pattern (Piketty 2014: chapter 3; Milanovic 2014). While it was on a very high level before the First World War, it decreased throughout the First and Second World War for about 50 years and is increasing again for the last 30 years, with a level coming close to the one before the First World War. Piketty goes on to claim that the U-shaped pattern of β is a process all advanced capitalist economies go through. This finding becomes even more significant when β is linked to Piketty's first economic law of capitalism and his inequality relationship.

The first fundamental law of capitalism states that the share of capital incomes in total national income (α) is equal to the real rate of return on capital (r) multiplied by β (Piketty 2014: 52f.): $\alpha=r \times \beta$. This relates to Piketty's inequality relationship ("the fundamental force for divergence", Piketty 2014: 25), stating that the return on capital (r) remains perma-

nently above the rate of growth of the economy (g): $r>g$. This relationship he derives from historical data. Although, he is aware of the fact that the force for "divergence is not perpetual and is only one of several possible future directions for the distribution of wealth" (Piketty 2014), this inequality relationship is the lynchpin of Piketty's model of capitalist economy. At the same time, it is the most controversial one. Applying this relationship, α increases by definition. In combination with the increasing β, the share of capital income in national income is moving towards one (Milanovic 2014). This is a self-reinforcing process. If α increases, capital owners become richer and, assuming that they do not directly consume their capital gains, they have more capital for reinvestments, which in turn leads to a further increase in r over g and thus leads to a further increase in β (cf. Milanovic 2014: 522). If we accept it as a fact that β is rising in advanced capitalist economies, and if we accept Piketty's laws and definitional relationships, then in the future, the distribution of national income will change in favor of capital income and the personal income distribution will become even more unequal.

The second fundamental law of capitalism refers to the long-run determination of the capital/income ratio β and is derived from basic growth theory. It claims that β in the steady state is equal to the savings rate (s) divided by the rate of growth of the economy (g): $\beta=s/g$ (Piketty 2014: 166). This means that if a country saves a lot but grows slowly (as can be observed in advanced capitalist economies), it will accumulate a huge stock of capital in disfavor of labor income in the long run, which in turn will result in ever increasing inequalities in both, income and wealth. Due to Piketty's understanding, modern capitalist societies are thus inevitably moving towards increasing wealth inequality.

In his last chapter, Piketty gives a number of suggestions to dam up the wealth inequality run based on the inequality relationship $r>g$. He claims, that the only way to reverse this relationship – under the assumption that g is exogenously given – is to reduce r (cf. Milanovic 2014: 532). Most controversially discussed, Piketty suggests a global wealth tax (combined with an increase in income tax progressivity and estate taxation), being aware of the fact that this is a utopian idea. If a subset of all countries introduces such a tax, the outflow of capital to other countries

is the logical consequence. Thus, it will only work through international collaboration, which is very unlikely, as long as there exists a meaningful number of countries profiting from the "opacity of financial transactions" (Milanovic 2014: 532). In addition to this, emerging market economies will be very unlikely to implement such a wealth tax. Milanovic (2014) however claims that Piketty's suggestion is not completely utopian. He states, for example, that in most countries, the introduction of a wealth tax would be rather easy in technical terms, as housing wealth but also inheritances are already taxed in a reasonable number of countries for quite some time. An expansion to the other forms of capital should therefore not be too difficult, as the market value of most capital forms is easy to ascertain and the owner is easy to identify (Milanovic 2014: 532).

Piketty's book caused many controversial discussions. Most of the critique he received for his inequality relationship r>g. Piketty's whole model depends on the validity of this argument. Based on his historical data, Piketty claims that r has been mostly stable during the last two centuries, although the K/Y ratio was not (Milanovic 2014: 525). Two major points of critique have been raised here. The first claims that Piketty's inequality relationship is actually not supported by the data. The second claims that the inequality relationship is running against the fundamental laws of economic theory.

As to the first point of critique, Milanovic (2014: 527) optimistically understands the inequality relationship, which is dependent on the stability of r in times of capital deepening, "as an empirical proposition whose accurateness will be confirmed or not by future developments". Acemoglu and Robinson (2014) are much more critical claiming that the assumption that the level of inequality is actually linked to r and g is not clearly supported by the data. Using cross-country panel data, Acemoglu and Robinson (2014) cannot find evidence for a significant relationship between r and g on the one hand and the level of inequality on the other hand.

Regarding the second point of critique, Milanovic (2014: 526) claims that Piketty's inequality relationship, though the empirical evidence he provides as well as his argumentation are persuasive – might oppose one of

the fundamental laws of economics, namely the law of decreasing returns to an abundant factor of production (i.e. the law of diminishing returns). The inequality relationship strongly depends on the relative stability of the rate of return on capital in the face of capital deepening. If for some reason r equals g, then Piketty's whole model would fail. Acemoglu and Robinson (2014) claim that there exist a number of cases, where the capital interest rate needs not exceed the growth rate. These are economies with an exogenous saving rate, with overlapping generations, or with incomplete markets. Only in economically efficient economies will r exceed g, which is however a question to be answered empirically. Davies (2015: 158) joins the critique about the inequality relationship, blaming Piketty for not taking into account countervailing factors to the inequality relationship. He strongly advices taking into consideration the micro foundations of wealth inequality. As an example, he mentions that generous public pensions, health insurance, as well as other state benefits might have reduced the need for private saving for a large share of the population, contributing to both the decline in wealth inequality in the 1970s and its rise thereafter. The recently growing importance of private provision shall increase private savings especially in parts of the population who have not saved before and might in turn "act as a brake on rising wealth inequality".

Related to this critique, Krusell and Smith (2014: 3) criticize Piketty's second fundamental law of capitalism. They state that Piketty's formula – $\beta=s/g$ – is not consistent with the textbook model of growth theory where $\beta=s/(g+\delta)$, with δ being the rate at which capital depreciates. Applying the latter formula, if growth decreases, the capital output ratio would increase, but not substantially; and, when growth falls to zero, β would not become infinite (mathematically) or 100% (economically) (Krusell and Smith 2014: 3). In Piketty's version of the formula, they demonstrate that if growth approaches zero, then the aggregate saving rate shall be 100% of GDP each year, which is highly implausible. The authors go on to compare Piketty's model to a standard, alternative theory – the optimal saving theory. Applying aggregate data from the US, they find the data to disagree with Piketty's assumption, much more supporting the optimal saving theory. Krusell and Smith (2014: 2) close with suggesting that future developments of other determinants of

wealth inequality, like educational institutions, skill-biased technical change, globalization, and changes in the structure of capital markets, might be much more fundamental for a change in wealth inequality. An argument similar to the one of Davies, mentioned above.

Although Piketty's book is very much related to the topic of my thesis, there are some important differences, which I like to highlight here. Firstly, our research aims are completely different. While Piketty is interested in an analysis of capitalism, formulating general laws to diagnose and predict levels of wealth inequality, my interest is much more of a descriptive nature. My main research motivation is to find theoretical support and empirical evidence for the establishment of wealth as a distinct dimension of social stratification. This I will do through describing and analyzing the determinants, dimensions and consequences of wealth (inequality) and differentiating them from those of income. Secondly, while Piketty's work is a historical study, my work is a pure contemporary study of the current distribution of wealth. The third difference refers to the data we use. While Piketty makes use of fiscal data, I use survey data. Related to this is the fourth difference, our understanding of wealth inequality. Piketty argues that the best way to understand wealth inequality is to look at the concentration of wealth, focusing on (the top) wealth shares. He even goes as far as to explicitly condemn the use of the Gini coefficient, which due to Piketty gives an abstract and sterile view of inequality and has no intuitive meaning. Although fiscal data has some undeniable advantages, but also disadvantages, as compared to survey data, I agree with Milanovic (2014), that abandoning the use of survey data and the use of the Gini coefficient is not a good solution and can lead to misleading results. A sole focus on the top wealth distribution does completely ignore the middle and the bottom of the distribution and is thus not well-suited for understanding the nature of inequality (Acemoglu and Robinson 2014). This is demonstrated by Acemoglu and Robinson (2014). By comparing two countries, which show similar concentrations of wealth (referring to the top 1% of the wealth distribution), but differ a lot in their institutional frameworks and historical backgrounds, namely Sweden and South Africa, they show that the distributions of wealth in these countries differ a lot as well. In my study, I solely focus on survey data, which can be explained by my

specific research interest. In contrast to Piketty, I am interested in the whole distribution of wealth. Trying to understand the nature of wealth inequality, it is essential for me to understand what happens at the bottom, the middle and the top of the wealth distribution. Fiscal data is by definition filed by a selective share of the population: those who pay taxes. Moreover, those who pay taxes might have a strong incentive to underreport their assets. Finally, taxes are not paid by individuals, but by fiscal units, who might change with changing laws of taxation (cf. Milanovic 2014). In the light of these problems, I opted to work with survey data as a more appropriate data source for my certain research interest.

Finally, as a sociologist, I have a "natural" interest in the role of institutions. Responding to the critique of Davies (2015) and Krusell and Smith (2014), as explained above, but also Acemoglu and Robinson (2014), blaming Piketty for his ignorance of institutions, in my thesis, I discuss and analyze the role of institutions for the evolvement of inequalities in wealth, most explicitly so in chapter 5. Considering the role of institutions, I am also referring to Myles and Myers (2007) who claim that a major strength of the sociologist perspective for the analysis and understanding of social inequality, compared to the economic one is the consideration of the role of organizations and institutions.

Besides the public attention of the wealth topic these three studies attracted, at the same time, they clearly indicate to the need for substantial wealth research. Many basic questions are still unresolved. For example, it is still not clear how wealth is distributed across countries and in how far this distribution resembles the distribution of income. Further, there is very little information on the composition of wealth, the meaning of wealth inequality in terms of social inequality, as well as the determinants and the consequences of wealth. With the present thesis, I aim to provide an answer to at least some of these questions.

1.1   MOTIVATION

Social stratification research until now has had an almost exclusive focus on inequalities solely deriving from the labor market, especially occupational status and income. These measures, however, represent only one

dimension of individuals' socioeconomic position (Spilerman 2000). They are essential mainly for the working population, and may therefore paint a one-sided or even inaccurate picture of social stratification and social inequality. The central role of wealth (understood as the value of nonhuman assets net of debts) in the process of social stratification has been largely neglected by sociological research in the past decades, which is a serious pitfall. As compared to income, wealth shares important characteristics, making it a more comprehensive measure of economic well-being. Income – as a cash-flow – is restricted to a certain point in time or minor time interval. In addition, income is generally restricted to times of labor market activity. Wealth – as a stock figure – is accumulated throughout the whole life-course. While income thus reflects an entity's short-term consumption level, wealth is better able to capture its long-term consumption potential, which is "the capacity [...] to maintain a particular standard of living" (Spilerman 2000: 497). In contrast to earned income that demands investment of time, effort, and working ability from individuals, wealth offers access to capital and goods independently of individual investments and abilities (Elmelech 2008). This has also implications for the understanding of poverty: while income poverty may often only last for shorter periods of time in a job career, poverty in wealth tends to be a long-term state in the life course (Elmelech 2008). In addition, wealth can be transferred across generations, which can result in a perpetuation of wealth inequalities. Studying the distribution of wealth, as well as its sources, determinants and consequences is thus significant for an understanding of social stratification.

Despite the relevance of wealth for the process of social stratification, both, theoretical and empirical wealth research has almost exclusively been conducted in the field of economics for a very long time (e.g. Atkinson 1971; Davies and Shorrocks 2000; Gale and Scholz 1994; Lydall and Lansing 1959; Wolff 1996). The same, however, holds true for the broader issue of explaining economic inequality (i.e. the basic sociological question of "Who gets what and why?") (Myles and Myers 2007). Sociologist have remained almost silent on this issue in the last decades, being preoccupied with the question of "What determines individual attainment?" (Kenworthy 2007). This is very unfortunate, as sociology

can make important contributions to the study of wealth and economic inequality. Among the generic contributions sociology can make to the explanation of cross-national differences in household or family wealth[1] are the role of family dynamics and family demographics; the role of power; and the role of organizations and institutions (cf. Myles and Myers 2007: 581).

Very recently though, also sociology has become interested in studying wealth (e.g. Elmelech 2008; Keister and Moeller 2000; Kurz and Blossfeld 2004; Semyonov and Lewin-Epstein 2011; Spilerman 2000; Torche and Costa-Ribeiro 2012). So far, sociologists agree that wealth has to be treated as an additional dimension of economic well-being and socio-economic status, as income and wealth show only weak correlations (Keister and Moeller 2000; Spilerman 2000). Consequently, sociological scholars argue that neglecting wealth in the study of inequality would tell only parts of the social stratification story (Keister and Moeller 2000; Spilerman 2000; Elmelech 2008). The motivation of this thesis is to make a sociological contribution to the study of social stratification in terms of wealth.

1.2   THEORETICAL APPROACH

In general, my scientific work is based on the principle of methodological individualism. Although some chapters convey a strong macro-sociological perspective (e.g. chapter 5), I always understand social phenomena (e.g. levels of wealth inequality) as resulting from the motivations and actions of individual agents. I understand the individual actions and motivations, which result in social phenomena as being shaped by social institutions, norms and, structures. This is especially reflected in chapters 5 and 6. In these chapters, I analyze the impact of different institutional contexts (specifically, differences in public old-age pension systems) on the distribution of wealth (chapter 5) as well as the relationship between wealth and subjective well-being (chapter 6). My

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[1]   Myles and Myers (2007) actually refer to the study of economic inequality in terms of income. As an additional dimension of economic standing, alongside income, the same however applies to the study of wealth and wealth inequality.

theoretical approach is illustrated in Figure 1, which is based on the popular 'Coleman boat' (Coleman 1990), linking macro states and out-comes on the societal level with the logic of individual-level action.

1.3   DATA SOURCE

In general, there exist two major sources of wealth data: survey data and tax data (wealth taxes and estate tax data). Each type shares some ad-vantages as well as disadvantages. Problems of survey data are sampling- and non-sampling-errors. As the distribution of wealth is highly skewed, levels of inequality are likely to be underestimated. This issue can be solved, however, by oversampling the top wealth deciles, which is done by many surveys.

Figure 1: Methodological individualism based on Coleman (1990)
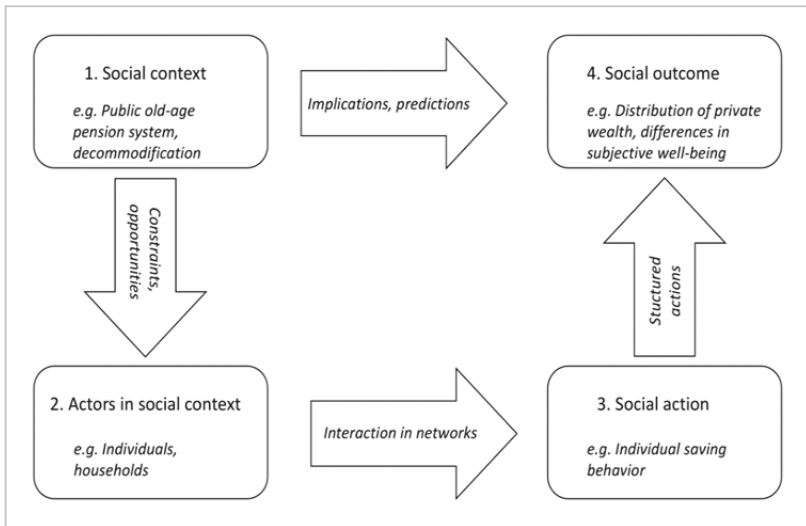
Note: Own illustration.

Typical non-sampling-errors in wealth surveys are item- and unit-nonresponse as well as mis- and underreporting, which are typical prob-lems of questions addressing financial aspects. Problems of item-nonresponse are normally tackled by applying a multiple imputation strategy for filling in missing values. Item-nonresponse is most likely to

appear for financial assets, and least likely to appear for housing values (cf. Davies 2011: 129). To correct for problems of unit-nonresponse, many surveys provide weights that correct for the low response rates, which are very often observed among the very poor and the very rich. In surveys, as compared to tax data, financial wealth has been found to be usually underreported, while values for real assets, particularly owner-occupied housing are normally very well reported.

In addition to the problems I already described above, the most severe problem of official tax statistics data is, that it neither captures foreign wealth nor can it fully account for the wealth of large family firms (because of their entrepreneurial activity, they pay only low taxes) which is also likely to result in an underestimation of first, the level of wealth and second, the level of wealth inequality. The data I use for my empirical analyses is mostly survey data, as will be described in the following.

Most of the empirical analyses presented in chapters 2-6 are based on the "Survey of Health, Ageing and Retirement in Europe (SHARE)". The SHARE is an international, representative panel study of the population aged 50 years and older. It is one of the very few surveys that provide detailed and internationally comparable information on the financial and housing situation of private households. Respondents are private persons aged a minimum of 50 years (targets persons for the first wave were individuals born in 1954 or earlier) and their spouses (regardless of their age) living in the same household.

Studying the distribution of wealth within the population segment of households that have either already entered retirement or are close to it allows me to investigate to what extent individuals have been successful in accumulating wealth over their life course. Nevertheless, it is a non-random fraction of the overall population and does thus not allow me to draw conclusions on the countries' overall population. For this reason, I make use of a second wealth data source in chapters 2 and 5. I derive aggregate-level data on the levels of private wealth and wealth inequality from the "Global Wealth Databooks" (GWD) published by the Credit Suisse Research Institute (2010, 2011, 2012, 2013). With these data books, the Credit Suisse Research Institute aims to provide the best available estimates of private wealth holdings for the world's 216 coun-

tries for the period since the year 2000. The wealth data presented in the GWD is derived from a variety of different sources, among them household balance sheet (HBS) data[2], survey data and "Rich Lists" (to derive an oversampling of the upper wealth tail). Unlike SHARE, the unit of analysis in the GWD is individuals, not households. The wealth measures of the GWD refer to individuals aged 20 or above. The usage of different data sources enhances the reliability of my results.

1.4 RESEARCH OBJECTIVE AND OUTLINE OF THE BOOK

The main research objective of the present thesis is to contribute to a broader understanding of social inequality by going beyond inequalities solely derived from the labor market and find theoretical support and empirical evidence for the establishment of wealth as a distinct dimension of social stratification and, more importantly, of social inequality. With *social stratification*, I am referring to the relative social position of individuals in a given social group, or other social unit. Social stratification becomes *social inequality* if access to these positions is unequal and if these positions are systematically related to advantageous or disadvantageous conditions of acting and living (Solga, Berger, and Powell 2009: 15). In the course of my thesis, I will show that both these conditions apply to wealth: first, access is unequal and second, being of higher (lower) wealth is related to advantageous (disadvantageous) conditions of living.

My thesis consists of five empirical studies that are knotted together by the common conception of wealth as a distinct dimension of social inequality. In order to find empirical support for this argument, in each study, I will approach the topic of wealth, or wealth inequality, from different perspectives. All studies represent theory-driven empirical analysis and are designed as international comparative studies. Each chapter contains specific information about the state of research, a theoretical framework, detailed information about the applied datasets as

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[2]   HBS data is usually a combination of survey and other data (Credit Suisse Research
        Institute 2010: 7).

well as information about its contribution to social stratification research.

By describing and comparing country patterns of income inequality to those of wealth inequality, *chapter 2* sets the scene for the following chapters. In a first step, I formulate theoretical arguments, why wealth has to be treated as a distinct dimension of social stratification alongside income, and, as a distinct dimension of social inequality. In this context, I also present a detailed definition of wealth by differentiating it from income. In the empirical part of this chapter, I describe national distributions of wealth and compare national patterns of wealth inequality to those of income inequality in 17 European countries and Israel.

Important for the analysis of social inequality in terms of wealth, however, is not only the distribution of wealth, but also the composition of wealth, as different types of assets are not only related to different advantages and disadvantages in terms of consequences of wealth, but can also inform about different sources of wealth (cf. Elmelech 2008: 60). The composition of wealth – with a particular focus on the distribution of owner-occupied housing as the quantitatively most important component of household wealth in most countries – I analyze in *chapter 3*. In this chapter, I also take a closer look at the income-wealth relationship, and I perform a decomposition analysis, in order to establish whether each particular wealth component has an equalizing or disequalizing effect on overall levels of wealth inequality.

If wealth is a distinct dimension of social inequality alongside income, this means that wealth not only has different characteristics than income, but also that wealth – and wealth inequality – and income – and income inequality – can differ in their sources (life-cycle wealth vs. transferred wealth) and determinants (e.g. education or ethnic origin), as well as in their consequences (e.g. differences in educational attainment, in health or in subjective well-being) (see also Figure 2).

Figure 2: Structural levels of social inequality
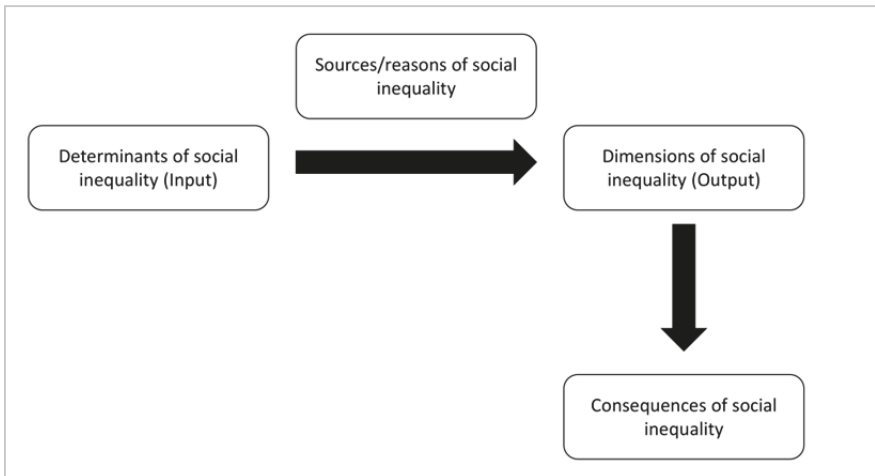
Note: Own illustration based on Solga et al. (2009:17).

Chapters 4-6 are dedicated to the determinants and consequences of wealth. Restricted to the data available today, I can unfortunately not empirically analyze the sources of wealth.

Chapter 4 focusses on owner-occupied housing, as the quantitatively most important component of household wealth in most countries. It sets the focus on micro-level determinants of wealth and wealth inequality. Moreover, it understands housing inequality as a two-dimensional phenomenon and explores the relationship between these two dimensions of housing inequality, homeownership rates and housing values. Doing this, it, however, also considers a macro-level determinant of wealth. In my empirical analyses, I study homeownership rates and housing values across 13 European countries.

Chapter 5 addresses the macro-level determinants of wealth. This chapter studies international differences in public pension systems as a determinant of international differences in, firstly, levels of wealth and, secondly, levels of wealth inequality. These relationships are studied across the 34 OECD and 6 non-OECD countries.

Finally, *chapter 6* examines the consequences of wealth by analyzing how an individual's position in the distribution of wealth influences his or her subjective well-being (SWB). This relationship is studied across three countries (Germany, Israel and Sweden); representing three different types of welfare state in order to additionally consider the possibility that macro-level factors might shape the influence of wealth on SWB. Just as chapter 4, it thus integrates the societal micro- and macro-levels.

In the *Conclusion*, I summarize and discuss the main findings of this thesis. By formulating intriguing questions that arise from my analyses, it provides an outlook on the potential for future research on wealth as a distinctive dimension of social inequality.

2   SETTING THE SCENE: PATTERNS OF INCOME AND WEALTH INEQUALITY

A slightly different version of this chapter has been published in *International Journal of Comparative Sociology* (Skopek, Buchholz, and Blossfeld 2014).

2.1   INTRODUCTION

Describing social inequalities, explaining how they come into being, and elaborating their impact on individual life chances, class identification, and political behavior has been at the core of sociology since its very inception. International comparative research on social inequality has shown that modern societies exhibit very different and distinct patterns of inequality, and that its level and persistence depend strongly on national institutional settings. The work of Esping-Andersen (1990, 1999) has had a particularly strong influence on today's understanding of how specific national institutions – above all, the level of public commitment to equal opportunities through elaborated welfare arrangements and concepts of social solidarity – shape social inequality structures. In this respect, past research (Buchholz et al. 2008; Brady 2005) has shown that the so-called social democratic welfare regime of Scandinavia seems to be especially effective in reducing social inequalities by prioritizing publicly supported (full) employment, high taxation of incomes, and a comparatively high level of decommodification[3]. Most studies within this field, however, consider social inequalities fundamentally in terms of inequalities deriving from the labor market (especially in terms of income inequality), while neglecting the relevance of wealth in the stratification process. The few empirical studies conducted until now which have analyzed the relationship between income and wealth were able to show that the correlation between the two measures is much weaker than one might expect; it has been found to range between 0.3 and 0.5 (e.g. Keister and Moeller 2000; Wolff 2006). Thus, it can be assumed that

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[3]   "De-commodification occurs when a service is rendered as a matter of right and when a person can maintain a livelihood without reliance on the market" (Esping-Andersen 1990a: 21f.).

studies only addressing income are likely to paint a one-sided or even inaccurate picture of social inequalities.

With this introductory chapter, I like to contribute to a broader understanding of social inequality by going beyond inequalities solely derived from the labor market. More precisely, I will describe and compare national patterns of income inequality to those of wealth inequality. The aim of this chapter is, firstly, to find out how private wealth holdings are distributed in different countries and, secondly, to find out if national patterns of wealth inequality resemble those of income inequality. This chapter shall be understood as a gentle introduction into the topic of cross-national wealth studies within the framework of social stratification research. The later chapters of this thesis will built upon the descriptive findings presented here.

For the descriptive analysis presented in this chapter, I will make use of a number of different data sources: the Survey of Health, Ageing and Retirement in Europe (SHARE), the OECD income data, and the wealth data as provided by the Global Wealth Databooks (GWD) (Credit Suisse Research Institute 2010; Credit Suisse Research Institute 2011; Credit Suisse Research Institute 2012; Credit Suisse Research Institute 2013). I will compare income and wealth holdings across 17 European countries and one country from the Middle East (Israel).

2.2   THE LONGTIME DISREGARD OF WEALTH IN SOCIAL STRATIFICATION RESEARCH

At the end of the Second World War, the ownership and accumulation of wealth was reserved to elite groups in society. Consequently, wealth was mainly understood in terms of power, and wealth research was assigned to the field of elite sociology (e.g. LeBon 1939; Michels 1925; Mosca 1950: cf. Spilerman 2000). Only thereafter, in times of economic prosperity and peace in the industrialized countries, wealth has become a quantitatively significant economic resource for the population as a whole. In the course of economic development, along with increasing political stability, a broader group of the population was able to accumulate assets. Nevertheless, social stratification research until now has had an almost exclusive focus on inequalities deriving from the labor market

(occupational status and/or earnings), while neglecting the relevance of wealth in the stratification process. This oversight is related to substantive as well as to empirical factors.

Functionalist theories of social stratification understand societies as operating on meritocratic principles, and consider wealth only if it is self-generated (life-cycle wealth). Transferred wealth contradicts the principles of equal opportunity and merit, and is not taken into account.

Theories of social class are oriented towards labor market processes, with a strong focus on the individual actor. Their main interest is the organization of work in modern industrial societies. Accordingly, they discuss wealth more or less peripherally. Marx' concept of class (see for example Grusky 2008: 74-90) is derived directly from the individual's position in the production system. Yet, in addition to the two main classes in capitalism - the proletariat and the bourgeoisie - Marx also mentioned the petty bourgeoisie and landowners, whose social position is based on their ownership of means of production. Weber's class concept (Weber 1922) takes account of wealth to a great extent. Differentiating between class – the economic dimension of social stratification – status – the social dimension of social stratification – and party – the political dimension of social stratification – Weber has a clear multidimensional approach to social stratification. His three dimensions of social stratification can be characterized by the interplay among wealth (class), prestige (status) and power (party). Further differentiating the economic sphere of social stratification, Weber understands the ownership of property (wealth) as representing the main difference between classes. He differentiates between the property class – consisting of entrepreneurs (who use their wealth in commercial ventures) and rentiers (who profit by interest on their property) – and the property-less class; defined by the kinds of services they provide in the labor market. The EGP class schema (Erikson, Goldthorpe, and Portocarero 1979) as one of the standard approaches to classify social class in sociology, which will be discussed in more detail in the following excursion, is based on Weber's class concept, especially on his differentiation between class and status.

Also in later approaches to social class, such as in the work of Bourdieu (1984, 1986), Dahrendorf (1959) and Durkheim ([1984] 2008), the con-

cept of class is further extended, and wealth is considered more explicit-
ly. Similar to Weber, Durkheim, for example, is differentiating between
three dimensions of social stratification, referring to them as three types
of capital, which he understands as accumulated labor (Bourdieu 1986).
The three types of capital are social capital – similar to Weber's concept
of status – economic capital – similar to Weber's concept of class – and
cultural capital[4], which is not separately explicated in Weber's class con-
cept. In later works, Bourdieu is referring to a fourth dimension of social
stratification: symbolic capital. The distributional structure of his origi-
nal three types of capital at any given moment in time Bourdieu under-
stands to represent the "immanent structure of the social world" (cf.
Bourdieu 1986). Economic capital Bourdieu defines as capital "which is
immediately and directly convertible into money and may be institution-
alized in the forms of property rights" (cf. Bourdieu 1986). Thus, similar
to Weber, Bourdieu's definition of the economic sphere of social stratifi-
cation considers both, income and wealth.

Since the 1980s, theories of social environments (milieus) and lifestyles
have claimed to offer a holistic approach to the explanation of social life,
and continue to emphasize the multidimensionality of social inequality.
These theories deny that one's occupational position is the single most
important feature in the definition of social class. Accordingly, they ini-
tiated a change of perspective from the individual actor to the family as
the most important unit in the process of social stratification. Social
stratification is no longer understood as a state, but as a process that
develops over the life course, and is subject to changes. This perspective
corresponds to the life course paradigm (Kohli 1986; Mayer and Müller
1986; Elder 1975). As the accumulation of wealth is such a process, un-
folding over the whole life course, it can be best approached by adopting
a life course perspective. The process of wealth accumulation is strongly
related to and interdependent on important life course events (e.g. mar-
riage, divorce, childbirth, death of the spouse) and other life course pro-

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[4]   Goldthorpe (2007) is however strongly criticizing the concept of cultural capital of
       Bourdieu (but also of other scholars) as well as Bourdieu's theoretical concept of social
       reproduction which, he claims, has a number of inherent weaknesses and, is moreover
       not supported by empirical evidence.

cesses (e.g. occupational or family trajectories). Unfortunately, even now there is a lack of suitable data to enable an empirical analysis of these interdependent processes, trajectories and events, which brings me to the empirical reasons for the longtime disregard of wealth in social stratification research.

The first wealth survey to have been conducted was in the USA in the 1960s when the already established "Survey of Financial Characteristics of Consumers" added a wealth module. A number of similar studies in the USA were to follow, but not until 1980; in other industrialized countries wealth studies such as these were published as late as the 1990s and 2000s. Among the most popular wealth surveys nowadays are the "Survey of Consumer Finances" and the "Health and Retirement Study" (USA); the "Wealth and Asset Survey" and the "English Longitudinal Study of Ageing" (UK); the "Socioeconomic Panel Study" (Germany); the "Survey of Income and Housing" (Australia); the "Survey of Household Income and Wealth" (Italy) and the "Survey of Household Finances" (Spain). In addition, a number of cross-national wealth surveys have started recently, among them the "Luxembourg Wealth Study", the "Survey of Health Ageing and Retirement" and the "Household Finance and Consumption Survey". Nevertheless, many surveys cover only relatively short periods, and only in some years, it will be possible to study the accumulation of wealth from a real life course perspective.

The increasing relevance of wealth in social stratification research is also related to some more recent social and political developments. The first is population ageing, and the accompanying public pension retirement limit set by the modern welfare states, factors that have turned old age into a distinct phase of life. This life stage is much less structured by labor market activity, while leisure and consumption become increasingly important (Kohli 1988). Thus, as individuals grow older, wealth increasingly determines their economic status, while income becomes less meaningful. The second reason for the growing interest of social stratification scholars in wealth studies is the increasing importance of private provision for old age. As a reaction to population ageing, welfare states nowadays reduce public pension benefits and try to set incentives for private provision for old age. Responsibility for old-age provision is in-

creasingly being transferred from the welfare state to the individual actor, which makes the accumulation of private wealth an even more relevant topic for the individual actors.

2.3 EXCURSION I: FOUR GENERATIONS OF COMPARATIVE STRATIFICATION RESEARCH

Before I go on with my study of country-patterns of income and wealth inequality, I like to include two excursions here. The first one refers to my argument that social stratification researchers have mostly ignored wealth in recent years. To undermine this assertion, I will give a summary on developments and advancements of comparative stratification research since the 1950s. This excursion is largely based on two publications – Treiman and Ganzeboom (2000) and Ganzeboom, Treiman, and Ultee (1991) – which I will enrich with some more recent information. In their two consecutive publications, the authors identify four generations of development in the field of comparative stratification research.

In their first article from 1991, Ganzeboom, Treiman, and Ultee (1991) give an overview of comparative stratification research since the end of the Second World War, which was the first time systematic studies began to appear. Yet, the authors highlight one post-war study – "Social and cultural mobility" by Sorokin ([1927] 1959) – to have marked the beginning of social stratification research. They identify three generations of stratification research until the 1990s, each identified through a set of core studies showing meaningful differences in five dimensions: methods of data collection, measurement procedures, methods of data analysis, definition of research problems, and specification of major hypotheses. Interestingly, in this article the authors actually claim in the very beginning that they cannot take into account the intergenerational transfer of material possessions, other than through occupational inheritance (Ganzeboom, Treiman, and Ultee 1991: 279), as this topic so far has been hardly dealt with in the literature. This means that in the first three generations of comparative stratification research, the topic of economic inequality, especially referring to wealth inequality, has not received a lot of attention, what is however not that surprising, considering my explanations in the passage above (2.2).

Motivated by the study of Glass (1954) for England and Wales – which also stimulated the establishment of the Research Committee 28 on "Social Stratification and Mobility" of the "International Sociological Association" in 1950 – 12 researchers began to periodically collect data in a number of different countries (e.g.in Denmark, Japan and the Netherlands). Their aim was to study social stratification and mobility within a common framework as well as to create an occupational prestige scale in each country to measure international relationships (Ganzeboom, Treiman, and Ultee 1991: 279). Among the core studies identifying the first generation of comparative social stratification research furthermore are the studies of Lipset and Zetterberg (1956), Lipset and Bendix (1959) and Miller (1960). The central research problem to be analyzed by first generation scholars was the question as to whether societies differ in their degree of openness, measured through the rate of intergenerational occupational mobility (Treiman and Ganzeboom 2000: 123). The main conclusion was that mobility rates and patterns are rather similar in industrialized countries (Treiman and Ganzeboom 2000: 123). Methodologically, the first generation scholars were strongly limited, largely due to technical restrictions. They mostly applied descriptive analyses of inflow and outflow percentages (Ganzeboom, Treiman, and Ultee 1991: 281).

Three important innovations mark the beginning of the second generation of stratification research. This is first, the study of Blau and Duncan (1967), who coded occupations in the US into the categories of the US Census three-digit occupational classification and thereby set new standards for data collection (Ganzeboom, Treiman, and Ultee 1991). The second one is the study by Duncan (1961), introducing a new scale for occupational status that can be used with techniques of continuous (dependent variable) data analysis (Ganzeboom, Treiman, and Ultee 1991: 282). Blau and Duncan's status attainment model (1967) is the third innovation. This model, based on the work of Duncan (1966) and Duncan and Hodge (1963) introduced the concept of indirect effect (path) models into social stratification research (Ganzeboom, Treiman, and Ultee 1991: 282). Building on the achievements of these three innovational studies, Treiman (1977) conducted a large-scale comparative study in which he developed highly comparable national prestige

measures resulting in the Standard International Occupational Prestige Scale (SIOPS) (Ganzeboom, Treiman, and Ultee 1991: 283). The main research questions marking the second generation of social stratification research were: How does the (direct) influence of father's occupation on son's occupation compare with that of other background factors, like education? To what degree is this effect mediated by the status of the son's first job? (Ganzeboom, Treiman, and Ultee 1991: 283). Methodological advancements of the second generation were the introduction of path analysis and structural equation modeling, going along with the assessment of and correction for measurement unreliability (Ganzeboom, Treiman, and Ultee 1991: 285). Despite these huge achievements of the second generation scholars, Treiman and Ganzeboom (2000: 123) note that in the end, "no definitive cross-national comparison of status attainment was completed."

The third generation of comparative stratification research partly overlapped in time with the second generation. The studies of Featherman and Hauser (1978), Goldthorpe and Llewellyn (1977a, 1977b), Goldthorpe, Payne, and Llewellyn (1978), and Goldthorpe (1987) initiated this generation (Ganzeboom, Treiman, and Ultee 1991: 286). The main methodological advancement of the third generation was the introduction of log-linear modeling, replacing multivariate linear regression models. The research interest turned back to the analysis of occupational mobility. However, this time the outcome was different and more detailed: Although the structure of mobility chances is similar across countries in industrial societies, patterns of mobility vary across these countries because changes in the occupational structure across generations occur at different rates across countries (cf. Erikson and Goldthorpe 1993; Treiman and Ganzeboom 2000: 124). The program of the third generation of comparative stratification research is very well reflected in the CASMIN project (Comparative Analysis of Social Mobility in Industrial Nations), headed by John Goldthorpe and Walter Müller. Within this project, a large number of researchers conducted studies on occupational mobility in 13 industrial nations in Western and Eastern European countries. A major achievement of these researchers was the recoding and standardizing of data derived from national mobility surveys (Ganzeboom, Treiman, and Ultee 1991: 287), resulting in the EGP

categories (Erikson, Goldthorpe, and Portocarero 1979), a common categorization, which allows allocating individuals and families into social classes. Until today, the EGP class scheme is accepted as a standard classification of occupations. Another achievement of the third generation of social stratification research is the establishment of multidimensionality and discontinuities in intergenerational occupational mobility patterns (Ganzeboom, Treiman, and Ultee 1991: 287). As to the main results of the third generation research, CAMIN researchers found inheritance and sectoral effects to dominate hierarchical effects in explaining relative mobility patterns. Moreover, they found relative intergenerational mobility patterns to not vary across countries (cf. Ganzeboom, Treiman, and Ultee 1991: 287f.), and social mobility to not increase over time. Ganzeboom, Treiman, and Ultee (1991: 289), however, critically note that in theoretical terms the third generation of social stratification research did not produce much progress. In addition, the field of research questions became narrower. The authors close their 1991 article with a description of some recent developments, which might mark the transition to a fourth generation of comparative stratification research. These are new data collections, event history models, multiple indicator and sibling models, multivariate models with categorical variables, an increasing interest in women's role in social stratification and an increasing interest in the consequences of social mobility.

The 2000 article from Treiman and Ganzeboom (2000) is a direct continuation of their work published nine years earlier. Looking back to the 1990s, the authors can now in fact identify a fourth generation of comparative stratification research. Within this generation, the area of research questions became more diverse again, turning back to the question of "how the stratification outcomes of individuals are affected by their social environment" (Treiman and Ganzeboom 2000: 124). Other achievements are improved data; improved statistical tools (e.g. mixed methods approaches) as well as improved research designs (e.g. multi-level designs). The fourth generation moreover arrives at a new level of comparative research, considering both, considering both, panel and cross-sectional studies. In addition, scholars rediscover their interest in the effect of institutional arrangements (Treiman and Ganzeboom 2000: 126). The authors differentiate between three types of research studies

identifying the fourth generation. These are first secondary data analysis
projects, among them a project on trends in educational transition head-
ed by Yossi Shavit and Hans-Peter Blossfeld (see Shavit and Blossfeld
1993); a project on school-to-work transition headed by Yossi Shavit and
Walter Müller (see Shavit and Müller 1997); a project on labor market
institutions and employment outcomes headed by a group larger of
researchers (see DiPrete et al. 1997) and a project on status attainment
in comparative perspective headed by Harry Ganzeboom and Donald
Treimann (Ganzeboom and Treiman 1993). Further, there are a number
of new data collection projects. Here, Treiman and Ganzeboom (2000)
mention a comparative project on class structure and class conscious-
ness by Erik Olin Wright (Wright et al. 1989; Wright 1997); a project
called "International Survey of Economic Attitudes", headed by Jonathan
Kelley (e.g. Evans 1992; Kelley and Evans 1993); and a study on social
stratification in Eastern Europe after 1989 headed by Ivan Szelény and
Donald Treiman (Szelényi, Wnuk-Lipinski, and Treiman 1995; Szelényi
and Treiman 1993). Among the developments in research design,
Treiman and Ganzeboom (2000) mention multilevel analytical designs
(DiPrete and Forristal 1994), and, as they have already observed in 1991,
event history analysis (e.g. Blossfeld 1989; Huinink et al. 1995; Mayer
and Tuma 1990). Regarding important statistical developments, the
mixed methods approach and the increasing consideration of selection
bias are emphasized (Treiman and Ganzeboom 2000: 132ff.). The au-
thors furthermore observe an even more increased standardization of
the measurement of key stratification variables, which, however, re-
mained the same: occupational status or position, and education
(Treiman and Ganzeboom 2000: 137f.). As already mentioned above,
Treiman and Ganzeboom (2000: 138) emphasize "major improvements
in the availability of truly comparable cross-national and cross-temporal
data". They finish their article with a retrospection of the new develop-
ments they observed in 1991. While major progress could indeed be
observed with regard to event history analysis (e.g. Blossfeld and Rohwer
1995), multiple indicator and sibling models remained in an infant state.
More attention has in fact been paid to consequences of social mobility
(e.g. de Graaf, Nieuwbeerta, and Heath 1995; Kohn et al. 1990), as well

as to the role of women in social stratification (e.g. Rosenfeld and Kalleberg 1991; Wright, Baxter, and Birkelund 1995).

Since the second publication of Treiman and Ganzeboom (2000) almost 15 years have passed. It is, however, far beyond the scope of this thesis to provide an informed answer to the question of whether a fifth generation of comparative stratification has come into being. This might be the case or not. If a new generation is in fact evolving, recent research suggests that a stronger focus on economic inequalities would definitely be a part of it. This, I claim, can be observed with regard to both, income and wealth inequality. An increase in sociological studies on income inequality can be observed for quite some time now (Beckfield 2006; Lee, Nielsen, and Alderson 2007; Bussmann, de Soysa, and Oneal 2005). This might be caused by the finding of increasing income inequality since the new millennium (Grusky and Ku 2008). Moreover, as I mentioned already several times, an increasing interest in the study of wealth inequality can be observed as well. Important publications I like to mention here (again), are Spilerman (2000); Keister and Moeller (2000); Frick and Grabka (2009b); Kurz and Blossfeld (2004a); Semyonov and Lewin-Epstein (2013). From my personal view, time has come for a fifth generation of social stratification research, which should to go back to one of the basic questions of sociology: Who gets what and why? (Myles and Myers 2007). Answering this question calls for a stronger focus on income and wealth inequality. We should not leave this field to economists alone.

2.4   EXCURSION II: WEALTH AND THE EGP CLASS SCHEMA

My second excursion is dedicated to the EGP class schema, named after the work of Erikson, Goldthorpe, and Portocarero (1979). Although already developed in the third generation of comparative stratification research, the EGP schema is still widely accepted and widely used in contemporary social stratification research, whose main research focus is still the question of determinants of individual attainment (Kenworthy 2007). In this section, I pursue two research objectives: Firstly, I will describe the EGP class schema. It will become clear that due to the persistent focus of stratification scholars on the EGP class schema, the ig-

norance of wealth is not surprising. Finally, I will spend some words on the consideration of wealth into the EGP class schema.

In the early 1970s, Goldthorpe developed a sevenfold class schema for the "Oxford Social Mobility Study of England and Wales", based on empirical evidence from UK survey data. This schema forms the basis of the more differentiated EGP schema (Scott and Marshall 2009: 290). In general, this class schema (but also the EGP schema) differentiates between three groups of workers: employers or entrepreneurs who buy the work of others, employees, who sell their workforce and the group of the self-employed. The first two groups are then further differentiated by combinations of outcomes on two dimensions. The first dimension regards individuals' sources and levels of income, their degree of economic security and their chances of economic advancement. The second dimension regards an individual's work situation, or, more precisely, the degree of autonomy in performing their work-tasks and roles.

In the above-mentioned international CASMIN project, Goldthorpe and colleagues further differentiated the sevenfold class schema to make it fit to a larger number of countries, leading to the well-known eleven fold class schema as illustrated in Table 1. The central component of the schema is the "nature" of the employment relationship (Scott and Marshall 2009). The basic differentiation between social classes emerges between those who are involved in a service relationship with their employer (the so-called service class or salariat) and those whose employment relationships are essentially regulated by a labor contract (the so-called working class) (cf. Scott and Marshall 2009). Compared to the working class, the salariat enjoys "incremental advancement, employment security, and the possibility of exchanging commitment to the job against a high level of trust on the part of employers" (Scott and Marshall 2009: 292). The working class to the contrary has typically closely regulated payment arrangements and their working life is subject to routine and greater supervision (Scott and Marshall 2009) (cf. Scott and Marshall 2009).

The EGP class schema is based on Weber's definition of class. In line with conflict theory, the EGP class schema is not a hierarchical schema, but a categorical one. The underlying notion is the understanding of

class as a result of the economic dimension of social stratification (class, operationalized through sources and levels of income, degree of economic security and chances of economic advancement) and the social dimension of social stratification (status, operationalized through the degree of autonomy in performing work-tasks and roles). Hence, the EGP class schema is solely derived from occupational position. Income plays a secondary role, as it is at least strongly correlated with class; and wealth a tertiary role. Both are only considered if they are directly related to the individual's occupational position.

Table 1: The eleven-fold EGP class schema

I	Higher-grade professionals, administrators, and officials; managers in large industrial establishments; large proprietors
II	Lower-grade professionals, administrators, and officials, higher-grade technicians; managers in small industrial establishments; supervisors of non-manual employees
IIIa	Routine non-manual employees, higher grade (administration and commerce)
IIIb	Routine non-manual employees, lower grade (sales and services)
IVa	Small proprietors, artisans, etc., with employees
IVb	Small proprietors, artisans, etc., without employees
IVc	Farmers and smallholders; other self-employed workers in primary production
V	Lower-grade technicians; supervisors of manual workers
VI	Skilled manual workers
VIIa	Semi-skilled and unskilled manual workers (not in agriculture, etc.)
VIIb	Agricultural and other workers in primary production

Note: Own illustration based on Erikson and Goldthorpe (2008: 461).

Although widely accepted as a kind of a gold standard, the EGP class schema also received much critique. Scott and Marshall (2009) name the two most-often raised points of critique. The first point of critique states that the EGP schema lacks validity, because in research practice, individuals are allocated to social classes based on their employment status and the title of their occupation. This might in fact not capture the characteristics of the employment relationship (the degree of autonomy in performing work-tasks and roles) which are central to the EGP concept (see for example Evans and Mills 2000; Evans 1992). A second often-raised point of critique refers to the ignorance of women in the EGP class schema. It states that because the categories were developed for an analysis of social mobility among men, they are by definition sex-specific and not (fully) applicable for the analysis of women's position in the

system of social stratification (Bradley 1995; Skeggs 1997; Skeggs 2004). In a very recent article, Savage et al. (2013) formulate three additional points of critique. They claim that the EGP class schema is biased towards the middle class in society. As it is based on national representation surveys (usually with moderate sample size), neither an elite, nor a potential "social bottom" can be distinguished. Related to this, Savage et al. (2013: 222) further claim that the EGP schema in general lacks "the ability to take highly important horizontal cleavages into account". According to Oesch (2006) these horizontal cleavages have emerged during the last 30 years, due to service sector growth, welfare state expansion and rising female participation (as an example he mentions the horizontal cleavage between managers and sociocultural professionals).

The third point of critique is the most relevant one for this thesis. Savage et al. (2013) criticize that the EGP class schema is "abstracting class from measures of income and wealth in order to derive class from measures of employment". Especially economists have objected that moves between income groups might be more relevant in terms of social inequality as compared to moves between occupational groups (Jenkins 2011; Blanden and Machin 2008). Thereupon, Erikson and Goldthorpe (2010) published a comprehensive defense of their class schema. This could however not fully satisfy Savage et al. (2013). Although they see the advantage of occupational classes to better capture the multidimensionality of social inequality as compared to income classes, they state that it is likely that income variation within occupations is growing, thus reducing the capability of the EGP class schema to capture patterns of social stratification. If measures of social class remain solely focused on occupational status, they might miss important changes in social inequality. Savage et al. (2013) strongly recommend to go beyond measures of occupational class alone and to include measures of income and wealth.

To conclude, the EGP schema is largely ignorant of the concepts of income and wealth. In an article from 2012, Goldthorpe adds some further arguments to the defense of the EGP schema he published two years before (Erikson and Goldthorpe 2010). This article also contains some valuable explanations of the reasons, which lead to the putative disinterest of sociologist in the study of economic inequality. Moreover, he en-

courages social stratification researchers to eventually join the economic inequality discourse, so far dominated by economists. Firstly, and most importantly, Goldthorpe (2012: 204) brings out an important difference between the sociological and economic concepts of inequality. Economists understand social inequality in an attributional sense, i.e. in terms of important attributes of individuals – most relevant income, wealth, and education – of which they can possess more or less. Sociologists, however, see inequalities much more in a relational manner, differentiating between class and status as two different forms of social stratification. This means that when sociologists speak of social inequality, they are referring to social relationships within which individuals are more or less advantaged or disadvantaged. Another important difference between social stratification scholars from sociology and economics – directly related to these different perceptions of social inequality – are differences in the periods they typically study. While sociologists have always shown an interest towards relatively long-term trends in overall social inequality, economists have more and more shifted their attention to short-term present day developments of one-dimensional measures of social inequality, like income and wealth. This is the reason, why economists are more actively engaged in the present-day discussions about increasing economic inequality, which they very often understand as a proxy of social inequality. Having a broader concept of inequality in mind, sociologists are more hesitant to announce significant changes in both, economic and social inequality. Goldthorpe (2012: 204) defends this broader concept by stating that it does "lead to a more comprehensive view of economic inequality than does a focus on income, and especially on current income, alone". He undermines this argumentation by citing two studies – Goldthorpe and McKnight (2006), Chan and Goldthorpe (2007) – that show that individuals in different class positions do not only differ with regard to their income position, but in at least three more income-related aspects: the degree of income security, short-term income stability, and longer-term income prospects. The multidimensional concept of social inequality differentiating between class and status, which goes along with the relational understanding of social inequality, he concludes, is distinctive to sociology. Goldthorpe (2012: 209) goes on to warn that studies with a one-dimensional under-

standing of either economic or social inequality, like for example those of the OECD, contain a high risk of underestimating the propensities for economic immobility. In his own words, "relational inequality is more consequential than attributional inequality". This however, he does not understand as an excuse for sociologists' ignorance in the analysis of income and wealth inequality. To the contrary, he invites sociology scholars to actively engage in the economic inequality discourse, while maintaining the distinctive advantages of the sociological approach and using these to contribute to a more comprehensive understanding of recent developments in social inequality.

I agree with the position of Goldthorpe (2012) and with my thesis, I hope to provide some reference points for scholars in sociology to enable a deeper study of wealth as a multidimensional phenomenon that can be analyzed along various lines like levels, inequality, allocation to assets, intergenerational dynamics, sources or interactions with institutions within a (comparative) social stratification framework. The inclusion of wealth, rather than income, is especially promising as both measures have explicitly not been under investigation, but income has thus far been implicitly included due to its high correlation with occupational status. Therefore, there are at least two promising approaches that include wealth in the analysis of social stratification in the context of the EGP class schema. Firstly, wealth (with its multidimensionality) can be helpful in identifying social classes and employment statuses. I hypothesize the following links between the three groups of workers (employers/entrepreneurs, employees, self-employed) and wealth: First, the different groups of workers shall possess different amounts of wealth. Second, these groups shall further differ by the type of assets they hold (for a more profound discussion and a descriptive overview of the composition of wealth, see chapter 3). Third, welfare state institutions shall mediate these differences. Fourth, intergenerational dynamics between wealth differ by group of workers and social class.

Employers or entrepreneurs by definition shall possess a significant amount of wealth, either in terms of real assets (e.g. ground, means of production), or financial assets (e.g. capital funds), or both. Moreover, the self-employed should possess considerable amounts of wealth, re-

ceiving no or only very restrictive benefits from the social welfare system being one important reason. For this group it can be expected to find a tendency to hold financial capital, which is easy to liquidize in case of expected or unexpected events like unemployment or bad health. Employers finally shall possess the smallest amounts of wealth as they are in most cases well protected by the welfare system (for a more comprehensive discussion about the relationship between welfare state institutions and the distribution of wealth, see chapter 5). Sources of wealth shall differ in general between groups and specifically differ by the amounts inherited. I hypothesize that large inheritances are more likely among the group of entrepreneurs, as firm capital is often received through inheritances.

Secondly, wealth is very likely to not solely differ between groups, but also within existing definition of classes. These within group differences are a very scarcely researched topic, however, might be substantial and depending on future empirical and theoretical findings, might require either the inclusion of wealth as a distinct third dimension within the "old" schema or at least the adjustment of previous class definitions.

In conclusion, a deeper analysis of wealth and its inclusion as a distinct dimension into the EGP class schema would allow sociologists to participate to a larger extent in the current economic inequality debate without giving up of their comprehensive understanding of social inequality. A development of an alternative or enhanced model of social class is however beyond the scope of this thesis. Instead, I aim at showing that a consideration of wealth in the study of social stratification is necessary, as it constitutes a distinct dimension of social inequality.

2.5   WEALTH AND INCOME – A SEMANTIC DIFFERENTIATION

While both income and wealth are important features of individual economic standing, each has different properties. Income, generally understood to be earned income, is a flow measure that represents a an economic entity's financial situation at a certain point in time, or over a minor interval (usually a week, month or year). It can vary considerably from one period to the next and is restricted to persons or households who actively engage in the labor force (earned income), or who have

been engaged in the labor force at some time in the past (transferred income). In contrast, wealth is a stock measure, which – originating from a certain value – increases by inflows and decreases by outflows. Stock measures feature the following distinct characteristics: they represent the state of a system (and are thus the basis for decision-making); they bring inertia, history and memory to the system by accumulating events of the past and they allow delays and enable dynamic imbalances between inflows and outflows (Forrester 1961; Forrester 1968). In this regard, the economic unit of a person or household can be understood as a system. Accumulated assets represent the system's material condition. Based on these assets, the economic unit will make decisions regarding for example, consumption and investment. Since wealth is accumulated over the whole life course, it brings inertia, history and memory to the individuals or households. However, larger short-term changes in the stock of wealth are possible, for example through inheritances or poor investments. These changes are, however, less likely to happen, and often correlate with decisive life events (like the death of one's parents). As such, the stock of wealth accumulated represents resources of the individual's past, present, and future (potential) financial well-being (Cowell, Karagiannaki, and McKnight 2012). Correspondingly, Spilerman (2000) understands wealth as an individual's or household's consumption potential, or more precisely its capacity to maintain a particular standard of living.

In addition, the process of wealth accumulation is a typical process of cumulative advantage (DiPrete and Eirich 2006). Once a certain amount of wealth has been accumulated, it will replicate itself through the mechanism of compound interest. At the same time, the state of having no or only low wealth is likely to be persistent over time. This is one important reason why the distribution of wealth is likely to be more unequal than the distribution of income. Finally, the functions of wealth are much broader than those of income, which can be either saved (or invested), or consumed. Frick and Grabka (2009) list seven important functions of wealth: income function, utility function, security function, power function, social status maintenance function, socialization function and inheritance function (p. 62).

According to Meade (1964, 1975) the wealth *(W)* of an economic entity at a certain time *(t)* is determined by age and the history (starting with birth: *k=1*) of earnings *(E)*, saving rates (or consumption rates *(C)* as expressed in the formula below), and rates of return *(r)*, plus inheritances and gifts *(I)*:

$$W_t = \sum_{k=1}^{t}(E_k \quad C_k + I_k)\prod_{j=k+1}^{t}\left(1 + r_j\right) \tag{1}$$

Total wealth can thus be decomposed into two components: self-accumulated wealth (life-cycle wealth: E_k-C_k) and transferred wealth (via inter vivos transfer or bequests: I_k) (Davies and Shorrocks 2000; Gale and Scholz 1994). For the analysis and understanding of wealth inequalities, it is crucial to know whether most of the accumulated wealth holdings stem from saved income or from transferred wealth. This question is, however, very difficult to answer, as one would need detailed longitudinal information about personal income and wealth for at least two consecutive generations, which is not widely available, if at all.

For the US however, plenty of studies have been conducted which either directly estimate the contribution of life-cycle to total wealth; simulate the bequeathing behavior of overlapping generations; or measure transferred wealth via surveys that directly ask respondents about the percentage of total wealth they received through transfers (Gale and Scholz 1994). Results from the first and second type of studies are very heterogeneous with estimates of the contribution of transferred to total wealth ranging from less than 20% (Modigliani 1988a; Modigliani 1988b) to about 80% (Kotlikoff and Summers 1981; White 1978). Results from the latter type of studies are more consistent and estimate the contribution of transferred to total wealth to lie around 20% (Modigliani 1988a; Wolff and Gittleman 2011; Gale and Scholz 1994). A severe problem for all three types of studies is that bequest do not have to be intended but can rather be accidental (Gale and Scholz 1994). For this reason, Kessler and Masson (1989) even state that that it is "virtually impossible to distinguish life-cycle from bequest savings" (p. 145). Obviously, the contribution of transferred to total wealth is far from clear.

Considering the unique characteristics and the numerous functions of wealth – as compared to income – household but also country differences in levels of wealth and levels of wealth inequality are likely to be more consequential not only in terms of social stratification, but also for social mobility. Spilerman (2000) expressed this as follows; "a consideration of wealth becomes relevant once the agenda of the field is enlarged, from a focus narrowly on labor market success and its rewards to a concern with living standards and economic security" (p. 518). I therefore argue that, for a comprehensive understanding of economic and social stratification, it is crucial to go beyond inequalities derived from the labor market by additionally studying the distribution of private wealth.

2.6   NATIONAL DIFFERENCES IN THE DISTRIBUTION OF WEALTH AND THE LIFE-CYCLE HYPOTHESIS

As already indicated, this study has a strong explorative and descriptive focus. My main motivation is to give the reader an initial idea of the distribution of private wealth across countries and to compare it to the distribution of income. In this chapter, I do not empirically analyze determinants of wealth and wealth inequality. This is the focus of other chapters of this thesis, especially of chapters 4 and 5. However, in the following, I will suggest and discuss a number of possible factors that could explain national differences in the distribution of private wealth.

Undoubtedly, individual and household characteristics strongly influence the process of wealth accumulation. Although the contribution of transferred to total wealth is far from clear, it is plausible to say that earnings differences within and across countries are translated into wealth differences at least to some degree. Empirical research revealed that income and wealth show only moderate levels of correlation, and in some countries, the level of income inequality significantly deviates from the level of wealth inequality. In line with these findings, Cowell, Karagiannaki, and McKnight (2013) claim that there are various reasons why levels of income and wealth inequality might differ from each other within countries, and why the distribution of wealth might differ across countries. First, they mention differences in the distribution of individual demographic and economic characteristics across countries as an

important part of the explanation for national differences in levels of wealth and wealth inequality. These can be age differences, as already indicated by the above formula (see also the life-cycle hypothesis of Modigliani and Brumberg 1954, on the relationship between wealth and age), but also education, race and marital status, which have been found to be important micro-level determinants of national differences in levels of private wealth (Conley 2009; Frick and Grabka 2009b; Henretta and Campbell 1978; Keister and Moeller 2000; Oliver and Shapiro 1990; Semyonov and Lewin-Epstein 2013). In addition to these demographic variables, a growing number of scholars agree on the importance of psychological variables to complement them (Feldstein 1995; Furnham 1985; Thaler 1994; Thaler 1990). Among these variables are self-control, taste for saving, political preferences or other preference parameters like the degree of risk aversion.

Secondly, a number of macro-level factors are also likely to affect the distribution of private wealth. Cowell et al. (2013) suggest that both institutional settings and economic environments will affect households' saving motives and propensities. The standard life-cycle model developed by Modigliani and Brumberg (1954) is a powerful and flexible theoretical framework for explaining individual saving behavior – which is likely to have an impact also on national levels of wealth – via differences in institutional settings. According to this model, saving behavior is the result of an optimization problem of inter-temporal consumption: Perfectly rational and forward-looking actors are faced with a deterministic income path with low earnings at the beginning of their career that increase over their working life and drop to zero when they retire. Trying to keep their marginal utility of consumption constant over time to maximize their lifetime utility, they borrow at younger ages, save as their earnings increase, and dissave in retirement. In the basic model, there are neither capital market imperfections nor uncertainty (e.g. earnings insecurity or insecurity about the date of death). Saving is understood as earnings minus consumption. The only motivation for saving is provision for old age, and there are no bequests. Individuals work as long as they are able to. The introduction of a pay-as-you-go public pension system would consequently lead to a perfect substitution between public pension wealth and private savings.

Based on the findings of Cagan (1965) and Katona (1964), Feldstein (1974), however, argued that this holds only true for workers who anyway planned to retire around the official retirement age. For workers who planned to retire later than that, the introduction of an official retirement age would generally make them to retire earlier than they actually planned to. As this will lengthen their total period in retirement, the introduction of a pay-as-you-go public pension system could motivate these workers to increase their savings. Thus, the implementation of a pay-as-you-go public pension system[5] could also have a positive effect on the level of private savings, which could even offset the negative one. Either way, the standard life-cycle model can be helpful for the explanation of the macro-level relationship between differences in public pension systems and differences in the distribution of wealth through differences in individual (savings) behavior. In an early time-series analysis, Feldstein (1974) in fact found a strong negative relationship between social security (pension wealth) and aggregate capital accumulation. However, other time-series analyses found this relationship to be much weaker, or even non-existent (Barro 1978; Leimer and Lesnoy 1982).

Bringing transferred wealth back into the discussion, Cowell et al. (2013) further mention national differences in the importance of past inheritances, but also national differences in the population's age composition and household structure, as representing possible explanatory factors for national differences in the distribution of wealth. In addition, national differences in the taxation of wealth (life-cycle wealth as well as transferred wealth), but also of earnings, are likely to have an impact on national differences in the distribution of wealth. Recently, it has been suggested that researchers should also account for differences in financial literacy as an important determinant of saving behavior across (but also within) countries (Bernheim 1998; Rooij, Lusardi, and Alessie 2012). Differences in financial literacy might thus explain part of the finding that it is usually the highly educated/high-income households who show a saving profile close to the assumptions of the standard life-

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[5]   In all countries I analyze, the public pension system is a pay-as-you-go financed system or has been so until very recently.

cycle model, while the less educated/low-income households hardly save at all. In an international comparative study, Lusardi and Mitchell (2011) found financial literacy scores relatively high for individuals in Sweden and the Netherlands, but comparatively low for individuals in Italy and Russia. Similarly, Jappelli (2010) finds financial literacy to be high in Sweden, the Netherlands and Denmark and low in Italy, Spain and Poland.

Finally, Cowell et al. (2013) mention nationally-specific cultural and historical factors that shape preferences for holding specific types of assets (for example real estate, or stocks and shares) as an explanation for cross-country differences in the distribution of wealth. In line with this argument, Feldstein (1995: 411) suggests the shared experience of inflation or war of many generations of Europeans as an explanation for the higher saving rates of the European population as compared to US-Americans,[6] despite the greater generosity of social security retirement programs in Europe. Lusardi and Mitchell (2011) likewise claim that international differences in financial literacy can be the result of specific historical factors. They found, for example, that individuals in countries with recent experience of inflation scored higher on questions about inflation, and individuals in countries that experienced pension privatization scored higher on questions about risk diversification.

In their empirical analyses, Cowell et al. (2013) find that the largest share of national differences in levels of wealth inequality cannot be traced back to differences in the distribution of individual characteristics, but rather to country effects, which they could however not account for in their analyses due to their small sample size (consisting of 5 countries: United Kingdom, Finland, Italy, USA, Sweden). As suggested, and in line with other studies, they find relative levels of income and wealth inequality to be similar in some countries (e.g. the U.S.), while they strongly differ in others (e.g. Sweden). The following analyses contribute to the research on cross-country differences in the distribution of private wealth. Further, I will compare national patterns of wealth inequality to

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[6]   The USA, however, are not considered in this chapter. Chapter 5, where analysis are based on other data sources, does consider the USA.

those of income inequality. Therefore, before I present my analyses, I will briefly trace national patterns of income inequality as detected by past research.

2.7   NATIONAL PATTERNS OF INCOME INEQUALITY AND ESPING-ANDERSEN'S WELFARE STATE TYPOLOGY

The OECD publication "Growing unequal" provides an overview of income distributions in OECD countries over the period from the mid-1980s until the mid-2000s (OECD 2008). Five groups of countries are distinguished. Denmark and Sweden belong to the "low inequality group" with Gini coefficients for income below 0.3. The "below average inequality group" exhibits Gini coefficients for income that are slightly below the OECD average, which is just above 0.3. Countries belonging to this group are Austria, Australia, Belgium, the Czech Republic, Finland, France, Germany, Hungary, Luxembourg, the Netherlands, Norway, the Slovak Republic and Switzerland. This group is followed by the "above average inequality group" that is composed of Korea, Canada, Spain, Japan, Greece, Ireland, New Zealand and the United Kingdom. The fourth group is the "high inequality group", consisting of Italy, Poland, the United States and Portugal. Turkey and Mexico form the 'very high inequality group'. As with regard to the European and North American countries, patterns of income inequality are very much in line with the welfare state classification Esping-Andersen (1990) developed in the 1980s.

Esping-Andersen differentiates between three types of welfare states: the liberal, the social-democratic and the conservative state. This regime classification is based on three main categories: (1) the degree of decommodification; (2) the degree of social stratification; and (3) the respective importance of the market, the state, and the family for the production of individuals' welfare. In the liberal welfare regime, individuals take care of their welfare by themselves on the (labor) market. This is why the liberal welfare state is often also called the "workfare state". The degree of decommodification is fairly low, and it is the (labor) market which produces individual welfare. In liberal countries, social inequality is usually high, particularly with respect to income differences. In con-

trast, social democratic welfare states have a high level of public commitment to offering equal opportunities and securing individuals' well-being. They manage to effectively reduce social inequality in terms of income. The typical conservative welfare regime has a modest degree of decommodification. However, compared to the social democratic model of welfare, the conservative welfare regime displays a high level of social stratification instead of a universal social policy ideology. Consequently, the level of social inequality can be located somewhere in-between liberal and social democratic countries.

In recent years, Esping-Andersen's typology has been extended by a Southern European welfare regime (Ferrera 1996) and a post-socialist welfare regime (Beyer 2009; Blossfeld et al. 2005; Fenger 2007). Esping-Andersen himself, however, rejected the idea of the Southern and Eastern European countries to form distinct and additional types of welfare regimes in 1996. Instead, he claimed that these countries are in a transitional stage heading towards one of the three clusters he identified. Nevertheless, there is consensus that the Southern and Eastern European countries – forming separate welfare state clusters or not – have distinct characteristics strongly differentiating them from the classical Esping-Andersen typology (Ferrera 1996; Sengoku 2004; Sengoku 2009; Fenger 2007; Arts and Gelissen 2002).

The Southern European welfare regime as described by Ferrera (1996) is characterized by weak public institutions, a high importance of informal work, a comparatively weak system of social security, strong clientelism, and an outstanding importance to the family and the church in the production of welfare (Arts and Gelissen 2002; Ferrera 1996). In the Southern European countries, families largely take the function of social security, which in the continental and especially Northern European countries is conducted by welfare state institutions (Reher 1998). Especially important with regard to international differences in the distribution of wealth is the particular significance of homeownership in the Southern European countries. In general, homeownership is the most important form of family wealth (Kurz and Blossfeld 2004b). In Southern European countries, homeownership is even more common than in most other European countries (Cabré Pla and Módenes Cabrerizo 2004). This is,

however, less the result of tradition than of social and economic change (Cabré Pla and Módenes Cabrerizo 2004).

Throughout the nineteenth century, the mostly poor Spanish population was faced with eviction and homelessness. For the few economically better-situated, permanent tenancy was the most common phenomenon. Homeownership emerged as a common phenomenon only after the Civil War (1936-39). It was a result of social and economic change, going along with legal changes (e.g. the "Ley de Vivienda de Renta Limitada" in 1954 or the "Ley de Propiedad Horizontal" in 1960), strongly encouraging access to and investment in real estate property (Cabré Pla and Módenes Cabrerizo 2004), although these legal changes were not always meant to do so. Within only a couple of years, the Spanish society had turned into a society of homeowners, while the rental market was turned into a morbid niche market (cf. Cabré Pla and Módenes Cabrerizo 2004). In the second half of the twentieth century, due to educational expansion, young people spent more time in educational institutions to acquire additional educational degrees. During this time of economic vulnerability, staying at their parents was and is one very common strategy of individuals and families to keep up with the social and economic status of average Europeans (Cabré Pla and Módenes Cabrerizo 2004: 233). Children move out of the parental home only when they plan to set up an own family. Instead of moving into a rented apartment as some kind of interim solution, they save money during their stay at home, which very often includes their primary working years and then directly move into their own property, which they most often finance by their own savings together with the support of their families (Cabré Pla and Módenes Cabrerizo 2004).

In addition, the high rate of homeownership in Southern European countries might be understood as a reaction of individuals and families to the poor performance of the welfare state in these countries. This relates especially to public pensions. Although public pensions are among the most generous in Southern European countries, the share of the population protected is low (Ferrera 1996). Normally, it is only those employed in the formal sector who are protected by social security, while young persons who are faced with unemployment at the beginning of

their career, single parents who did not contribute (yet) to the social system or uninsured persons do hardly receive any form of social protection (Ferrera 1996). This results in the dualistic character of the South European system of welfare state protection (Ferrera 1996). Moreover, according to Ferrera (1996: 25) the Southern European welfare state can be characterized by a low degree of state penetration combined with a low degree of state power ("double deficit of stateness"). These problems are largely coped with within the family, mediating the difficulties between the strong insider-outsider labor market (Buchholz et al. 2008) on the one hand and the stratified income maintenance system on the other hand (Ferrera 1996). As already mentioned, the acquisition of home-ownership as well as the intergenerational transmission of tenure might be understood as family strategies to cope with these difficulties.

Summing up, homeownership is a widespread phenomenon in Spain (78% of homeowners in 2013: EU-SILC 2015, see also chapter 4) as well as in other Southern European countries like Italy (73% of homeowners in 2013: EU-SILC 2015; see also chapter 4), Greece (76% of homeowners in 2013: EU-SILC 2015; see also chapter 4) or Portugal (74% of home-owners in 2013: EU-SILC 2015; see also chapter 4). This phenomenon is very likely to have an important impact on the distribution of private wealth within these countries.

Post-socialist countries strongly reduced social policy measures in favor of economic development in the first years after the fall of the Iron Curtain. According to Sengoku (2004), in the new millennium, the post-socialist countries display very diverse socio-political ad hoc activity to fight emerging problems such as increasing unemployment and poverty, and can thus not be classified as one distinct type of welfare state. After the fall of the Iron Curtain, reforming the political and economic sphere has been considered a primary goal, while the reformation of the social security system was considered as a secondary (Sengoku 2004). As a result, the governments of the Eastern European countries did not develop any systematic strategy for the implementation of a well-functioning system of social security, but rather met newly emerging needs for social security (e.g. unemployment protection) with short-sighted ad-hoc reactions (Sengoku 2004). During the late 1990s, most

post-socialist countries finally started to systematically reform their so-cial-policy sector.

In line with Sengoku's argumentation are the findings of Fenger (2007). He claims firstly, that the Eastern European countries did not transform into one of the three classic Esping-Andersen typologies 15 years after the fall of the Iron Curtain and secondly, that these countries do not form one common Eastern European type welfare state but three distinct welfare state clusters. Applying hierarchical cluster analysis on data of 27 countries from 2005, Fenger (2007) can replicate the three Esping-Andersen typologies of welfare states and finds three additional clusters all formed by Eastern European countries. Interestingly, the Southern European countries (Greece, Italy, Spain) he finds to form a subtype of the conservative cluster, with differences, however, too small to form a distinct cluster. The three clusters formed by the Eastern European countries he names the former USSR type (Belarus, Estonia, Latvia, Lithuania, Russia and Ukraine), the Post-communist European type (Bulgaria, Croatia, Czech Republic, Hungary, Poland and Slovakia) and the developing welfare states type (Georgia, Romania and Moldova). The former USSR type mostly resembles the conservative type but scores significantly lower in almost all governmental programs (mostly regard-ing government expenditures on welfare state services) as compared to the countries of the conservative type. The Post-communist European type resembles the former USSR type but scores significantly higher on economic development (economic growth and inflation) and on social well-being (infant mortality and life expectancy), as well as on the degree of egalitarianism. The developing welfare states type includes countries that are still devolving towards a mature type of welfare states. They score lowest on economic development, governmental programs, social well-being and the degree of egalitarianism.

As in the Southern European countries, the housing situation is very specific and different from Western European countries in the Eastern European countries. Before the Second World War, the share of home-owners in Eastern European countries was relatively high (Turner 1992). After the introduction of socialism in the Eastern European countries (as well as the GDR), the government largely abolished private property.

Although the elimination of owner-occupied housing was considered unfeasible, the local authorities tried to restrict it as much as possible via strict regulations. In addition, no or restricted access was given to building material. Private landlords were either completely crowded out or at least largely restricted in their freedom regarding disposal and rent decisions by the government (Turner 1992: 2). Private property rights were passed over to political committees. During the socialist times, three basic patterns of housing ownership were existent: state-owned, cooperative and privately owned (Palacin and Shelburne 2005). Yet, there existed great differences with regard to recognition of property rights, the scope for self-construction and the operation of markets for housing services across countries (Palacin and Shelburne 2005).

Due to the destruction of housing space during the Second World War, the socialist political committees organized a large-scale construction of public housing in high-rise real estates. However, the anonymity and sterility of these giant estates resulted in high values of dissatisfaction among the population. In addition, even more problematic, the socialist construction wave did not solve the problem of housing shortage. A reasonable number of individuals and families was faced with low spacing standards and low quality indexes; many families had to share dwellings with other members of the family and there was even a significant number of homeless persons. The population's dissatisfaction grew with the diffusion of mass media and amongst other reasons (e.g. growing economic power from important groups of society) resulted in a change in policy towards more favorable conditions to private housing and to the establishment of a housing market in the 1970s and 1980s (Palacin and Shelburne 2005).

During the phase of transition, however, there was an initial reluctance to the privatization of the housing stock, as many Eastern European countries were suddenly faced with new social phenomena like poverty and unemployment (Palacin and Shelburne 2005). Nevertheless, dispossessed property was given back eventually to the former owners or was sold to the current residents at very low prices (Palacin and Shelburne 2005). After the short phase of hesitation, the process of privatizing the housing stock went fast in Bulgaria, Hungary, Lithuania, Romania and

Slovenia, where homeownership was relatively widespread even during socialism, but went slower in the Czech Republic, Estonia, Poland and Slovakia (Palacin and Shelburne 2005). Only few years after the fall of the Iron Curtain the Eastern European countries could be characterized by very high rates of owner-occupied housing (Palacin and Shelburne 2005; Buckley and Hendershott 1995). These high rates of owner-occupied housing have largely remained until today (e.g.: in 2013 80% of the population owned their home in Czech Republic, 90% in Hungary, 86% in Bulgaria, 84% in Poland, 81% in Estonia, and 77% in Slovenia: EU-SILC 2015), due to a number of reasons, among them, the lack of a well-established rental market. Still, however, quality of housing has remained rather poor in Eastern European countries, which is especially true for the high-rise real estates. Apartments are small and the urban housing stock is old. In combination with insufficient maintenance and the low income of some owners this has resulted in a rapid process of depreciation (Palacin and Shelburne 2005). The low market value of these properties is likely to further decrease as modern properties are built (Palacin and Shelburne 2005). This description will help to better understand the wealth distribution in Eastern European countries as reported throughout this thesis.

Coming back to the Esping-Andersen typology, it is fair to say that Esping-Andersen defines social inequality strongly in terms of the labor market in at least two ways: first, when analyzing an individual's position in the labor market (for the degree of social stratification); and second, when measuring the degree of an individual's dependence on the labor market to maintain his or her livelihood (for the degree of decommodification). This also becomes visible in the empirical data forming the basis of his classification. Esping-Andersen's indicators relate almost exclusively to the labor market, especially when he measures the degree of social stratification (Esping-Andersen 1990: 58). Consequently, and in line with most contemporary social stratification research, he neglects the central role of wealth (including the importance of homeownership) and its distribution in the process of social stratification (Elmelech 2008: 6). This is perfectly reasonable, as Esping-Andersen's typology is in fact meant to explain societal patterns of income inequality and the effect of the welfare state on income inequality. In the light of the different char-

acteristics of income and wealth, it can be expected that national patterns of wealth inequality do not perfectly resemble national patterns of income inequality, and that Esping-Andersen's typology cannot be applied to predict national levels of wealth inequality.

2.8 DATA AND VARIABLES

2.8.1 DATA

In my empirical analyses, I make use of several different data sources. The first dataset I use is the "Survey of Health, Ageing and Retirement in Europe" (SHARE)[7], which provides rich and detailed information on household wealth and household income. So far, four waves have been conducted between the years 2004 and 2012. In order to balance for yearly variations in household income and household wealth, I apply as many waves as possible. Wealth and income information have been collected in the first, second and fourth wave. Yet, as the income measure in the first wave differs from those in the later waves, I do not make use of the first wave data. My final wealth and income measures are thus calculated as the means of median wealth and median income in the second (2006/07) and fourth (2010/11/12) SHARE wave. My final SHARE data sample consists of 18 countries: Austria, Belgium, the Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Israel, Italy, the Netherlands, Poland, Portugal, Slovenia, Spain, Sweden

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and Switzerland. As not all countries participated in all waves, for seven countries (Czech Republic, Estonia, Hungary, Israel, Poland, Portugal, Slovenia), income and wealth information stems only from one wave. The SHARE study is an international, representative panel study of the population aged 50 years and above. Studying the distribution of wealth within this population segment that has either already entered retirement or is close to it, allows me to investigate how successful individuals have been in accumulating wealth over their life course. Still, it is a non-random fraction of the overall population and does thus not allow me to draw conclusions on the countries' overall population. For this reason and in order to enhance reliability of my results, I make use of a second wealth and a second income data source.

I derived aggregate-level data on the levels of private wealth and wealth inequality from the "Global Wealth Databooks" (GWD) published by the Credit Suisse Research Institute (2010, 2011, 2012, 2013). With these data books, the Credit Suisse Research Institute aims to provide the best available estimates of private wealth holdings for the world's 216 countries. Data on levels of income and income inequality I derived from the OECD iLibrary (OECD 2013a). I merged the income and wealth information for the overall (20+) population in the 18 above-mentioned countries from these two data sources and derived a second data sample. To likewise balance for yearly variations in household income and wealth, I made use of all four GWD publications (2010-2013) and I chose a similar period for my OECD income measure. More detailed explanations can be found in the following section. I will conduct all analyses separately with both data samples and compare the results.

2.8.2 Variables

My two variables of main interest are household wealth and household income. Household wealth is measured in both surveys in terms of *net worth*, which means real assets, plus financial assets, net of debts on them, and refers to current net worth at the time the interview was conducted. The second SHARE wave was conducted between 2006 and 2007 with the exception of Israel, where the second wave was conducted between 2009 and 2010. The fourth SHARE wave was conducted between

2010 and 2012. The GWD wealth variables refer to the years 2010, 2011, 2012 and 2013.

In the SHARE data, *net worth* is defined as household net worth including (1) gross real assets, i.e. the ownership and value of the primary residence, of other real estate, of the share owned of own businesses and of owned cars; plus (2) gross financial assets, i.e. the ownership and value of bank accounts, government and corporate bonds, stocks, mutual funds, individual retirement accounts, contractual savings for housing and life insurance policies; minus (3) mortgages and financial liabilities (Christelis, Japelli, and Padula, 2005: 358). The target population of individuals in the first SHARE wave is "all individuals born in 1954 or earlier, speaking the official language of the country and not living abroad or in an institution such as a prison during the duration of the field work" (Munich Center for the Economics of Ageing 2013). In addition, spouses or partners living in the same household are interviewed independent of their age. The SHARE team applies a multiple imputation strategy for filling in missing values for both household wealth and household income. Five values are estimated for every missing value. All my following analyses are ran across these five imputations. A more detailed description of the imputation method used in the SHARE can be found in Christelis (2011). All financial values are expressed in Euros and are adjusted for differences in the purchasing power of money across countries and over time using the ppp[8]-values as provided by the SHARE team (see Munich Center for the Economics of Ageing 2013). The reference category is Germany in the year 2005. Further, net worth values are divided by the root of the number of persons living in a household (equivalized household net worth) to account for household size. My final net worth measure is the mean value of annual median household net worth in the second and fourth SHARE wave. Due to the strong skewness of the wealth distribution, I opted for median instead of mean wealth. In order to prevent problems of comparability of values of net worth across countries and between the two datasets to the greatest extent, and in consistency with previous research, I derived an additional

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[8]   The abbreviation "ppp" stands for purchasing power parity.

wealth measure by dividing median net worth at time t by median dis-
posable income at time t, and express net worth in times of disposable
income. I label this measure "wealth rate" in the following.

The *net worth* measure in the GWDs is defined as the marketable value
of financial assets plus non-financial assets (principally housing and
land) less debts for individuals aged 20 or above. In contrast to SHARE,
the GWD measures net worth in terms of individual net worth. All net
worth values are expressed in Euros to make them most comparable to
the SHARE data.[9] For reasons already explained above, I decided on
median net worth as the final wealth variable and, as also explained
above, I further calculated an additional measure of wealth: the wealth
rate. Importantly, the current value of public and occupational pension
plans is not included, neither in the SHARE nor in the GWD net worth
measure.

Household income in the SHARE waves two and four refers to yearly
household net income in the year before the interview took place.
Household total net income is equal to the sum of the individual-level
values of all household members' annual net income from employment
and self-employment; annual public old-age pensions, and other forms
of public pensions; annual public long-term insurance payments; annual
sum of private long-term care insurance payments; and annual life in-
surance payments received. To this, the sum of the following household-
level variables is added: annual other household members' net income;
interest income from bank accounts; interest income from bonds; divi-
dends from stocks/shares; and interest and dividend income from mu-
tual funds (Munich Center for the Economics of Ageing 2013: 31). My
final SHARE income measure is the mean of median annual net house-
hold income from waves two and four. All values are ppp-adjusted, ex-
pressed in Euros, and divided by the root of the number of persons liv-
ing in a household (equivalized household income) to account for
household size.

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[9]   I used exchange rates as provided by the OECD (OECD 2014) to convert USD, the
       currency provided by the GWD, into Euros.

The OECD defines *disposable income* as "Household net adjusted disposable income", i.e. the average amount of money that a household earns per year, after taxes. Again, I express all income values in Euros. To likewise balance yearly variation in income, my income measure is calculated as mean of median disposable household income of the years 2007 to 2010, in order to come closest to the period the GWD wealth measure is based upon.

In my descriptive analyses, for the SHARE data, I apply weights in accordance with the recommendations of the SHARE team. I use cross-sectional calibrated weights that compensate for unit-nonresponse and sample attrition in the CAPI interview (Munich Center for the Economics of Ageing 2013: 40). The level of inequality in income and wealth I measure via the Gini coefficient, which is provided for the GWD and OECD data and which I calculated for the SHARE data according to the following formula:

$$G(w) = \left[\frac{1}{2n^2\mu} \right] \sum_{i=1}^{n} \sum_{j=1}^{n} \left| w_i - w_j \right| \qquad (2)$$

with inequality G in wealth w (or likewise in income y) measured by the arithmetic average of the absolute difference between all wealth (or income) pairs standardized by dividing it by the population's average wealth (or income). As a result the Gini index ranges from 0 (total equality) to 1 (total inequality). Apart from being the best known measure of inequality in social sciences, Gini has another considerable advantage for my purpose: it is well defined for negative and zero values (Jenkins and Jäntti 2005: 20)[10], which are likely to appear in the distribution of private net worth.

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[10] This however applies only under the assumption that mean wealth is positive, which is the case here. If mean wealth is negative, the Gini coefficient will also take on negative values (Jenkins and Jäntti 2005).

2.9   ANALYSES AND RESULTS

2.9.1 THE DISTRIBUTION OF PRIVATE WEALTH

Table 2 shows the distributions of net worth and disposable income as well as the wealth rate (median net worth divided by median income) across the 18 countries in my SHARE and GWD/OECD data sets. Looking at median values of net worth, we can first see that – with only very few exceptions – net worth values are higher among the 50+ SHARE than among the 20+ GWD population, which corresponds to the assumptions of the life-cycle hypothesis. In the SHARE data, the highest values for median net worth can be found in Belgium (€180,820), Israel (€172,540) and France (€165,290), followed by Switzerland (€159,460). The lowest values can be found in Estonia (€24,140) and Hungary (€25,380).

In the GWD data, the highest values for median net worth can be found in Italy (€99,970), Belgium (€92,670) and France (€71,310). The lowest values emerge in Poland (€7,190), Hungary (€10,200) and the Czech Republic (€11,430). Trends in median net worth show a similar tendency in the two data sets, which can be understood as an indicator of high data quality.

With regard to disposable income, readers have to be aware of the fact that, in the SHARE data, a meaningful fraction of each country's population is already retired and receives only transfer incomes (mainly pension income). The highest values for median net income in the SHARE data emerge in Switzerland (€30,908), Sweden (€21,294) and the Netherlands (€21,804) and in the OECD data again in Switzerland (€34,000) and Denmark (€28,740). The lowest values in the SHARE data emerge in Estonia (€4,960), Portugal (€5,240), Poland (€5,600) and Hungary (€5,820) and in the OECD data in Hungary (€4,740), Poland (€5,450) and Estonia (€6,420).

Table 2: Median net worth (NW), median net income (INC) and wealth rates

Country	Country code	NW median (€)		INC median (€)		Wealth rate	
		SHARE	GWD	SHARE	OECD	SHARE	GWD/ OECD
Austria	AUT	83,700	58,960	17,400	22,440	4.8	2.6
Belgium	BEL	180,820	92,670	19,130	21,240	9.6	4.4
Czech Rep.	CZE	58,820	11,430	10,710	7,600	5.8	1.5
Denmark	DNK	122,430	34,490	19,450	28,740	6.3	1.2
Estonia	EST	24,140	9,880	4,960	6,420	4.9	1.5
France	FRA	165,290	71,310	19,590	20,840	8.4	3.4
Germany	DEU	92,570	38,960	17,130	20,020	5.4	1.9
Greece	GRC	102,64	32,980	11,090	12,590	9.3	2.6
Hungary	HUN	25,380	10,200	5,820	4,740	4.4	2.2
Israel	ISR	172,540	31,740	15,500	12,260	11.1	2.6
Italy	ITA	111,410	99,970	11,910	17,580	9.3	5.7
Netherl.	NLD	125,260	52,600	21,800	21,710	5.8	2.4
Poland	POL	26,080	7,190	5,600	5,450	4.7	1.3
Portugal	PRT	67,550	25,500	5,240	9,350	12.8	2.7
Slovenia	SVN	88,840	25,300	12,610	13,270	7.1	1.9
Spain	ESP	131,730	47,960	10,250	14,550	12.8	3.3
Sweden	SWE	113,110	31,270	21,300	22,640	5.3	1.4
Switzer-land	CHE	159,460	61,000	30,900	34,000	5.4	1.8

Note: SHARE waves 2 (release 2.6.0) and 4 (release 1.1.1), GWD (Credit Suisse Research Institute 2010, 2011, 2012, 2013) and OECD (2013a). Own calculations.

The next two columns show the wealth rate (median net worth divided by median income), relating a country's level of net worth directly to its level of net income. In the SHARE data, the highest wealth rates (wr) appear in Portugal and Spain, where older households hold values of median net worth about 13 times greater than their (last year's) disposable income. Portugal and Spain are followed by Israel (wr=11.1), Belgium (wr=9.6), Greece and Italy (wr=9.3). Also, in the GWD data, the two Southern European countries Italy (wr=5.7) and Spain (wr=3.3) show comparatively high wealth rates. High wealth rates in the GWD emerge also in Belgium (wr=4.4) and France (wr=3.4). In general, wealth rates are much higher in the SHARE as compared to the GWD data, which should principally be a result of the different population groups. The lowest wealth rates in the SHARE data emerge in Hungary (wr=6.5), Estonia (wr=6.6) and Austria (wr=6.8), and in the GWD data in Denmark (wr=1.2), Poland (wr=1.3) and Sweden (wr=1.4).

Summing up, with regard to the distribution of wealth and income across Europe and Israel, I found the following: the Southern European countries Spain and Italy, but also France, Belgium, and Israel show high values for median net worth as well as high wealth rates. At the same time, median income is comparatively low in the Southern European countries. Low wealth (in terms of median net worth and wealth rates) emerges in the Eastern European countries: the Czech Republic, Estonia, Hungary and Poland. These countries also show low values of median income.

2.9.2 NATIONAL PATTERNS OF WEALTH AND INCOME INEQUALITY

Table 3 shows my findings for the levels of income and wealth inequality in the SHARE and the GWD/OECD datasets. In the SHARE data, the highest values for inequality in net worth emerge in Estonia (Gini=67), Switzerland (Gini=61) and Israel (Gini=60), in the GWD data in Denmark (Gini=93), Sweden (Gini=82) and Switzerland (Gini=82). The lowest values for wealth inequality due to the SHARE data emerge in Belgium and Greece (Gini=45), Spain (Gini=48) and the Czech Republic (Gini=49), and due to the GWD data, in Italy, Slovenia and Spain (Gini=63), followed by Hungary (Gini=64) and Belgium (Gini=65). The trends in the levels of wealth inequality reported by the SHARE data resemble those found in the GWD data for most countries. An exception is Estonia, which shows a below-median level of wealth inequality in the GWD data, but a level of wealth inequality considerably above the median in the SHARE data. Similar differences between the two datasets, although less pronounced, can be found for Austria and the Czech Republic.

The highest income inequalities according to the SHARE data can be found in Portugal (Gini=72) and Slovenia (Gini=57), and according to the OECD data, in Portugal (Gini=35) and Israel (Gini=37). The lowest values for income inequality emerge in Denmark (Gini=30), Sweden (Gini=31) and Austria (Gini=33) according to the SHARE data and in Denmark and Slovenia (Gini=24), followed by Belgium and the Czech Republic (Gini=26), Austria, Hungary and Sweden (Gini=27) according to the OECD data. As to the national patterns of income inequality, the

results of the SHARE resemble those of the OECD data and those of past research (as reported under 2.6.). In general, income inequalities are higher among the 50+ population than among the 20+ population. I could find meaningful differences between the two datasets for Slovenia, Belgium and Israel. While the SHARE data reports above-median levels of income inequality in those countries, in the OECD data they are below-median level.

Table 3: Gini net worth (NW), Gini net income (INC) and difference between Gini NW and Gini INC

Country	Country code	Gini NW		Gini INC		Diff. Gini NW/INC	
		SHARE	GWD	SHARE	OECD	SHARE	GWD
Austria	AUT	56	70	33	27	23	44
Belgium	BEL	45	65	47	26	-2	39
Czech Rep.	CZE	49	71	36	26	13	46
Denmark	DNK	54	93	30	24	24	69
Estonia	EST	67	68	52	32	15	36
France	FRA	51	74	39	30	12	44
Germany	DEU	57	75	39	29	18	46
Greece	GRC	45	69	43	33	2	35
Hungary	HUN	51	64	38	27	13	37
Israel	ISL	60	78	47	37	13	41
Italy	ITA	51	63	41	32	10	32
Netherlands	NLD	58	75	39	29	19	46
Poland	POL	56	73	35	31	21	42
Portugal	PRT	51	71	72	35	-21	36
Slovenia	SVN	51	63	57	24	-6	38
Spain	ESP	48	63	45	32	3	31
Sweden	SWE	55	82	31	27	24	55
Switzerland	CHE	61	82	39	30	22	53

Note: SHARE waves 2 (release 2.6.0) and 4 (release 1.1.1), GWD (Credit Suisse Research Institute 2010, 2011, 2012, 2013) and OECD (2013a). Own calculations.

The last two columns show the differences between the Ginis of income and wealth for each country. This informs us, whether a country's level of income and wealth inequality are either similar to or different from each other. We can see first that, in all countries except Belgium, Portugal and Slovenia (but only in the SHARE data), levels of wealth inequality are higher than levels of income inequality, which is in line with theory as well as with past empirical findings (e.g. Davies, Sandström, Shorrocks, and Wolff 2008). Similar levels of income and wealth inequality in the SHARE data can be found in Belgium, Greece, Slovenia

and Spain. Large discrepancies emerge in Denmark, Sweden, Austria and Switzerland.

According to the GWD/OECD data, income and wealth inequalities are similar in Spain, Italy and Greece and more dissimilar in Denmark, Sweden and Switzerland. As before, trends emerging from the SHARE data on the one hand and from the GWD/OECD data on the other hand are similar to each other, indicating high data quality, but can also point to the relative stability of patterns of wealth inequality over the life course.

Figures 3 (SHARE data) and 4 (GWD/OECD data) illustrate the findings of Table 3 in simple scatterplots. The x-axis indicates the level of income inequality, the y-axis indicates the level of wealth inequality. The thick lines represent median levels of income and wealth inequality over all countries in each dataset. At first glance, the two figures look quite different from one another. Firstly, there is a larger variance in levels of income inequality in the SHARE (older population) than in the OECD (overall population) dataset, while variance in levels of wealth inequality is larger in the GWD (overall population) than in the SHARE (older population) data. The median level of income inequality is higher in the SHARE (Gini=39) than in the OECD (Gini=31) data, and the median level of wealth inequality is higher in the GWD (Gini=69) than in the SHARE (Gini=53) data.

Upon closer inspection of Figures 3 and 4, results regarding the national patterns of income and wealth inequalities become more similar to each other. In both datasets, I could compose four country clusters, each containing countries with similar levels of wealth and income inequality. In both datasets, there emerges one cluster of countries with below-median levels of income but above-median levels of wealth inequality, which is made up of the two Scandinavian countries Sweden and Denmark (and also Austria according to the SHARE data).

Figure 3: Gini of income and wealth: SHARE data
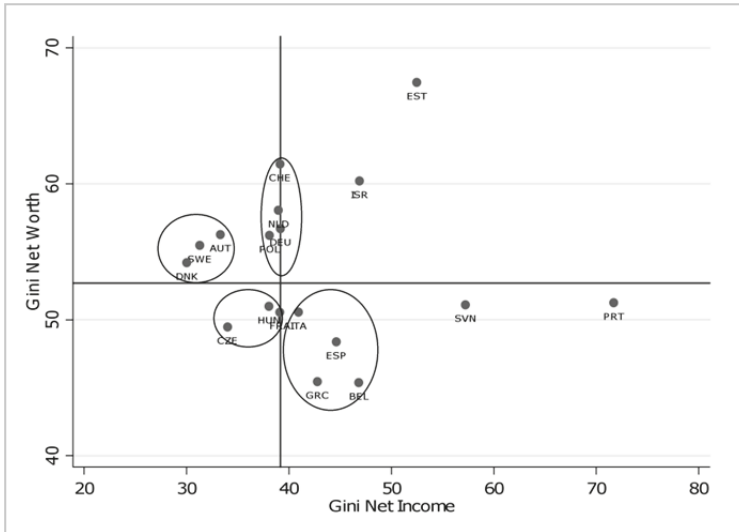
Note: SHARE waves 2 (release 2.6.0) and 4 (release 1.1.1).Own calculations.

Figure 4: Gini of income and wealth: GWD/OECD data
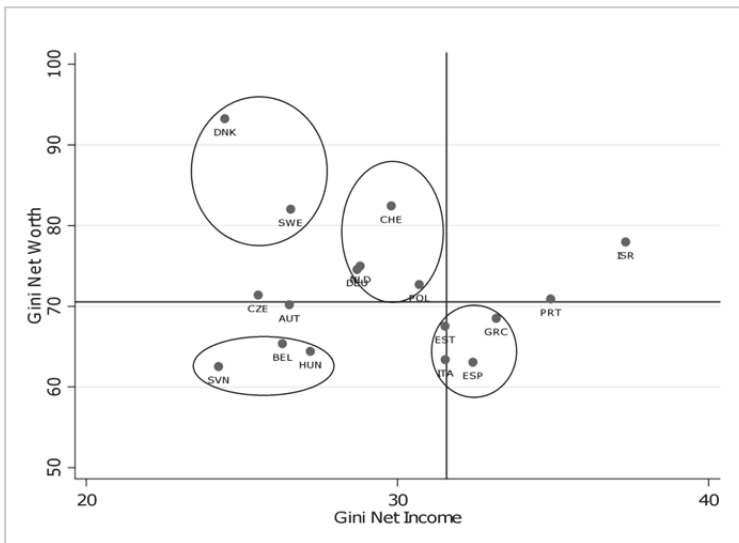
Note: GWD (Credit Suisse Research Institute 2010, 2011, 2012, 2013) and OECD (2013a). Own calculations.

A second cluster, which exhibits above-median levels of income but below-median levels of wealth inequality, is made up of the Southern European countries Italy, Greece and Spain in both datasets. In the SHARE data, Belgium, Slovenia and Portugal can also be assigned to this cluster. The latter two countries are, however, outlying due to their very high levels of wealth inequality. In the GWD/OECD data, Estonia also lies within this cluster and Portugal is fairly close to it, with its level of wealth inequality being, however, slightly above the overall median.

In the SHARE data, the rest of the countries scatter close to the median levels of income and wealth inequality. I generated a third cluster, made up of Switzerland, the Netherlands, Germany and Poland, which is characterized by median levels of income but above-median levels of wealth inequality. A fourth cluster, characterized by median levels of income and below-median levels of wealth inequality, consists of Hungary, France and the Czech Republic. Finally, Israel and Estonia are outliers with above-median levels of income and strongly above-median levels of wealth inequality. In the GWD/OECD scatterplot I generated a third cluster with levels of income and wealth inequality pretty close to the median. To this cluster, I assigned Germany, the Netherlands, Switzerland, and Poland (as in the SHARE data). Finally, there remains a fourth cluster with levels of income and wealth inequality below the median. This cluster consists of Slovenia, Belgium and Hungary. The Czech Republic and Austria are pretty close to this cluster. Israel remains as an outlier with high levels in both inequality in income and wealth.

Several conclusions can be drawn at this point. Firstly, both datasets show similar trends regarding patterns of income and wealth inequalities. In both datasets, I could construct four country clusters in total. Three of them almost completely overlap, while there is only a small number of countries located at significant different positions in the coordinate plane made up by the median levels of income and wealth inequality (Slovenia, Estonia, the Czech Republic, and Israel) in my two datasets. Secondly, I found countries to be distributed over all four quadrants of the coordinate plane in both datasets, meaning that there are countries with similar levels of income and wealth inequalities, as well

as countries that differ in the levels of income and wealth inequality they exhibit. At the same time, this means that the Esping-Andersen classification of welfare states, which is mainly derived from indicators related to the labor market, does not fully apply when it comes to national patterns of wealth inequality. I found two clear-cut groups that are characterized by strong differences in the levels of income and wealth inequality they exhibit in both datasets. A first group with high wealth and low income inequalities is made up of the Northern European countries, and a second group with low wealth and high income inequalities is made up of the Southern European countries.

Most surprising is certainly the first finding: the high levels of wealth inequality in the Northern European countries, known for their high level of social equality. Yet a number of studies have already reported this phenomenon, at least for Sweden (Roine and Waldenström 2009; Domeij and Klein 2002; Sierminska, Brandolini, and Smeeding 2006). Domeij and Klein (2002: 505) suggest that the generous public pension system (with a common benefit payable to each senior, as well as an upper limit to earnings-related pension benefits) explains the differences in the levels of income and wealth inequality to a large degree, as it reduces incentives for the low income-earners to save proportionately more than for the high-income earners. Roine and Waldenström (2009: 170) add that the wealth concentration in Sweden increased dramatically after 1980, due to "dramatic increases in stock returns at the Stockholm Stock Exchange between 1980 and 2000". In the same period, the value of large privately held family firms, making up an important share of Swedish private net worth, has strongly grown (Roine and Waldenström 2009: 169). For Denmark, however, no such studies are currently available.

2.10   SUMMARY AND CONCLUSIONS

In this chapter, I focused on answering two research questions. First, I wanted to find out how private wealth is distributed over countries, and second, I was interested to see if national patterns of wealth inequality resemble national patterns of income inequality. Previous research has largely neglected the importance of wealth in the process of social strati-

fication, being preoccupied with the determination of individual attainment (Kenworthy 2007). Only recently, there is a growing awareness among researchers that social inequality is a multidimensional phenomenon. In the light of demographic and social changes, measures solely related to the individual's position in the labor market are increasingly less suited to capture a society's level of social inequality. With this chapter, I contribute to this growing awareness by drawing attention to wealth. Past research provided a number of arguments suggesting that a sole reliance on levels of income inequality would result in a one-sided or even inaccurate picture of economic and, in a broader sense, social inequality.

Theoretically, there are reasons to assume both similarity and dissimilarity in a country's levels of income and wealth inequality. It is important to mention that wealth can stem from two sources, transfers and self-accumulation (income minus consumption). Wealth can be self-accumulated by saving parts of one's earned income. Saving earned income depends firstly on the ability to save and secondly on preferences to save. Finally, saving earned income also depends on the necessity to save.

If most of the wealth in a country is life-cycle wealth, then it is fair to assume that earnings differences strongly translate into wealth differences, controlling for individual preferences for saving. If a country offers a generous social welfare system, the necessity to save is low, which should result in a low median level of wealth in these countries when compared to countries with less generous welfare states. As these services are normally financed through taxes, a generous welfare state can, however, also result in a lower ability to save. Yet, this does not allow us to draw any inferences regarding the level of wealth inequality. Past research has been able to show that there exist meaningful differences in preferences for saving (the better-educated show higher preferences for saving) and in preferences for certain types of asset accumulation (Nordic countries show higher preferences for financial as opposed to real assets, while Southern countries show a strong preference for real assets), within as well as across countries. Finally, not only institutional, cultural and historic factors are likely to shape a country's distribution of

wealth, but also individual demographic and economic factors, such as the age composition of a population or shares of unemployment. However, if most wealth is transferred wealth, the distribution of wealth might be much more dependent on the taxation of wealth or inheritances. The question of how much wealth is transferred and how much is self-accumulated is, however, still unanswered, and the current data situation will not allow us to answer it in the near future.

In my empirical analyses, I studied and compared data from two different data sources referring to two different population segments (SHARE: 50+ population, GWD/OECD: 20+ population) in 17 European countries and Israel. My results showed the following: first, I found meaningful differences in levels of wealth between countries. The highest levels of median wealth (in times of median income) I found in the Southern European countries (Italy, Portugal, Spain), while the lowest values for median wealth emerged in the Eastern European countries (Czech Republic, Estonia, Poland, Slovenia). Second, levels of wealth inequality also differ strongly across countries. The lowest levels of wealth inequality are found in the Southern European countries (which showed the highest wealth rates), while, surprisingly, I found the highest levels of wealth inequality in the Northern European countries (Sweden, Denmark). Central European countries mostly show moderate levels of wealth inequality, while Eastern European countries are distributed over the full range of levels of wealth inequality. This grouping only partly complies with the national grouping based on levels of income inequality. I found as many countries with similar levels of income and wealth inequality as countries with strong differences in their levels of income and wealth inequality. Finally, I grouped countries according to their levels of income and wealth inequality. In both datasets, I was able to construct four groups. Three of them are almost identical. A first group with low levels of income and high levels of wealth inequality is composed of the Northern European countries. The Southern European countries form the second group, with high levels of income and low levels of wealth inequality. The Central European countries form the third group with medium levels of income and wealth inequality. The fourth group, with low levels of income and wealth inequality, is made

up of different countries in the two datasets, and results are thus less reliable.

So what do these findings imply? First and foremost, my results strongly suggest that income and wealth should be treated as two distinct dimensions of social stratification. Esping-Andersen's typology of welfare states (Gosta Esping-Andersen 1990; Gosta Esping-Andersen 1999), which still works reasonably well to describe national patterns of income inequality, cannot be applied when it comes to wealth. In light of the growing importance of wealth as an income substitute in older age and during retirement, stratification research should focus on wealth inequalities in order to gain a comprehensive understanding of the level of social inequality in modern societies. Further, my results lay the foundations for research on the sources and consequences of wealth and wealth inequality. Especially interesting are the national groups with different levels of income and wealth inequality: broadly, the Northern and Southern European countries. As such, this chapter sets the scene for the following chapters of this thesis, which will built upon this descriptive introduction.

3   THE COMPOSITION OF WEALTH: INCOME-RICH – ASSET-POOR?

A slightly different German version of this chapter has been published in *Berliner Journal für Soziologie* (Skopek, Kolb, Buchholz, and Blossfeld 2012).

3.1   INTRODUCTION

Socio-economic status as a key variable in social stratification research has, until now, been mapped primarily via occupational position and income. Considering the significant increase in employment uncertainty and employment risks since the 1980s (Blossfeld et al. 2007; Giesecke 2006; Kurz et al. 2008), it appears more and more inadequate to attempt to capture social inequalities via indicators that are solely related to the individual labor market position, particularly with regard to income. Income is a flow measure which can, for example, only partly account for individuals who do not participate in the labor force (e.g. homemakers) or for life stages in which a person does typically not participate in the labor market (especially retirement). In contrast to income, wealth – typically defined as financial plus real assets net of debts on them (i.e. net worth) – is a stock figure. Wealth can, for example, serve as a protection against foreseeable and unforeseeable financial difficulties resulting from job loss, divorce, or retirement. Thus, the consideration of accumulated wealth – alongside earned income – allows researchers to account for all persons in all life stages. In addition, wealth, or indeed its absence, can have more far-reaching and long-term implications for the individual's economic well-being than income alone. Despite the obvious relevance of wealth as an indicator of socio-economic status, for a very long time, social stratification research paid little attention to it. Only very recently, there can be observed a growing interest among social stratification scholars in addressing wealth as a determinant – but also as a dimension – of economic and in a broader sense social inequality.

Just like the one preceding it, this chapter has a strong empirical focus. My aim is to present empirical validation for the theoretical understanding of wealth as a separate dimension of social stratification and social inequality. In a first step, I will empirically determine the income-wealth relationship. If the income-rich (income-poor) and the asset-rich (asset-

poor) were the same group of persons, this would indicate a very strong accumulation of financial advantages for this particular group. In a second step, I will analyze the composition of wealth to establish whether households in different income groups hold different types of assets. Determining the composition of wealth is relevant for social stratification research, as different types of assets entail different advantages and disadvantages. A particular focus is set here on the distribution of owner-occupied housing as the quantitatively most important component of wealth in most countries (e.g. Kolb, Skopek, and Blossfeld 2013; Lewin-Epstein, Elmelech, and Semyonov 1997; Krivo and Kaufman 2004). Finally, I am also interested in the marginal impact of the various wealth components on national levels of wealth inequality, which have been described in chapter 2. Carrying out a decomposition analysis, I intend to find out whether a certain wealth component has an equalizing or disequalizing effect on overall levels of wealth inequality.

For my empirical analyses, I make use of the data from the second wave of the Survey of Health, Ageing and Retirement in Europe (SHARE), which provides comprehensive information on the financial situation of older households in 13 European countries. Studying the distribution of wealth within a population segment who have either already entered retirement, or are close to it, offers at least two undeniable advantages: first, it provides information on how successful individuals have been in accumulating wealth over their life course, and thus enables me to analyze the outcomes of the process of wealth accumulation. Second, because a substantial fraction of individuals over 50 are already out of the labor force, they will rely more on wealth than on income, which makes wealth a very important source of financial well-being for this population segment. This applies even more in the light of population aging, which is accompanied by cuts in public pension generosity, and consequently in an increasing importance of private provision for old age.

3.2 THEORETICAL CONSIDERATIONS AND PREVIOUS RESEARCH

3.2.1 THE INCOME-WEALTH RELATIONSHIP

The study of social stratification has, until recently, been characterized by an almost exclusive focus on inequalities deriving directly from the labor market, above all (earned) income. However, income is only one dimension of economic well-being. Recent studies increasingly emphasize the importance of wealth for a comprehensive understanding of social stratification (Spilerman 2000; Elmelech 2008; Semyonov and Lewin-Epstein 2011). While both income and wealth represent important components of an individual's economic standing, each has different properties. Income, generally understood as earned income, is a flow measure that represents an economic entity's financial situation at a certain point in time, or over a minor interval (usually a week, month or year). Income can considerably vary from one period to the next, and is usually bound to persons that are or have been actively engaged in the labor market. Wealth, on the other hand, is a stock figure that is accumulated over a longer period. Compared to income, which can be either consumed or saved (invested), wealth has many functions. These include an income function, an utility function, a security function, a power function, a social status maintenance function, a socialization function, and an inheritance function (Frick and Grabka 2009: 62). Whereas earned income stems from labor market activity, wealth can be derived through two channels: it can either be self-accumulated (saved/invested income), or it can stem from transfers (inter vivo transfers or bequests). Unlike income, the stock of wealth accumulated represents resources of the individual's past, present, and future (potential) financial well-being (Cowell, Karagiannaki, and McKnight 2012). Another important characteristic of wealth, further distinguishing it from income, is that once a certain amount of wealth has been accumulated it will replicate itself through the mechanism of compound interest. The growth in wealth will be exponential, as future accumulation depends on current accumulation. At the same time, the state of having no or only low wealth is likely to be persistent over time. From this it follows that the process of wealth accumulation is a typical process of cumulative advantage (DiPrete and Eirich 2006: 272f.). Inequality of advantage

grows over time. This is one important reason why the distribution of wealth is likely to be more unequal than the distribution of income. If, moreover, income and wealth prove to be strongly positively correlated this would indicate an even stronger process of cumulative advantage: fundamentally, those with high (low) income are those with high (low) wealth, and this status is characterized by an increase of advantage (disadvantage) over time. High (low) income individuals thus profit from a "double advantage (disadvantage)" with regard to financial well-being.

Previous studies indicate that a sole focus on earned income may lead to a one-sided or even inaccurate picture of economic inequality. For example, it has been found that levels of wealth inequality differ significantly from those of income inequality in a number of countries, among them Sweden, for example. This country is known for its equal distribution of income, but exhibits a very high level of wealth inequality (Cowell, Karagiannaki, and McKnight 2012; Sierminska, Brandolini, and Smeeding 2006). Other countries, however, exhibit similar levels of inequality in income and private wealth, among them the USA and Germany (Sierminska, Brandolini, and Smeeding 2006; Davies et al. 2008). Obviously, determinants of wealth inequality differ from those of income inequality, at least in some countries. As already explained above, wealth inequalities are typically more pronounced than income inequalities. Empirical studies support this argument (Díaz-Giménez, Quadrini, and Ríos-Rull 1997; Davies and Shorrocks 2000; Keister and Moeller 2000). In addition, the correlation between income and wealth is weaker than often assumed, with correlation coefficients around 0.5 for earned income in the USA and Canada (Budria Rodriguez et al. 2002; Díaz-Giménez, Glover, and Ríos-Rull 2011; Brzozowski et al. 2010) and 0.6 for disposable income in the USA (Budria Rodriguez et al. 2002; Díaz-Giménez, Glover, and Ríos-Rull 2011). Wolff (1996) states that this rather weak relationship can be partly traced back to the fact that the top wealth deciles earn very little compared to the wealth they hold, as they can generate income from their assets. This points to a previously mentioned characteristic of wealth (or of the wealthy themselves): the characteristic of self-reproduction. The relationship between earned income and wealth is further weakened by the fact that consumption in retirement is financed through transfers (public pensions) and accumulated

wealth. Consequently, Henretta and Campbell (1978) understand wealth as "an important aspect of economic and social status, particularly for the elderly".

Based upon these arguments, and on the findings presented in chapter 2, I assume that, a sole concentration on the distribution of income can only partly capture individual economic welfare –especially with regard to the older population – and that, secondly, the level of income inequality alone is an inadequate predictor of social inequality.

3.2.2 THE COMPOSITION OF WEALTH

Various studies have been able to show that the composition of wealth differs between countries (Christelis, Japelli, and Padula 2005), but also within countries along the income and wealth distributions, as well as according to socio-demographic variables such as age, gender or race (Oliver and Shapiro 1995; Choudhury 2003; Thompson 2013; Keister 2004). These differences in the wealth portfolio are of relevance for social stratification, as different types of assets entail different advantages and disadvantages. Financial assets, especially money in bank accounts, can be accessed quickly and easily, and can thus be used to facilitate consumption, while real assets, like housing, cannot. On the other hand, compared to real assets, financial assets are much more subject to interest rate changes and inflation, as compared to real assets. Furthermore, different types of assets are associated with different rates of return (Davies and Shorrocks 2000: 644). Assuming that the composition of wealth held by individuals is stable over time, information about interest rate changes of various types of assets can help to explain temporal variations in the distribution of wealth (Davies and Shorrocks 2000).

In quantitative terms, residential property occupies a central position in the wealth portfolio of households (Kolb, Skopek, and Blossfeld 2013; Lewin-Epstein, Elmelech, and Semyonov 1997; Krivo and Kaufman 2004). Nonetheless, when looking at wealth distributions internationally, differences in the quantitative importance of residential property in the population as a whole as well as over the different income quartiles may emerge. For Spain, Azpitarte (2010) showed that the wealth portfolio of households in the upper wealth deciles is fairly balanced, containing

residential property and other housing, as well as stocks and shares. For the middle wealth deciles, residential property is by far the most important wealth component. The wealth portfolio of the lower wealth deciles is mainly made up of consumer goods such as cars or televisions. Similar findings have also been reported for other countries, among them the USA (Kessler and Wolff 1991; Wolff 1994), Italy (Brandolini et al. 2006), and France (Denis Kessler and Wolff 1991).

As I am especially interested in the income-wealth relationship, in this chapter I will analyze and compare the wealth portfolio of different income groups in the 13 European countries that participated in the second SHARE wave. According to the findings of Azpitarte (2010), I expect homeownership to be the dominant asset in the wealth portfolio of the lower and middle-income groups, especially in countries with high homeownership rates, such as Spain. The wealth portfolio of the higher income groups I expect to be more diversified, with a higher importance of financial assets compared to the lower income groups. Financial assets I expect to be more prevalent in countries with lower homeownership rates.

3.2.3 THE DECOMPOSITION OF WEALTH INEQUALITY

In a third step, I will decompose national levels of household wealth inequality, which have already been presented in the previous chapter, to find out about the contribution of certain wealth components to the level of overall wealth inequality. A decomposition of total wealth inequality for the different components of wealth has rarely been conducted so far. Exceptions are the works of Azpitarte (2010) for Spain and Brandolini, Cannari, Alessio, and Faiella (2004) for Italy. Azpitarte (2010) was able to show that housing wealth in Spain, where homeownership is very widespread, can be considered as an equalizing component in total wealth inequality, at least from a pure relative inequality approach. He identified financial assets as disequalizing factors, whose value and portfolio share increase with the level of household wealth. Brandolini et al. (2004) found an increase in wealth inequality in Italy during the 1990s, which they trace back to an increase in the concentration of financial wealth.

I am especially interested in the question as to whether housing wealth has a disequalizing effect on overall levels of wealth inequality not only in countries with high homeownership rates, like Spain, but also in countries with low homeownership rates.

3.3 DATA AND METHODS

3.3.1 DATA

In my analysis, I make use of the second wave of the SHARE data.[11] This survey is an international, representative panel study of the population of Europe aged 50 years and older. It provides detailed, internationally comparable information on the financial and housing situation of older households. Compared to the overall population, the SHARE population is likely to possess higher wealth holdings: firstly, they have simply had more time to accumulate wealth (although of course also to "de-accumulate" some of it); secondly, they are more likely to have received an inheritance; and thirdly, a large part of the debt of this population is likely to have already been repaid.

In the second SHARE wave, conducted in 2006/2007, 33,281 people in 22,721 households from 13 EU member states participated. Table 4 illustrates the sample sizes per country. I decided to work with the second wave only as, at the time of writing this chapter, it covered the broadest range of countries and contained the most detailed information on private wealth holdings. A typical problem of questions addressing financial aspects is a high rate of item-nonresponse (Riphahn and Serfling

2005). The SHARE team is tackling this problem by applying a multiple imputation strategy for filling in missing values.[12] All financial values are adjusted for differences in the purchasing power of money across countries and over time (the reference is Germany in 2005; see Mannheim Research Institute for the Economics of Aging 2011 for further information) and refer to the household level.

Table 4: Sample size

	Country	Observations	Percent
	AT - Austria	897	4.28%
	BE - Belgium	2,022	9.65%
Central	CH - Switzerland	967	4.62%
Europe	DE - Germany	1,550	7.40%
	FR - France	1,844	8.80%
	NL - Netherlands	1,710	8.16%
Northern	DK - Denmark	1,663	7.94%
Europe	SE - Sweden	1,725	8.24%
Southern	ES - Spain	1,279	6.11%
Europe	GR - Greece	2,083	9.95%
	IT - Italy	1,786	8.53%
Eastern	CZ - Czech Republic	1,722	8.22%
Europe	PL - Poland	1,697	8.10%
	Total	20,945	100.00%

Note: SHARE wave 2 (release 2.5.0). Own calculations.

The key variables in my analysis are net income and net worth which I disaggregate into the following components: net financial assets (gross financial assets net of debts on them), net real assets (gross real assets, excluding housing wealth, net of debts on them) and net housing wealth (i.e. owner-occupied housing). In order to prevent problems of comparability of values of net worth across countries to the greatest extent, and in consistency with previous research, I further divide median net worth at time t by median net income at time t, and express net worth in terms of yearly income. I label this measure as "wealth rate".

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[12]   Five values were estimated for every missing value. All the analyses reported below I ran across the five imputations. A more detailed description of the imputation method used in the SHARE can be found in Christelis (2011). For further information on multiple imputation see Rubin (1987).

3.3.2 METHODS

I apply descriptive methods and correlation analyses to empirically de-
termine the income-wealth relationship and the composition of wealth,
measured as net worth. To examine the marginal impact of various
wealth sources on overall wealth inequality in the 13 European countries
in question, I apply the Gini decomposition, as proposed by Lerman and
Yitzhaki (1985). The Gini coefficient is a widely-used measure for eco-
nomic inequality in the social sciences. For the analysis presented in this
book, it is also the most appropriate measure, since the Gini coefficient
allows for zero and negative values, which are likely to emerge for net
worth.[13] For income and wealth (net worth) as discrete variables, the
Gini coefficient is defined as the ratio to the mean of half the average
over all pairs *(i, j)* of absolute deviations of income *(y)* or wealth *(w)*
between (in this case) households, as has been illustrated in Formula 2.

The Gini coefficient ranges between zero (total equality) and one (total
inequality).[14] In a next step, I will decompose overall wealth inequality
G(w) by the different wealth components. According to the decomposi-
tion method of Lerman and Yitzhaki (1985), which is based on the work
of Shorrocks (1982), overall wealth inequality *G* can be decomposed as
follows:

$$G = \sum_{k=1}^{K} S_k G_k R_k \tag{3}$$

S_k is the share of the wealth component *k* in total wealth, G_k is the Gini
of wealth component *k,* and R_k (the so-called Gini correlation) is the
correlation of wealth component *k* with the distribution of total wealth.

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[13] However this applies only as long as mean net worth is not lower than zero (Jenkins
and Jäntti 2005), which is the case here.

[14] The Gini coefficient might, however, take on values above one, if the mean of a certain
wealth component is lower than zero. This results in a loss of explanatory power re-
garding quantitative differences between the inequality of two distributions of in-
come/wealth (e.g. inequality in country A is twice as large as in country B), but not in
terms of qualitative differences (e.g. inequality in country A is larger than in country
B).

R_k indiates whether a certain wealth component k has an equalizing or disequalizing effect on overall wealth inequality. It is similar to Pearson's product-moment correlation (Pearson 1896) as well as to Spearman's rank-order correlation (Spearman 1904) and is defined as ranging between minus one and one. A positive (negative) value of R_k means that k has a disequalizing (equalizing) effect on overall wealth inequality G (Lerman and Yitzhaki 1985: 152). Finally, the percentage contribution P of a certain asset component k to overall wealth inequality G can be rewritten as:

$$P_k = S_k \frac{G_k R_k}{G} \qquad\qquad (4)$$

3.4   RESULTS

3.4.1 THE INCOME-WEALTH RELATIONSHIP

In a first step, I intend to establish the empirical determination of the income-wealth relationship. Figure 5 shows the percentage share of total wealth by the four income quartiles for all 13 European countries in my sample. If the two measures were perfectly correlated, wealth would be equally distributed over the income quartiles, which is obviously not the case. Substantiating both theoretical considerations and past research, income and wealth show a positive correlation (see Figure 7). Higher income quartiles possess higher wealth holdings. Yet in Greece, Poland, and Spain, the percentage share of total wealth of the first income quartile is higher than that of the second one. The share of total wealth of the two lower income quartiles is relatively small (less than 30%) in Switzerland, Germany, France, and the two Scandinavian countries Sweden and Denmark. In contrast to this, the two lower income quartiles can be labeled as "asset rich" in the Southern European countries (Spain, Greece, Italy) as well as in the two post- socialist countries (Czech Republic, Poland), where they hold around 40% of total net worth.

Figure 5: Percentage share of total net worth by income quartile
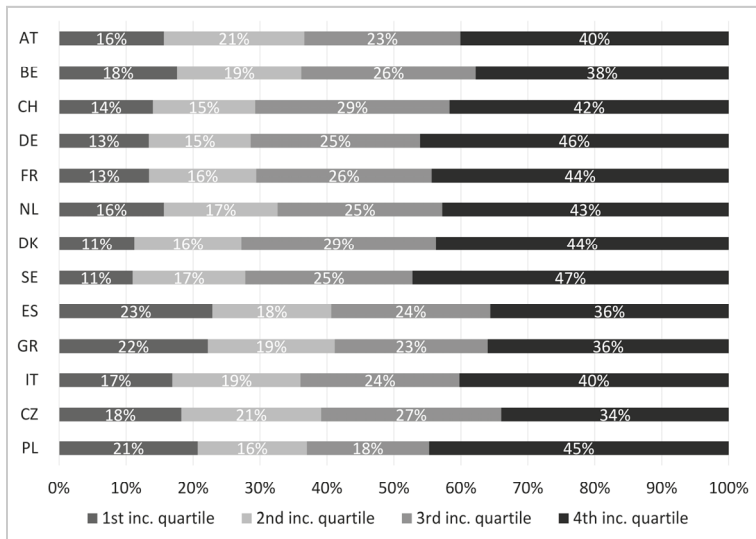
Note: SHARE wave 2 (release 2.5.0). Own calculations.

Figure 6 shows median wealth holdings for the overall population in the 13 countries and by income quartiles. My wealth measure is median net worth in terms of median income – the wealth rate. This relative wealth measure expresses each quartile's wealth holdings relative to their (last) annual income. The highest overall wealth rates can be found in Spain, followed by Italy, the lowest in Sweden and Poland. In most countries, the wealth rate actually decreases over the income quartiles. A very impressive example is Spain, where the first income quartile holds, on average, wealth to the value of 45 times that of their annual income. In Greece, too, the wealth rate of the first quartile is extraordinarily high. In the two Scandinavian countries Denmark and Sweden, but also in Germany, the wealth rate increases over the income quartiles. Also very interesting is the fact that in all countries, even the lowest income quartiles hold wealth equal to at least five times their annual income. Although this might partly be explained by the age structure of the SHARE population, this is still a quite remarkable number. It seems as if the SHARE population has been fairly successful in the accumulation of wealth over their life course.

Figure 6: Wealth rate, overall and by income quartile
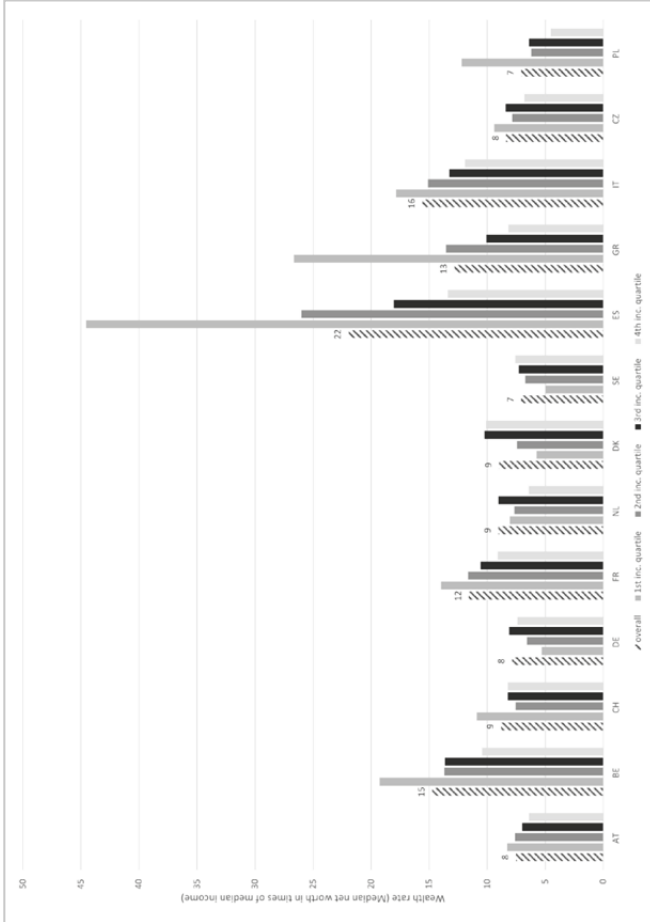
Note: SHARE wave 2 (release 2.5.0). Own calculations.

Figure 7: Correlation between net income and net worth, overall and by income quartile
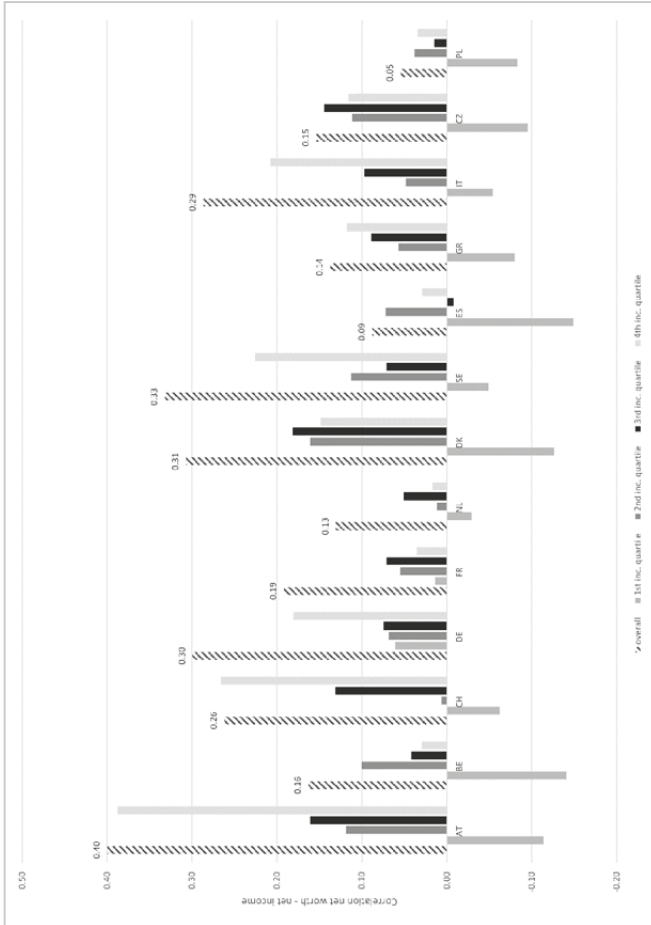
Note: SHARE wave 2 (release 2.5.0). Own calculations.

3.4.2 THE COMPOSITION OF WEALTH

My next step is to analyze the composition of wealth. Again, I will present a breakdown by income quartile, to see whether the composition of wealth of low-income households differs from that of high-income households, or if the latter just possess more of everything. In a first step, however, I will examine the homeownership rates across the 13 countries, as illustrated in Figure 8. In line with past findings, home ownership is not very common in Central and Northern European countries such as Austria, Sweden, Germany and Switzerland. On the other hand, homeownership is a widespread phenomenon in the three Southern European countries represented in SHARE. The high homeownership rates in these countries might explain the high share of wealth of the lower income quartiles within these countries, as illustrated in Figure 5, as well as their high wealth rates, as illustrated in Figure 6. The high homeownership rates in these countries might explain the high share of wealth of the lower income quartiles within these countries, as illustrated in Figure 5, as well as their high wealth rates, as illustrated in Figure 6. Castles and Ferrera (1996) state that the Southern European countries are an interesting exception among the advanced industrialized countries, as they combine high rates of homeownership with very generous public pensions. At the same time, however, these countries are characterized by a strong insider-outsider labor market: although welfare services are comparatively generous, they are only provided to those in core sector employment, while the increasing number of "outsiders" (i.e. those persons who are either unemployed or working in the informal sector, especially if they don't have family) receive very little (Allen and Maloutas 2004: 191). In this regard, the high homeownership rates in Southern Europe can be understood as a compensation for the poor safety net, an argument originally presented by Kemeny (1981). In most countries, homeownership rates increase over the income quartiles. In Spain and Greece, however, homeownership rates stay almost constant over all income quartiles.

Figure 8: Homeownership rates, overall and by income quartile
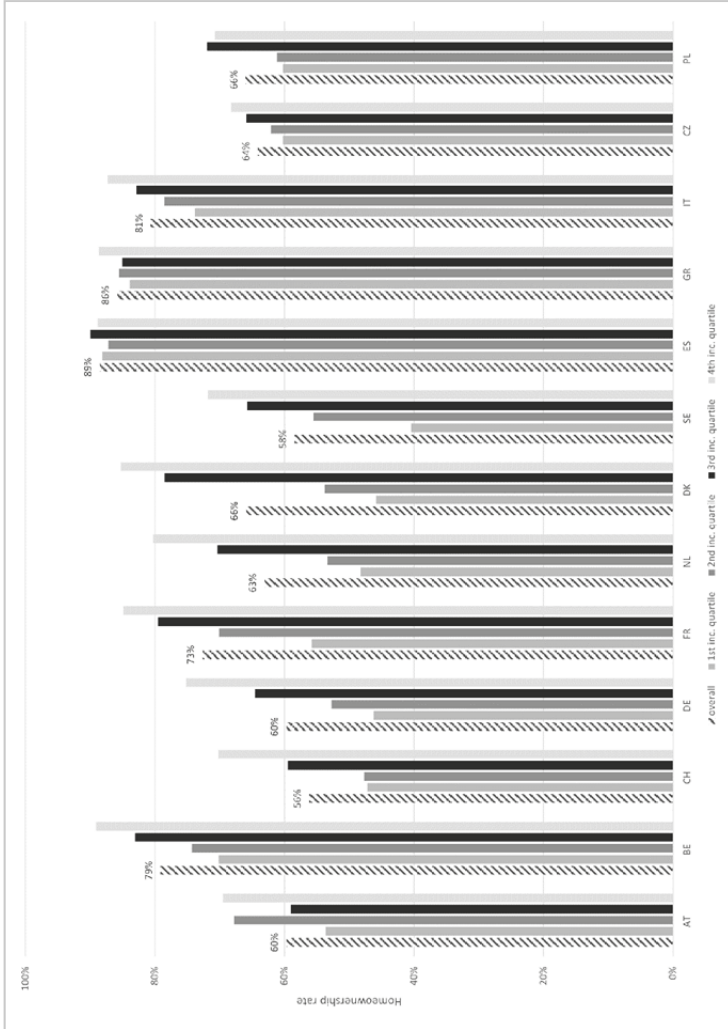
Figure 9: Composition of household wealth, overall
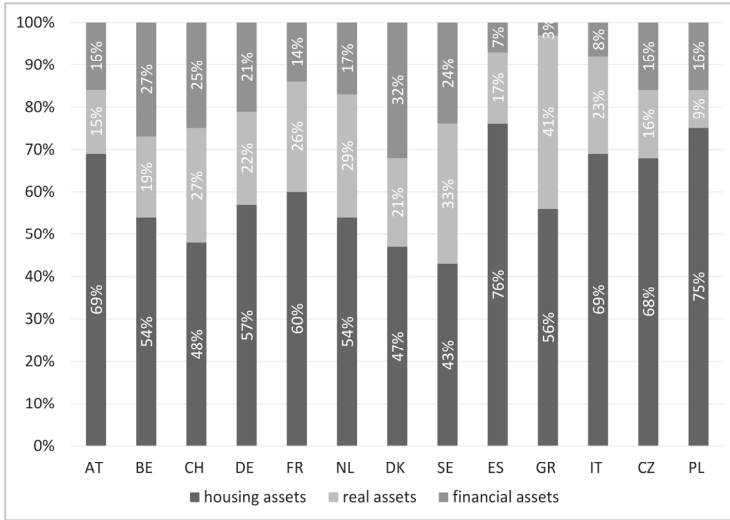
Note: SHARE wave 2 (release 2.5.0). Own calculations.

Figure 9 shows the composition of wealth across the 13 countries in my sample. Corresponding to past research, housing wealth is the quantitatively most important component of the households' wealth portfolio in all countries. In the Southern European countries Spain and Italy, the two post-socialist countries, and in Austria, the contribution of housing to total wealth is around 70%.

Overall, the relative importance of financial wealth, as compared to housing wealth, is fairly low. While financial wealth has only a minor importance for the household wealth portfolio in the Southern European countries (8% or less), in the Northern European countries, but also in Belgium and Switzerland, financial wealth accounts for at least 24% of total household wealth. Christelis, Japelli, and Padula (2005: 317) suggest a lower risk-adversity among the people in Nordic countries as a possible explanation for this finding. Alternative explanations might be country-specific cultural and historical factors that shape preferences for holding specific types of assets (Cowell, Karagiannaki, and McKnight 2013), country-specific historical experiences (inflation or war experi-

ence) (Feldstein 1995), or national differences in financial literacy (Lusardi and Mitchell 2011).

Figure 10 again shows the composition of wealth, but now by income quartile. In fact, there are huge differences in the household wealth portfolio across income quartiles. In contrast to the homeownership rate (Figure 8), the share of housing wealth decreases over income quartiles in most countries. This is, however, less the case in the Southern European countries. In Poland, the share of housing wealth on total wealth actually increases over income quartiles. Housing wealth is quantitatively the most important component of total household wealth in all countries, especially within the first and second income quartile. The wealth portfolio of the higher income quartiles is much more diversified compared to the lower ones, which implies greater stability in the case of financial or housing market crises, as well as better protection against inflation. The overall trends in our results corroborate the results of past research.

3.4.3 THE DECOMPOSITION OF WEALTH INEQUALITY

In this final section, I shall consider inequality patterns with regard to the various wealth components. Using the Gini decomposition method as proposed by Lerman and Yitzhaki (1985), I will also determine the relative contribution of each wealth component to each country's overall level of wealth inequality. The columns of Table 5 refer to the components of the Gini decomposition by Lerman and Yitzhaki (1985), discussed at greater length in the paragraph on my methods. The first column shows the Gini coefficient for overall wealth *(G)*. Overall wealth inequality is high in Poland, the Netherlands, Switzerland and Sweden, while it is relatively low in Austria, Belgium, the Czech Republic and the Southern European countries. This is in line with the results presented in chapter 2. A closer look at the Gini of the various wealth components *(G_k)* reveals an extraordinarily high level of inequality in real assets, especially in Poland and the Netherlands. Housing wealth is, however, relatively equally distributed. The level of inequality in financial assets lies between those of housing wealth and of real assets. Yet, in France,

Greece, Poland, Sweden and Spain, financial assets are less equally distributed than real assets.

Figure 10: Composition of household wealth by income quartile
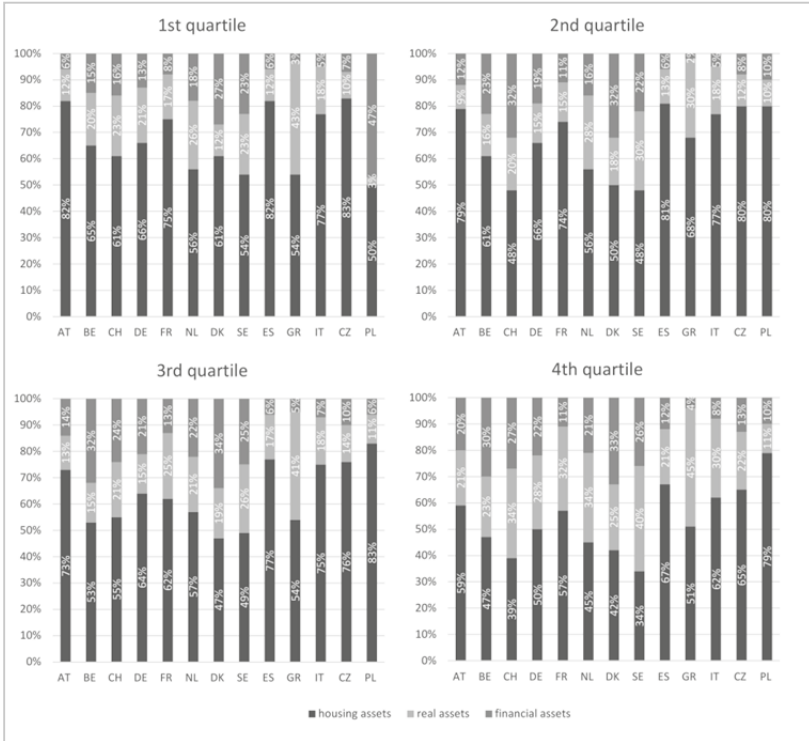
Note: SHARE wave 2 (release 2.5.0). Own calculations.

P_k shows the percentage contribution of each wealth component to the overall level of wealth inequality. In Germany, for example, 19% of total wealth inequality is attributable to financial assets, 27% is attributable to real assets, and 54% is explained by housing wealth. The effect of each wealth component on overall wealth (S_k) is somewhat different, as already seen in Figure 5. Housing wealth, for example, accounts for as much as 57% of total wealth in Germany, while it accounts for only 54% of total wealth inequality there. This indicates an equalizing effect of housing wealth on total wealth inequality. In general, the contribution of

housing wealth to the explanation of total wealth inequality is relatively high (60% and more) in Austria, Italy, and Spain, as well as in the Eastern European countries. These countries also show high rates of homeownership. In Belgium, France, and Greece, however, where homeownership rates are also very high, housing wealth contributes comparatively little to overall wealth inequality. The same applies for Denmark and Sweden. Conversely, these two countries also exhibit low homeownership rates. Real assets contribute considerably to overall wealth inequality (between 34% and 54%) in Greece, Italy, the Netherlands, and Sweden. In Belgium (31%), Denmark (33%) and Switzerland (25%), on the other hand, financial assets make a strong contribution to the explanation of overall wealth inequality. Finally, R_k shows the Gini correlation of the various wealth components. Negative (positive) values indicate an equalizing (disequalizing) effect of a certain wealth component k for overall wealth inequality G. In most countries, an increase in financial assets as well as in housing wealth would, ceteris paribus (c.p.), lead to a decrease in overall wealth inequality (negative correlation). Exceptions to this are Belgium, Denmark, Greece, and Poland. In these countries, an increase in financial assets would, c.p., lead to an increase in overall wealth inequality (positive correlation). An increase in real assets would, c.p., result in an increase in overall wealth inequality in all countries of our sample (positive correlation).

3.5   CONCLUSION AND DISCUSSION

The aim of this chapter, as well as of the whole thesis, is to find empirical validation for the theoretical understanding of wealth as a separate determinant of economic standing – alongside income – and as a distinct dimension of social inequality. In a first step, I determined the income-wealth relationship. Commensurate with theoretical considerations and past research, I found income and wealth to be positively correlated. Older European households, even those in the lowest income quartile, possess considerable amounts of wealth, equal to at least five times of their annual income.

Table 5: Gini decomposition by wealth component

	Net worth	Housing wealth				Real assets				Financial assets			
	G	G_k	S_k (%)	P_k (%)	R_k	G_k	S_k (%)	P_k (%)	R_k	G_k	S_k (%)	P_k (%)	R_k
DK	0.63	0.67	47	43	-.04	0.84	21	24	0.03	0.79	32	33	0.01
SE	0.67	0.73	43	40	-.03	0.85	34	38	0.04	0.88	23	22	-.01
AT	0.56	0.58	69	67	-.02	0.86	15	19	0.04	0.83	15	14	-.02
BE	0.51	0.44	54	40	-.14	0.86	18	28	0.09	0.74	27	31	0.05
CH	0.69	0.79	48	48	0.00	0.89	25	27	0.01	0.88	27	25	-.02
DE	0.63	0.64	57	54	-.04	0.88	22	27	0.05	0.80	21	19	-.02
FR	0.61	0.61	60	49	-.06	0.86	29	31	0.07	0.87	11	10	-.01
NL	0.69	0.68	54	46	-.05	0.94	24	36	0.08	0.76	22	18	-.03
ES	0.59	0.61	76	73	-.02	0.85	16	20	0.03	0.87	8	7	-.01
GR	0.55	0.47	56	41	-.15	0.80	40	54	0.13	1.54	4	5	0.02
IT	0.56	0.54	69	60	-.08	0.88	24	34	0.09	0.84	7	6	-.01
CZ	0.54	0.59	68	66	-.02	0.84	20	24	0.04	0.76	12	10	-.02
PL	0.75	0.74	75	72	-.03	0.95	19	12	0.01	1.01	15	17	0.02
All	0.64	0.64	62	58	-.05	0.89	24	29	0.05	0.88	14	13	-.01

Note: SHARE wave 2 (release 2.5.0). Own calculations.

In a second step, I analyzed the composition of wealth. In accordance with past research, I found significant differences in wealth portfolios across the income distribution. While owner-occupied housing is the most important wealth component in the countries' overall wealth portfolio, it is most meaningful for the middle income quartiles. Housing wealth is the dominant asset in the wealth portfolio of Spain and Italy, which exhibit very high rates of homeownership, but this is not the case in Belgium, where homeownership is also very common. The wealth portfolio of the top income quartiles is much more diversified than the lower ones', and thus less sensitive to financial shocks. In the Southern and Eastern European countries, households' wealth portfolios are strongly dominated by owner-occupied housing, while in the Northern European countries, financial wealth is relatively important for the households' wealth portfolios. Households in Northern Europe can thus relatively easily access – and consume or reinvest – their wealth, while the wealth of the households in Southern European countries is less easy accessible and much less mobile. Compared to the Southern European countries, households in the Northern European countries are, however, more sensitive to financial shocks.

In a third step, I analyzed the contribution of the specific wealth components (financial assets, owner-occupied housing, and real assets) to the countries' overall level of wealth inequality. Real assets are the most unequally distributed wealth component in all countries. The portfolio share of real assets increases with the level of household income. In all countries, an increase in real assets would result in an increase in the level of wealth inequality. Housing wealth and financial assets, on the other hand, were found to have an equalizing effect on wealth inequality in most countries. Overall, my results provide empirical evidence that the income rich are also the asset rich. The higher diversification of their wealth portfolios indicates the self-reinforcing nature of wealth, as well as that of wealth inequalities.

Coming back to the second chapter of this thesis, the results presented here indicate a positive relationship between high levels of owner-occupied housing – combined with the high importance of housing wealth in households' wealth portfolios – and low levels of overall wealth

inequality. This relationship is also indicated by the disequalizing effect of housing wealth on overall levels of wealth inequality.

My results can be understood as empirical support for the theoretical understanding of wealth as a separate dimension of social stratification. Knowledge regarding the levels and composition of household wealth can shed new light on the ongoing debate on old-age poverty. Even now, both poverty and richness are largely defined by disposable income, which is an incomplete definition of economic standing, as my results have shown. Depending on the wealth status of households in the various countries discussed here, it may be the case that the problem of old-age poverty has, until now, been both underestimated and overestimated.

4   MICRO-LEVEL DETERMINANTS OF WEALTH:
THE TWO DIMENSIONS OF HOUSING INEQUALITY

A slightly different version of this chapter has been published in *Comparative Population Studies* (Kolb, Skopek, and Blossfeld 2013).

4.1   INTRODUCTION

Studying homeownership[15] is of major sociological importance, as social inequalities are not only defined by educational, occupational or income inequalities, but also in terms of real property (Kurz and Blossfeld 2004a; Lewin-Epstein, Elmelech, and Semyonov 1997). Homeownership is an important purpose in life for many people. Individuals claim different reasons for their desire to purchase residential property, among them: independence from the landlord; capital investment; a long-lasting value which can also be transferred to the children; a secure old-age provision[16]; long-term protection against inflation; and a higher quality of life (Faller et al. 2001; LBS (Bundesgeschäftsstelle Landesbausparkassen) 2004). Moreover, homeownership can serve as a symbol of status and success (Constant, Roberts, and Zimmermann 2009).

Various studies have revealed that residential property is an essential factor for wealth accumulation (Brandolini et al. 2006; Sierminska, Brandolini, and Smeeding 2007; Frick and Grabka 2009b), a finding that I could replicate in the previous chapter. Yet there are major differences in homeownership rates in Europe, which vary between 35 percent in Switzerland and 83 percent in Spain (Euroconstruct/ifo 2009). The distribution of homeownership in general, but also the analyses of socio-economic determinants that affect the probability of becoming a home-

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[15]   With homeownership, I am referring to owner-occupied homeownership. The expressions "residential property", "homeownership" and "own homes" are used synonymously. The same applies to the expressions "housing value", "real estate value" and "value of residential property".

[16]   Some authors (Castles 1998; Kemeny 1981) also argue that there might be a trade-off between the expansion of homeownership and the generosity of old-age pensions within countries.

owner, have received the attention of a number of researchers (among them Kurz and Blossfeld 2004; Wagner and Mulder 2000). I, however, argue that the differentiation between owners and non-owners is only one dimension of social inequality in housing. Being a homeowner does not necessarily imply that a household is wealthy, as the value of a house heavily depends on the location, the social environment (neighborhood) as well as the quality of the residential property (Besley and Mueller 2009; Li and Brown 1980). The housing value reflects all these factors. Thus, in order to capture social inequality patterns in homeownership in their entity, it is important to also take into account the real estate value (see Figure 11), which has been a somewhat neglected aspect in research on housing in the social sciences so far (exceptions: Krivo and Kaufman 2004; Lewin-Epstein et al. 1997).

In this chapter, I will account for both of the above-mentioned dimensions of social stratification in housing by analyzing whether various socio-economic household characteristics differently affect 1) the probability of being a homeowner and 2) the value of housing within different European countries. In addition to that, I am 3) interested in the relationship between these two dimensions of social stratification in housing. The contribution of this chapter is thus twofold: Firstly, I provide a broad international comparison of homeownership rates and housing values, and secondly, I explore the relationship between those two dimensions of housing (inequality).

As in the previous chapter, the population on which I focus is elderly Europeans because it is at this stage of life that residential property is particularly common in all European societies (Sierminska, Brandolini, and Smeeding 2007). As the elderly are generally confronted with a considerable fall in their income when they retire, their socio-economic position can only be adequately determined when additionally considering wealth (e.g. Spilerman 2000). The financial position of homeowners (especially if their housing is free from debts) is strengthened by the fact that they do not need to invest money to rent a house or flat, so that they can spend these resources on consumption or savings (Wolff 2005: 1076). Considering the ageing of industrialized societies and the growing importance of private pension provision, I assume that wealth and

owner-occupied housing, as an important part of it, will even become more important in future. However, purchasing an apartment or a house can also have negative aspects, especially among the very old (75 years and above). High financial burdens, mobility restrictions and high (transaction) costs when selling residential property are often associated with homeownership (Bourdieu 1998; Häußermann and Petrowsky 1990; Häußermann and Siebel 2000; Sierminska, Brandolini, and Smeeding 2007). Moreover, in many cases housing is the only noteworthy wealth component of elderly households. As housing wealth is illiquid wealth, it cannot directly be used for consumption. Therefore, elderly homeowners are sometimes described as housing rich, but cash poor (Angelini, Brugiavini, and Weber 2009; Venti and Wise 2000).

In the following section, I will give an overview of the current research on socio-economic characteristics affecting the probability of homeownership and housing values. For my statistical analyses, I again use the second wave of the Survey of Health, Ageing and Retirement in Europe (SHARE). I apply logistic regressions to analyze household characteristics affecting the chance of being a homeowner, and linear regressions to analyze household characteristics that influence the value of housing among homeowners. I make use of a multilevel model to investigate the relationship between home-ownership rates and housing values. Considering housing inequality as a twofold process and analyzing it over a broad range of countries will enable social stratification scholars to obtain a multidimensional understanding of social inequalities in housing.

4.2 CURRENT RESEARCH AND EXPECTATIONS

4.2.1 THE IMPACT OF SOCIO-ECONOMIC CHARACTERISTICS ON HOMEOWNERSHIP RATES AND HOUSING VALUES

Housing is likely to be affected by various individual and household characteristics, such as age, household size, children, family status, education, occupation, income, inheritances, migration status and urbanization (Krivo and Kaufman 2004; Kurz and Blossfeld 2004a; Lewin-Epstein, Elmelech, and Semyonov 1997). The impact of these socio-economic characteristics does not necessarily need to be the same for

the two dimensions of housing inequality – homeownership rates and housing values.

Figure 11: The two dimensions of social stratification in housing
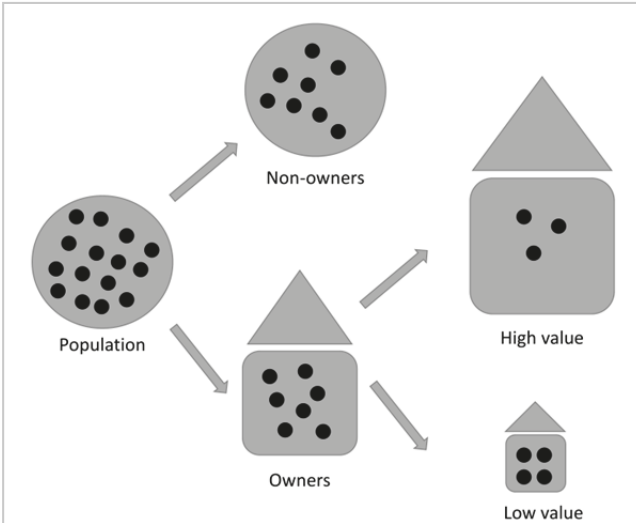
Note: Own illustration.

In addition, the national institutional settings, characterized by a country's welfare regime, should exert a major influence on its housing situation (Kurz and Blossfeld 2004a). Welfare regimes can affect the individual chances and incentives to acquire property (e.g. through taxation or housing allowances). Differences in social security systems, especially retirement systems, may affect the need to own a home as a part of private old-age provision (Dewilde and Raeymaeckers 2008). For example, homeownership plays a crucial role for old-age provisions in Southern European countries. These countries are characterized by a strong insider-outsider labor market. Thus, although welfare services are comparatively generous, they are only provided to those in core sector employment, while the increasing number of "outsiders" (i.e. those persons who are either unemployed or working in the informal sector, especially if they don't have family) receive very little (Allen and Maloutas 2004: 191). This stands in contrast to the universalistic Northern European

welfare system, where the overall population is entitled to welfare state provision (Allen and Maloutas 2004: 191). Moreover, there is a strong promotion of housing in Southern European countries, which is provided by the (extended) family that supports access to housing through the development of strategies that can secure housing for family members (Allen and Maloutas 2004: 190). In this regard, the high homeownership rates in Southern Europe can be understood as a compensation for the poor safety net, an argument originally presented by Kemeny (1981). As a result, in Southern European countries, residential property is the main if not the only wealth component in the household wealth portfolio, while in Northern Europe, it is of less importance (Sierminska, Brandolini, and Smeeding 2007). In order to capture country-specific differences in homeownership rates and housing values in my analyses, I will distinguish between Northern and Central Europe, following the welfare state typology of Esping-Andersen (1990), as well as and Southern and Post-socialist countries. Finally, welfare regimes can also influence the patterns and intensities of social inequalities in housing arising from the above-named socioeconomic characteristics.

The life-cycle hypothesis (Modigliani and Brumberg 1954) states that wealth grows with advancing age, as people accumulate increasing amounts of wealth throughout their working lives by saving parts of their income in order to keep their consumption level stable over their life course. When entering retirement, they then start "dissaving" (consuming their wealth). I assume that homeownership rates follow a similar pattern (Artle and Varaiya 1978). However, different studies have shown that the probability of being a homeowner only starts to decrease significantly from the age of 70 onwards (Tatsiramos 2006; Venti and Wise 2000). The reasons for this decrease are that the elderly put their homes in their children's names (e.g. for fiscal reasons), or sell them in case of the loss of the partner through death (Chiuri and Jappelli 2010), or to finance the move into an old people's home or into a smaller (rented) flat (Häußermann and Siebel 2000; Mulder and Wagner 1998). Yet, it has been found that many elderly retain their homes, which means that they have a high stock of illiquid capital that cannot be used directly for consumption (Angelini, Brugiavini, and Weber 2009; Attanasio, Leicester, and Wakefield 2011). A possible explanation for this finding

might be the individuals' motivation to bequeath their home to their children. Regarding my sample of elderly households, the homeownership rate should already be at its peak (Scanlon and Whitehead 2004), and should only slightly start to decrease with age. Given the current (market) value of residential property, I do not see any reason to expect differences over age in my sample. However, processes like "ageing in place" (which might result in age-homogenous residential areas) may result in decreasing housing values as people age. As this most often takes place in suburban areas (Frey 2011; Swiaczny, Graze, and Schlömer 2008), I argue that I can control for this effect by differentiating between urban and sub-urban areas in my analyses.[17]

The literature unanimously reports that household composition is crucial for the homeownership situation. Couples and families with children in particular live in their own homes more often compared to singles (Davidov and Weick 2011; Lewin-Epstein and Semyonov 2000; Mulder 2006; Wagner and Mulder 2000). In general, the probability of living in one's own home increases with a growing number of people living in the household, as residential property is often associated with a family-friendly residential area and comfortable living accommodation (Häußermann and Siebel 2000; Mulder and Wagner 1998). The value of residential property is also found to be positively influenced by the number of household members (Lewin-Epstein, Elmelech, and Semyonov 1997). When it comes to the property value, I assume that having a partner also has a positive effect, while I have no clear assumptions for parenthood and household size.[18] Finally, I expect family-related characteristics to be especially important in Southern European welfare states where families have a central influence on the standard of

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[17] Another phenomenon that might lead to decreasing housing values over age is the process of "asset meltdown". Yet, so far there is no empirical evidence that this process is actually taking place (see for example Börsch-Supan, Heiss, Ludwig, and Winter 2003).

[18] This is because more living space is needed with an increasing number of people living in a household, and at least in multigenerational households more people can help finance the property. However, more people and having children cause higher costs that reduce the financial resources available to purchase residential property, which could have a diminishing effect on the residential property value as well.

living and therefore also on the homeownership situation (Gosta Esping-Andersen 1990).

Previous studies have emphasized the significant influence of an individual's educational (and occupational[19]) status on the transition to homeownership (Kurz and Blossfeld 2004a; Wagner and Mulder 2000). Additionally, the chance of receiving bequests or inheritances increases with higher educational and occupational status, as these individuals often originate from higher-status families (Blau and Duncan 1967; Sandra Buchholz 2008; Szydlik and Schupp 2004). I expect educational attainment levels and income to increase the probability of homeownership as well as the value of residential property. The educational level should be particularly important in countries with a highly standardized, stratified education system and a strong vocational specificity (like Germany and Switzerland), as the impact of formal qualifications on the employment career, and therefore on the potential of wealth accumulation, shall be especially strong in these countries (Müller and Shavit 1998). In addition to that, I expect that households who received financial gifts or inheritances have a higher probability of being homeowners. Furthermore, if they own a dwelling it might be of higher value as intergenerational transfers enhance the household's wealth position.

In the U.S., households with migration background, especially those of African-American and Latin-American origin, are less likely to own residential property, and if they realize homeownership, their houses are often of low value (Krivo and Kaufman 2004; Lewin-Epstein, Elmelech, and Semyonov 1997; Parcel 1982). Although a higher educational background and growing income weaken the negative impact of a migration background on the likelihood of homeownership, different studies show clear evidence that even when controlling for these variables, discrimination on the housing market can still be observed (Chiteji and Stafford 1999; Horton and Thomas 1998; Krivo and Kaufman 2004). Possible explanations of these findings are migrants' disadvantaged labor market position, the fact that migrants less often receive bequests and inher-

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[19]   Occupational status is not included in my analyses as many people in my sample are already retired and their (former) occupational status is then unknown.

itances, migrants' information deficit on the local housing market, as well as discrimination against migrants in the credit approval process (Charles and Hurst 2002; Krivo and Kaufman 2004; Szydlik and Schupp 2004). So far, the question of whether this holds true for European countries as well is unresolved.

Due to the high real estate prices, greater financial resources are needed in cities in order to gain access to homeownership, thus reducing the probability of owning residential property (Kurz and Blossfeld 2004a). However, if owner-occupied housing has been realized successfully, it should consequently be of higher value in urban communities.

4.2.2 LINKING HOMEOWNERSHIP RATES TO HOUSING VALUES

In addition to the socio-economic factors that have an impact on homeownership rates and housing values, I am interested if there is a systematic relationship between these two dimensions. More precisely, I want to find out if high homeownership rates correlate with high housing values (positive relationship) or if they can only be realized at the cost of low housing values (negative relationship). To my knowledge, social stratification research has not yet adequately addressed this question. Theoretically, a positive as well as a negative relationship are imaginable.

Firstly, in countries with low ownership rates it might be the case that only a very selective group of better-off households achieves homeownership what would then result in high mean housing values (Poggio 2006). If this were the case, the homogeneous socio-economic composition of this group would be the explanation for the high mean housing values in these countries. Likewise, in countries with high homeownership rates homeowners might be a rather heterogeneous group (everybody has access to housing), which should lead to low mean housing values on the aggregate level, given that a large share of those homeowners cannot afford high-value housing.

Secondly, if a country's rental market is unattractive as compared to the homeownership market (e.g. low quality of rented housing or small rental sector), being a homeowner might be an interesting, desirable alternative to renting a home. If demand for homeownership is high,

housing prices are likely to increase. This however might still not deter individuals from buying residential property, pushing up housing prices even further. Thus, an unattractive renting market might lead to a positive relationship between homeownership rates and housing values. By running a set of multilevel regressions, I am statistically testing whether country-level variables can explain the variation in (individual) housing values.

4.3   DATA, VARIABLES AND METHODS

4.3.1 DATA

In my analyses, just as in the previous chapter, I make use of the second wave of the SHARE data[20]. This survey is an international, representative panel study of the population aged 50 years and older. The main advantage of the SHARE data is that it provides detailed, internationally comparable information on the financial and housing situation of households. As waves one and two were conducted in a rather narrow period of time (2004 to 2007) and for reasons of comparability with the previous chapter, I decided to work with the second wave only. The observation that becoming a homeowner in the life course is a slow process with few events encourages my decision (Venti and Wise 1989).

In the second wave, conducted in 2006/2007, 33,281 people in 22,721 households from 13 EU member states participated in the survey. After eliminating households with missing or implausible values as well as households where none of the individuals interviewed were aged 50+

(148 households), my final dataset contains 20,945[21] households. Table 6 illustrates the sample size per country.

A typical problem of questions addressing financial aspects is a high rate of item-nonresponse (Riphahn and Serfling 2005). The SHARE team is tackling this problem by applying a multiple imputation strategy for filling in missing values.[22] All financial values are adjusted for differences in the purchasing power of money across countries and over time (see Mannheim Research Institute for the Economics of Aging 2010 for further information).

Table 6: Sample size

Country	Observations	Percent
AT - Austria	897	4.28%
DE - Germany	1,550	7.40%
SE - Sweden	1,725	8.24%
NL - Netherlands	1,710	8.16%
ES - Spain	1,279	6.11%
IT - Italy	1,786	8.53%
FR - France	1,844	8.80%
DK - Denmark	1,663	7.94%
GR - Greece	2,083	9.95%
CH - Switzerland	967	4.62%
BE - Belgium	2,022	9.65%
CZ - Czech Republic	1,722	8.22%
PL - Poland	1,697	8.10%
Total	20,945	100.00%

Note: SHARE wave 2 (release 2.5.0). Own calculations.

4.3.2 VARIABLES

- Homeowner is the dependent variable in my first set of analyses. It differentiates between households owning residential

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[21]   For my analyses, I eliminated households with missing or implausible values in the following variables: owner (n=334), family status (n=3), migration status (n=88), educational level (n=60), retirement status (n=266), financial transfers/inheritances (n=260) and residential area (n=1,462).

[22]   Five values were estimated for every missing value. All the analyses reported below, I ran across the five imputations. A more detailed description of the imputation method used in the SHARE can be found in Christelis (2011). For further information on multiple imputation see Rubin (1987).

property (=owners) and households not owning residential property (=non-owners).

- Financial value of residential property is the dependent variable in my second set of analyses.[23] Financial value stands for the subjective market value estimated by the financial respondent.[24] It ranges between €0[25] and €27,950,000. As the distribution of this variable is very much skewed to the right, I use the variable's log value in my analyses.

- Age corresponds to the mean age of all household members surveyed. Age ranges between 34 (for households with people aged above and below 50 years) and 104 years. I also calculated age square to test the assumption that the rate of homeownership first increases with age and then starts to decrease.

- Household size controls for the number of individuals living in a household. It ranges between 1 and 14 persons.

- Family status informs whether the main respondent is living together with a spouse (family status=1) or as a single person (family status=0).

- Children controls for parenthood of the main respondent and his/her spouse, irrespective of whether the child still lives in the parental household.

- Migration status informs whether the main respondent and/or his/her spouse were born abroad (migrations status=1).

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[23] As I am interested in the actual value of residential property and not in households' level of indebtedness, I do not take into account the net but the gross value (market value). The fact that it is likely that the households are in different stages of their repayment and that the method of financing homeownership varies widely between countries makes it even more plausible for me to make use of the gross housing value.

[24] The exact question in the SHARE questionnaire was: "In your opinion, how much would you receive if you sold your property today?"

[25] Twenty households were assigned a housing value of zero. I kept them in the sample but for the analysis of the housing value, I added €1 to those households in order to calculate the logarithm of those housing values.

- Educational level (7 categories, ISCED-coded) equals the highest educational attainment level of the main respondent and his/her spouse. It ranges between 0 (pre-primary education) and 6 (second stage of tertiary education).

- I operationalize household income as total net annual income[26] and make use of an equivalence scale (total income divided by the root of the number of persons living in a household) to account for household size. It ranges from €0 to €727,000.

- Retirement status differentiates between households where the main respondent and/or his/her spouse are already retired vs. households where none of them is retired yet. As a large proportion of household members in the dataset are already retired, I use this variable for control reasons.

- Gifts and inheritances controls for whether a household has ever received a financial gift, inherited money, goods or property (of at least €5,000).

- Urban area informs whether a household is located in a big city or in the suburbs or outskirts of a big city (urban area=1) or in a small town or a rural area or village (urban area=0).

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[26] "The SHARE income measure reflects money income [after] taxes on a yearly base and includes only regular payments. Lump-sum payments and financial support provided by parents, relatives or other people are not included. The available data at the individual level include: income from employment; income from self-employment or work for a family business; income from (public or private) pensions or invalidity or unemployment benefits; income from alimony or other private regular payments; income from long-term care insurance (only for Austria and Germany). The available data at the household level include: income from household members not interviewed; income from other payments, such as housing allowances, child benefits, poverty relief, etc.; income actually received from secondary homes, holiday homes or real estate, land or forestry; capital income [. . .]. For homeowners, the data at the household level also include imputed rent, based on the self-assessed home value minus the net residual value of the debt (payments for mortgages or loans). The interest rate used for imputed rents is fixed at 4% for all countries. The SHARE definition of income does not include home business and other types of debts" (Paccagnella and Weber 2005: 357ff.).

4.3.3 METHODS

In order to account for socio-economic factors that have an effect on the probability of being a homeowner, I apply binary logistic regression models. Subsequently, trying to find socio-economic factors that affect the financial value of residential property, I use log-linear regression models. To find out about the relationship between homeownership rates and housing values, I finally run log-linear regression models once more, but this time in a multilevel framework. My unit of analysis is the household. The binary logistic model I am applying aims at estimating the probability *(P)* of belonging to the group of homeowners *(owner=1)*:

$$P(owner_i = 1) = \frac{1}{1 + e^{(\beta_0 + \beta_1 X_i + \varepsilon_i)}} \qquad (5)$$

I estimate a separate model for each country. For more details on the binary logistic model see Long (1997). To analyze the effect of different socio-economic attributes on the financial value of residential property (housing value), I apply a log-linear regression model, firstly in a single-level framework

$$\ln(hoval)_i = \beta_0 + \beta_1 X_i + \varepsilon_i \qquad (6)$$

and secondly in a two-level framework

$$\ln(hoval)_{ij} = \beta_0 + \beta_1 X_{ij} + \varepsilon_{ij} + u_j \qquad (7)$$

with the logarithmized housing value for households *i* clustered in countries *j*. X_{ij} are predictors on the household level and ε_{ij} is the household-level error term. $\beta_0 + u_j$ is the random intercept that varies across countries. For more details on multilevel regressions, consider for example Hox (2010) or Rabe-Hesketh and Skrondal (2008). Note that there are only 13 cases on the country level (level two). Although there is no consensus in the literature regarding the minimum number of cases for upper levels in multilevel analyses, 13 cases is without doubt very small. Simulation studies on two-level linear models claim that standard errors and variance components tend to be underestimated when the number of cases on the second level is smaller than 30 (Bell, Ferron, and Kromrey 2008; Hox 2010; Maas and Hox 2005). Hence, the statistical

power of my country-level effects might be rather small. To account for that, I additionally ran an alternative single-level regression with robust and cluster-adjusted standard errors. Results were largely the same. For substantive reasons, I finally opted for the multilevel estimation approach, which allows an explicit modeling of variance across countries.

Housing values by definition can only be observed for the group of homeowners. For the analysis of housing values, the most obvious strategy would therefore be to drop non-owners out of the sample. This strategy was applied until the late 1990s (Horton and Thomas 1998; Myers and Chung 1996; Parcel 1982). The 1997 article by Lewin-Epstein et al. was one of the first to state that restricting the analysis to homeowners can lead to biased estimations, as being a homeowner might be the result of a self-selection process. To avoid selection bias, the authors applied tobit regression models (also called censored regression models, see Tobin 1958) instead of linear regressions. Krivo and Kaufman (2004) applied the same strategy. However, neither of the two articles comprehensibly explains that a sample selection problem with regard to their specific research question indeed exists. I argue instead that, if one is interested in determinants of housing values among the group of homeowners, one cannot diagnose a bias in the analysis due to restricting the sample on homeowners. In fact, in this case, the selection process (the decision to become a homeowner) creates a necessary precondition for the outcome (the housing value) (cf. Rohwer 2012). When applying the tobit regression, Lewin-Epstein et al. (1997) as well as Krivo and Kaufman (2004) are thus modelling a very specific and very hypothetical choice situation[27]: the choice for a certain housing value by an individual who has not yet purchased a house. However, in this chapter I am explicitly not interested in this hypothetical decision at all. Rather, I am interested in the realized distribution of housing values of households who actually own a home. Thus, when analyzing the housing value, I will restrict my sample to homeowners. More precisely, I will carry out a two-part model. Firstly, I regress on the chance of being a homeowner

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[27]   The same holds true for the Heckman selection model often used as an alternative to the tobit regression (Heckman 1979).

among all households, and secondly I regress on the value of housing among those households who own a home.

4.4   RESULTS

4.4.1 DESCRIPTIVE OVERVIEW

For my descriptive analyses I use cross-sectional calibrated weights[28] (see Börsch-Supan et al. 2005: 21). Table 7 shows the distribution of socio-economic household characteristics among homeowners in comparison to the overall population in my sample. About 70 percent of the households live in their own real property. Country differences in homeownership rates are also illustrated in Figure 12. Especially in Southern European countries like Spain, Greece and Italy, home ownership is a widespread phenomenon, which is in line with current research. Also in some Western European countries such as Belgium and France, many elderly households live in owner-occupied property. In contrast, home-ownership is, as expected, less common in Austria, the Czech Republic, Sweden, Germany and Switzerland. I compared my findings with data collected by Euroconstruct/ifo (2009) covering the whole adult population. As expected, the rate of homeowners is higher in my sample of older households.[29] The ranking of countries is very similar in both cases. The average value of residential property among homeowners in the SHARE data is €260,530; the median value is €194,960 (right-skewed distribution).

The highest median housing value can be found in Switzerland (€306,210) and the lowest in Poland (€48,430).[30] These findings are illustrated in Figure 13. In Continental Europe, median housing values are

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[28]   These weights compensate for problems of unit-nonresponse and sample attrition (Mannheim Research Institute for the Economics of Aging 2011).

[29]   The Czech Republic and Sweden are the only cases where homeownership among the adult population is higher than among older households.

[30]   The term "housing value" is used in this chapter as a synonym for the gross housing value (market value). In general, the share of households with a mortgage on their real property is low due to the age structure of the sample (with the exceptions of Denmark, the Netherlands, Sweden and Switzerland).

generally rather high (above €194,000),[31] while they are comparatively small in the post-socialist countries. Table 7 further shows that households owning a home are slightly younger on average than the overall population. In line with my expectations, compared to the overall population, owners more often live in a steady partnership (72.4% vs. 65.8%), but in only slightly larger households (2.30 vs. 2.21 persons).

With respect to parenthood, there are only minor differences between the two groups. Among homeowners, 7.9 percent of the households have a migration background, in contrast to 10.6 percent of the total population. The overall share of migrants is comparably low in Southern Europe and Poland, while it is remarkably high in France, Germany and Switzerland. As expected, owners have a higher level of education than the overall population. The mean educational level is particularly low in Southern Europe. The median income of homeowners (€15,590) is also higher than that of the overall population (€14,680).

With regard to the overall population, median income is comparatively low in Eastern and Southern Europe, while it is rather high in France, the Netherlands and Switzerland. Retirement status does not differ between owners and the overall population. Homeowners appear to benefit more often from financial gifts or inheritances compared to the total population (29.5 percent vs.25.4 percent). Finally, homeowners live less often in urban areas compared to the total population (39.2 percent vs. 44.5 percent).

[31]   With the exception of Austria: €153,440.

Table 7: Socio-economic household characteristics, overall and by population group

| | All Countries | | Northern Europe | | | | Continental Europe | |
| | | | DK | | SE | | AT | |
	All	Owner	All	Owner	All	Owner	All	Owner
Owner=yes (%)	70.30	-	66.67	-	57.50	-	59.90	-
Age - μ (σ)	65.94	65.44	65.11	63.00	66.34	64.51	67.16	65.28
HHsize - μ (σ)	2.21	2.30	1.80	1.98	1.90	2.11	1.90	2.08
Married=yes (%)	65.78	72.38	62.46	76.31	67.53	82.86	57.38	67.33
Child(ren)=yes (%)	88.46	89.33	89.94	91.02	91.05	93.75	87.08	88.77
Migrant=yes (%)	10.64	7.88	4.94	4.40	10.99	9.73	8.91	7.06
Education (ISCED) - μ (σ)	2.50	2.52	3.32	3.51	2.71	2.80	2.89	3.00
Retired=yes (%)	60.04	60.26	53.43	47.96	59.21	54.12	70.84	67.17
Net eq. income* - μ (σ)	20.23	21.66	22.16	24.65	22.83	24.74	19.44	20.88
Net eq. income* - Median	14.68	15.59	19.10	22.28	19.56	21.88	16.99	18.01
Transfer/Bequest=yes(%)	25.38	29.51	43.33	49.73	46.05	51.29	20.98	25.92
Urban area=yes (%)	44.51	39.23	52.29	44.32	64.50	51.90	38.16	26.47
Housing value - μ (σ)	-	260,530	-	261,560	-	221,020	-	205,650
Housing value - Median	-	194,960	-	177,210	-	141,400	-	153,440
N (unweighted)	20,945	14,827	1,663	1,114	1,725	1,024	897	528

Table 7: continued

| | Continental Europe (continued) | | | | | | | |
| | BE | | CH | | DE | | FR | |
	All	Owner	All	Owner	All	Owner	All	Owner
Owner=yes (%)	80.40	-	57.40	-	58.26	-	74.62	-
Age - μ (σ)	66.22	65.72	65.85	63.88	65.72	65.18	65.99	65.44
HHsize - μ (σ)	2.01	2.09	1.99	2.18	1.98	2.11	2.02	2.06
Married=yes (%)	67.92	74.02	66.33	78.55	67.79	75.13	64.45	71.97
Child(ren)=yes (%)	88.63	88.83	85.19	88.02	87.58	88.19	88.66	89.78
Migrant=yes (%)	9.86	8.64	18.38	14.54	20.97	16.46	16.55	13.19
Education (ISCED) - μ (σ)	2.76	2.86	2.84	2.98	3.34	3.46	2.40	2.56
Retired=yes (%)	59.88	59.83	49.93	44.23	59.99	58.82	63.01	64.38
Net eq. income* - μ (σ)	22.28	23.27	30.10	34.16	24.13	27.55	27.20	29.92
Net eq. income* - Median	15.99	16.83	23.62	26.95	18.12	20.96	19.87	22.18
Transfer/Bequest=yes(%)	45.03	49.50	41.14	49.20	28.16	36.38	25.20	29.53
Urban area=yes (%)	40.95	36.31	30.75	17.91	42.17	33.38	43.13	38.20
Housing value - μ (σ)	-	231,240	-	487,650	-	232,670	-	336,400
Housing value - Median	-	194,660	-	306,210	-	196,900	-	221,030
N (unweighted)	2,022	1,608	967	552	1,550	932	1,844	1,349

Table 7: continued

	Continental Europe (continued) NL		Southern Europe ES		GR		IT	
	All	Owner	All	Owner	All	Owner	All	Owner
Owner=yes (%)	61.72	-	89.87	-	86.14	-	78.77	-
Age - μ (σ)	64.95	62.20	66.94	66.70	65.87	65.60	66.70	66.54
HHsize - μ (σ)	1.98	2.17	2.49	2.50	2.23	2.24	2.44	2.48
Married=yes (%)	67.94	79.61	66.75	70.27	64.22	66.87	68.50	73.23
Child(ren)=yes (%)	88.46	89.74	87.76	89.33	88.11	88.21	87.38	88.09
Migrant=yes (%)	6.97	4.72	2.94	2.14	2.65	2.44	1.95	1.71
Education (ISCED) - μ (σ)	2.78	3.12	1.64	1.63	1.98	2.00	1.85	1.92
Retired=yes (%)	44.03	39.19	15.74	15.90	14.25	14.49	15.85	16.40
Net eq. income* - μ (σ)	29.38	33.44	10.13	10.18	10.64	10.70	12.55	13.06
Net eq. income* - Median	20.90	23.91	52.34	53.12	52.66	53.50	63.72	66.89
Transfer/Bequest=yes(%)	28.17	36.50	22.12	23.36	24.57	25.84	20.25	22.51
Urban area=yes (%)	67.51	63.09	55.67	54.54	75.10	73.90	25.60	22.81
Housing value - μ (σ)	-	366,900	-	338,520	-	145,130	-	248,290
Housing value - Median	-	267,970	-	204,460	-	120,570	-	195,900
N (unweighted)	1,710	1,087	1,279	1,153	2,083	1,792	1,786	1,437

Table 7: continued

| | Eastern Europe | | | |
| | CZ | | PL | |
	All	Owner	All	Owner
Owner=yes (%)	59.34	-	64.13	-
Age - μ (σ)	64.80	64.00	64.44	64.27
HHsize - μ (σ)	2.08	2.17	2.88	2.91
Married=yes (%)	62.71	68.37	59.00	64.87
Child(ren)=yes (%)	93.72	93.55	91.83	92.25
Migrant=yes (%)	6.23	4.87	3.00	2.61
Education (ISCED) - μ (σ)	2.54	2.55	2.24	2.29
Retired=yes (%)	11.20	11.65	7.21	7.60
Net eq. income* - μ (σ)	9.10	9.21	5.33	5.75
Net eq. income* - Median	69.99	67.49	65.04	67.50
Transfer/Bequest=yes(%)	22.95	25.46	14.02	18.35
Urban area=yes (%)	65.22	59.13	46.38	39.46
Housing value - μ (σ)	-	105.800	-	111.090
Housing value - Median	-	84.970	-	48.430
N (unweighted)	1,722	1,130	1,697	1,121

Note: SHARE wave 2 (release 2.5.0), data weighted. Own calculations.

Figure 12: Percentage of homeowners in European comparison
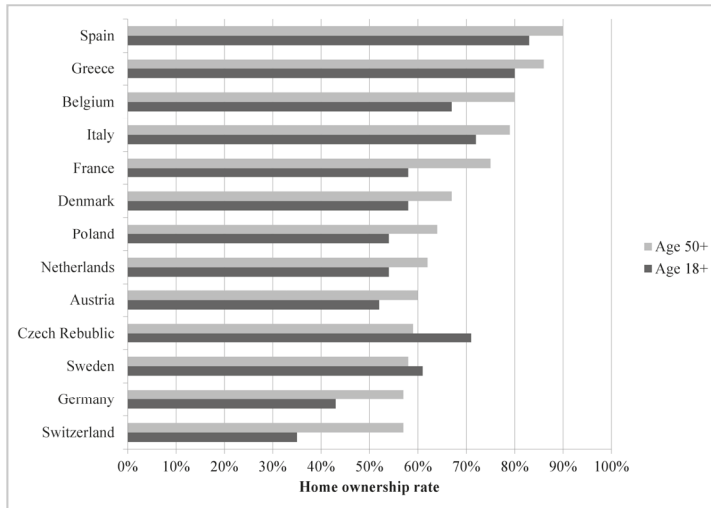
Note: Euroconstruct/ifo (2009) and SHARE wave 2 (release 2.5.0), SHARE data weighted. Own calculations.

4.4.2 WHICH SOCIO-ECONOMIC VARIABLES CAN PREDICT HOMEOWNERSHIP?

Table 8 contains the results of the logistic regression models (more detailed results can be found in Appendix A). In the following, I will focus on the direction and significance of effects. The likelihood of owning a home rises significantly with age in the Czech Republic, Germany, Italy, Spain and Switzerland. The quadratic age term – testing the assumption that the rate of homeownership first increases with age and then starts to decrease – has no effect on the probability of homeownership in our sample. This means that in the countries analyzed, homeownership rates do not decline with age, thus contradicting the basic life-cycle hypothesis (Modigliani and Brumberg 1954).

Figure 13: Mean and median values of houses
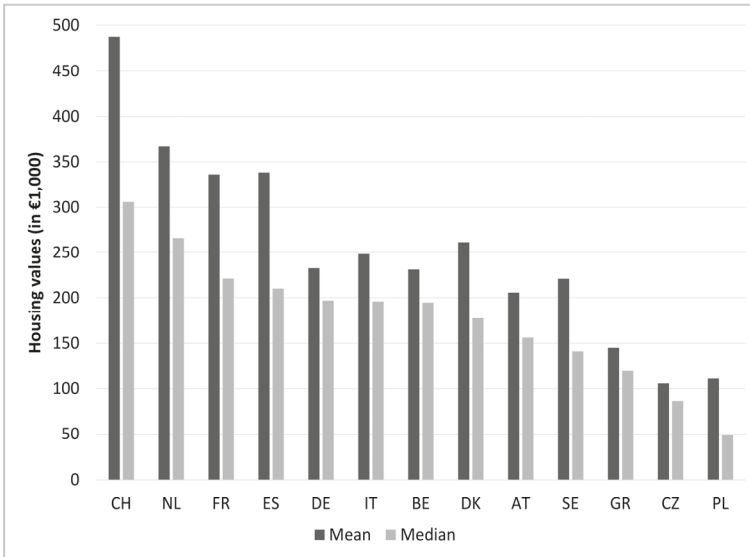
Note: SHARE wave 2 (release 2.5.0), data weighted. Own calculations.

Parenthood significantly affects the likelihood of belonging to the group of homeowners only in Switzerland. This might be because childlessness is a rather rare phenomenon in the population studied (see also Table 3). In Germany and Sweden, household size has a positive impact on the probability of being a homeowner. However, there is not much variation in household sizes across countries. Controlling for household size, households with a steady partnership have a significantly higher chance of belonging to the group of homeowners compared to other households (except for Austria and the Czech Republic).

I find a negative impact of migration background on the probability of being a homeowner in all countries analyzed, though the effect is not statistically significant in the Northern countries, Greece and Poland. Thus, the U.S. findings also apply to Europe. As expected, education has a positive impact on the probability of being a homeowner in all countries, though not statistically significant. Moreover, my findings highlight the positive impact of education in Central Europe, which is in line

Table 8: Logistic regression (with robust standard errors) on the chance of being a homeowner

	Northern Europe		Continental Europe					
	DK	SE	AT	BE	CH	DE	FR	NL
Age	(+)	(+)	(-)	(-)	+	+	(+)	(-)
Age²	(0)	(0)	(0)	(0)	0	0	(0)	(0)
Hhd. size	(+)	+	(+)	(+)	(+)	+	-	(+)
Partnership=yes	+	+	(+)	+	+	+	+	+
Children=yes	(-)	(+)	(-)	(-)	+	(-)	(-)	(+)
Migrant=yes	(-)	(-)	-	-	-	-	-	-
Education (IS-CED)	+	(+)	+	+	+	+	+	+
Hhd. net inc.	(+)	(+)	+	(+)	+	+	+	(+)
Retirement=yes	(+)	(-)	(-)	(+)	(-)	(-)	(+)	(-)
Transfer/Bequest=yes	+	+	+	+	+	+	+	+
Urban community=yes	-	-	-	-	-	-	-	-
Constant	(-)	-	(+)	(+)	-	-	(-)	(+)
Pseudo R²	0.21	0.19	0.15	0.15	0.18	0.35	0.15	0.20
N	1,663	1,725	897	2,022	967	1,550	1,844	1,710

Table 8: continued

	Southern Europe			Eastern Europe	
	ES	GR	IT	CZ	PL
Age	+	(-)	+	+	(+)
Age²	0	(0)	(0)	0	(0)
Hhd. size	(-)	(-)	(+)	(+)	(-)
Partnership=yes	+	+	+	0	+
Children=yes	(+)	(-)	(+)	(-)	(-)
Migrant=yes	-	(-)	-	-	(-)
Education (IS-CED)	(+)	(+)	+	(+)	+
Hhd. net inc.	(0)	(+)	(0)	(+)	(+)
Retirement=yes	(+)	+	+	-	(+)
Transfer/Bequest=yes	+	+	+	+	+
Urban community=yes	-	-	-	-	-
Constant	(-)	(+)	-	-	(-)
Pseudo R²	0.12	0.05	0.10	0.05	0.07
N	1,279	2,083	1,786	1,722	1,697

Note: SHARE wave 2 (release 2.5.0), data unweighted. Own calculations. + positive effect (p≤0.05); - negative effect (p≤0.05); (+)/(-) - not significant.

with previous research. Income has an impact on the probability of being a homeowner, particularly in Continental Europe. The control variable "retirement status" does not have a statistically significant effect on the likelihood of homeownership in most countries. This could be because the decision to acquire a home is mostly made before entering retirement. It is only in Italy where being retired positively affects the likelihood of homeownership. Financial gifts and inheritances have a positive effect that is statistically significant in all countries. As expected, homeownership is less probable in urban areas. Summing up, the results of the logistic models for the probability of being a homeowner are consistent with my expectations based on previous research.

4.4.3 WHICH SOCIO-ECONOMIC FACTORS CAN PREDICT HOUSING VALUES?

Table 9 contains the results of the linear regression analyses on the impact of socio-economic household characteristics on the logarithmized value of housing (more detailed models can be found in Appendix B). The impact of age is positive in almost all countries studied. Again, the quadratic term has no influence on my dependent variable. My analyses demonstrate – as expected – that household size and partnership status have a positive impact on the housing value. Household size has a positive effect that is statistically significant in the Southern and Eastern European countries as well as in Germany. The influence of parenthood is only statistically significant (positive) in Italy and the Czech Republic.

A very interesting finding is that migration status has no statistically significant effect on the value of housing in all countries except for Austria. This contradicts the findings from previous studies, mostly conducted in traditional immigration countries like the USA and Israel.

Education is not only important for the probability of homeownership, but also for the value of residential property. Higher education (except for Germany) as well as higher income significantly (in statistical terms) increase the housing value in all countries studied. Retirement status has no statistically significant impact on the property value in most countries. Transfers and bequests contribute to an increase in the value of residential property. Especially in Belgium, Germany, Poland, the Ne-

Table 9: Linear regression (with robust standard errors) on the logarithmized housing value

	Northern Europe		Continental Europe					
	DK	**SE**	**AT**	**BE**	**CH**	**DE**	**FR**	**NL**
Age	(-)	(+)	(+)	(+)	(+)	+	(+)	(+)
Age²	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Hhd size	(+)	(+)	(+)	(+)	(+)	+	(+)	(+)
Partnership=yes	(-)	(+)	(+)	+	(+)	(0)	(+)	+
Children=yes	(+)	(+)	-	(-)	(+)	(-)	(+)	(-)
Migrant=yes	+	+	+	+	+	(+)	+	(-)
Education (ISCED)	+	+	+	(0)	+	0	0	+
Hhd. net inc.	(-)	-	(-)	-	(-)	(-)	(+)	0
Retirement=yes	(+)	+	(+)	+	(+)	+	(+)	-
Trans-fer/Bequest=yes								+
Urban commu-nity=yes	+	+	(-)	-	(+)	(+)	(+)	-
Constant	+	(+)	(+)	+	(+)	(+)	+	+
R²	0.18	0.17	0.12	0.14	0.09	0.11	0.11	0.12
N	1,114	1,024	528	1,608	552	932	1,349	1,087

Table 9: continued

	Southern Europe			Eastern Europe	
	ES	GR	IT	CZ	PL
Age	(-)	(+)	(+)	(+)	(+)
Age²	(0)	(0)	(0)	(0)	(0)
Hhd size	+	+	(+)	+	+
Partnership=yes	(+)	(+)	(+)	+	(+)
Children=yes	(+)	(-)	+	+	(+)
Migrant=yes	(+)	(+)	(-)	(0)	(-)
Education (ISCED)	+	+	+	+	+
Hhd. net inc.	0	0	+	(0)	(+)
Retirement=yes	(-)	(+)	(+)	(-)	(-)
Trans-fer/Bequest=yes	(-)	(+)	(+)	(+)	+
Urban community=yes	+	+	+	(-)	(+)
Constant	+	+	+	+	(+)
R²	0.14	0.19	0.16	0.08	0.11
N	1,153	1,792	1,437	1,130	1,121

Note: SHARE wave 2 (release 2.5.0), data unweighted. Own calculations. + positive effect (p≤0.05); - negative effect (p≤0.05); (+)/(-) - not significant.

therlands and Sweden, inheritances and financial gifts are important for the probability of being a homeowner as well as for the value of housing.

Consistent with my expectations, living in an urban area has a positive effect on the housing value, particularly in Southern and Northern Europe. A result that needs to be explored in more detail is that living in an urban area has a negative impact on the housing value that is statistically significant in Belgium and the Netherlands.

4.4.4 IS THERE A RELATIONSHIP BETWEEN HOMEOWNERSHIP RATES AND HOUSING VALUES?

To explore the relationship between homeownership rates and housing values on the country level, in a first step, I plotted all countries in a two-dimensional coordinate system (Figure 14). No clear relationship however becomes evident in the emerging picture. Two lines divide the coordinate system in Figure 14: The mean housing rate over all countries (70.3 percent) divides the y-axis, and the mean housing value (€260,530) divides the x-axis. Countries are evenly distributed across all four quadrants. There are as many countries showing a negative relationship between homeownership rates and housing values (GR, BE, IT, DK, NL, CH), as countries showing a positive relation (PL, CZ, AT, SE, DE, FR, ES).

Thus, in a next step I will carry out a multilevel regression to statistically test whether, controlling for individual characteristics of homeowners, the country context has a discrete impact on the housing value. Results are presented in Table 10. M0 shows that we have an intra-class correlation of 0.23, meaning that the households within countries are not independent from one another. The multilevel framework thus seems to be appropriate. The variance between countries is 0.23; the variance between households is 0.77. If I introduce the homeownership rate into the model (M1), I see a zero and not statistically significant impact on individual housing values. The variance between countries does not change at all from M0 to M1.

Figure 14: Homeownership rates and housing values
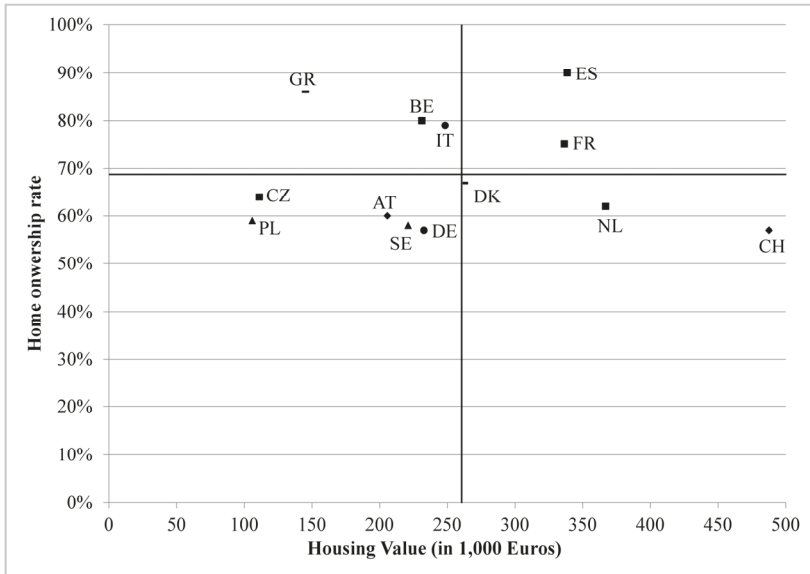
Note: SHARE wave 2 (release 2.5.0), data weighted. Own calculations.

In Model 2, I further include the country clusters. This explains a large share of the variance between countries. The Northern and Eastern European countries show significantly lower mean housing values compared to Continental countries. Finally, I include my household-level factors (the demographic and socio-economic household characteristics) into Model 3. This model is able to explain part of the variance between households.

Overall, homeownership rates and housing values show no systematic relationship. Whereas the homeownership rate itself cannot help to explain the differences in housing values, homeowners' socio-economic composition contributes to explaining them, as does the welfare state context to a considerable degree.

In the theoretical part, I argued that the socio-economic composition of homeowners could be an explanation for a negative relationship between homeownership rates and housing values. In countries with high home

Table 10: Multilevel regression (with robust standard errors) on the logarithmized housing value with households (Level 1) clustered in countries (Level 2)

	M0		M1		M2		M3	
Constant	5.07	***	5.18	***	5.53	***	3.49	***
Level-1-Variables								
Age							0.04	***
Age²							-0.00	***
Hhd. size							0.07	***
Partnership=yes							0.10	***
Children=yes							0.05	*
Migrant=yes							0.02	
Education (ISCED)							0.11	***
Hhd. net inc.							0.00	***
Retirement=yes							-0.03	
Transfer/Bequest=yes							0.10	***
Urban community=yes							0.11	***
Level-2-Variables								
Homeownership rate			0.00		0.00		0.00	
Continental					Ref.		Ref.	
North					-0.40	*	-0.43	*
South					-0.31		-0.20	
East					-1.23	***	-1.11	***
N (level-1)	14,82		14,82		14,82		14,82	
	7		7		7		7	
N (level-2)	13		13		13		13	
ICC	0.23		0.23		0.07		0.07	
Variance Components								
Variance between								
households	0.77		0.77		0.77		0.70	
Variance between								
countries	0.23		0.23		0.05		0.05	

Note: SHARE wave 2 (release 2.5.0), data unweighted. Own calculations. *p≤0.05, *p≤0.01, ***p≤0.001.

ownership rates and low housing values (like in Belgium, Greece and Spain), homeowners would be a rather heterogeneous group with regard to socio-economic characteristics, while they would be a homogenous group in countries with low homeownership rates and high housing values (like in Switzerland, Germany and Sweden). To test for the validity of this argument, I carried out a Heckman selection test (Heckman 1979). I found the group of homeowners to differ significantly in their demographic and socio-economic composition from the overall population (including homeowners, non-homeowners and owners of houses that are rented out) in seven countries; four of them with comparatively low homeownership rates – Denmark, Germany, Sweden and Poland –

but three of them with rather high rates – Belgium, Greece and Spain. Thus, the socio-economic composition of the group of homeowners does seem to work as an explanation for the negative (though not statistically significant) relationship between homeownership rates and housing values at least in some countries.

To conclude, my statistical analyses do not show evidence for a systematic and meaningful relationship between homeownership rates and housing values among the 13 countries of my sample.

4.5   CONCLUSION AND DISCUSSION

In times of demographic ageing and less generous public pensions, wealth will probably gain in importance for the financial well-being of the elderly. To determine the socio-economic position of households, it is therefore important to consider not only income, but also the stock of wealth and especially homeownership as a central component of it. The underlying question driving my research was: Who is successful in accumulating housing wealth? Housing wealth respectively inequality in housing wealth, I understand as a two-dimensional phenomenon, with homeownership being the first dimension of and the value of housing being the second dimension. Previous studies mainly focused on the distribution of homeownership, while neglecting its value. The value of housing, however, significantly determines the wealth position of households and therefore patterns of social inequality.

In this chapter, I have adopted a comparative perspective in order to find out which socio-economic household characteristics affect these two dimensions of housing. My special interest was to find out whether there are characteristics that differently affect these two dimension of housing. Finally, I was also interested if I could find a systematic relationship between the two dimensions of housing as such.

Making use of the SHARE data, which is an international, representative panel study of the population aged 50 years and older, I empirically analyzed my research questions across 13 European countries. To find out about socio-economic household characteristics that can predict the likelihood of being a homeowner, I conducted a series of logit regres-

sions. My results were mostly consistent with previous research. In order to find out about socio-economic household characteristics that can predict the housing value, I carried out a series of log-linear regressions on the sample of homeowners. To avoid selection bias, recent scholars applied censored regression models instead of linear regressions. I instead argue that the selection process of becoming a homeowner is a necessary precondition for the housing value to be observed and thus, no selection bias will emerge with regard to my research question.

My analyses showed that the impact of socio-economic household characteristics on the probability of being a homeowner, on the one hand, and the value of housing, on the other, is not identical. For example, the effect of education and income is statistically significant for both dimensions in most countries, whereas the influence of family-related characteristics varies: Having a partner seems to be especially important for being a homeowner, while household size mainly affects the value of housing. Most interesting, my results showed that the main obstacle for migrants is the access to homeownership. Once they obtained residential property, their housing values do not differ from those of homeowners without migration background. Thus, in contrast to previous results for the USA and Israel, migration status only affects the first dimension of housing inequality among elderly Europeans.

The most interesting country differences I found also with regard to migration background. The negative impact of migration background on the likelihood of being a homeowner is statistically significant in all continental European countries, while it is not so in the Northern European countries and in some of the Southern and Eastern European countries.

Finally, a set of multilevel regression results could not reveal any systematic relationship between homeownership rates and individual housing values. My results did thus not show statistical support for a systematic relationship between the two dimensions of housing inequality.

This chapter contributes to the literature by providing a broad international comparison on socio-economic household characteristics that can predict (1) homeownership and (2) the value of housing. It further contributes to current research by showing that (3) socio-economic house-

hold characteristics can differently affect the two dimensions of housing. Although I did not find statistical support for a cross-country relationship between homeownership rates and housing values in the SHARE data, I provided theoretical arguments for such a relationship to exist. Future research can take on these arguments and try to find statistical support for the existence of such a relationship in a larger set of countries.

My work shows different research paths and opens up further research question, which future research may follow. First, it would be fruitful to replicate my study with a larger set of countries. Second, it would be beneficial to apply longitudinal data in order to be able to trace back developments and analyze socio-economic characteristics of households at the time when they acquire residential property. Finally, it would be advantageous to address further macro-level indicators of homeownership rates and housing values. Among them, the overall demographic and economic situation, the design and extension of social security programs as well as cultural attitudes towards homeownership. As there is a large number of projects collecting data on especially private wealth holdings in an increasing number of countries and over longer periods, in some years it will be possible to follow up the research paths suggested in this chapter.

In conclusion, this chapter offers an innovative approach of an internationally comparative, two-dimensional analysis of housing inequalities. A valuable home provides individuals with economic resources, which can also be used to enhance overall well-being. In the light of the growing importance of private provision for old age, knowing about factors that can either boost or hinder the transition to homeownership will be essential for public policy decision makers.

5   MACRO-LEVEL DETERMINANTS OF WEALTH: PUBLIC PENSION GENEROSITY AND THE DISTRIBUTION OF PRIVATE WEALTH

5.1   INTRODUCTION

The rationale of social security is to protect individuals from poverty (Bismarck system) or, more generally, from a decline in standard of living (Beveridge system). These benefits provided by the welfare state – which are usually dependent on income or labor market experience or both, as well as the taxes to finance them – are likely to have an impact on individuals' saving behavior (Feldstein and Liebman 2002: 2247), which should in term affect aggregate private savings. However, Feldstein (1974) claims that social security can have any effect on private savings. The introduction of social security can reduce aggregate private savings because of a reduced need for private provision. On the other hand, social security can increase aggregate private savings, because it motivates individuals to retire earlier than they would have done otherwise. The competing effects might even cancel each other out.

There is a large empirical literature on the relationship between social security and individual but also aggregate capital accumulation. According to Feldstein and Liebman (2002: 2279) these studies can be best subdivided by the type of variation they apply in order to identify the impact of social security: time-series studies, cross-sectional studies, and cross-country studies. One of the earliest and most popular empirical studies was conducted by Martin Feldstein (1974) and belongs to the first subdivision. Feldstein found a strong negative relationship between social security (pension wealth) and aggregate capital accumulation. Other studies however found this relationship to be much weaker or even not existent (Barro 1978; Leimer and Lesnoy 1982; Lesnoy and Leimer 1985), what could be a result of the high sensitivity of time-series regressions to the exact time period chosen (Auerbach and Kotlikoff 1983; Feldstein and Liebman 2002). Empirical evidence from cross-sectional studies on the other hand, is relatively consistent. Cross-sectional studies found a negative relationship on the micro-level, with a substitution effect being considerably smaller than one (DE: Kim and Klump 2010; DK: Kapteyn, Alessie, and Lusardi 2005; IT: Attanasio and Brugiavini 2003; UK:

Attanasio and Rohwedder 2003; USA: Diamond and Hausman 1984; Engelhardt and Kumar 2011). Cross-country studies firstly, are comparatively rare and secondly, findings differ strongly in sign and magnitude of the effect of social security on aggregate capital accumulation. While Alessie, Angelini, and van Santen (2013) as well as Hurd, Michaud, and Rohwedder (2012) could find a displacement effect of pension wealth on private net worth across countries, Barro and MacDonald (1979) could not. With this chapter, I like to contribute to this third strand of research. As to the direction of causality, there are a few studies that try to approach this issue either by using pension reforms as natural experiments (e.g. Attanasio and Rohwedder 2003), simulations (Hubbard, Skinner, and Zeldes 1993) or certain techniques of times-series analysis (Kim 1992) to test for causality. These studies claim that the causal effect operates from the public pension system to individuals' saving behavior, which is assumed in this chapter as well.

A second contribution I want to make with this chapter is to relate social security not only to levels of private wealth but also to levels of private wealth inequality. Levels of private wealth inequality, as an additional dimension of economic and social inequality alongside income, have been found to differ significantly from those of income inequality in a number of countries, as shown in chapter 2. Among these countries is for example Sweden, which is known for its equal distribution of income but exhibits a very high level of private wealth inequality (Cowell, Karagiannaki, and McKnight 2012; Domeij and Klein 2002; Roine and Waldenström 2009; Sierminska, Brandolini, and Smeeding 2006). Other countries however exhibit similar levels of inequality in income and private wealth, among them the USA or Germany (Davies et al. 2008; Sierminska, Brandolini, and Smeeding 2006). In line with that, chapter 4 has shown that determinants of wealth inequality differ from those of income inequality, at least in some countries. Yet, little is known about macro-determinants of levels of wealth inequality. The few international comparative studies on the distribution of wealth are either designed as in-depth country studies without comparing results across countries (e.g. Wolff, 2006), or they do not explicitly address the issue of wealth inequality (Börsch-Supan 2003; Semyonov and Lewin-Epstein 2013). I argue that national differences in public pension generosity are not only

an important determinant of national differences in levels of private wealth but also of national differences in levels of private wealth inequality.

Summing up, in this chapter, I concentrate on the cross-country relationship between mandatory public pension wealth – the quantitatively most important part of social security – and the distribution of private wealth. More precisely, I aim to study two cross-country relationships: firstly, the relationship between the generosity of mandatory public pension systems and the level of wealth and secondly, the relationship between the generosity of mandatory public pension systems and the level of wealth inequality.

I address shortcomings of previous research in the following ways. Compared to previous studies, I focus on a wider range of countries with meaningful variation in the generosity of public pensions, as well as in levels of private wealth and private wealth inequality. The OECD provides comprehensive data on various characteristics of social security systems. Data about wealth levels and levels of wealth inequality I drew from the 'Global Wealth Databooks', as published by the Credit Suisse Research Institute. Further indicators I derived from Eurostat and the World Bank database. Combining these data sources allows me to study the relationship between public pension generosity and the distribution of private wealth across 40 countries. In addition, I relate social security not only to levels of wealth but also to levels of wealth inequality and suggest national differences in public pension generosity to be a meaningful determinant of national differences in levels of wealth inequality. A better understanding of the sources of national differences in the levels of private wealth is crucial for social stratification research, which increasingly understands wealth as a separate determinant of economic standing alongside income. Understanding the interactions between public pensions and accumulated private savings as a form of private insurance (Schunk 2007) is also important for policy makers in the light of the ongoing reforms of the public pension systems in most of the industrial countries. These reforms are primarily based on a strengthening of private forms of old age provision that go hand-in-hand with a cut down in public pension services.

5.2   PREVIOUS RESEARCH

5.2.1   THE SUBSTITUTION EFFECT BETWEEN PUBLIC PENSIONS AND PRIVATE SAVING

In his seminal study, Feldstein (1974) investigated the relationship between social security wealth (measured as pension wealth) and aggregate saving rates using aggregate time-series data for the US and found a large negative effect of social security wealth on individual saving rates. Anyhow, Feldstein and Liebman (2002) but also Attanasio and Rohwedder (2003) suggest that estimates from aggregate time-series may be inconsistent due to aggregation problems. Cross-sectional studies could however replicate this finding on the micro-level for the US (Diamond and Hausman 1984; Engelhardt and Kumar 2011; Gale 1998; Hubbard 1986; King and Dicks-Mireaux 1982), but also for other countries, among them Denmark (Kapteyn, Alessie, and Lusardi 2005), Germany (Kim and Klump 2010), Israel (Lavi and Spivak 1999), Italy (Attanasio and Brugiavini 2003; Jappelli 1995), and the UK (Attanasio and Rohwedder 2003).

Very recently, also a few cross-country studies have been conducted, further strengthening these findings (Alessie, Angelini, and van Santen 2013; Börsch-Supan 2003; Hurd, Michaud, and Rohwedder 2012). Alessie et al. (2013) use retrospective survey data to estimate the displacement effect of pension wealth on household savings (private net worth, micro-level data) among the population 50+ across 13 European countries. They find a mean displacement effect of 47 resp. 61 Cents decline on private net worth with each Euro of pension wealth, depending on the regression method applied (robust regression vs. median regression). Börsch-Supan (2003) guided six in-depth country studies in a comparative framework, analyzing individual saving behavior based on micro data. He interprets apparent differences in individuals' saving profiles of the participating countries as resulting from differences in the countries' institutional framework. More precisely, he infers a substitution of private savings through the public pension system. In a simple correlation table, he can show that the replacement rate of the public pension system is negatively related to the aggregated households' sav-

ing rate. This however holds only true when controlling for financial market imperfections, measured through down-payment ratios for owner-occupied housing. Yet, a sample of six countries is too small for a proper multivariate or multidimensional analysis. Hurd et al. (2012) use a combination of micro-data sources from aging surveys in 12 countries (10 continental European countries, the UK and the US) covering the age 50+ population to analyze the substitution effect between mandatory public pensions and private savings for retired males aged 65 to 75. Their country-level regression, on the ratio of financial wealth to lifetime earnings, which is similar to the one conducted by Feldstein (1980), shows a significant negative effect of public pension generosity. In a second step, they disaggregate their data and estimate a pooled regression where they include education and marital status fixed effects but no country fixed effects. The effect of public pensions stays almost the same. Finally, they also control for country fixed effects what results in an increase in the size of the effect of public pension generosity. They find a 22 Cents decrease of financial wealth for each Dollar increase in mandatory public pension wealth. Finally, I found one sociological study that analyzes the determination of private wealth among older households across 16 countries (14 European countries, the UK and the US). Semyonov and Lewin-Epstein (2013), however, do not find any systematic association between household net worth and country-level characteristics (e.g. GDP per capita, income tax, social expenditures).

Summing up, almost all past studies provide evidence for a negative relationship between public pension wealth and private wealth, at least on the micro-level. However, on the aggregated level empirical results on the relationship between public and private wealth are mixed. With my study, I try to shed some light on the ecological correlation between social security and private net worth. Doing this, I hope to contribute to a better understanding of national differences in private wealth.

5.2.2 THE RELATIONSHIP BETWEEN PUBLIC PENSIONS AND PRIVATE WEALTH INEQUALITY

Although indirectly addressed by a number of studies, the relationship between national differences in public pension wealth and levels of pri-

vate wealth inequality has not yet been systematically studied. However, literature provides various hints that public pension generosity might affect levels of private wealth inequality.

In fact, economic theory states that the average propensity to save increases with increasing income (Keynes 1936). Although there exists a number of studies that challenge the view of a positive relationship between saving rates and (lifetime) income (Furnham 1985; Gustman and Steinmeier 1999; Venti and Wise 1999), results of more recent studies find saving to be strongly concentrated among households with higher income (Dynan, Skinner, and Zeldes 2004; Huggett and Ventura 2000). Based on the argumentation of Keynes, Feldstein (1974) argues that the impact of pension wealth on individual saving rates is likely to vary across the income distribution, and suggests a complete offset between public pensions and private wealth for households especially in the lower and middle income distribution (p. 920). These differences in individual saving behavior across the income distribution and the resulting differences in the impact of public pension wealth on private savings are likely to affect the level of wealth inequality.

Often mentioned reasons for the lower propensity to save for households in the lower compared to those in the upper part of the income distribution are differences in the "taste for saving" (Alessie, Angelini, and van Santen 2013; Feldstein 1995; Furnham 1985) as well as saving and/or credit constraints (e.g. Attanasio and Rohwedder 2003; Jia and Zhu 2013). Several studies could further show that for households with low expected lifetime income, non-saving could be a utility-maximizing decision in the light of asset-based means tests to qualify for social security transfers in retirement, which are existent in most countries (Hubbard, Skinner, and Zeldes 1995). Such programs place an implicit tax rate of 100 percent on private wealth that is above the limit that is set to qualify for these transfers (Hubbard, Skinner, and Zeldes 1993; Hubbard, Skinner, and Zeldes 1994; Hubbard, Skinner, and Zeldes 1995). This strongly discourages saving for a considerable part of the population and makes being of low wealth likely to be an "absorbing state" (Hubbard et al., 1994: 175). Domeij and Klein (2002) in fact find a negative relationship between public pensions and the level of wealth

inequality in Sweden. According to economic theory, they argue that "a common benefit payable to each senior citizen (independent of lifetime earnings) will reduce the savings of low income earners proportionately more than for high-income earners and thus increases the inequality of wealth (provided that claims on future pensions are not included in measured wealth)" (p. 505).

Recently, it has been suggested to account for differences in financial literacy as an important determinant of saving behavior within and across countries (Bernheim 1998; Rooij, Lusardi, and Alessie 2012). Differences in financial literacy might explain part of the finding that usually the highly educated/high-income households are those who show a saving profile close to the assumptions of the standard life-cycle model, while the less educated/low-income individuals hardly save at all. In addition, first studies show that there are large national differences in financial literacy (Lusardi and Mitchell 2011). Finally, an increasing part of scholars agrees on the importance of psychological variables to complement economic theory on individual saving behavior (Feldstein 1995; Furnham 1985; Thaler 1994; Thaler 1990). Among these variables are self-control, taste for saving or other preference parameters like the degree of risk aversion. I will make use of a basic psychological concept to explain how national differences in the generosity of public pensions can explain national differences in levels of wealth inequality, which will be explained in the following

5.3   THEORETICAL FRAMEWORK

5.3.1 PUBLIC PENSION GENEROSITY AND LEVELS OF PRIVATE WEALTH

The standard life-cycle model developed by Modigliani and Brumberg (1954) is a powerful and flexible theoretical framework to explain individual saving behavior. The model assumes that saving behavior is the result of an optimization problem of inter-temporal consumption: Perfectly rationale and forward-looking actors are faced with a deterministic income path with low earnings at the beginning of their career that increase over their working life and drop to zero when they retire. Trying to keep their marginal utility of consumption constant over time, they

borrow in younger ages (consumption>earnings), save as their earnings increase (consumption<earnings) and dissave in retirement (consumption>earnings). In the basic model, there are neither capital market imperfections nor uncertainty (e.g. earnings insecurity or insecurity about the date of death). Saving is understood as earnings minus consumption. The only motivation for saving is provision for old age and there are no bequests (as people save only for retirement and have perfect knowledge about their date of death). Moreover, individuals work as long as they are able to. In this scenario, if a standard pay-as-you-go public pension system[32] is introduced – going along with an official retirement age – each unit of public pension wealth shall result in a one-unit decrease in private saving, suggesting a perfect substitution between public pensions and private saving. This shall translate into a negative effect of pension wealth on aggregate levels of private wealth. This translation shall however not be perfect, due to, for example interests on accumulated savings. Importantly to say, the introduction of a public pension system does not only decrease the necessity and thus the willingness of individuals to save, but, as public pensions are generally financed through taxes, it can also decrease the ability to save.

Based on the findings of Cagan (1965) and Katona (1964), Feldstein (1974) however, argued that the substitution effect between public pension wealth and private wealth holds only true for workers who anyway planned to retire around the official retirement age. For workers who planned to retire later than that, the introduction of an official retirement age would generally make them to retire earlier than they actually planned to. As this will lengthen their total period in retirement, the introduction of a pay-as-you-go public pension system could motivate these workers to increase their savings. Thus, the implementation of a pay-as-you-go public pension system could also have a positive effect on the level of private savings, which could even offset the negative one.

The substitution effect of public on private wealth is likely to be further attenuated by the different characteristics of the two measures (Frick and

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[32]   In all countries I analyze, the public pension system is a pay-as-you-go financed system or has been so until very recently.

Grabka 2013). In contrast to private wealth, no further income can be generated from pension entitlements. Pension entitlements cannot be used in any way other than receiving an income during retirement and can only be liquidized when entering retirement, and this only in the form of a regular payment. Furthermore, pension entitlements can be bequeathed only to a very limited extent. With regard to the many functions of wealth[33], only the security function applies to pension wealth, and even this function is limited to income security during retirement. Finally, the state can potentially change the value of pension entitlements, making them a "variable stock of wealth".

It is obvious that the assumptions of the standard life-cycle model are very simplifying. Particularly problematic is the ignorance of any saving motive different from old-age provision. It was already in 1936 that Keynes suggested a very comprehensive list of eight saving motives which Browning and Lusardi (1996) supplemented by one additional motive 60 years later. The nine saving motives are: (1) precaution (against unforeseen contingencies); (2) foresight (the life-cycle motive); (3) calculation (the inter-temporal substitution motive); (4) improvement; (5) independence; (6) enterprise (to carry out speculative or business projects); (7) pride (the bequest motive); (8) avarice and (9) downpayment (i.e. the accumulation of assets to buy houses, cars or other durables). The standard life-cycle model only allows for the foresight motive. Probably the most innovative extension of the standard theory has been to include the precautionary motive by allowing for uncertainty as developed in the permanent income theory of consumption by Friedman (1957). Friedman sates that individuals save not only for retirement, but also as a provision against unforeseen events in the future (like income shocks or a very long life). This model also allows for bequests, but these are to be understood as accidentally, due to the unknown date of death. Saving in this context first depends on the level of

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[33] Frick and Grabka (2009) list seven functions of wealth: income function, utility function, security function, power function, social status maintenance function, socialization function, inheritance function.

uncertainty the individual actor is faced with and on cash-on-hand (cf. Browning and Lusardi 1996).

A second important extension of the standard life-cycle model has been to allow for capital market imperfections. Individual actors are often faced with borrowing constraints (cf. Deaton 1991). This is specifically the case in younger age, when individuals have usually low earnings and low financial securities what will make it difficult to borrow against the future, as predicted by the standard model. More developed capital markets are however likely to relax these liquidity constraints (Alessie et al. 2013: 317).[34] In my extended life-cycle model, I will control for these two variables (level of uncertainty and level of capital market imperfections), as they are likely to mediate the relationship between the generosity of public pensions and the level of private wealth.

Summing up, as to the relationship between public pension wealth and private wealth, any effect is theoretically possible. Most empirical studies found a substitution between public pension and private saving as suggested by the standard life-cycle model, that is however considerably smaller than one.

5.3.2 PUBLIC PENSION GENEROSITY AND LEVELS OF PRIVATE WEALTH INEQUALITY

Economic theory states that the average propensity to save increases with increasing income, i.e. the higher the income, the higher the percentage of saved income, if there were no offsetting government policies (Keynes 1936). I apply a basic psychological theory to suggest a possible mechanism behind the differences in the impact of pension wealth on individual saving behavior across the income distribution: Maslow's hierarchy of needs (Maslow 1943; Maslow 1954). According to this theory, individuals have different kinds of needs motivating their behavior. These needs are arranged in a hierarchical order. On the bottom is what

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[34]   Börsch-Supan and Lusardi (2003: 14) argue that uncertainty and capital market imperfections are probably two very important reasons for the introduction of a public social safety net.

Maslow calls physiological needs, including food and shelter. Safety needs follow, which include security of the body, security of resources, but, most importantly, social security. Love and belonging, regarding for example friendship and family, are to be found on the next level. This level is followed by the need for esteem (e.g. self-esteem, confidence, respect by others) and the need for self-actualization (e.g. creativity, spontaneity).

Based on Maslow, I argue that the individuals' saving behavior is motivated by different needs, according to their position in the income distribution. Physiological needs can be understood to be provided to all citizens in western welfare states. While the saving behavior of the lower income quartiles is strongly motivated by safety needs, the upper income quartiles can be expected to save money also to realize esteem and self-actualization. If in this situation a pay-as-you-go public pension system is introduced, the lower quartiles either partly or completely lose their motivation to save,[35] as (social) safety is now provided by the welfare state. While in countries with less generous public pension systems, the low income quartiles might still have some motivation to accumulate wealth in order to fulfill their need for (social) safety (see the precautionary motive), in countries with more generous public pension systems, they shall have only little or even no motivation to save. For the upper income quartiles, however, the motivation to save shall decrease much less as compared to the lower income quartiles, as they opt not only for social safety, but also for self-esteem and self- actualization. It could even be the case that they fully compensate the takeover of social security saving by the welfare state through an increase in savings for self-esteem and self-actualization. In this case, public pension wealth would have no effect on their total savings. It is important to note that public pensions are financed through taxes. It thus follows, that the non-saving strategy of the lower income quartiles could either be the result of a low motivation to save, or of a low ability to save, or both. In my empirical analyses, I will therefore additionally control for the income tax revenue.

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[35]   This will depend on each individual's actual understanding of social safety.

From these considerations, I maintain the following. While the introduction of a public pension system shall not or only very little change the saving behavior of the upper income quartiles, it shall have a strong negative effect on the saving behavior of the lower income quartiles. This shall translate into a negative mean effect of public pension generosity on aggregated levels of private wealth, which shall be the stronger, the more generous the public pension system. The differences in individual saving behavior of the different income quartiles can further be expected to affect the country's distribution of wealth. If the lower income quartiles have only little or even no motivation to save, while it is only the higher income quartiles who accumulate money, this shall ceteris paribus (c. p.) have a positive impact on the level of wealth inequality. Based on these arguments, I expect countries with more generous public pension systems to exhibit higher levels of wealth inequality as compared to countries with less generous public pension systems. Importantly to mention, even if I can find empirical support for a positive relationship between public pension generosity and levels of private wealth inequality, this association may or may not be the result of different needs motivating individual saving behavior across the income distribution. Yet, to empirically validate this mechanism, one would need longitudinal data about saving behavior on the individual (household) level. Even then, establishing a causal relationship between public pension generosity and private saving would be challenging.

5.3.3 HYPOTHESES

From my theoretical considerations and from previous research, I derive the following hypotheses, each of which I will empirically test in the current study:

> H1: The relationship between public pension generosity and levels of private wealth is negative. The higher the generosity of a country's public pension system, the lower its level of private wealth.

> H2: The relationship between public pension generosity and levels of private wealth inequality is positive. The higher the generosi-

ty of a country's public pension system, the higher its level of private wealth inequality.

5.3.4 SOME WORDS ON THE RISK OF ECOLOGICAL FALLACY

In this chapter, I am interested in two relationships: First, the relationship between the generosity of the mandatory public pension system and the level of (median) wealth and, second, the relationship between the generosity of the mandatory public pension system and the level of wealth inequality. Both relationships are located on the societal macro-level. The mechanisms, causing these relationships, I, however, locate on the societal micro-level. In this case, it is important to be aware of the risk of ecological fallacy. Ecological fallacy means to wrongly infer from a group phenomenon (e.g. a positive relationship between the rate of migrants and the rate of analphabetism in a certain region) on an individual phenomenon (e.g. a positive relationship between migration background and analphabetism). The probably most popular example for ecological fallacy is Durkheim's study on the relationship between religion and suicide in Prussia (1951). In this study, Durkheim finds a positive relationship between the rate of Protestants and the rate of suicide, inferring that Protestant are more likely to commit suicide. However, it could very well have been the Catholics living in more Protestant regions who committed suicide (cf. Piantadosi, Byar, and Green 1988; Selvin 1958). Nevertheless, ecological associations do not necessary imply the problem of ecological fallacy, as stated by Robinson (1950). If the unit of analysis the researcher is interested in is a group instead of an individual, ecological associations are in fact necessary (Menzel 1950). Menzel further claims that ecological correlations might be of great value, even when not reflecting about individual correlations. An example he offers is the ecological correlation between the number of physicians per capita and the infant death rate in a certain region or country. This correlation shall be expected to be high and positive, yet, the individual correlation of these two variables would obviously be impossible, which, however, does not make the ecological correlation to lose any of its significance.

My case is a bit different. Although I am explicitly interested in an ecological correlation as such, I am also explicitly interested in the micro-

level mechanism causing this macro-relationship. Thus, I am obviously at risk of ecological fallacy. The micro-level mechanisms I suggest, however, I cannot test with my data. Thus, the data I am using for the study is only appropriate to the study of the ecological correlations. It allows me to draw any inferences neither on the micro-level correlation, nor on the (micro-level) mechanism, causing the ecological correlations I study. My theoretical argumentation above as well as the explanations of my findings below shall therefore be understood as mere suggestions instead of (causal) explanations. Still, I am convinced that thinking about the micro-level mechanism causing the macro-level relationships is worthwhile and helpful for a deeper understanding of the phenomena studied here. Moreover, as international comparable individual wealth data will be available in the near future, it will be possible to test my theoretical arguments with empirical data. Even if my suggested micro-level mechanism might not be supported by the data, this does not reduce the value of my macro-level findings. Having this said, I will go on with the description of my data and empirical models.

5.4   DATA, EMPIRICAL MODEL AND VARIABLES

5.4.1 DATASETS

For my macro-level analyses, I make use of a number of data sources. I derived aggregate-level data on private wealth and private wealth inequality from the "Global Wealth Databooks" (GWD) published by the Credit Suisse Research Institute (2010, 2011, 2012, 2013). With these databooks, the Credit Suisse Research Institute aims to provide the best available estimates of private wealth holdings for the world's 216 countries, among them estimates of mean and median household wealth, as well as Gini coefficients for wealth inequality. Data on the generosity of the mandatory public pension systems I took from the OECD publication "Pensions at a glance 2005 – Public pensions across OECD countries" (OECD 2005) which provides information on 35 pension system

indicators.[36] I use the income data as provided by the OECD iLibrary (OECD 2013a). Further macro-level indicators I derived from the OECD "Better Life" data (OECD 2011a; OECD 2013b), from the OECD "National accounts at a glance" data (OECD 2013c), from the OECD "Tax Revenue Statistics" (OECD 2013d), and from the World Bank (World Bank 2013a). For the six non-OECD countries in my sample, I derived data on the income distribution and on further macro-level variables from Eurostat (2013a, 2013b, 2013c). My final dataset consists of all 34 OECD and 6 non-OECD countries.

5.4.2 EMPIRICAL MODEL AND VARIABLES

The dependent variables in my models are private wealth and private wealth inequality. According to Meade (1964, 1975), wealth *(W)* of an economic entity at a certain time *(t)* is determined by age and the history (starting with birth: $k=1$) of earnings *(E)*, saving rates (or consumption rates C) and rates of return *(r)* plus inheritances and gifts *(I)*, as already expressed in Formula 1. According to this formula, total wealth can be decomposed into two components: self-accumulated wealth (life-cycle wealth: E_k-C_k) and transferred wealth (via inter vivos transfer or bequests: I_k) (Davies and Shorrocks 2000; Gale and Scholz 1994). For the analysis and understanding of wealth inequalities, it is important to know whether most of the accumulated wealth holdings stem from saved income or from transferred wealth. This question is, however, very difficult to answer, as one would need detailed longitudinal information about personal income and wealth for at least two consecutive generations. An additional problem is that bequests do not have to be intended but can be rather accidental (Gale and Scholz 1994). For this reason, Kessler and Masson (1989) even state that that it is "virtually impossible to distinguish life-cycle from bequest savings" (p. 145). By assuming that social security wealth has an impact on private wealth, I however implicitly assume that life-cycle wealth makes up a considerable part of total wealth.

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[36]   The OECD 2005 data refers to a person who entered the labor market in 2006, which is the earliest such data available.

There is some discussion on the best suited measure of private wealth to capture the effect of public on private wealth. Hurd et al. (2012) decided on a narrow measure of private wealth: financial wealth. They argue that as financial wealth is relatively liquid it should be most likely to be substituted by pension wealth. Gale (1998) however argues that the offset between public and private wealth is larger when using broader measures of private wealth and shows that the use of narrow measures leads to econometric biases that understate this effect. Following Gale (1998), I decided on a broad measure of private wealth, that is net worth.

In the first part of my analysis, net worth (assets net of debts) in the overall population at time t is my dependent variable. Net worth consists of the following components as illustrated by the following formula (all in real terms: cf. Brugiavini and Weber 2003: 35):

$$NW_t = (1 + r_t)NW_{t-1} + y_{t-1} + b_{t-1} - \tau_{t-1} - C_{t-1} \qquad (8)$$

with net worth *(NW)* at time *t* (normally a year) to be composed of net worth at time *t-1* multiplied with one plus the interest rate (*r*: net of inflation; I assume a single interest rate on private wealth holdings) in *t-1*; plus earned income (*y*: labor income net of income tax) in *t-1*; plus public pension benefits *(b)* in *t-1*; net of consumption and public pension contributions. I ignore any other form of social security. In this budget constraint, disposable income at time *t* is the sum of earned income, plus public pension benefits, minus public pension contributions. As I derived my data from very different data sources, the above formula serves primarily for orientation.

The net worth measure in the Global Wealth Databooks is defined as the marketable value of financial assets plus non-financial assets (principally housing and land) less debts for individuals aged 20 or above. All net worth values are expressed in USD at the time in question and refer to the household level. Due to the strong skewness of the wealth distribution, I measure a country's level of private net worth in terms of median net worth. In order to balance yearly variation in wealth holdings, my net worth measure is calculated as the mean of median net worth in the years 2010 to 2013. To prevent problems of comparability of values of net worth across countries to the greatest extent, and in consistency with

previous research, I divide median net worth at time t by median disposable income at time t, and express net worth in times of disposable income (wealth rate). In my empirical analyses, I apply a logarithmic transformation.

The OECD defines disposable income as 2Household net adjusted disposable income", i.e. the average amount of money that a household earns per year, after taxes. This definition is consistent with the definition of disposable income of Eurostat as well as with the above formula. I express all income values in USD at current prices, using official exchange rates throughout to convert local currencies (derived from the World Bank, 2013b). Different from net worth, disposable income refers to the countries' total population and accounts for household size. To likewise balance yearly variation in income, my income measure is defined as mean of median income of the years 2007 to 2010, in order to come closest to the period my wealth measure is based upon.

In the second part of my analysis, wealth inequality in the overall population at time t is my dependent variable. I measure the level of wealth inequality by the Gini coefficient for net worth as provided in the Global Wealth Databooks. The Gini coefficient ranges from zero (total equality) to one (total inequality). I express all Gini values as multiplied by 100.

My main explanatory variable is public pension wealth, or precisely the generosity of the mandatory public pension system. The pension replacement rate, provided by the OECD, measures the ratio of pensions to individual earnings for an average income earner. As it measures the efficacy of a pension system in providing a retirement income to replace earnings, it can be understood as an indication of the pension promise (OECD 2011b; 118, 132). I believe this to be the best-suited indicator of the generosity of the public pension system for this particular case, as it is the indicator, which is most likely to be known to the individual actors. I further argue that the net replacement rate[37] is more appropriate

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[37] The net replacement rate is defined as the individual net pension entitlement divided by net pre-retirement earnings, taking account of personal income taxes and social security contributions paid by workers and pensioners (OECD 2011b).

in my case, compared to the gross replacement rate[38], assuming that individuals base their financial decisions on the earnings and pensions they actually (will) have "in their pocket" rather than on the earnings and pensions they might have on some pay ticket.[39]

Finally, I will add a number of control variables to my models. These are:

- the countries' GDP per capita in USD (mean of the years 2010-12) as an indicator of economic development;

- the total tax revenue of taxes on income, profits and capital gains as a percentage of GDP (mean of the years 2009-12);

- the progressivity of the pension benefit formulae, as an indicator for the degree of actuarial fairness of a pension system;

- the level of income inequality measured via the Gini coefficient (mean of the years 2007-10);

- the level of capital market imperfections (based on the variable "shares and other equity held by households as a percentage of total financial assets"; I derived my final measure of capital market imperfections by subtracting this value from 100; mean of the years 2010-11);

- the level of uncertainty (measured as "share of dependent employed with a job tenure of less than 6 months over the total dependent employment in 2011").

More details regarding these variables can be found in Appendix C.

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[38]   The gross replacement rate is defined as gross pension entitlement divided by gross pre-retirement earnings (OECD 2011b).

[39]   Importantly to say, the replacement rate does not take into consideration the share of retirees who actually receive this pension, further it does not account for life expectancy, retirement ages and the indexation of pension benefits (OECD 2005).

5.5   ANALYSES AND RESULTS

5.5.1 DESCRIPTIVE OVERVIEW

Table 11 shows the distribution of disposable income and net worth as well as net replacement rates across all 40 countries of my sample. The wealth rate is highest in Italy (WR=5.45) and Australia (WR=5.24), where individuals hold values of net worth more than five times as much as their annual disposable income. Comparatively high wealth rates can also be found in Japan (WR=4.53) and Belgium (WR=4.19). The lowest wealth rate is to be found in Denmark (WR=1.13) where the value of net worth almost equals the value of disposable income.

The highest levels of wealth inequality can be found in Denmark (Gini NW=93.25), followed by the USA (Gini NW=83.40), Switzerland (Gini NW=82.43) and Sweden (Gini NW=82.03). The lowest levels of wealth inequality can be found in Slovakia (Gini NW=59.73), closely followed by Japan (Gini NW=61.13), Slovenia (Gini NW=62.53) and Spain (Gini NW=63.05).

The highest net replacement rate for (mandatory) public pensions are to be found in Turkey (NRR=124.69%[40]), followed by Romania (NRR=112.37%) and Greece (NRR=110.75%). The least generous public pension systems can be found in Mexico (NRR=38.02%), closely followed by Japan (NRR=38.66%).

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[40]   A net replacement rate above 100% means that these countries provide the average earner with pensions higher than their earnings when working.

Table 11: Net pension replacement rates (NRR) and aggregated income (INC) and wealth (NW) measures in 40 countries

Country	Code	NRR in %[1]	NW in US$[2]	INC in US$[34]	WR = NW/INC	Gini NW[2]	Gini INC[34]
Australia	AUS	53.15	189,770	36,240	5.24	65.63	33.50
Austria	AUT	90.27	78,540	31,090	2.53	70.18	26.53
Belgium	BEL	63.73	123,480	29,450	4.19	65.35	26.30
Bulgaria	BGR	77.80	8,086	3,290	2.46	63.63	34.45
Canada	CAN	57.86	88,890	31,830	2.79	71.53	32.00
Chile	CHE	64.30	11,610	5,170	2.24	72.05	50.10
Cyprus	CYP	69.45	41,710	21,930	1.90	72.48	29.60
Czech Rep.	CZE	64.13	15,200	10,710	1.42	71.38	25.53
Denmark	DNK	91.32	45,350	39,850	1.14	93.25	24.45
Estonia	EST	59.30	13,190	8,910	1.48	67.53	31.53
Finland	FIN	62.39	89,870	32,230	2.79	64.18	25.80
France	FRA	65.65	94,980	29,020	3.27	73.93	29.53
Germany	DEU	61.32	51,990	27,860	1.87	74.55	28.70
Greece	GRC	110.75	43,950	17,480	2.51	68.50	33.18
Hungary	HUN	105.52	13,620	6,530	2.09	64.40	27.20
Iceland	ISL	95.07	100,540	36,400	2.76	65.78	27.25
Ireland	IRL	40.09	81,730	34,330	2.38	68.53	30.77
Israel	ISR	74.04	42,500	17,020	2.50	77.95	37.33
Italy	ITA	74.81	133,370	24,470	5.45	63.38	31.53
Japan	JPN	38.66	120,830	26,670	4.53	61.13	33.60
Korea	KOR	46.56	29,010	15,980	1.82	66.65	31.25
Latvia	LVA	76.56	8,950	6,300	1.42	66.98	36.65
Lithuania	LTU	59.68	9,890	5,670	1.74	67.00	35.05
Luxembourg	LUX	96.50	153,270	48,800	3.14	63.38	27.68
Malta	MLT	59.49	37,150	14,000	2.65	64.60	27.45
Mexico	MEX	38.02	8,840	3,280	2.69	77.85	47.05
Netherlands	NLD	103.21	70,020	30,100	2.33	74.98	28.80
New Zeal.	NZL	41.06	67,580	22,250	3.04	72.98	32.35
Norway	NOR	69.26	104,210	51,900	2.01	74.90	24.80
Poland	POL	74.85	9,580	7,560	1.27	72.68	30.70
Portugal	PRT	69.63	33,990	12,960	2.62	70.90	34.93
Romania	ROU	112.37	5,760	2,580	2.23	73.00	35.50
Slovakia	SVK	72.68	14,180	8,940	1.59	59.73	25.63
Slovenia	SVN	87.07	33,710	18,410	1.83	62.53	24.25
Spain	ESP	84.66	64,000	20,200	3.17	63.05	32.43
Sweden	SWE	64.13	41,640	31,510	1.32	82.03	26.57
Switzerland	CHE	64.48	81,380	47,240	1.72	82.43	29.80
Turkey	TKM	124.69	6,020	4,930	1.22	80.68	41.00
Great Brit.	GBR	40.90	106,850	27,600	3.87	68.48	34.23
USA	USA	44.78	46,060	29,180	1.58	83.40	37.80

Note: [1]OECD (2005); [2]Credit Suisse Research Institute (2010, 2011, 2012, 2013): Ø 2010-13, [3]OECD (2013a): Ø 2007-10; [4]Eurostat (2013a): Ø 2007-10. Abbreviations: NRR = net replacement rate; NW = net worth; DI = disposable income, WR = wealth rate; GWD = Global Wealth Databook. Own calculations.

Table 12 shows the distribution of my additional macro-level variables. The GDP per capita ranges between $6,750 in Bulgaria and $104,230 in Luxembourg. The income tax as a percentage of GDP ranges between 5.00% in Lithuania and 29.20% in Denmark. The level of progressivity of the pension benefit formulae is available only for the 34 OECD countries. Pure basic schemes, paying the same flat-rate amount to all pensioners, regardless of their earnings history and other sources of income, score 100% on this index. In these systems, the relative pension value is independent of earnings and the replacement rate declines with earnings (OECD, 2005: 81). Countries with or close to a pure basic scheme are Ireland and New Zealand (PI=100%), as well as Denmark (PI=91.70%) and Canada (PI=86.50%). Pure insurance schemes, paying the same replacement rate to all workers when they retire, score 0% on this index. In these schemes, the pension value increases with earnings in a straight line. Countries close to such a scheme are Slovakia (PI=3.20%), Italy (PI=4.00%), Greece (4.30%), Poland (PI=5.20%), Hungary (PI=5.60%), and the Netherlands (PI=5.70%).

The level of capital market imperfections is highest in Slovakia (CMI=93.24), where shares and other equity held by households represent only 6.76% of total financial assets. Greece (CMI=92.93) and Australia (CMI=90.71) follow. Capital market imperfections are lowest in Estonia (CMI=31.10). The USA (CMI=56.41), Sweden (CMI=62.47) and Hungary (CMI=62.73) follow.

Finally, the level of uncertainty is highest in Switzerland and Korea, where 25.80% resp. 24.30% of the dependent employed had a job tenure of less than six months over the total dependent employment in 2011. The level of uncertainty is lowest in Greece (UNC=4.70) and Slovakia (UNC=5.00). Information on capital market imperfections and uncertainty are available in only 30 of my 40 countries.

Table 12: Additional macro-level indicators

Code	GDP per capita in 1.000 US$[2]	Inc. tax as a % of GDP[3]	Progressivity Index[1]	Level of CMI[4]	Level of UNC[5]
AUS	55.99	14.89	74.80	90.71	12.40
AUT	46.64	12.15	20.70	79.28	9.50
BEL	44.15	15.17	64.80	69.18	7.40
BGR	6.75	5.15	-	-	-
CAN	47.41	14.49	86.50	65.40	11.30
CHE	13.19	7.41	27.20	73.79	10.50
CYP	28.15	11.28	-	-	-
CZE	19.23	7.12	71.70	75.21	6.70
DNK	57.23	29.20	91.70	72.40	12.90
EST	15.53	6.87	27.00	31.10	10.70
FIN	45.76	15.32	6.70	61.82	14.50
FRA	40.49	9.73	46.40	76.53	9.30
DEU	41.65	10.86	22.90	81.92	8.30
GRC	25.50	7.47	4.30	92.93	4.70
HUN	12.92	7.57	5.60	62.73	7.80
ISL	41.00	16.26	60.80	-	10.80
IRL	48.08	10.89	100.00	82.30	6.90
ISR	29.89	9.58	74.50	74.50	10.50
ITA	34.51	14.20	4.00	71.87	6.90
JPN	43.86	8.44	47.80	89.22	10.50
KOR	20.62	7.56	56.90	80.89	24.30
LVA	12.51	7.43			
LTU	12.60	5.00	-	-	-
LUX	104.23	13.57	17.20	78.14	5.40
MLT	20.50	13.15	-	-	-
MEX	9.01	5.20	13.70	-	-
NLD	47.61	10.63	5.70	88.07	8.80
NZL	33.73	17.31	100.00		10.50
NOR	90.83	20.03	45.30	87.61	7.90
POL	12.42	6.64	5.20	73.89	8.10
PRT	21.52	8.78	31.10	73.22	8.70
ROU	8.31	6.23	-	-	-
SVK	16.69	5.19	3.20	93.24	5.00
SVN	23.36	7.45	24.70	71.47	7.70
ESP	30.41	9.41	13.00	72.74	10.90
SWE	51.20	15.89	21.60	62.47	13.90
CHE	74.54	13.14	44.10	79.70	8.40
TKM	10.01	5.85	24.40		25.80
GBR	37.76	12.99	69.60	85.31	6.80
USA	49.24	10.64	40.60	56.41	11.40

Note: [1]OECD (2005); [2]Worldbank (2013a): Ø 2007-10; [3]OECD.StatExtracts (2013b); [4]OECD.StatExtracts (2013a); [5]OECD (2011a, 2013b). Abbreviations: CMI = capital market imperfections; UNC = uncertainty (earnings insecurity). Own calculations.

5.5.2 MULTIVARIATE RESULTS: PUBLIC PENSION GENEROSITY AND LEVELS OF PRIVATE WEALTH

In the next step, I run a set of multivariate regression analyses to approach the mean effect of public pension generosity on private wealth holdings while controlling for possible mediator variables. Importantly to note, next to the fact that I only analyze cross-sectional data, the variation in public pension generosity is likely not to be exogenous and therefore estimates cannot be interpreted as causal. Furthermore, due to the small sample size, the law of large numbers most likely does not apply. Thus, my results have to be interpreted with caution.

Results are shown in Table 13. The question remains as to the meaning of statistical significance in small samples. In my analysis, relying on a non-random sample of 40 countries, results from statistical test should be interpreted with some reservation. Since I am oriented to an empirical assessment of relationships in my sample of countries, rather than generalizations to a universe of countries, they are not of primary interest in my case. I therefore suggest attaching greater importance to substantive significance, as opposed to statistical significance.

Model 1 shows my baseline model, where I only include the net replacement rate. Public pension generosity has a negative impact on the level of private wealth. I illustrated this relationship in Figure 15, which shows a scatterplot of my two measures of interest, to which I added the fitted regression line (linear regression). I also display the correlation coefficient (rho=-0.24). For reasons of better understanding, I will also report the effect size, keeping in mind that my analysis cannot establish causality. The size of the public pension generosity effect is b=-0.004, which is a rather small effect. Assuming, that public pension generosity affects the wealth rate (and not the other way around), a decrease of the net replacement rate by 5% – which is a likely scenario in the light of most recent pension reforms – would lead to a $1,075 increase in median net worth. It is important to note that this holds only under the condition that disposable income remains constant. Moreover, this effect shall be largely driven by the low-income quartiles as explained in the theoretical section.

Figure 15: Relationship between public pension generosity (net pension replacement rate) and the level of private wealth (wealth rate: median net worth in times of median income)
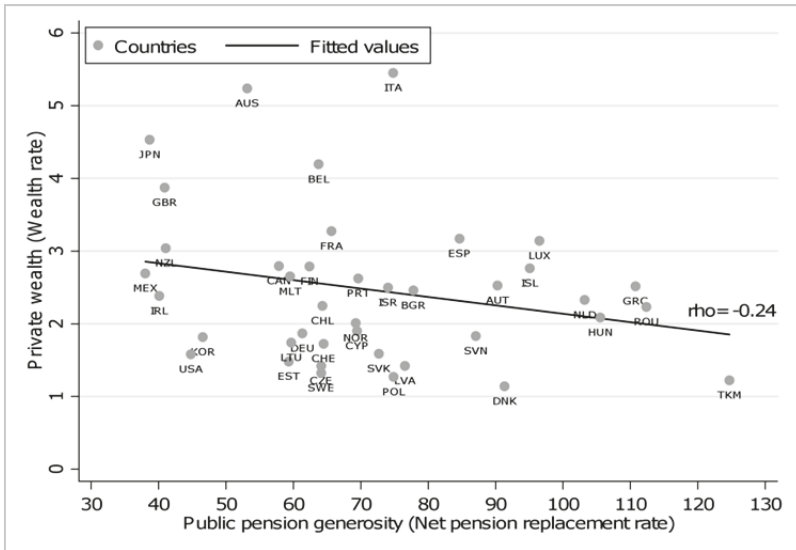
Note: Own illustration.

In M2, I include the GDP per capita to control for country differences in economic performance. My results support my expectation of a positive impact on the level of private wealth. In M3, I include the income tax as a percentage of GDP, which I expect to have a negative impact on the WR. Again, results support my expectation.

Finally, I also control for the levels of capital market imperfections and uncertainty (Table 14). As these indicators are only available in 30 of the 40 countries of my dataset, I first re-apply M1 to these 30 countries, before I include these two controls. Running the regression on a smaller country set results in a loss of statistical power, which increases the p-values in M1 as compared to Table 13. However, the directions of the effect of the net replacement rate remains the same, and the size of the coefficient changes only slightly. To prevent an overspecification of my models, this time I do not control for GDP per capita and income taxes.

Table 13: Regression (with robust standard errors) on the level of private wealth (wealth rate: WR) – 40 countries

	M1			M2			M3		
	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
NRR[1]	-0.0043	0.0025	0.0954	-0.0040	0.0024	0.1059	-0.0040	0.0024	0.1111
GDP (cap) [1]				0.0037	0.0025	0.1379	0.0043	0.0037	0.2540
INC tax[1]							-0.0034	0.0241	0.8878
Const.	0.8269	0.0610	0.000	0.8269	0.0603	0.0000	0.8269	0.0611	0.0000
R^2	0.0566			0.1010			0.1020		
N	40			40			40		

Note: [1]Variables are centered to the mean. Abbreviations: NRR = net replacement rate; GDP (cap) = GDP per capita; INC tax = income tax.

Table 14: Regression (with robust standard errors) on the level of private wealth (wealth rate: WR) – 30 countries

	M1			M2			M3		
	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
NRR[1]	-0.0031	0.0035	0.3788	-0.0036	0.0030	0.2379	-0.0047	0.0032	0.1521
CMI[1]				0.0102	0.0045	0.0322	0.0092	0.0048	0.0696
UNC[1]							-0.0173	0.0193	0.3782
Const.	0.8470	0.0759	0.0000	0.8462	0.0741	0.0000	1.0105	0.2130	0.0001
R^2	0.0206			0.1151			0.1351		
N	30			30			30		

Note: [1]Variables are centered to the mean. Abbreviations: NRR = net replacement rate; CMI = level of capital market imperfections; UNC = level of uncertainty (earnings insecurity).

In M2, I include the level of capital market imperfections (CMI). As predicted by theory (e.g. Jappelli and Pagano 1989, 1994), it has a positive impact on the level of private wealth. In contrast to my expectations, the level of uncertainty (UNC) has a negative impact on the wealth rate. This can be understood as a lower ability to save income in countries where the level of uncertainty is high. Summing up, my models show support for a negative relationship between public pension generosity and the level of private wealth, even when controlling for a number of potential counterfactuals.

5.5.3 MULTIVARIATE RESULTS: PUBLIC PENSION GENEROSITY AND LEVELS OF PRIVATE WEALTH INEQUALITY

Table 15 shows the results of my multivariate analyses on the relationship between public pension generosity and the level of private wealth inequality. M1 shows that the effect of public pension generosity on private wealth inequality is positive, though too small (b=0.013) to be understood as a non-zero-relationship. In addition, the explanation of variance is also very low in M1, suggesting that public pension generosity (alone) is not a good predictor of the level of inequality in private wealth. This is also illustrated in Figure 16, showing a scatterplot of the two variables with the fitted regression line added. The correlation between public pension generosity and inequality in private wealth, though positive, is very small (rho=0.04) and the regression line is too flat to interpret it as a substantial positive finding. Moreover, the positive effect is largely driven by Denmark, showing an extraordinarily high level of inequality in private wealth and a comparatively high level of pension generosity. Nevertheless, I do not see any substantial reason to actually exclude Denmark from my analysis. Next to Denmark, also Sweden, Switzerland, the USA and Turkey exhibit comparatively high levels of wealth inequality.

In my next models, I control for a number of macro-level variables that are likely to mediate, or in my case conceal, the relationship between public pension generosity and the level of private wealth inequality. In M2, I introduce the GDP per capita, which has a positive impact (b=0.067) on the level of private wealth inequality, while the effect of the

Figure 16: Relationship between the generosity of the public pension system (net pension replacement rate) and the level of wealth inequality (Gini net worth)
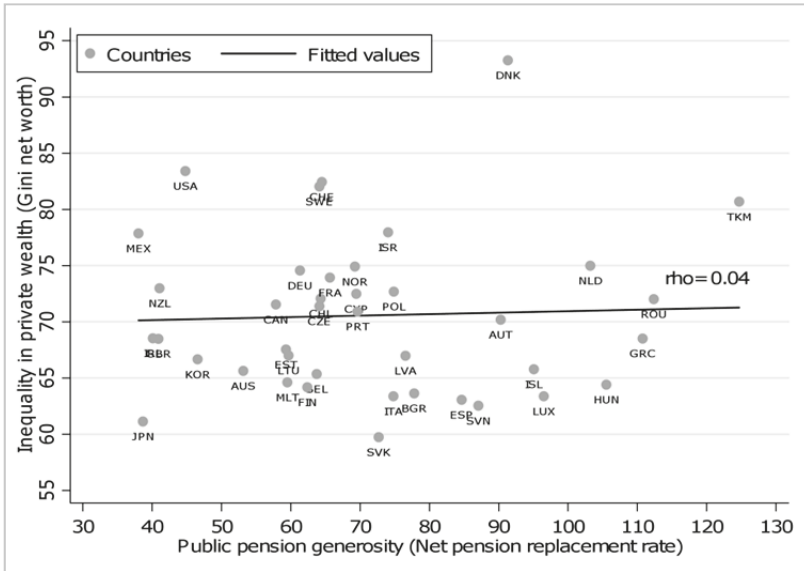
Note: Own illustration.

net replacement rate does not change in a meaningful way. In M3, I control for income tax as a percentage of GDP. The coefficient is positive and relatively large (b=0.668). For example, a 3% increase in income taxes would lead to a 2-point increase in the Gini for net worth. Interestingly, the sign of the GDP per capita effect changes after controlling for income taxes and is now negative. Again, however, the net replacement rate effect does not change in a meaningful way. In M4, I include the Gini for disposable income, as the level of wealth inequality is at least partly driven by the level of income inequality. The Gini for disposable income has a strong positive impact on the level of wealth inequality (b=0.574). Each one-point increase in the level of income inequality would lead to a 0.5-point increase in the level of wealth inequality. Again, the net replacement rate effect remains almost unchanged. Finally, I include a control for the progressivity of the pension benefit formulae. This control is only available for 34 of my 40 countries. Thus, I lose statistical power in M5, and M5 is not perfectly comparable to M1-M4. The

level of progressivity of the pension benefit formulae has a positive impact (b=0.025) on the level of wealth inequality, meaning, that public pension systems which are closer to a basic insurance system exhibit higher levels of wealth inequality. As before, the net replacement rate effect remains almost unchanged.

Summing up, I do not find empirical support for my second hypothesis claiming a positive relationship between public pension generosity and the level of private wealth inequality. National differences in public pension generosity do not work as a good predictor of national differences in levels of private wealth inequality.

5.6 SUMMARY AND CONCLUSIONS

In this chapter, I aimed to answer two research questions: Are national differences in the generosity of mandatory public pension systems a good determinant of national differences in first, levels of private wealth and second, levels of inequality in private wealth. I approached my research questions within the framework of an extended life-cycle model based on Modigliani and Brumberg (1954), as well as on Friedman (1957) and Maslow's hierarchy of needs (1943, 1954). I expected to find a negative relationship between public pension generosity and the level of private wealth. I further derived the hypotheses that public pension generosity is positively associated to the level of private wealth inequality. In order to answer my research questions, I generated a rich dataset containing information on characteristics of public pension systems, private income and wealth holdings, as well as income and wealth inequality, and a number of additional macro-level variables for 40 countries.

My results indicated a negative relationship between public pension generosity and levels of private wealth. This relationship remained stable when controlling for a number of possible confounders. In the light of ongoing reforms of the public pension systems, it might be expected that the decrease in public pension generosity, as either planned or already conducted in most of the 40 countries analyzed in this study, might result in an increase in overall levels of private wealth.

Table 15: Regression (with robust standard errors) on the level of private wealth inequality (Gini net worth) – 40 countries

	M1			M2			M3		
	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
NRR[1]	0.0131	0.0530	0.8062	0.0186	0.0528	0.7268	0.0207	0.0503	0.6833
GDP (cap) [1]				0.0666	0.0519	0.2076	-0.0342	0.0678	0.6171
INC tax[1]							0.6679	0.3068	0.0361
Gini INC									
Progressivity[1]									
Const.	70.5612	1.1398	0.0000	70.5612	1.1302	0.0000	70.5613	1.0771	0.0000
R²	0.0016			0.0441			0.1553		
N	40			40			40		

Table 15: continued

	M4			M5		
	Coef.	Std. Err.	P>|t|	Coef.	Std. Err.	P>|t|
NRR[1]	0.0500	0.0473	0.2979	0.0601	0.0627	0.3462
GDP (cap)[1]	-0.0006	0.0633	0.9924	-0.0152	0.0735	0.8374
INC tax[1]	0.8795	0.2913	0.0047	0.8136	0.3720	0.0372
Gini INC	0.5742	0.2055	0.0084	0.5528	0.2291	0.0226
Progressivity[1]				0.0248	0.0518	0.6364
Const.	70.5613	0.9878	0.0000	70.8943	1.1804	0.0000
R^2	0.3094			0.3067		
N	40			34		

Note: [1]Variables are centered to the mean. Abbreviations: NRR = net replacement rate; GDP (cap) = GDP per capita; INC tax = income tax; Gini INC = Gini for income; Progressivity = progressivity of the pension benefit formulae.

Yet, my data did not show any systematic relationship between public pension generosity and private wealth inequality. An interesting result I found is the negative relationship between income taxes as a percentage of GDP and the level of wealth inequality. I interpret this finding as empirical support for the argument that non-saving could be an utility-maximizing decision for the lower income quartiles in case of higher taxes, driving the overall level of wealth inequality (Hubbard, Skinner, and Zeldes 1995; Domeij and Klein 2002). My results suggest that this is, however, more the result of a low ability to save rather than a low motivation to save. Thus, if a (further) cut in public pension benefits results in a lower level of income taxes, the overall level of wealth inequality might in fact decrease, as suggested by my hypotheses.

My study also encompasses a number of limitations that result mainly from unavailability of appropriate empirical data. The first drawback is the still rather small number of cases, which calls for data on private and pension wealth for a larger number of countries. The second drawback is the historical specificity of my empirical analyses, calling for longer time series data. In addition, the periods my income and wealth measures are based upon do not perfectly overlap. A third drawback is that I analyze only between-country effects instead of within-country effects, for which I would need individual-level data. Although not available today, there is a large number of projects collecting data on private wealth holdings especially, in an increasing number of countries and over longer time periods. Thus, in some years it will be possible to address these limitations and to replicate my results. Finally, I only study macro-relations. This is fine in a descriptive sense, since it points to relevant research questions. I leave the task to future research to investigate how individual saving behavior is affected by the interplay of individual resources (education, income, etc.) and institutional conditions (e.g. the public pension system).

In conclusion, while national differences in public pension generosity work as a good predictor of national differences in levels of private wealth, they cannot predict national differences in levels of wealth inequality in the set of 40 countries I analyzed. Although I cannot claim a causal relationship between the generosity of the public pension system

and the distribution of private wealth, my results pave the way for a more comprehensive discussion on the ongoing disputes about pension reforms, as well as on the meaning of international differences in levels of private wealth and wealth inequality.

6   THE CONSEQUENCES OF WEALTH: WEALTH AND SUBJECTIVE WELL-BEING

A slightly different version of this chapter has been published in *Research in Social Stratification and Mobility* (Hochman and Skopek 2013).

6.1   INTRODUCTION

In recent years, happiness, or subjective well-being (hereafter SWB) as it is often referred to, has been gaining importance as an indicator of economic and social progress in the industrialized world (see e.g. Stiglitz, Sen, and Fitoussi 2009). The increasing interest in SWB is related with the increasing gap found between the information contained in aggregated data regarding objective determinants of well-being (like a country's GDP) and the laymen's own evaluation of it (Stiglitz, Sen, and Fitoussi 2009).

This chapter provides new insight on SWB and its association with individuals' objective economic standing. In particular, I am interested in how an individual's relative position in the distribution of wealth influences his or her SWB, and more specifically his or her general satisfaction with life. General life satisfaction (hereafter GLS), represents the cognitive dimension of SWB to be distinguished from the affective (quality of life) and the emotional (depression) dimensions (e.g. Amit and Litwin 2009). It is considered the most stable dimension of SWB over an individual's life course (Eid and Diener 2004; Oishi, Schimmack, and Diener 2001). GLS is also robust to the effects of social desirability bias and stable across countries (Pacek and Radcliff 2008). Finally, Diener (1984) stresses that a self-reported measure of GLS most accurately captures an individual's own judgment of his or her SWB.

Importantly, individual well-being may also be represented by reference to physical health. Yet, the causal links between physical health and wealth are more complex and more difficult to determine than the links between SWB and wealth. Specifically, health is often understood to be determined by wealth, but wealth, also depends on an individual's physical and/or mental condition (Meer, Miller, and Rosen 2003). Moreover, objective measures of health are more likely to provide an indication of

the researcher's definition of whether an individual should or should not be satisfied with life, but are less likely to convey the individual's personal view (Diener 1984).

In this chapter, I go beyond an investigation of the wealth-SWB relation and additionally consider the possibility that macro-level factors shape the influence of wealth on SWB. I compare the relation between wealth and SWB across three countries: Germany, Israel and Sweden, which, according to Esping-Andersen's typology represent different welfare-state regimes (Esping-Andersen 1990; Esping-Andersen 1999). The relevance of the welfare-state system to the relation between wealth and SWB is best explained through the concept of decommodification, referring to the extent to which citizens in a country are economically independent from the market (Esping-Andersen 1990) through the provision of social benefits. These benefits can be understood as a cushion against the consequences of shortage of financial resources (Pacek and Radcliff 2008). Because the extent to which welfare states provide these benefits strongly differs between the three regimes analyzed, I predict that the association between wealth and SWB, measured as GLS, will also differ.[41]

Most studies on the relationship between economic standing and SWB have used income as an indicator of economic standing. These studies usually report a significant positive impact of income on SWB (e.g. Easterlin 2001; Frey and Stutzer 2011; Larson 1978). Yet, income seems to account for only a small part of the variation in SWB (Diener et al. 1993; Pinquart and Sörensen 2000). Recent studies argue that measures of economic standing other than income might be more useful for understanding its relationship with SWB (see e.g., Christoph 2010; Diener, Ng, Harter, and Arora 2010; Headey, Muffels, and Wooden 2008; Howell and Howell 2008; Warren and Britton 2003). These studies highlight the

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[41]   The welfare state regime also has a role in shaping the distributions of private wealth and income. It therefore also determines to some extent the motivation of individuals to secure their economic position through long-term saving (see Jappelli and Modigliani 1998).

important role of socioeconomic status (SES), deprivation, and wealth, among other indicators determining economic standing.

While both income and wealth represent an individual's economic standing, each has different properties. Income, as it is usually measured, is restricted to a certain time interval (income per week, per month, or per year) and, to periods of labor market activity. Wealth is a stock figure accumulated throughout a person's life course. Additionally, in contrast to earned income, which requires time, effort, and working ability, wealth offers access to capital and goods independent of individual investment and ability, for example, through intergenerational transfers (Elmelech 2008). Wealth may also be a better indicator of an individual's long-term consumption potential and "capacity [. . .] to maintain a particular standard of living" (Spilerman, 2000: 497). Considering the unique properties of wealth, I see it fit to measure the consequences of economic standing to SWB, over and above the consequences income may have on it.

For my empirical analyses, I again make use of the Survey of Health, Aging and Retirement in Europe (SHARE) that is an international, representative panel study of the population aged 50 years and over. Studying the wealth-SWB association within this population segment that either already entered retirement or is close to it, offers some undeniable advantages: first, it provides information on how successful individuals have been in accumulating wealth over their life course and thus enables me to analyze the outcomes of the process of wealth accumulation. In addition, because a substantial fraction of individuals over 50 are already out of the labor force, they shall rely more on wealth than on income, and the wealth-SWB relation is thus likely to be stronger in this population segment compared to the younger population.

6.2 THEORETICAL FRAMEWORK

6.2.1 LINKING WEALTH TO SWB

The centrality of happiness for the understanding of human behavior was acknowledged already in ancient Greece, when Aristotle defined happiness as the "supreme good" (cf. Diener 1994). In the 18th century

Malthus (1798) noted that happiness inequality between nations is as important as wealth inequality between them (Becchetti, Massari, and Naticchioni 2010). Later, Easterlin (1973) suggested that human well-being and particularly happiness, represents the one most prominent reason for countries' as well as individuals' pursuit for material benefits. The interest in the happiness-wealth nexus continued throughout the centuries, yet remained primarily philosophical. It developed into an empirical field of research as soon as data on income, wealth, and happiness was made available. Happiness is nowadays most often referred to as SWB (Diener 1994), understood as individuals' "longer-term levels of pleasant affect, lack of unpleasant affect, and life satisfaction" (Diener 1994: 103).

During the 1990s, research on the relationship between SWB and economic standing (measured by income) indicated that individual income has a consistent and positive effect on individual SWB (Blanchflower and Oswald 2004; Frey and Stutzer 2002; Pinquart and Sörensen 2000). On the country-level, however, this effect was less consistent. Some researchers found a strong positive effect of a country's GDP on the populations' mean level of SWB (Di Tella, MacCulloch, and Oswald 2003; Hagerty and Veenhoven 2003; Stevenson and Wolfers 2008). Others demonstrated that an increase in GDP over time does not result in increased mean SWB, primarily in developed countries (Easterlin and Angelescu 2009; Easterlin 1973, 1974, 1995).

The inconsistencies concerning the individual and country level relations between income and SWB inspired various explanations. One central perspective proposing such an explanation is known as needs theory. In general, needs theory assumes that individual income, as a principal indicator of economic standing, augments individual SWB primarily because income enables people to better provide for their needs (cf. Diener and Biswas-Diener 2002; Veenhoven 1991).[42] Yet a

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[42] Although this paper is centered on needs theory and its contribution to an understanding of the individual-level relation between wealth and SWB, it is important to note that there are two alternative explanations to the wealth-SWB nexus: the relative standards approach and the cultural norms concept. Relative standards theorists would ar-

question remains regarding the meaning of needs and the extent to which economic standing can secure them. Whereas Veenhoven and Ouweneel (1995) and Veenhoven (1993) restrict those needs to basic inborn needs, such as food and shelter, Maslow has a broader concept of needs in mind (see Maslow's hierarchy of needs: Maslow 1943). Each of the two approaches has different implications for the relation between income and needs and, by extension income and SWB.

Following Veenhoven's concept of needs, an increase in income will result in an increase in SWB only until the individual's basic needs are met. Above that point, SWB shall not be affected by individual income differences. Veenhoven thus expects to find large effects of individual income on the populations' SWB in poor countries. In rich countries, basic needs are expected to be provided to all citizens. Maslow (1943, 1954) does not distinguish the lower from the other parts of the income distribution. Specifically, he claims that income may be used not only for securing an individual's basic needs, but also for the fulfilment of self-realization (e.g. travelling, arts classes, or certain sporting activities). Income may therefore have a positive effect on the SWB of individuals in all parts of the income distribution. Because not everyone who can, opts for self-realization, the association between income and SWB in the middle and/or top parts of the income distribution may be weaker than the association found in the lower parts of the income distribution.

Summing up, for both conceptualizations of needs, the individual's position in the distribution of income is of importance for the effect of economic standing on SWB. The main premise of needs theory is that low income implies a disadvantage in SWB while high income leads only to a small advantage (Maslow 1943; Maslow 1954), if any (Veenhoven and Ouweneel 1995; Veenhoven 1993). Importantly, in this chapter I move away from the typical understanding of economic stand-

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gue that individuals evaluate their current SWB by comparing it with either their SWB in the past or to the current SWB of relevant others (Easterlin 2001; Michalos 1985). Finally, cultural norms are suggested to serve as a mediating factor in the association between income and SWB, and that the strength of this association depends on the cultural importance of income (e.g. Diener et al. 1999).

ing as represented by income, and investigate a different form of economic well-being namely, wealth. As suggested earlier in this article, I argue that in addition to income, wealth provides an important extension to conceptualize material well-being. Because it marks a life-long process, as opposed to income that is a flow-based indicator, especially among the elderly, wealth might even be the more appropriate indicator of economic standing (Henretta and Campbell 1978).[43]

On the individual level, needs theory expects a strong and meaningful association between economic resources and SWB among the poor because they have difficulties to meet their very basic needs as well as their self-realization aspirations. The problem however, is that even if I can find empirical support for an association between wealth and SWB among the poor, this association may or may not be the result of the needs-related mechanism. In other words, the mere existence of a negative effect of poor wealth on SWB as suggested by needs theory is not sufficient to postulate needs as a relevant mechanism underlying this relation. In order to test for the empirical validity of this argument my models include a subjective measure for economic hardship – that is, individuals' self-reported responses about having "problems to make ends meet". If the relevant mechanism behind the relation of wealth with SWB is the fulfilment of basic needs, then I expect subjective economic hardship to mediate the supposed negative effect of being poor on SWB.

6.2.2 SOCIAL CLASS AND SWB

The main claim of this chapter is that the combination of income and wealth as measures of economic standing can better capture variation in SWB than income alone. I understand needs to be the mechanism behind the income/wealth effect on SWB. A number of researchers claim that the relationship between economic standing and SWB is mediated

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[43]   Studies that focus on the link between SWB and wealth, typically assume (but hardly ever demonstrate) that the same mechanisms also underlie the cross-country differences found in the effect of wealth on SWB (Christoph 2010; Howell, Howell, and Schwabe 2006; Warren and Britton 2003).

by social class, meaning that income has first a direct effect on SWB and second an indirect effect through its impact on social class which in turn affects SWB. Adopting this perspective might help to explain some of the ostensible contradictions by the differential in findings regarding the impact of income on SWB as outlined above.

Asserting that social stratification is a multidimensional phenomenon, Weber's class concept (Weber 1922) can very well explain the relationship between social class and SWB. As described in more detail in the introductory chapter of this thesis, Weber differentiates between class and status as being the principal dimensions of social stratification. Weber understands class as the economic category, while status represents the social category. According to Weber, class refers to "the possession of goods and opportunities for income" (Weber [1922] 2008) and thus includes occupation, income, as well as asset ownership. More broadly, class can be referred to as "life chances". In contrast to classes, status groups, according to Weber are normally communities. Weber understands status as an individual's social honor or prestige. Differences in the distribution of social honor between typical groups in a community Weber understands as social order. As such, status encompasses lifestyle and attended social restrictions (e.g. marriage patterns, residence). Wealth is not only an important component of class, but at the same time a primary cause of status, as some forms of property are directly connected with prestige. For example, rentiers usually hold greater status as compared to entrepreneurs, because their wealth is less obviously connected to labor (Fisher 1987). Consequently, wealth can be understood as "a key determinant of the lifestyle differences upon which status depends" (Shortell). Summing up, while class refers to "life chances", status refers to social distinction through "lifestyle". Weber's understanding of social class moreover includes the concept of social comparison, which has been found to be another important determinant of SWB (Easterlin 2001; Michalos 1985). Self-perceived social class and status are likely to affect SWB through a comparison of how one is doing as compared to relevant others (this effect has become known as "Keeping up with the Joneses").

Taking all these together, it is very plausible that SWB is not only affected by economic standing, but also by social class, which combines various effects on SWB (financial effects, effects of social prestige, effects of social comparison). In this chapter however, I try to separate the effect of economic standing from the more general concept of social class.

When analyzing wealth as an indicator of economic standing in addition to income, I thus try to achieve two goals. Firstly, I attempt to find further empirical evidence for the handling of wealth not only as an additional indicator of social standing, but also as a distinct dimension of social stratification. Secondly, focusing the wealth-SWB relationship will be informative about the consequences of wealth.

6.2.3 ADDITIONAL PREDICTORS OF SWB

In addition to wealth, SWB is shaped by other socio-demographic characteristics and by labor market outcomes (Diener et al. 1999; Okun et al. 1984; Pinquart and Sörensen 2000; Proulx, Helms, and Buehler 2007; Stock et al. 1983; Witter et al. 1984). Following previous research, this study controls the respondents' labor market outcomes, measured through their educational attainment, their labor market status and their household income. I further control for family characteristics (marital status and children); immigrant status (in Israel, I also control for Arab origin due to the unique position of this minority in the Israeli stratification system); and health. The latter has repeatedly been found to have a large impact on overall SWB (Deaton 2008; Edwards and Klemmack 1973; Okun et al. 1984), particularly among aging individuals (Larson 1978; Markides and Martin 1979; Spreitzer and Snyder 1974).

Health may in fact represent an intervening variable in the wealth-SWB relation. A vast number of studies link health not only to SWB but also to wealth (see for example Ettner 1996; Marmot, Ryff, Bumpass, Shipley, and Marks 1997; Meer et al. 2003; Semyonov, Lewin-Epstein, and Maskileyson 2013; Smith 1999; Wu 2003). Smith, Langa, Kabeto, and Ubel (2005) indeed find that wealth can serve as a buffer against a decrease in SWB in times of health difficulties and thus propose a moderating effect of health on the wealth-SWB relation. Yet, the relative part health plays in an individual's subjective evaluation of his or her well-

being, remains, to date, indefinite. The possibility that the wealth-SWB relationship I observe is an artifact of an individuals' health (or the opposite) requires me to confirm that the effect of wealth maintains once I control for health.

6.2.4 THE COMPARATIVE SETTING: DO DIFFERENT CONTEXTS IMPLY DIFFERENCES IN THE WEALTH-SWB RELATION?

One important aim of this chapter is to investigate the consequences of different institutional contexts on the relation between wealth and SWB. Specifically, I focus on the contribution of the welfare-state system to the wealth-SWB relation. The welfare state has different instruments that can affect this relation directly or indirectly. As underscored by Pacek and Radcliff (2008), the welfare state's primary indirect instrument to affect the wealth-SWB relation is decommodification, representing the extent to which individuals can maintain an acceptable standard of living independent of their market participation (Esping-Andersen 1990). In other words, the authors consider state sponsored social benefits a safeguard against the negative consequences of unexpected (or even expected) departure from the labor market and other unexpected shocks. Thus, I predict the association between wealth and SWB to be weaker where such social services exist.

The actual extent and design of social benefits provision in a country depends on the characteristics of its welfare state system. The current chapter compares three countries, each of which represents a different welfare-state system which complies with a different regime type, specified in Esping-Andersen (1990, 1999). Germany is the prototype of the conservative welfare regime, Israel represents the liberal welfare regime and Sweden typifies the social-democratic welfare regime. With this focus on the relation between wealth and SWB among aging individuals who either are close to retirement or already retired, it makes sense to demonstrate the workings of decommodification in the three countries included in this chapter through the old age provision system in each.

According to the life-cycle hypothesis (cf. Modigliani and Brumberg 1954), individuals save parts of their income in times of labor market activity for consumption in retirement. Pension programs intervene in

individuals' saving behavior by taking over the task of old age provision through mandatory saving (via the detention of earned income). Moreover, the level of minimum pension benefits provided is likely to affect the intensity of the wealth-SWB relation especially among those individuals who did not have the possibility to choose how much they are willing to save, namely the poor. In other words, decommodification, and here, the pension system, determines whether personal wealth is a necessity for individuals in order to maintain their SWB or not, and what is the level of wealth required to do so. If the state provides generous mandatory pensions (for example in terms of total pension wealth, average replacement rate and the target achievements, as suggested by Soede & Vrooman in 2008), individuals are predicted to save less of their income for old-age provision[44] (Jappelli and Modigliani 1998). More importantly, under such conditions, I predict the wealth–SWB relation to be comparatively weak. In the following, I shortly describe the general degree of decommodification in Sweden, Israel and Germany and the different pension systems in each country. I then proceed with demonstrating the association between the welfare-state regime (exemplified here, by the mandatory pension system) and the level of SWB.

The social-democratic welfare regime represented in here by Sweden, is most generous in terms of providing education, health and old age benefits to all its citizens, guaranteeing them a high level of social security. These social services, financed through relatively high income taxes, secure a high level of decommodification. Correspondingly, public pensions in Sweden are relatively generous (OECD 2011b; Soede and Vrooman 2008). The relative minimum pension benefits as percentage of average earnings have been at 25% in 2008 (OECD 2011b).

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[44]   Studies indeed indicate that there is a substitution effect between social security contributions (mandatory saving) and individual wealth holdings (discretionary wealth). Yet, this substitution effect is incomplete, as individuals are found to still save money (esp. Callen and Thimann 1997; Feldstein 1974; Munnell 1974). According to Jappelli and Modigliani (1998), this finding can be explained for example by ignorance or mistrust in the efficacy of the mandatory pension system. See also chapter 5 for more information on the relationship between social security and private wealth.

In the liberal model, social services are provided on a basic level and only to those in need, where need is typically evaluated by a means test. Accordingly, public pensions are relatively prudent (OECD 2011b; Soede and Vrooman 2008) and the general decommodification level is low. Most people cannot count on state benefits to secure their economic standing and must depend on their own resources, that is, on wealth (Lapinski et al. 1998). Israel closely resembles this model. Pension in Israel was privatized during the mid-2000s with private insurance companies forced to invest the larger share of individuals' pension portfolios in the market, placing high risks on pension savings of individuals. Old-age allowance in Israel, which is universally distributed, is insufficient even for a minimal living standard (Dagan-Busaglo 2007). Thus, many aging individuals in Israel are susceptible to poverty and/or economic hardship. Minimum pension benefits in Israel have been at 13% of average earnings in 2008 (OECD 2011b).[45]

In the conservative welfare regime, social services are based on the principle of subsidiarity, and are designed as social insurance systems to secure status maintenance. The result is an intermediate level of decommodification. In Germany, representing the conservative model here, a general minimum retirement pension does not exist. However, individuals without mandatory and personal savings are eligible for basic social security in retirement. The relative benefit value of basic social security in retirement equals the standard rate of the basic support for employment seekers (Hartz 4) which was about 21% of average earnings (household net equivalent income) in 2008 (cf. Münder 2008; OECD 2011b). Although according to Esping-Andersen (1990) the level of decommodification should be lower in Germany compared to Sweden, the generosity of the two public pension systems and the level of

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[45]   The pension system in Israel is but one example for the transition of the Israeli welfare state toward a liberal regime. The transition is marked by increasing reductions in government spending on welfare and social security, and by gradual erosion of social services. Another central process marking Israel's transition to the liberal model was the consistent efforts of consecutive governments to weaken the power of labor unions (most notably the HISTADRUT) reducing workers ability to secure their rights and interests (Doron 2001).

minimum pension benefits are similar (OECD 2011b; Soede and Vrooman 2008). This might result in only small differences between Germany and Sweden with regard to the impact of discretionary wealth on SWB.

For reasons explained above, I consider welfare-state policies like old age provision to intervene in the relation between wealth and SWB.[46] In the liberal model, I understand wealth to be a necessary instrument to secure SWB in old age. I therefore expect the wealth–SWB relation to be rather strong in Israel. To the contrary, in the social-democratic model, being of poor wealth is predicted to have no or only small negative consequences for SWB. The conservative model suggests a relation of medium strength between wealth and SWB.

It is important to remember that the Esping-Andersen typology also has its limitations. For example, it does not accommodate the diverse programs and services of different welfare states (Lapinski et al. 1998). Notwithstanding its limitations though, Esping-Andersen's typology is a suitable tool for my research purposes, providing me with clearly defined categories to explore my hypotheses.

6.2.5 HYPOTHESES

From my theoretical considerations, I derive the following hypotheses, each of which I will empirically test in the current study:

> H1: Income and wealth together account for the variance in GLS better than does income alone.

> H2: Individuals of poor wealth have lower GLS than do those in the middle of the wealth distribution. The wealthy group has only slightly higher, or the same, GLS than does the middle group.

> H3: The negative effect of poor wealth on GLS is strongest in Israel, where decommodification is lowest. It will be less strong in

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[46]   One can also think for example on the important role of the health system (as another representation of decommodification) determining the importance of income or wealth for the ability to maintain good health and GLS.

Germany, and similar or slightly weaker in Sweden, where de-commodification is highest.

H4: The negative effect of poor wealth on GLS is mediated by individuals' subjective feelings about their respective economic hardship.

6.3   DATA, VARIABLES AND METHODS

6.3.1   DATA AND VARIABLES

For my analyses, I once again use the second wave of the Survey of Health, Aging and Retirement in Europe (SHARE[47]). SHARE is an international, representative panel study of the population aged 50 years and over. The main advantage of the SHARE data is that it provides rich and detailed (self-reported) information on household wealth in the form of financial and other assets, as well as various kinds of debt. My units of analysis are individuals aged 50 or more.

The focus of the current chapter lies in understanding the consequences of differential wealth levels, measured as household gross wealth, for individual SWB, measured as GLS. In the SHARE dataset, GLS was measured using an 11-point single item scale.[48] In my statistical models, GLS is standardized (transformed to have a mean of zero and standard deviation of one) to ensure that the coefficients across countries are comparable. Consequentially, a one-unit change in one of the independ-

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[48]   The original question was "On a scale from 0 to 10 where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with your life?"

ent variables results in a change in GLS of one standard deviation. Income and wealth are measured on the household level and are presented in Euro, adjusted for purchasing power parity.[49] I operationalize income as total net annual income,[50] and make use of an equivalence scale (total income divided by the root of the number of persons living in a household) to account for household size.[51]

Recent studies distinguish between positive and negative wealth (debt) as different forms of wealth are related to different consequences for individuals' SWB (see Christoph, 2010; Diener et al., 2010; Howell, Howell, & Schwabe, 2006; O'Connell, 2004). Whereas wealth is expected to positively affect SWB, several studies demonstrate that debt has a negative effect on SWB (Brown, Taylor, and Wheatley Price 2005; Drentea 2000; Hatcher 1994). These findings reflect the theoretical as-

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[49]   The overall income and wealth of the household also include the contribution of those individuals (spouses, children or in-laws of the main respondent) in the survey who reported being younger than 50 and are thus not included in my sample.

[50]   "The basic definition used in the SHARE project reflects money income [after] taxes on a yearly base and includes only regular payments. Lump-sum payments and financial support provided by parents, relatives or other people are not included. The available data at the individual level include: income from employment; income from self-employment or work for a family business; income from (public or private) pensions or invalidity or unemployment benefits; income from alimony or other private regular payments; income from long-term care insurance (only for Austria and Germany). The available data at the household level include: income from household members not inter-viewed; income from other payments, such as housing allowances, child benefits, poverty relief, etc.; income actually received from highest secondary homes, holiday homes or real estate, land or forestry; capital income [...]. For homeowners, the data at the household level also include imputed rent, based on the self-assessed home value minus the net residual value of the debt (payments for mortgages or loans). The interest rate used for imputed rents is fixed at 4% for all countries. The SHARE definition of income does not include home business and other types of debts" (Paccagnella and Weber 2005: 357ff.).

[51]   Equivalence scales assume that each household type in the population has an assigned value in proportion to its needs. They account for the number of persons living in a household and for economies of scale. Equivalence scales are usually applied for income, but regarding wealth, the situation is more complex. The literature on the distribution of wealth reveals "no standard or well-defined approach accounting for different needs" (Sierminska and Smeeding 2005: 2). In the present chapter, I decided to refrain from the use of an equivalence scale for wealth, because there is no evidence that for wealth, certain amounts are needed to maintain a certain material standard of living for households (in fact, this is what I seek to understand).

sumption that debt poses severe risks to a household, and is associated with increased anxiety and distress. In line with this reasoning, I analyze positive (gross) wealth[52] while controlling for household debt[53]. A common problem in survey items inquiring about personal finances is the high rate of item-nonresponse (Riphahn 1997). To fill in these missing values, the SHARE team applies a multiple imputation strategy.[54]

Following my theoretical considerations, I expect the effect of wealth on SWB to differ depending on an individual's, respectively a household's position in a country's wealth distribution. In my analysis, I account for the households' position in a country's wealth distribution by making use of the wealth quartiles. The two middle quartiles represent the middle category (hereinafter, "middle wealth" or the "middle group"), which serves as the reference category. Those in the highest quartile are hereinafter referred to as the "wealthy" or as having "high wealth." Those in the lowest quartile are hereinafter referred to as the "poor" or as "being of poor wealth". Alesina, Di, and Macculloch (2004) use a somewhat similar approach – they, however, define the people in the two upper quartiles as rich and those in the two lower quartiles as poor.

Subjective economic hardship is captured by respondents' self-evaluation of their ability to "make ends meet" in their household. Originally, responses range from 1 ("with great difficulty") to 4 ("easily"). I combined the outcomes of 1 and 2 to create a dummy variable representing people with economic hardship. Income, wealth and economic hardship are all measured at the household level, with only one member of the household (the so-called financial respondent) responding to the

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[52] In SHARE, gross wealth contains the value of the following assets: (1) real assets, i.e., the ownership and value of the primary residence, of other real estate, of the share owned of own businesses and of owned cars; and (2) gross financial assets, i.e., the ownership and value of bank accounts, government and corporate bonds, stocks, mutual funds, individual retirement accounts, contractual savings for housing and life insurance policies. The values are summed over all household members in order to generate household-level variables (Christelis, Japelli, and Padula 2005: 358 ff.).

[53] Debts contain the value of mortgages and financial liabilities summed over all household members (Christelis, Japelli, and Padula 2005).

[54] For more information on multiple imputation, see Rubin (1987); for more information on the imputation method used in the SHARE study, see Christelis (2011).

respective items. In order to estimate the impact of household wealth on individuals' SWB, I control for the individual demographic and socio-economic factors discussed in the theoretical section. Appendix D provides a list of all variables with detailed definitions. Table 16, displayed in the results section, provides an overview of how these variables are distributed across Germany, Israel and Sweden. My country-specific sub-samples are further differentiated according to the three wealth groups described above.

6.3.2 METHODS

In order to account for the socio-economic and socio-demographic factors that affect GLS, I apply a linear regression model (OLS regression),[55] specified as:

$$GLS_i = \beta_0 + \beta_1 \ln(I_i) + \beta_2 \ln(D_i) + \beta_4 poor + \beta_5 rich + C_i \gamma + u_i \ (9)$$

where $ln(I_i)$ denotes the natural logarithm of household income; $ln(D_i)$ denotes the natural logarithm of household debt[56]; and *poor* and *rich* are the dummies for the top and bottom quartiles, respectively, of the household wealth distribution. C_i is a row vector of the control variables described above, and γ is a column vector of parameters. I use the Huber-White Sandwich estimator for cluster sampling (individuals clustered in households) in all regression models presented to obtain robust standard error estimates (cf. Wooldridge 2002). The analyses are carried out separately for each of the three countries.

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[55]   Researchers often use ordered logit models to represent the relationship between economic standing and SWB. I ran my models using logit models as well, but the findings are not meaningfully different from those of the OLS models. Thus, I present only the results of the OLS models, which allow for a more intuitive interpretation.

[56]   I tested for different functional forms of income and debt in my models and found that the logarithmic term best represents the relationship between income and GLS as well as between debt and GLS.

6.4 RESULTS

6.4.1 DESCRIPTIVE RESULTS

Table 16 provides a descriptive overview of the three country-specific samples. The predictors were weighted using cross-sectional calibrated weights that reflect each country's national population size of individuals born in 1956 or earlier (Mannheim Research Institute for the Economics of Aging 2010: 43). These weights help to reduce problems of unit-nonresponse and sample attrition (Mannheim Research Institute for the Economics of Aging 2010: 41). The rightmost column presents the characteristics of the entire sample while the columns on the left hand side present the characteristics of each wealth group.

The top row of Table 16 indicates that the Swedish respondents report the highest mean values of GLS (8.14), while Israelis report the lowest (7.41).[57] Average household wealth is highest in Israel (€519,420) lower in Sweden (€313,100), and lowest in Germany (€237,150).[58] Differences in mean GLS and average household wealth were statistically significant at the 0.01 level.

The poor in Germany possess a mean gross wealth of €10,960 ([0; 38,000]). In Israel it is €20,680 ([0; 72,000]) and in Sweden it is €32,030 ([0; 83,000]). The wealthiest respondents in Germany possess a mean gross wealth of about €653,250 ([338,000; 4,516,000]), while in Sweden it is about €942,630 ([373,000; 7,969,000]), and in Israel, €1,446,120 ([575,000; 7,670,000]). 19% of Swedes and 26% of Germans claim economic hardship while in Israel, over half of the respondents report problems making ends meet. This statistic increases to almost 75% among poor Israelis.

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[57] One should bear in mind the different geopolitical situations of the three countries under study, which may also affect SWB. In Israel, in particular, geopolitics may be associated with the relatively low GLS of its citizens.

[58] The wealth differences between Germany and Sweden, on the one hand, and Israel, on the other, might be linked to the comparatively high rate of homeownership in Israel. In Israel, about 80% of citizens own their home. In Germany and Sweden, less than 60% do.

Table 16: Descriptive statistics, separated by country and wealth group (standard deviations in parentheses)

	Poor			Middle			Wealthy			ALL		
	DE	IL	SE	DE	IL	SE	DE	IL	SE	DE	IL	SE
GLS - Mean	7.07	6.23	7.75	7.58	7.47	8.23	8.04	8.26	8.51	7.55	7.41	8.14
	(1.89)	(2.50)	(1.69)	(1.71)	(2.00)	(1.56)	(1.50)	(1.48)	(1.20)	(1.75)	(2.12)	(1.56)
Male (%)	38.98	39.96	41.16	47.48	46.21	48.67	50.93	53.55	54.89	45.91	46.71	47.77
Partnered (%)	46.95	65.82	33.56	68.40	77.60	76.63	80.78	87.23	87.64	65.20	77.27	65.88
Child(ren) (%)	85.31	94.26	87.04	87.62	97.08	91.21	88.01	97.60	94.31	87.09	96.47	90.63
Migrants (%)	16.57	85.38	9.81	8.10	56.28	10.62	5.49	49.84	4.62	9.83	61.02	9.02
Employed (%)	19.01	19.62	34.26	29.29	35.08	41.82	39.08	56.12	58.63	28.63	36.76	43.28
Unempl.(%)	10.65	2.48	1.36	4.89	3.20	2.49	1.39	0.77	1.40	5.68	2.38	1.90
Ho.maker (%)	5.50	10.77	0.33	9.15	15.60	0.84	12.77	5.77	0.96	8.95	11.89	0.71
Retired (%)	59.83	55.04	62.41	54.16	38.57	51.82	44.06	34.99	36.58	53.49	41.30	51.63
Ec.hards. (%)	43.93	74.72	37.47	23.84	56.35	12.56	9.83	22.15	6.83	26.17	51.70	18.92
Age - Mean	66.97	70.91	67.49	65.82	66.38	65.15	63.34	64.26	62.09	65.59	66.83	65.18
	(10.85)	(9.89)	(11.63)	(9.75)	(9.03)	(9.74)	(8.49)	(8.10)	(8.08)	(9.89)	(9.30)	(10.22)
Hhd. size - Mean	1.66	2.03	1.47	1.98	2.21	1.98	2.20	2.19	2.23	1.94	2.16	1.88
	(0.73)	(0.98)	(0.68)	(0.88)	(1.04)	(0.77)	(0.83)	(0.80)	(0.79)	(0.85)	(0.97)	(0.80)
Edu. - Mean	3.00	3.62	2.11	3.37	2.86	2.72	3.76	3.73	3.61	3.36	3.25	2.73
	(1.07)	(1.49)	(1.31)	(1.04)	(1.49)	(1.48)	(1.09)	(1.31)	(1.43)	(1.09)	(1.51)	(1.52)
Obj. Health	83.38	73.48	85.79	88.12	84.37	89.49	91.57	90.56	93.12	87.60	83.55	89.17
	(14.36)	(19.55)	(11.75)	(12.48)	(14.78)	(10.09)	(8.33)	(11.11)	(7.84)	(12.59)	(16.28)	(10.53)
Inc.- Mean	16,550	14,990	16,180	22,150	17,720	31,570	36,880	40,550	31,570	23,940	23,260	22,510
	(12,600)	(23,140)	(9,750)	(17,690)	(14,330)	(22,110)	(40,290)	(37,030)	(22,110)	(24,970)	(26,240)	(15,090)

Inc.- Median	14,040	9,020	13,430	18,260	14,980	20,390	27,840	30,340	27,220	18,420	15,760	19,590
Wealth - Mean	10,960	20,680	32,030	173,120	271,49	201,410	653,25	1,446,120	942,63	237,15	519,42	313,10
	(10,620)	(25,930)	(26,760)	(84,200)	(137,380)	(79,460)	(411,050)	(1,160,260)	(953,560)	(311,970)	(816,210)	(571,840)
Wealth - Median	7,440	2,870	22,520	166,390	242,23	180,440	513,98	989,38	575,51	154,73	265,82	168,96
Debts – Mean	2,790	7,260	9,420	11,270	14,150	36,990	29,110	14,430	72,750	12,970	12,700	36,550
	(14,320)	(20,980)	(21,900)	(39,740)	(55,400)	(54,960)	(65,260)	(37,990)	(161,670)	(43,530)	(45,550)	(89,140)
Debts - Median	0	0	0	0	0	14,350	0	0	30,140	0	0	7,540
N (un-weighted)	598	463	643	1,196	926	1,287	596	463	642	2,390	1,852	2,572

Note: SHARE wave 2 (release 2.5.0.), data weighted. Own calculations.

Interestingly, about 22% of Israeli respondents from wealthy households also report economic hardship, indicating that a significant number of Israelis feel economically insecure, despite reporting to possess gross wealth between €575,000 and €7,670,000.

Given the average age of the respondents (65 in Sweden, 66 in Germany, and 67 in Israel) and the higher longevity of women, it is not surprising that the majority of respondents in all three country samples are women. Moreover, in all three samples, women are more likely to be in the poor wealth quartile than men are. There is a relatively high proportion of immigrants in the Israeli sample (61%), which is reasonable given Israel's immigration history (Lewin-Epstein and Semyonov 2000). In both, Israel and Germany, a large proportion of immigrants occupy the poor wealth group, which attests to the well-documented difficulties that immigrants face in accumulating wealth in the receiving society (e.g. Lewin-Epstein and Semyonov 2000).

In line with the life-cycle hypothesis (Modigliani and Brumberg 1954), the findings presented in Table 16 suggest that in all three countries, employed individuals are less likely to be poor. Retired individuals are, to the contrary, more likely to be poor (59.83%, 55.04%, and 62.41% of retirees are in the poorest wealth quartile in Germany, Israel, and Sweden, respectively). Not surprisingly, the poorest respondents in all three countries have the worst levels of health, which supports the established association between economic well-being and health (e.g. Jones & Wildman, 2008). Health levels are higher for those in the middle wealth group and highest among the wealthy.[59]

Income levels are highest in Germany, with an average net household equivalence income of €23,940, compared with €23,260 in Israel, and €22,510 in Sweden. Yet, these differences are not statistically significant

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[59]   Health was measured via the Physical Health Index used by Semyonov et al. (2013). The index lists 41 items, including limitations with activities of daily living, mobility limitations, arm function and fine motor limitations, chronic diseases and several illness symptoms, where 1 point is given for each condition on the list. This score is then converted into a percent score, which ranges from 0 (for bad health) to 100 (for good health).

(one-way analysis of variance). The range of the income distribution across the different wealth groups is widest in Israel, indicating greater income inequality. Finally, the Swedish respondents are the most in-debted, with an average household debt of €36,550 (mortgage and financial liabilities), and a median value of €7,540. In Germany and Israel, the average household debt is around €13,000, but the median value is 0, suggesting that 50% of German and Israeli respondents are not in debt at all. Here too, mean differences were statistically significant at the 0.01 level. The descriptive data provides valuable information regarding the differences and similarities among the three countries. Yet, in order to better evaluate the associations between GLS and the different indicators of economic standing, I proceed to estimate regression models that control for socio-demographic characteristics.

6.4.2 MULTIVARIATE RESULTS

Table 17 shows the results of my multivariate regression models. For reasons of clarity, I only report those measures and coefficients that are relevant for the hypotheses (the full models can be found in Table 18, M1). The first hypothesis states that wealth and income together should account for the GLS of the respondents better than does income alone.

The findings (Model 2 of Table 17) indeed show that controlling for income, wealth has an impact on GLS in Germany and Israel. In both countries, the poor report lower GLS (b=-0.13 in Germany and b=-0.24 in Israel) than individuals in the middle of the wealth distribution and the rich report higher GLS (b=0.11 in Germany and b=0.17 in Israel). Debt is significantly associated with SWB only among the Israeli respondents, where debt is found to slightly decrease their GLS (b=-0.01). The R^2 of models 1 and 2 indicate that income and wealth, when taken together, explain a greater part of the variance in SWB than does income alone. The increase in R^2 is significant at the one percent level in Germany and at the five per cent level in Israel (F-test). My analysis thus supports hypothesis 1 for Germany and Israel.

Table 17: OLS regression (with robust standard errors) on GLS

| | M1: only income | | | | | M2: income + debts + wealth | | | | | |
	DE		IL		SE		DE		IL		SE
Log(I)	0.07	**	0.06	*	0.05	*	0.05	*	0.03		0.04
Log(Debts)							0.00		-0.01	*	0.00 *
Poor							-0.13	*	-0.24	*	-0.07
Rich							0.11	*	0.17	*	0.07
Df	12		13		12		15		16		15
R²	0.207		0.276		0.118		0.212		0.296		0.120
N	2,390		1,849		2,572		2,390		1,849		2,572

Note: SHARE wave 2 (release 2.5.0), data unweighted. Own calculations. I controlled for gender, household size, age, migrant status, Arab origin (IL), married, child, education, employed, unemployed, homemaker and health. *p≤0.05, **p≤0.01, ***p≤0.001.

Table 18 presents my full regression models. Model 1 tests hypothesis 2, which predicts that the gap in SWB between the middle group and the poor will be greater than the gap between the middle group and the wealthy. The descriptive results in Table 16 showed that in all three countries, the poor report lower GLS than the middle group indicating a "poor penalty", while the wealthy report higher GLS than the middle group indicating a "wealth premium". However, the regression model conveys a more complex picture: in both Germany and Israel, the poor penalty and the wealth premium are similar in magnitude (net of all controls, the null hypothesis b*poor+b*rich=0 could not be rejected). In Sweden, the GLS of both the poor and the wealthy are not significantly different from the SWB of their middle wealth counterparts. These findings contradict the assumptions of needs theory that the poor penalty shall be larger than the rich premium. The SHARE data does not support hypothesis 2.

Hypothesis 3 proposes that the negative effect of being of poor wealth on GLS will be strongest in Israel, and weaker in Germany and Sweden. The findings indicate that in Sweden individuals of poor wealth do not differ significantly in their GLS compared with individuals in the middle of the wealth distribution. Regarding the size of the poor effects on GLS in Germany and Israel, interaction based coefficients provide some evidence that being poor is more detrimental for GLS in Israel (b=-0.24) than in Germany (b=-0.13). However, this difference is not statistically significant. The data does not support hypothesis 3.

As indicated in the theoretical section, health might intervene in the relation between wealth and SWB. Indeed, health has a significant impact on GLS in all three countries under study. Additional statistical analysis revealed that among the poor, health mediates the wealth-GLS relation.[60] This mediation is however only partial because being of poor wealth still negatively affects GLS.

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[60]   I tested for health as a mediator variable among the poor by carrying out a series of Sobel-Goodman tests (Goodman 1960; Sobel 1982). The indirect effect of health was significant (p < 0.01) in all three countries with around 40% (DE: 36%; IL: 41%; SE:

Model 2 (Table 18) tests hypothesis 4, which suggests that if the negative effect of poor wealth on GLS derives from needs, then this effect should be mediated by an individual's subjective sense of his or her own economic hardship. The findings presented in Model 2 indicate that respondents who report having problems making ends meet (variable 'Ec. hardship') are significantly less satisfied with their life compared to those who do not have problems (b=-0.46 in Germany, -0.34 in Israel, and -0.24 in Sweden). Furthermore, Model 2 demonstrates that the poor penalty I found in Germany and in Israel diminishes after I introduce this subjective measure of economic hardship. In Germany, the remaining effect is no longer statistically significant implying full mediation, but in Israel it remains significant (b=-0.17), implying only partial mediation.[61] Therefore, the data supports hypothesis 4 for Germany, but only partially for Israel.

Table 18 also indicates that men have lower GLS than women across all countries. In Israel and Sweden, immigrants have lower GLS than the native-born population; this gap remains statistically significant even after controlling for subjective economic hardship (b=-0.15in Israel, and b=-0.22 in Sweden). The GLS of Israelis and Swedes increases among individuals with children (b=0.43 and b=0.25, respectively). In Germany, employed individuals do not differ in their GLS levels from those in retirement or the permanently sick and disabled respondents. The unemployed have lower GLS (b=-0.26) than the retired and permanently sick respondents. In Israel, retirement does not suggest an advantage compared to unemployment, yet employed respondents have higher levels of GLS (b=0.12) compared with retired and sick individuals.

41%) of the total effect of poor wealth on GLS being mediated by health. For the rich, health has no significant impact on GLS.

[61] The Sobel-Goodman tests (Goodman 1960; Sobel 1982) show a significant indirect effect of having problems making ends meet in Germany and Israel (p < 0.01) with 45% respectively 30% of the total effect of being of poor wealth on SWB being mediated.

Table 18: OLS regression (with robust standard errors) on GLS in three groups of wealth (standard errors in parentheses)

	M1			M2		
	DE	IL	SE	DE	IL	SE
Male	-0.14 ***	-0.09 *	-0.10 **	-0.12 ***	-0.09 *	-0.11 **
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
HHsize	-0.04	0.01	-0.01	-0.02	0.01	0.00
	(0.03)	(0.02)	(0.04)	(0.03)	(0.02)	(0.04)
Age	0.01 **	0.01	0.01 **	0.01 *	0.00	0.01 **
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Migrant	0.05	-0.18 ***	-0.24 ***	0.10	-0.15 **	-0.22 **
	(0.06)	(0.05)	(0.07)	(0.06)	(0.05)	(0.07)
Arab		0.41 ***			0.48 ***	
		(0.09)			(0.09)	
Married	0.18 **	0.14 *	0.36 ***	0.12 *	0.12	0.31 ***
	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.07)
Child	0.13	0.45 **	0.26 **	0.13	0.43 **	0.25 **
	(0.07)	(0.15)	(0.09)	(0.07)	(0.15)	(0.09)
Education	0.04 *	0.02	-0.04 **	0.03	0.01	-0.04 **
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
Employed	0.09	0.11 *	0.11	0.10	0.12 *	0.09
	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)	(0.06)
Unemployed	-0.42 ***	-0.03	-0.32	-0.26 *	0.01	-0.31
	(0.11)	(0.20)	(0.17)	(0.10)	(0.20)	(0.17)
Homaker	0.09	0.05	0.01	0.13	0.05	0.00
	(0.07)	(0.08)	(0.19)	(0.07)	(0.07)	(0.19)
Health	0.03 ***	0.02 ***	0.02 ***	0.03 ***	0.02 ***	0.02 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Log(Inc)	0.05 *	0.03	0.04	0.01	0.02	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Log(Debts)	0.00	-0.01 **	0.00	0.00	-0.01 *	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

	(1)	(2)	(3)	(4)	(5)	(6)
Poor	-0.13* (0.06)	-0.24** (0.08)	-0.07 (0.06)	0.07 (0.06)	-0.17* (0.08)	-0.03 (0.06)
Rich	0.11* (0.05)	0.17* (0.06)	0.07 (0.05)	0.06 (0.05)	0.10 (0.06)	0.07 (0.05)
Ec. hardship				-0.46*** (0.05)	-0.34*** (0.05)	-0.24*** (0.07)
Constant	-3.96*** (0.00)	-3.03*** (0.00)	-3.40*** (0.00)	-3.53*** (0.00)	-2.45*** (0.00)	-3.16*** (0.00)
Df	15	16	15	16	17	16
R²	0.213	0.294	0.120	0.244	0.314	0.127
N	2,390	1,849	2,572	2,390	1,849	2,572

Note: SHARE wave 2 (release 2.5.0), data unweighted. Own calculations. *p≤0.05, **p≤0.01, ***p≤0.001.

6.5   CONCLUSIONS

The main objective of this final study was to investigate the consequences of individual wealth for individual SWB, drawing on the growing consensus that wealth is an important determinant of economic standing alongside income. My main premise was that the association between wealth, measured by household gross worth, and SWB, measured by general life satisfaction (GLS), might be explained by needs theory. I further investigated the impact of different institutional contexts on the wealth-SWB relation. Applying Esping-Andersen's (1990, 1999) typology of welfare-state regimes I analyzed and compared the impact of an individual's position in the distribution of wealth on its GLS in Germany (conservative welfare-state), Israel (liberal welfare-state), and Sweden (social-democratic welfare-state).

Needs theory claims that wealth augments SWB by enabling a person to better provide for his or her basic needs, economic and/or recreational. This proposition implies that the poor will most likely enjoy a lower level of SWB compared to the middle wealth group, while the wealthy will differ from the middle wealth group only slightly, if at all. My findings show that net of income, gross household wealth has a significant impact on SWB, measured as GLS, in Germany and Israel. More specifically, I find a poor penalty and a rich premium on GLS in these two countries, which, against the predictions of needs theory, do not differ in magnitude, suggesting that wealth can buy happiness. In Sweden, neither the poor nor the wealthy differ significantly in their SWB from the middle wealth group.

Existing literature fails to provide evidence that the relation between wealth and SWB is based on individuals' inability to meet their needs. Adding to current research, this chapter utilizes a subjective measure of economic hardship, which enabled me to capture and estimate the needs-based mechanism. Results show that subjective economic hardship accounts for the poor penalty as well as the wealth premium in SWB, but only in Germany. In line with needs theory, the differences in SWB among German respondents are likely to derive from economic hardship.

The findings were different in the Israeli sample. In this case, economic hardship fully accounts for the wealth premium, but only partially mediates the effect of being of poor wealth on GLS. This finding demonstrates that in Israel as in Germany the poor have problems making ends meet. Yet, it also shows that my measure for needs fails to fully explain this poor penalty. Previous research suggests that economic inequality increases the prevalence of social comparison (Diener, Diener, and Diener 1995). An ad-hoc explanation for the remaining poor penalty in Israel may thus be found in the higher levels of economic inequality present in Israel compared to Germany (OECD 2011c), increasing the dominance of social comparison in this country. I therefore encourage future research to build on the findings of this chapter by incorporating the social comparison mechanism suggested by relative standard theory (Easterlin 2001; but also Michalos 1985) in a comparative framework that takes subjective economic hardship into account.

Regarding the impact of the policy context, my findings suggests that the welfare-state system affects the wealth-SWB nexus. More specifically, I argued that the type of welfare-state regime would impact the magnitude of the association between wealth and levels of GLS by means of the degree of decommodification (exemplified by the pension systems in the three countries). My main hypothesis was that the negative effect of poor wealth on GLS would be strongest in Israel, where decommodification is lowest. The negative effect of wealth on GLS I predicted to be weaker in Germany and similar or even lower in Sweden, where decommodification is highest. My results show that in Sweden wealth does not affect SWB at all, while in Germany and Israel the negative effects of poor wealth on SWB I found to not differ in size. Yet, having estimated separate models (rather than a multilevel model), one must interpret these result with some caution and consider the possibility that other country-level differences may also be involved in creating the differences I report.

This chapter contributes to the contemporary literature on SWB by demonstrating three things. First, the SWB of individuals aged 50 or older, is strongly associated with wealth, representing an important source for economic standing, in Germany and Israel, yet, not so in

Sweden. Second, needs are the predominant mechanism linking economic standing to SWB in Germany, and they partially explain the wealth-SWB relations in Israel. Third, the degree of social support provided by the state has an impact on the magnitude of the association between wealth and SWB. The results presented here might thus serve as a fertile ground for the on-going debate on whether and how welfare policy instruments can improve a population's SWB.

Finally, the finding that wealth has an effect on SWB over and above the effect of income can be understood as a final indicator for wealth being a distinct dimension of social inequality. As my results show, wealth is related to advantageous conditions of living, measured in terms of SWB.

7   CONCLUSION AND DISCUSSION

The main research objective of this thesis was to contribute to a broader understanding of social inequality by going beyond inequalities derived solely from the labor market and to establish wealth as a distinct dimension of social inequality. All five empirical studies of this thesis were organized around this research goal. The second chapter formed the starting point for the four following studies, in theoretical as well as in empirical terms. All subsequent chapters were empirical studies based on the definitions and findings as presented in chapter 2. They each set a different focus on the topic of wealth, trying to answer one of the research questions raised in the preface and the introductory chapter. In the following, I will briefly recapitulate the main research questions and discuss the main results of this thesis.

7.1   MAIN FINDINGS

7.1.1   NATIONAL PATTERNS OF WEALTH INEQUALITY SIGNIFICANTLY DIFFER FROM THOSE OF INCOME INEQUALITY

In the second chapter, I gave a comprehensive definition of wealth by differentiating it from income. Doing this, I developed theoretical arguments for the understanding of wealth as a distinct dimension of social inequality. Considering the unique characteristics and the numerous functions of wealth – compared to income – I argued that individual differences in levels of wealth are likely to be more consequential for social inequality than individual differences in levels of income. To find empirical support for the theoretical argument that wealth is a distinct dimension of social inequality, I described the distributions of wealth and patterns of wealth inequality in 17 European countries and Israel and compared them to those of income. I made use of two different data sources. The first dataset I used is the "Survey of Health, Ageing and Retirement in Europe" (SHARE), which provides rich and detailed information on household wealth and income for the population aged 50 years and above. In addition to the SHARE data, I made use of a second wealth data source– the Global Wealth Databooks – and a second in-

come data source – the OECD iLibrary. These data sets provide information on the overall population.

My results showed – firstly – that there is strong variation in the distribution of wealth between these 18 countries, and – secondly – that levels of wealth inequality significantly differ from levels of income inequality in about half of the countries analyzed. Although wealth is more prevalent among the older population, the trends in levels of wealth and levels of wealth inequality as exhibited by the different data sources were very similar to each other. This can be understood, firstly, as a sign of good data quality and it could also mean that levels of wealth inequality perpetuate over the life course.

The highest values of median wealth were found in the Southern European countries, where median income is relatively low. High values of median wealth and median income were found in France and Belgium. Low values of median wealth and median income were found in the Eastern European countries. Surprisingly high levels of wealth inequality were found in Sweden and Denmark, two countries of the social democratic welfare regime, widely considered being highly egalitarian societies. Conversely, the Southern European countries – where income inequality is high – exhibited comparatively low levels of wealth inequality. Obviously, Esping-Andersen's typology of welfare states (Esping-Andersen 1990), which can still adequately describe national patterns of income inequality, cannot be applied when it comes to wealth. These findings form the first empirical evidence to support the treatment of wealth as a distinct dimension of social inequality, and suggest that a sole reliance on levels of income inequality would result in a one-sided or even inaccurate picture of national patterns of economic and, in a broader sense, social inequality. Moreover, these findings raise a number of further questions, examined in the subsequent chapters.

7.1.2 OLDER EUROPEAN HOUSEHOLDS POSSESS CONSIDERABLE AMOUNTS OF WEALTH AND HOUSEHOLD WEALTH PORTFOLIOS DIFFER ACROSS THE INCOME DISTRIBUTION AND ACROSS COUNTRIES

I continued to look for empirical support for the theoretical understanding of wealth as a distinct dimension of social inequality by examining the relationship between income and wealth among elderly households in 13 out of the 18 European countries, I had analyzed in chapter 2. The data I used stems from the SHARE, which makes the results of chapter 3 directly comparable to those of chapter 2. In a first step, I empirically determined the income-wealth relationship, to establish whether the income rich (income poor) and the asset rich (asset poor) were the same group of persons. Commensurate with theoretical considerations and past research, my results showed a positive correlation between income and wealth. I found older European households, even those in the lowest income quartile, to possess considerable amounts of wealth, equal to at least five times their (last) annual income. As the income rich (poor) are, for the most part, also the asset rich (poor), my results indicate a strong accumulation of financial advantages (disadvantages) for this particular group of persons. However, of course, these groups are not perfectly congruent. There exists, for example, a meaningful number of households with high net worth but relatively low income.

I further analyzed the composition of wealth across the different income quartiles and conducted a decomposition analysis to determine the contribution of the various components of wealth to the level of overall wealth inequality. Differences in the wealth portfolio, within and across countries, are important in terms of social inequality, as different types of assets entail different advantages and disadvantages. I found the wealth portfolios of asset-rich households to be much more diversified and thus less "crisis-prone" than those of the asset poor, which is another indicator of the manifold financial advantages of the asset rich, who are – as I showed before – often also rich in income. In line with past research, I found owner-occupied housing to be the central component in the wealth portfolio of households, especially in Southern and Eastern European countries. For the lowest income quartiles, it is often the only

meaningful asset. Financial wealth represents a considerable proportion of total wealth in the Northern European countries – which are attributed a lower risk-adversity – while it is of minor importance in the wealth portfolio of Southern European households. Households in Northern Europe can thus relatively easy access – and consume or reinvest – their wealth, while the wealth of the households in Southern European countries is less easy accessible and much less mobile. For this reason, elderly homeowners are sometimes described as housing rich, but cash poor. Compared to the Southern European countries, households in the Northern European countries are, however, more sensitive to financial shocks. Housing wealth was found to have an equalizing effect on wealth inequality in all countries. This is especially the case in the Southern European countries, where homeownership rates are high. An increase in real assets (net of housing wealth), on the other hand, would lead to an increase in overall levels of wealth inequality.

The high importance of housing wealth across all income quartiles in the Southern European countries is one potential explanation for the high median values of wealth in these countries, as established in chapter 2. There seems to be a positive correlation between high rates of homeownership, on the one hand, and high median values of net worth together with comparatively low levels of wealth inequality, on the other hand. The high importance of financial wealth – a wealth component most prevalent in the upper wealth quartiles – and the low importance of housing wealth in the Northern European countries might be an explanation for the high levels of wealth inequality in these countries.

Overall, these results provide further empirical evidence that the income rich are also the asset rich. Although the currently available data does not allow to determine whether the wealth of the asset rich stems predominantly from the accumulation of personal income or from transfers from parents and relatives, these results still emphasize the self-reinforcing nature of both wealth itself and of wealth inequalities.

7.1.3   HOUSING INEQUALITY IS A TWO-DIMENSIONAL PHENOMENON

Having identified owner-occupied housing as the central component in the wealth portfolio of households, I decided to take a closer look at this

specific wealth component, and focused on housing inequality in an international comparison. I argued that inequalities in housing are manifested in two ways: firstly, through differential access to homeownership, and secondly, through differences in housing values, a somewhat neglected aspect in research hitherto. Before carrying out my empirical analysis, I gave a comprehensive overview of previous research on socioeconomic variables affecting the probability of homeownership and housing values. I argued that the impact of these socio-economic characteristics does not necessarily need to be the same for the two dimensions of housing inequality – home-ownership rates and housing values. In my empirical analyses, I compared homeownership rates and housing values between 13 European countries. Again, I applied the SHARE data.

My analyses showed that the impact of socio-economic household characteristics on the probability of being a homeowner, on the one hand, and on the value of housing, on the other, is not identical. For example, I found education and income to have a statistically significant positive effect on both dimensions in most countries, whereas the influence of family-related characteristics varied: having a partner was found to have a statistically significant and positive impact on the probability of being a homeowner, while household size was found to have a statistically significant and positive effect only on the housing value. Most surprisingly, I found migration status to have a negative impact on the probability of homeownership, but not on the mean housing value. This contradicts the findings from previous studies, mostly conducted in traditional immigration countries like the USA and Israel. Altogether, my results suggested that housing inequality is indeed a two-dimensional phenomenon.

Finally, I exploratively studied the relationship between these two dimensions of housing inequality. My aim was to find out if high homeownership rates correlate with high housing values and vice versa (positive relationship), or if they can only be realized at the cost of low housing values (negative relationship). I could find theoretical arguments for both a positive (due to country-level effects such as the attractiveness of the homeownership market compared to the rental market) as well as a

negative (due to a process of self-selection) relationship. My analyses eventually showed a negative, though statistically not significant, relationship between homeownership rates and housing values. In conclusion, these analyses offer an innovative approach to an internationally comparative, two-dimensional analysis of housing inequalities.

7.1.4 COUNTRIES WITH MORE GENEROUS PUBLIC PENSION SYSTEMS SHOW HIGHER LEVELS OF WEALTH

Having analyzed micro-level but also some macro-level determinants of wealth and wealth inequality in chapter 4, I went on to focus explicitly on the macro level, by examining whether differences in the generosity of mandatory public pension systems can explain national differences in, firstly, levels of private wealth and, secondly, levels of private wealth inequality. Combining data from the OECD, Eurostat, the Credit Suisse Research Institute and the World Bank, I generated a comprehensive dataset, which allowed me to analyze these relationships across 40 countries, all 34 OECD and 6 non-OECD countries. Previous research has exhibited mixed results on how and to what extent the generosity of social security systems affects levels of private wealth. My results clearly indicated a negative relationship between public pension generosity and levels of private wealth, as suggested by the life-cycle hypothesis. This relationship also remained stable when controlling for a number of possible confounding factors, among them the occurrence and magnitude of early retirement, the countries' GDP per capita, and the level of income inequality.

From previous research, little was known about macro-level determinants of national differences in the levels of wealth inequality. The few international comparative studies on the distribution of wealth conducted so far, were either designed as in-depth country studies without comparing results across countries, or they did not explicitly address the issue of wealth inequality. Based on economic theory (Modigliani and Brumberg 1954; Keynes 1936) and Maslow's hierarchy of needs (Maslow 1943; Maslow 1954), I expected different levels of public pension generosity to differently affect the savings behavior of individuals, depending on their place in the income distribution. I hypothesized a positive rela-

tionship between the generosity of the mandatory public pension scheme and the level of private wealth inequality. However, I could not find empirical support for my hypothesis.

In conclusion, while national differences in the generosity of the mandatory public pension systems proved to work as good predictors of national differences in private wealth, they were not able to predict national differences in wealth inequality in the set of 40 countries I analyzed.

7.1.5 HOUSEHOLD WEALTH IS POSITIVELY RELATED TO SUBJECTIVE WELL-BEING

In the final step, I focused on the consequences of wealth. Specifically, I provided new insights into the association between economic standing, measured by wealth and income, and subjective well-being (SWB) among aging individuals. Most studies on the relationship between economic standing and SWB have used income as an indicator of economic standing, and reported a significant positive impact of income on SWB. Yet income was found to account only for a small part of the variation in SWB. Considering the unique properties of wealth, as reported in chapter 2, I argued that wealth represents a more comprehensive measure of the effects of economic standing on SWB, beyond the consequences income may have on it. I compared the relationship between wealth and SWB across three different welfare-state regimes: conservative (Germany), liberal (Israel), and social-democratic (Sweden). The relevance of the welfare-state system to the relationship between wealth and SWB I explained through the concept of decommodification, referring to the extent to which citizens in a country are economically independent from the market (Esping-Andersen 1990) through the provision of social benefits. These benefits can be understood as a cushion against the consequences of shortage of financial resources.

Drawing on needs theory, I hypothesized that individuals of poor wealth would report lower levels of SWB in all countries. I expected, however, the association between poor wealth and SWB to be stronger in the liberal system (Israel) and weaker in the conservative system (Germany) with the weakest effect found in the social-democratic system (Sweden),

due to differences in the extent of social benefits each welfare-state regime provides its residents.

For my empirical analyses, I again applied the SHARE data. My results indicated that income and wealth explain a significantly greater part of the variance in SWB when taken together. I found a "poor penalty" on SWB in Germany and Israel, while in Sweden I found wealth to have no impact on SWB. Finally, when controlling for subjective economic hardship (needs), the negative effect of poor wealth on SWB disappeared in Germany, but maintained significance in Israel, suggesting that needs theory alone cannot explain the poor penalty in Israel. In conclusion, my findings suggested that the welfare state has an impact on the wealth-SWB relationship, and that the mechanisms that underlie this relationship operate differently in Germany and Israel. These findings serve as additional empirical support for the theoretical argument of wealth being a distinct dimension of social inequality alongside income.

7.2   CONTRIBUTION

The main motivation of my thesis was to make a sociological contribution to the study of social stratification in terms of wealth. Unfortunately, sociology has hitherto largely neglected the role of wealth in the process of social stratification, while wealth research, in theoretical as well as in empirical terms, has largely taken place in the sphere of economics. In their introductory article on "Who Gets What and Why? Answers From Sociology", Myles & Myers (2007) list three important traditional strengths or typical perspectives of sociology: the role of family dynamics and family demographics; the role of power; and the role of organizations and institutions. Adopting one or several of these perspectives, sociologists can make an important contribution to the explanation of cross-national differences in levels of economic inequality.

In my thesis, I decided to set a focus on the role of institutions; more precisely, on the effects of differences in the form and organization of the countries' system of social welfare. I started my thesis by describing levels of wealth and wealth inequality across a sample of 18 countries, using and comparing different data sources. I further compared levels of wealth inequality to those of income inequality in order to establish em-

pirically whether wealth has to be treated as a distinct dimension of social inequality. Doing this, I paved the way for the subsequent chapters of my thesis, as well as for future wealth research. From previous research, it was still not clear how wealth is distributed across countries and, especially, to what extent this distribution resembles the distribution of income.

I built on these findings in the subsequent chapters. All studies were carried out as international comparative studies. I concentrated on the role of institutions most explicitly in chapter 5, where I analyzed the relationship between public pension generosity and the distribution of private wealth. In chapter 6, I captured the impact of the welfare state on the relationship between wealth and SWB through the concept of decommodification. Finally, I also made a theoretical contribution to social stratification research by giving a comprehensive definition of wealth by differentiating it from the concept of income. Moreover, I developed arguments for a treatment of wealth not only as an additional, but also as a distinct dimension of social stratification and social inequality.

Doing this, I did not ignore the achievements of economists. Instead, I built on their findings and adopted their theories and arguments where they seemed helpful for answering my research questions. I combined sociological and economic, but also psychological perspectives and theories, which I consider to represent a very fruitful approach for a systematic and comprehensive study of wealth in terms of social stratification and social inequality.

To sum up, my thesis contributes to social stratification research by demonstrating theoretical arguments and empirical evidence for the treatment of wealth as a distinct dimension of social inequality. Results of my empirical studies clearly show that neglecting wealth in social stratification research would paint a one-sided or even inaccurate picture of social inequalities. I further contribute to the understanding of wealth inequalities by analyzing the composition of wealth, the micro- and macro-level determinants of wealth and wealth inequality, and the consequences of wealth. I thus understand my thesis as having made a contribution to a broader understanding of social inequality.

7.3   SOCIETAL IMPLICATIONS

7.3.1   THE ADEQUACY OF RESCUE PACKAGES

Levels of private wealth and levels of wealth inequality are frequent topics of discussion in media and politics nowadays. Concerns are expressed about the high levels of wealth inequality in many countries, as well as about national differences in median wealth holdings. As mentioned in my introductory chapter, the publication of the first results of the "Household Finance and Consumption Survey" (HFCS), for example, triggered a wide-ranging discussion on the adequacy of rescue packages for the financially troubled Mediterranean countries in the Eurozone area, in which households possess around three times as much net worth as German households.

My analyses show that a sole focus on levels of wealth tells only part of the story, as there are also meaningful national differences in the composition of wealth. Households in the Mediterranean countries, for example, hold most of their wealth in the form of residential property, which is of much less importance in Germany, where households' wealth portfolios are more diversified. Compared to financial assets such as shares, bonds, or money in bank accounts, housing wealth is much less mobile and less easy to liquidize.

Moreover, I was able to show that there exists a negative relationship between the generosity of public pensions and the levels of private wealth. The Southern European countries are, however, an interesting special case, as they combine a high generosity of public pensions with high levels of private wealth. The reason behind this is the strong insider-outsider labor market in these countries. Although welfare services are comparatively generous, they are only provided to those in core sector employment, while the increasing number of "outsiders" (i.e. those who are either unemployed or working in the informal sector, especially if they do not have family) are not covered by the social security system. Nevertheless, the poor performance of the public pension system in the Mediterranean countries combined with a high rate of homeownership are likely to be an important explanation for the comparatively high levels of wealth in these countries. A recent study of Frick & Grabka

(2013) supports this argument. The authors criticize the fact that the "standard" concept of net worth as applied in most surveys ignores any entitlements to public pension schemes. In their study, based on German panel data, Frick & Grabka (2013) calculate an extended measure of wealth by combining public pension and private wealth. Doing this, median net worth increases by 70%, with public pension entitlements making up about 40% of total net worth. In addition, the level of wealth inequality (Gini coefficient) is reduced by one quarter, suggesting an impact of public pension wealth not only on a country's level of wealth, but also on its level of wealth inequality.

7.3.2 PRIVATE PROVISION FOR OLD AGE

Another widely discussed topic related to wealth is the increasing importance of private provision for old age. As a reaction to population ageing, welfare states nowadays reduce public pension benefits and try to set incentives for private provision for old age, i.e. the accumulation of net worth. Responsibility for old-age provision is thus increasingly being transferred from the welfare state to the individual actor. Based on my analyses in chapter 5, exhibiting a negative relationship between public pension generosity and levels of private wealth, it can be expected that the decrease in public pension generosity, as either planned or already conducted in most of the 40 countries analyzed in this study, will result in an increase in overall levels of private wealth. The question remains as to whether this increase in savings will be equally distributed across the income – but also the wealth – distribution and will thus have or not have an impact on the level of wealth inequality. Here, my results, as presented in chapter 5, give an initial answer. I found a negative relationship between income taxes as a percentage of GDP and the level of wealth inequality. This finding I interpreted as empirical support for the argument that non-saving could be an utility-maximizing decision for the lower income quartiles in case of high taxes, driving the overall level of wealth inequality. My findings further suggested that this is, however, more the result of a low ability to save rather than a low motivation to save. I concluded that if a (further) cut in public pension benefits is accompanied by a lower level of income taxes (which are used to finance public old age provision), the overall level of wealth inequality might in

fact decrease. Based on my results, it is thus possible that the increased importance of private provision for old age results not only in higher individual saving rates, but also in a decrease of levels of wealth inequality. I understand my results as paving the way for a more comprehensive discussion of the ongoing disputes surrounding pension reforms. It is a task of future research to find out whether and to what extent the most recent public pension reforms have had or will have an effect on the overall levels of wealth and wealth inequality.

7.3.3 PIKETTY: WEALTH INEQUALITY AND THE ROLE OF INSTITUTIONS

This section discusses my findings in the light of Piketty's work and relates very much to point 2 above. One major point of critique regarding Piketty's book addressed his ignorance of institutions in determining the distribution of wealth (Davies 2015; Acemoglu and Robinson 2014; Krusell and Smith 2014). While Davies (2015: 158) names the public pension and health insurance system as well as other state benefits, Krusell and Smith (2014: 2) add educational institutions, skill-biased technical change, globalization, and changes in the structure of capital markets to cause fundamental changes in wealth inequality. Davies (2015) argues that Piketty's concentration on his inequality relationship makes him missing out other possibly much stronger effects on the level of wealth inequality. Piketty's inequality relationship states that that the return on capital *(r)* remains permanently above the rate of growth of the economy *(g)*. Acemoglu and Robinson (2014: 1) more generally criticize that "the quest for general laws of capitalism or any economic system is misguided because it is a-institutional". A critique, which also applies to Marx.

My approach, especially in chapter 5 ("Macro-level determinants of wealth: Public pension generosity and the distribution of private wealth) in which I study the relationship between the generosity of public pensions and the median levels of wealth as well as levels of wealth inequality, can be understood as an answer to Davies critique. Davies (2015) himself suggests that generous state benefits might have reduced the need for private saving for a large share of the population, contributing to both the decline in wealth inequality in the 1970s and its rise thereaf-

ter. The recently growing importance of private provision shall increase private savings especially in parts of the population who have not saved before and might in turn "act as a brake on rising wealth inequality". He further strongly advices to take into consideration the micro foundations of wealth inequality. Only then, the true nature of wealth inequality can be understood.

My fifth chapter gives some first empirical support for Davies' suggestions. Indeed, and as can be expected from the life-cycle theory, my findings show that in countries with less generous public pension systems, median private savings are higher. As I just mentioned above, it can thus be expected that a (further) decrease in public pension generosity, will result in an increase in overall levels of private wealth. Standard dynamic economic models with heterogeneous agents who try to smooth consumption over the live-cycle suggest that there are differences in savings behavior in general and particularly across the income distribution. This is due to two main reasons: firstly, there are differences in the discount rates of individuals of future consumption and secondly, lower income agents tend to relatively spend more on subsistence goods than agents further up the income distribution do. The lower tendency to save of the low-income individuals as compared to high-income individuals is likely to be the result of two reasons: differences in saving motives and differences in the ability to save. Based on the motivations approach or on consumption smoothing, if a country offers generous public pensions to the overall population, then the tendency to save shall be low, especially in the lower income quartiles, which will reduce the savings of low-income earners proportionately more than for high-income earners. If, as can be observed in advanced capitalist societies, public pension generosity decreases, the motivation to save shall in turn increase, this time especially among those, who had no motivation to save before, i.e. the low-income individuals. Like this, a decrease in public pension generosity might have a positive effect on the country level of wealth inequality, meaning that wealth inequality shall decrease, just as suggested by Davies (2015). Although my empirical findings are not statistically significant, they do not allow rejecting this hypothesis: further research is needed here.

Summing up, my results show that institutions have an important impact on the distribution of wealth; ignoring them can lead to misconceptions. I thus like to strongly motivate sociologists to enter wealth inequality research. The traditional strengths of sociology – to account for family dynamics and demographics; the role of power; and the role of organizations and institutions – in the study of social inequality, predestines sociologists to enter the wealth inequality research field. Sociologists have a lot to contribute to the topic of wealth inequality and now is the time that they should enter the research discourse. Building upon the work of Piketty, sociology has the potential to give more insights into the nature of wealth inequality and to add explanatory power to the analysis of differences in wealth inequality between as well as within countries. I very much hope that my thesis serves to boost sociologists' interest to engage in wealth inequality research.

7.3.4 THE DEFINITION OF POVERTY

Poverty, as measured by most social surveys, is based on a monetary approach. In the USA, the poverty line is based on a defined basket of goods. The U.S. Census Bureau understands individuals living in households with an income, which does not allow them to buy such a basket of goods, as being poor (cf. Institure for Research on Poverty, n.d.). The European Union applies a relative poverty threshold, defining poverty in relation to the distribution of income within each country. Eurostat understands individuals, living in households with an equivalized income that is below 60% of the national equivalised median income, as being poor (cf. Trinczek, 2007). As can be seen, both definitions of poverty are based on income – and consumption in the case of the USA – while not considering wealth.

The results of my thesis, however, give several indications that this is too shortsighted. A first indicator for this argument is the finding that the levels of income and wealth inequality differ in about half of the 18 countries I analyzed in chapter 2, suggesting that income and wealth are two distinct dimensions of social inequality. A second indicator is the finding that European households possess substantial amounts of net worth. Even the lowest income quartiles hold net worth equal to five

times their (last) annual income. However, this applies only to older households. The finding that wealth has a positive impact on individual SWB beyond the effect of income can be seen as another indication that income alone can only partly capture an individual's economic standing.

In line with that are the findings of a study carried out by the Cologne Institute for Economic Research (Niehues and Schröder 2012). In this study, the Cologne Institute for Economic Research combined two measures of poverty: the "traditional" measure as applied in Europe (see above) and a more comprehensive measure, combining income and net worth. According to the traditional measure, in 2013 13-15% of the German population aged above 25 years are considered poor. Applying the broader measure, these numbers fall to 3-5%, which is a huge decrease. The results further showed that approximately 20% of those labeled as poor according to the traditional measure of poverty possess amounts of net worth that they could live upon for at least 10 years.

A new definition of poverty, based on both income and wealth thus seems appropriate. This becomes even more important in the light of the expected "inheritance wave". The last 70 years have been a period of peace and economic prosperity in most industrialized countries of the Western world. During this time, households have been able to accumulate substantial amounts of wealth. The cohort living and working during this period is now in its 50s-70s and is expected to bequeath a historically unprecedented amount of wealth to their children (the baby boomer generation, born between 1946 and 1964) and grandchildren. For Germany, researchers expect a trillion Euros more to be inherited between 2010 and 2020 as compared to the decade before, which represents an increase of 50% (Die Welt 2011). Similar amounts of wealth are expected, for example, for the baby boomers in Canada (Yew 2012).

7.4   LIMITATIONS AND POTENTIAL FOR FUTURE RESEARCH

Having found considerable empirical support for the theoretical argument that wealth is a distinct dimension of social inequality, new questions rose throughout the conduction of this thesis. Moreover, I was faced with a number of limitations to my research that led to certain restrictions for the resolution of my research questions. In this final

paragraph, I discuss some of these limitations, as well as the potential for future research.

The limitations I was faced with resulted mainly from the unavailability of appropriate empirical data. Most importantly, my results are subject to historical specificity. This historical specificity calls for longer time series data. Related to this problem, in my studies, I was, for the most part, able to propose and develop insightful correlations and associations, but I could not draw causal inferences neither on the determinants nor on the consequences of wealth. Also related to the current unavailability of longitudinal data is the omission of an analysis of the sources of wealth. To study those, one would need multigenerational longitudinal data containing detailed information about personal income and wealth, so as to perform linked-generations analyses. As to the process of wealth accumulation, it would be interesting to establish whether different occupational careers – understood as opportunities to accumulate wealth via saved earnings and via access to public and private pension systems – can account for differences in levels of wealth in later life. Studying the sources of wealth and the process of wealth accumulation will be two tasks for future research. Nevertheless, although with the availability of multigenerational longitudinal data, developing causal analyses will continue to represent a serious challenge, as researchers working with observation data are always faced with the problem of causation and selection.

Coming back to the sociological contribution to the analysis of wealth, there remain two perspectives, which I did not adopt in my thesis: the role of family dynamics and family demographics, and the role of power. Both perspectives would certainly lead to further interesting insights into the topic of wealth. A relevant research topic with regard to family demographics and dynamics would be to analyze the impact of the increasing educational homogamy in partnerships and the increase in dual-earner families on the accumulation and distribution of wealth. As married persons are more likely to have higher incomes and greater savings (Elmelech, 2008: 43), this effect should be reinforced by the changing demography of families. Another change in family demography is also likely to have an impact on the distribution of wealth: the

decreasing number of children per woman. Nowadays, most families have only one child. If most wealth is inherited from two parents by their one child, this is likely to have an impact on the distribution of wealth. In addition, there is an increasing number of persons who never start a family. The question remains as to who inherits their accumulated wealth. Another interesting topic would be to focus on the impact of wealth on intergenerational mobility. Controlling for parental income, do children from wealthier families perform better in life (educational attainment, occupational status, income, etc.) when compared to children from less wealthier families? This could even open up fresh perspectives for the research of educational mobility, as including wealth could potentially answer some of the open questions within this field of research.

Wealth and power are strongly related to each other. One function of wealth is the power function, defined as the ability to assert one's will even over that of others (Weber 1984). Possessing high amounts of wealth goes along with a potential for high power in other societal spheres, like politics. However, this also works in the opposite direction; those with more power (e.g. presidents, governors, high-ranking military officers) can use this power to accumulate private wealth. Concentrating on the power function of wealth means concentrating on the high net-worth individuals, for example the top 5% or even 1% of a country's wealth distribution. It would be very interesting to study the ways in which these individuals accumulated their wealth, and which executive power they have achieved, for example, through donations to political parties, payments to lobbyists, or grants to experts who are employed to think up new policies beneficial to the wealthy (Domhoff 2013). The American sociologist G. William Domhoff (2010) has already done a great deal of research on this topic in the USA, claiming that the USA is a "power pyramid". Some research on the "High Net Worth Individuals (HNWI)" and the "Ultra-High Net Worth Individuals (U-HNWI)" in Germany has been done by Lauterbach (e.g. Lauterbach and Kramer 2009). However, more recent data – especially longitudinal data – could add valuable insights to their findings. Moreover, it would be interesting to study the wealth-power relationship in other national contexts.

Although not available today, there is a large number of projects collecting data on private wealth holdings in particular, in an increasing number of countries and over longer periods. In some years, it will thus be possible to address the aforementioned limitations of my thesis, to replicate my results, and to answer some of the new research questions my thesis and other wealth studies have raised. I am very much looking forward to the day when such data will be available. I think that my thesis can then serve as a fruitful starting point for even more comprehensive research on social inequality, and I hope that my work will inspire many sociologists to engage in wealth research in the future.

APPENDICES

Appendix A: Logistic regression (with robust standard errors) on the chance of being a homeowner

	Northern Europe		Continental Europe				
	DK	SE	AT	BE	CH	DE	FR
Age	0.05	0.15	-0.03	-0.03	0.26 **	0.19 *	0.05
Age²	0.00	0.00	0.00	0.00	0.00 **	0.00 *	0.00
Household size	0.22	0.28 *	0.26	0.09	0.21	0.26 *	-0.21 *
Partnership=yes	1.20 ***	1.16 ***	0.22	1.28 ***	0.71 ***	0.56 **	1.31 ***
Children=yes	-0.28	0.11	-0.07	-0.24	0.42 *	-0.17	-0.01
Migrant=yes	-0.52	-0.34	-0.57 *	-0.49 **	-0.61 **	-0.54 ***	-0.59 ***
Education (ISCED)	0.20 ***	0.04	0.21 **	0.16 ***	0.19 **	0.19 **	0.21 ***
Household net income	0.02	0.01	0.02 **	0.01	0.01 *	0.02 *	0.01 **
Retirement=yes	0.24 ***	-0.07	-0.01	0.02	-0.06	-0.21	0.21
Tranfer/Bequest =yes	0.61 *	0.24	0.76 ***	0.80 ***	0.65 ***	0.92 ***	0.83 ***
Urban community=yes	-1.12 ***	-1.69 ***	-1.50 ***	-0.86 ***	-1.36 ***	-0.96 ***	-0.79 ***
Constant	-1.97	-4.72	1.53	1.12	-9.98	-7.96	-1.80
Pseudo R²	0.21	0.19	0.15	0.15	0.18	0.13	0.15
Wald chi²	308.44	327.07	138.40	248.68	188.24	202.56	233.59
N	1,663	1,725	897	2,022	967	1,550	1,844

Appendix A: continued

	Continental Europe	Southern Europe			Eastern Europe	
	NL	ES	GR	IT	CZ	PL
Age	-0.07	0.19 *	0.01	0.17 *	0.25 **	0.13 **
Age²	0.00 / 0.00	0.00 *	0.00	0.00	0.00	0.00 **
Household size	1.08 ***	-0.14	-0.15	0.09	0.06	-0.04
Partnership=yes	0.19	1.40 ***	0.76 ***	0.83 ***	0.45 ***	0.66 ***
Children=yes	-0.90 ***	0.55	-0.02	0.05	0.00	-0.07
	0.45 ***					
Migrant=yes	0.01 / -0.19	-1.76 ***	-0.57 ***	-0.78 *	-0.67 **	-0.51 **
Education (ISCED)	1.00 ***	0.05	0.06	0.33 ***	0.01	0.14
Household net income	-0.67 ***	0.00	0.01	0.00	0.01	0.01
Retirement=yes	2.12 / 0.20	0.01	0.25	0.49 **	-0.29	0.24
Transfer/Bequest=yes	313.23	0.68 *	0.64 ***	0.67 ***	0.54 ***	0.95 ***
Urban community=yes	1,710	-0.44 *	-0.45 **	-0.89 ***	-0.57 ***	-0.90 ***
Constant	-0.07	-5.24	2.78	-6.48 *	-7.37 **	-4.10
Pseudo R²	0.00	0.12	0.05	0.10	0.05	0.07
Wald chi²	0.00	94.74	77.36	162.58	104.07	119.36

Note: SHARE wave 2 (release 2.5.0). Own calculations. *p≤0.05, **p≤0.01, ***p≤0.001.

Appendix B: Linear regression (with robust standard errors) on the logarithmized housing value

	Northern Europe		Continental Europe				
	DK	SE	AT	BE	CH	DE	FR
Age	-0.01	0.10	0.09	0.03	0.09	0.16 ***	0.04
Age²	0.00	0.00	0.00	0.00	0.00	0.00 ***	0.00
Household size	0.09	0.07	0.02	0.01	0.05	0.10 ***	0.07
Partnership=yes	0.15 *	0.10	0.04	0.18 ***	0.07	0.00	0.05
Children=yes	-0.10	0.02	0.09	0.07	0.12	-0.04	0.07
Migrant=yes	0.10	0.06	-0.26 *	-0.04	0.05	0.02	0.09
Education (ISCED)	0.14 ***	0.14 ***	0.13 ***	0.10 ***	0.07 *	0.06	0.10 ***
Household net income	0.01 ***	0.01 *	0.01 ***	0.00	0.00 **	0.00 **	0.00 **
Retirement=yes	-0.02	-0.17 *	-0.08	-0.10 **	-0.05	-0.04	0.08
Transfer/Bequest=yes	0.01 ***	0.22 **	0.00	0.13 ***	0.10	0.26 ***	0.09
Urban community=yes	0.21 ***	0.33 ***	-0.10	-0.09 **	0.13	0.03	0.04
Constant	4.43 ***	0.39	1.52	3.71 ***	2.38	-0.55	3.36 *
R²	0.15	0.13	0.12	0.14	0.09	0.09	0.09
N	1,114	1,024	528	1,608	552	932	1,349

Appendix B: continued

| | Continental Europe | Southern Europe | | | Eastern Europe | |
	NL	ES	GR	IT	CZ	PL
Age	0.07	-0.04	0.02	0.02	0.01	0.02
Age²	0.00	0.00	0.00	0.00	0.00	0.00
Household size	0.01	0.07 *	0.11 ***	0.04	0.05 *	0.08 ***
Partnership=yes	0.25 ***	0.04	0.01	-0.06	0.19 **	0.13
Children=yes	-0.07	0.03	-0.01	0.20 **	0.24 **	0.19
Migrant=yes	-0.05	0.18	0.17	-0.15	0.00	-0.04
Education (ISCED)	0.07 ***	0.11 ***	0.12 ***	0.13 **	0.10 **	0.13 ***
Household net income	0.00 *	0.00 **	0.00 ***	0.01 ***	0.00	0.01
Retirement=yes	-0.11 *	-0.02	0.02	0.09	-0.02	-0.06
Transfer/Bequest=yes	0.10 *	-0.08 ***	0.05	0.06	0.07	0.22 **
Urban community=yes	-0.17 ***	0.39 ***	0.23 ***	0.28 ***	-0.07 **	0.04
Constant	2.90 ***	6.18 ***	3.59 ***	4.05 **	3.59	2.43
R²	0.07	0.08	0.19	0.07	0.08	0.11
N	1,087	1,153	1,792	1,437	1,130	1,121

Note: SHARE wave 2 (release 2.5.0). Own calculations. *$p \leq 0.05$, **$p \leq 0.01$, ***$p \leq 0.001$.

Appendix C: Control variables

Variable	Description	Source
Occurrence of early retirement (*Early ret.*)	Binary variable; Early retirement has the value of one if the average effective age of retirement (for men) is at least more than one year lower than the official pension age.	OECD. (2013). Ageing and Employment Policies - Statistics on average effective age of retirement. Retrieved February 12, 2013, from http://www.oecd.org/pensions/public-pensions/ageingandemployment policies-statisticsonaverageeffectiveageofretirement.htm.
Magnitude of early retirement (*Yrs ret. earlier*)	Yrs ret. earlier = official age of retirement - average effective age of retirement (for men); mean of the years 2002-07	OECD. (2013). Ageing and Employment Policies - Statistics on average effective age of retirement. Retrieved February 12, 2013, from http://www.oecd.org/pensions/public-pensions/ageingandemployment policies-statisticsonaverageeffectiveageofretirement.htm.
GDP per capita (*GDP per cap.*)	GDP (per capita) in USD; mean of the years 2010-12	Worldbank. (2013). GDP per capita (current US$). Retrieved February 12, 2013, from http://data.worldbank.org/indicator/NY.GDP.PCAP.CD
Income tax (*INC tax*)	The total tax revenue on taxes on income, profits and capital gains as a percentage of GDP; mean of the years 2009-12	*OECD countries*: OECD.StatExtracts. (2013). Revenue Statistics - Comparative Tables. Retrieved February 12, 2013, from http://stats.oecd.org/. *Non-OECD countries*: Eurostat. (2013). Einkommens- und Vermögenssteuern. Retrieved February 12, 2013, from http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=de&pcode=tec00018.

Progressivity of the pension benefit formulae (*Progressivity*)	This is an indicator for the degree of actuarial fairness of a pension system. "The index is designed so that a pure basic scheme would score 100% and a pure insurance scheme, zero. The former is maximally progressive; the latter is not progressive since the replacement rate is constant [...]. Formally, the index of progressivity is calculated as 100 minus the ratio of the Gini coefficient of pension entitlements divided by the Gini coefficient of earnings (expressed as percentages)." (OECD, 2005: 81). The idea behind implementing progressive benefit formulae is to provide higher pension benefits to low earners in a cohort than to high earners in the same cohort. Some of this progressivity is however offset due to the fact that high-income households tend to live longer compared to low income households (cf. Feldstein & Liebman, 2002)[1].	OECD. (2005). Pensions at a Glance. Public Policies across OECD Countries.
Income inequality (*Gini INC*)	Gini coefficient for household disposable income; mean of the years 2007-10.	
Capital market imperfections (*CMI*)	The level of capital market imperfections is based on the variable 'shares and other equity held by households as a percentage of total financial assets'. We derived our final measure of capital market imperfections by subtracting this value from 100; mean of the years 2010-11. We understand higher values of this variable to indicate higher levels of capital market imperfection (not well-functioning capital markets).	OECD.StatExtracts. (2013). National Accounts at a Glance - 2013 edition: 6. Capital. OECD.Stat. Retrieved February 12, 2013, from http://stats.oecd.org/.
Uncertainty (*UNC*)	The level of earnings uncertainty is based on the variable 'share of dependent employed with a job tenure of less than 6 months over the total dependent employment in 2011'. We understand higher values of this variable to indicate higher levels of uncertainty.	OECD.Stat. (2013). Better Life Index: Jobs, Job Security. Retrieved February 12, 2013, from http://stats.oecd.org/.

[1] Feldstein, M., and Liebman, J. B. (2002). Social Security. In A. J. Auerbach and M. Feldstein (Eds.), Handbook of Public Economics. Volume 4 (Vol. 4, pp. 207–253). Amsterdam: Elsevier. doi:10.7208/chicago/9780226241890.003.0007

Appendix D: List of variables included in the analysis and their definition

Variable	Definition
General life satisfaction	General life satisfaction was measured on a 10-values single item scale reflecting one's general satisfaction with life, ranging from 0 (not satisfied) to 10 (completely satisfied).
Sex	Respondents' gender; 1 for male, 0 for female.
Hh size	Total number of persons living in the respondent's household.
Age	Respondents' age in years.
Migrant	Respondents' migration status; 1 for migrant, 0 for native.
Arab	Respondent is of Arab origin (only for IL); 1 for yes, 0 for no.
Partnered	Respondent's partnership status; 1 for living in a steady partnership, 0 for any other partnership status (single, widowed, divorced, etc.).
Child	Respondent having at least one child; 1 for yes, 0 for no.
Education	Respondents' education, ISCED-97 coding. The exact coding can be looked up under http://www.unesco.org/education/information/ nfsunesco/doc/isced_1997.htm'.
Employed	Respondent is employed; 1 for yes, 0 for no.
Unemployed	Respondent is unemployed; 1 for yes, 0 for no.
Homemaker	Respondent is homemaker; 1 for yes, 0 for no.
Retired	Respondent is retired; 1 for yes, 0 for no.
Objective Health	Objective health is measured via the 'Physical Health Index' used by Semyonov, Lewin-Epstein & Maskileyson (2013). It includes the number of limitations with activities of daily living, number of mobility, arm function and fine motor limitations, number of chronic diseases and number of illness symptoms, summing up to an index of 41 items. This was transformed into percent of items that were selected by the respondent and converted, so that the score would range from 0 for bad health to 100 for good health.
Income	Net equivalent income (in Euros, ppp-adjusted) is measured as yearly total household net income divided by the root of the number of persons living in this household. The natural logarithm is used in equations. I tested for different functional forms of income in my models and found that the logarithmic term best represents the relationship between income and GLS. The exact components of income can be looked up in footnote 50.
Gross wealth	Household gross wealth (in Euros, ppp-adjusted) contains the household's total amount of real and financial assets. The exact components of real and financial assets can be looked up in footnote 52.
Debts	Household debts (in Euros, ppp-adjusted) contain the household's total amount of financial liabilities and mortgages. The natural logarithm is used in equations. I tested for different functional forms of debt in my models and found that the logarithmic term best represents the relationship between debt and GLS.
Subjective needs	Subjective needs or the 'accepted standard of living' is captured by a subjective evaluation of the household's ability 'to make ends meet'. This item ranges between 1 'with great difficulty' to 4 'easily'. I combined the 1, and 2, responses to create a dummy variable that is coded 1 for hhds that feel to have problems to make ends meet and 0 for households that do not.

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The main research objective of my thesis is to contribute to a broader understanding of social inequality by going beyond inequalities solely derived from the labor market and find theoretical arguments as well as empirical evidence for the establishment of wealth as a distinct dimension of social stratification and, more importantly, of social inequality. With social stratification, I am referring to a society's ranking of categories of individuals into a hierarchy of social positions. Social stratification becomes social inequality if access to these positions is unequal and if these positions are systematically related to advantageous or disadvantageous conditions of acting and living. In the course of my thesis, I will show that both these conditions apply to wealth: first, access is unequal and second, being of higher (lower) wealth is related to advantageous (disadvantageous) conditions of living. My thesis consists of five empirical studies that are knotted together by the common conception of wealth as a distinct dimension of social inequality. In order to find empirical support for this argument, in each study, I will approach the topic of wealth, or wealth inequality, from different perspectives. All studies represent theory-driven empirical analysis and are designed as international comparative studies.