

Preferred and Expected Retirement Age in Germany and Europe

Dissertation Thesis

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Preferred and Expected Retirement Age in Germany and Europe

by

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Preface

The demographic trend of aging is challenging the financial long-term sustainability of Europe's welfare states as the number of beneficiaries is increasing while the number of contributors is declining. In response, policymakers have implemented several labor market and pension reforms aimed at extending working life. In my dissertation I extend previous research by studying how current older workers and future pensioners have adapted to these reforms. The dissertation consist of five studies, which are based on different data sets (European Social Survey; Eurobarometer; German Socio-Economic Panel; German Ageing Study), that investigate the *preferred* retirement age – the age at which older workers wish to retire – and the *expected* retirement age – the age at which older workers anticipate retiring. Its results show that the average preferred and the average expected retirement age have increased over the last ten years. However, the size of this increase varies over different groups of older workers. While high-skilled, white-collar 'Silver Workers' are able to synchronize their preferred and expected retirement age, low-qualified workers in often unfavorable working conditions are increasingly forced to delay their retirement to ensure a sufficient pension and, thus, expect to work longer than they prefer. This finding supports recent warnings that the free choice of when to retire might become the privilege of well-paid, high-skilled employees, and that we might observe a (re)emergence of social inequality in the retirement process.

The dissertation's five studies are attached to this framework paper as published/submitted. They are:

- I. Hess, M. (2016): Rising Preferred Retirement Age in Europe – Are Europe's Future Pensioners Adapting to Pension System Reforms? Revise & Resubmit at *Journal of Ageing and Social Policy*
- II. Hess, M. (2016): Germany: A Successful Reversal of Early Retirement? Accepted for Publication in Hofäcker, D; Hess, M. & König, S. (Eds): *Delaying Retirement: Progress and Challenges of Active Ageing in Europe, the United States and Japan*. Palgrave Macmillan
- III. Hess, M. (2016): Retirement Expectations in Germany – Towards Rising Social Inequality? Submitted to *Ageing & Society*
- IV. Hess, M. (2016): Expected and Preferred Retirement Age in Germany. *Zeitschrift für Gerontologie und Geriatrie (Online First)*
- V. Hess, M. (2016): Determinants of Intended Retirement Timing in Germany. Submitted to *Work, Aging and Retirement*

1 Introduction

The aging of societies in Europe, North-America, and parts of Asia is fundamentally changing the demographic composition of the population (Perek-Bialas, 2009). A decreasing fertility rate and increasing life expectancy led to a rising old-age ratio, and the trend towards more old people and fewer young people also implies more beneficiaries and fewer contributors to the pension systems. The resulting increasing expenditures and decreasing revenues are threatening the long-term financial sustainability of the pension system (Harper, 2015). In the last two decades policy-makers have realized this challenge and are trying to counteract it with pension reforms (Bennett & Moehring, 2015; Blossfeld et al., 2006; Ebbinghaus, 2006; Hermansen, 2015). These aim at relieving the pension systems from financial pressure by decreasing pension benefits, as well as delaying exit from the labor force and extending the working-life. Since the turn of the millennium the reforms have shown an effect and pensioners' retirement age is increasing (Ebbinghaus & Radl, 2015; Hofäcker, Hess, et al., 2015; Naumann, 2014a). Yet, due to the often time-lagged effect of the reforms, most of today's pensioners have not felt their full impact (Hofäcker, 2014) and it is, thus, also important to study future pensioners' retirement expectations and preferences. The expected retirement age – the age at which an individual realistically expects to retire – and the preferred retirement age – the age at which an individual would like to retire independently of individual capacities, workplace conditions and institutional regulations – are each considerations that individuals make about the timing of their future retirement. Researching future retirees' retirement expectations and preferences, which will be more strongly affected by the reforms aimed at extending the working life than today's pensioners retirement timing, allows a better evaluation of the reforms' effectiveness and success in delaying retirement. Older workers are fairly precise when assessing their future actual retirement age (Haider & Stephens, 2007; Örestig et al., 2013; Prothero & Beach, 1984), and, hence, investigating the prospective preferred and expected retirement ages makes it possible to estimate future retirement behavior.

This dissertation adds to the understanding of how *prospective* preferred and *expected* retirement ages are formed. It does so by investigating two main research questions: a) How have future pensioners adapted their expectations and preferences about when to retire to pension reforms? b) What are the mechanisms behind this adaption process? I use two theoretical approaches that help explain how older workers adjust their attitudes towards their prospective retirement age to recent reforms. The first is rational choice or economic institutionalism, that is based on the rational choice theory argument that an individual's main aim is utility maximization (Archer, 2000). It argues that institutions, in this case the pension system and its regulations, constrain the situation of the individual, creating a frame within which individuals make decisions according to their needs and desires (Fleetwood, 2008). When the frame alters, in this case by pension and labor market reforms, individuals incorporate these changes and adapt their decisions accordingly; however, their desires and preferences remain the same (De Tavernier & Roots, 2015; Fleetwood, 2008). Thus, one would expect older workers to have increased their expected retirement age, but not their preferred one. The second theoretical approach is sociological institutionalism (Hodgson, 2007). In contrast to rational choice institutionalism it argues that institutions influence individuals' desires

and preferences by changing their values and norms (Hodgson & Knudsen, 2004), and that, consequently, a change of institutions leads to a change of preferences and finally of actions (Peters, 2011). Following this argumentation, the pension reforms would not only effect older workers expectations but also their preferences about when to retire.

To answer the question how older workers have adapted their retirement preferences and expectations, and to disentangle the mechanism behind this adaption process, I conducted four empirical studies and one literature review on pension reforms in Germany. In these studies the expected and preferred retirement age are analyzed in the context of changing retirement institutions in Germany, and compared in a European perspective. The focus on Germany is for two main reasons: First, sufficient data for in-depth analysis of the preferred and expected retirement age is only available in Germany. Second, the German pension reforms have increased older workers' employment rate in a more fundamental and drastic way than in other countries (Bauknecht & Naegele, 2015; Dietz & Walwei, 2011; Dietz, 2014; Ebbinghaus, 2005; Ebbinghaus & Hofäcker, 2013). These reforms are discussed in the literature review that, together with the four empirical studies, constitute the core of this dissertation.

Table 1: Overview of Studies

Number	Title of Study	Short Title
I	Rising Preferred Retirement Age in Europe – Are Europe's Future Pensioners Adapting to Pension System Reforms?	Retirement Preferences in Europe
II	Determinants of Retirement in Germany: The Successful Reversal of Early Retirement?	Determinants of Retirement in Germany
III	Retirement Expectations in Germany – Towards Increasing Social Inequality	Retirement Expectations in Germany
IV	Expected and Preferred Retirement Age in Germany	Retirement Expectations & Preferences in Germany
V	Determinants of Prospective Retirement Timing in Germany	Reasons of Retirement Expectations in Germany

Study I uses data from the Eurobarometer Survey (EB) and the European Social Survey (ESS) to investigate older workers' preferences about when to retire. The results show that in all 12 countries included in the analysis, the preferred retirement age increased from 2003 to 2010 hinting at an actual adaption to the new credo of late retirement. **Study II** then introduces the German context and discusses how far-reaching the policy shift towards the new strategy of 'Active Aging and Late Retirement' was, thereby giving background information for the three studies that follow. **Study III** retraces the development of the average expected retirement age of German older workers from the late 1980s until the mid-2010s. Based on data from the German Socio-Economic Panel (GSOEP) and the German Aging Study (DEAS) the analysis demonstrates that the expected retirement age has increased in the last 20 years and this rise was stronger for low-skilled low-income workers. **Study IV** juxtaposes the expected and the preferred retirement age and shows that low-educated workers with low income and in vulnerable labor market positions wish to retire significantly earlier than they expect to. For their higher educated peers the wish and the expectation about

when to retire coincide more closely. **Study V** examines the mechanism behind the finding of *Study IV* that low-skilled older workers expect to retire later than they want to. For this purpose it focuses on retirement reasons. The results show that low-skilled older workers expect to delay their retirement due to financial reasons, while high-skilled workers with high incomes prefer and also expect to retire late due to non-monetary reasons.

The dissertation's main contribution is a deeper understanding of older workers' retirement preferences and expectations and how they are influenced by the institutional context of the pension system and labor market. It demonstrates that the adaption of prospective retirement age to pension reforms aimed at delaying retirement is not limited to single countries, but is a pan-European development (*Study I*). Furthermore, it shows that this adaption process is not a recent development of the last decade, but that the expected retirement age has been rising for almost 25 years (*Study III*). It disentangles the concepts of the preferred and expected retirement age in detail (*Study IV*) and offers an explanation of why some workers want to retire earlier than they expect to (*Study V*). The second contribution is that, on the theoretical level, it helps to disentangle rational choice and sociological institutionalism. Generally it supports sociological institutionalism, since not only the expected but also the preferred retirement age is rising. However its results also show the explanatory value of rational choice institutionalism. The increases in the expected age of retirement is stronger for low-educated than high-educated workers indicating that the changing institutional contexts are constraining retirement decisions in different ways. The dissertation's third contribution is related to these differences in the effect of the pension reforms aimed at longer working-life on older workers' prospective retirement timing.. These are the social implications that can be derived from its results. It supports previous research (Buchholz et al., 2013; Hofäcker & Naumann, 2015; Hofäcker, Hess et al., 2015; Rinklake & Buchholz, 2011) in its warning of rising social inequality in the transitions from work to retirement. The concern is that older workers do not all benefit from the new pension and labor market reforms, but that certain groups of older workers are struggling to meet the expectations of the new credo of late retirement. It seems that high-skilled, high-income employees are profiting more as they have the resources and skills to work longer, whereas low-skilled, low-income workers in vulnerable labor market positions have to delay their retirement to ensure a sufficient pension income. In addition to these analytical contributions, the dissertation also offers a possible solution to a methodical problem that arises when studying retirement preferences and expectations. Using a Heckman test it controls for potential biasing effects caused by the sample composition: Information on the preferred and expected retirement age is only available for those who are still employed, and this systematic selection into employment might bias the results. The Heckman test allows such a potential sample selection bias to be checked.

This framework chapter provides a concise overview of the five studies, combining their results into one coherent conclusion, and sets them into a broader, overarching frame of demographic aging and pension reforms. It consists of six sections. Section 2 describes the second demographic transition, and how it is affecting pension systems and what pension reforms were implemented. It provides a European perspective with a focus on the German case. Section 3 defines the expected and preferred retirement age, explains why it is important to research them, and develops the research question in detail. In addition, it

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introduces the two theoretical approaches used to explain the mechanism behind the adaptation process of the expected and preferred retirement age to the pension reforms. Section 4 consists of the research strategy, including data sources, methods of analysis, and limitations. In Section 5 the results of the five papers are summarized. These findings, as well as policy and societal implications, are discussed in the final chapter, which also elaborates on possible future research directions.

2 Societal Context: Aging Societies and Pension Reforms

To give a historical and institutional context for this framework, the following section will provide an overview of the demographic aging and its challenges for Europe's welfare states. It then discusses how policy makers react to the aging of societies and have reformed the welfare states, and what the consequences of those reforms are for older workers in Europe.

2.1 Aging of Societies

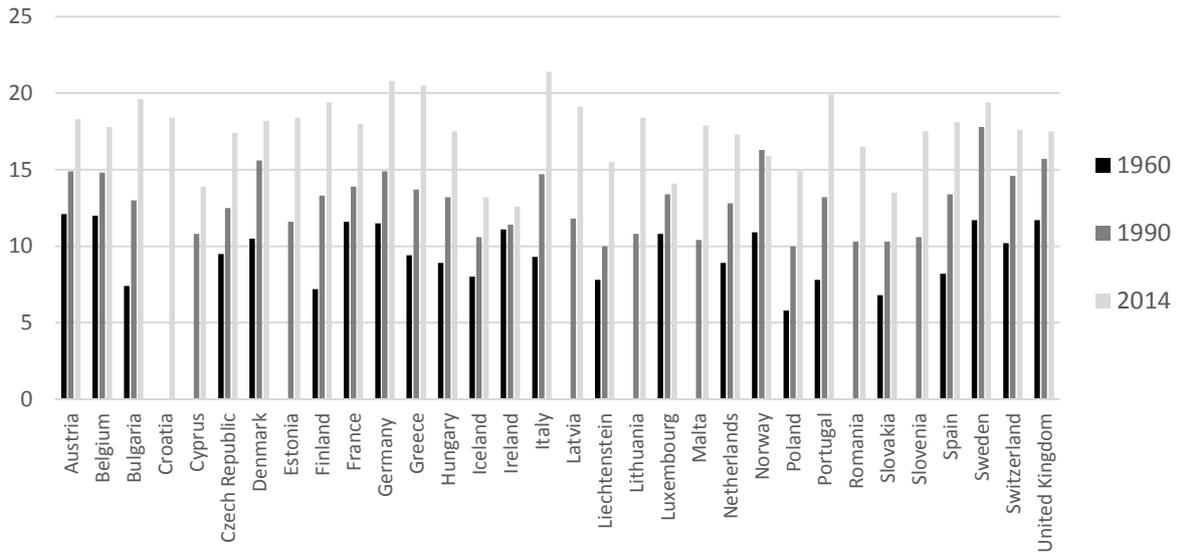
The so-called aging of society is a demographic transformation that will have a global impact, but will particularly affect European countries. The two reasons for the aging of society are decreasing mortality and fertility rates:

“The first is the decline of death rates as a result of improvements in hygiene, nutrition and medicine, which can be traced back in the most development regions of Europe to the end of the eighteenth century and which gained traction in most other parts of the world during the twentieth century. Following the decline in mortality, world life expectancy has more than doubled over the past 200 years. [...] The second and even more important driver of demographic aging is falling birth rates. The decline in fertility, the result of a complex interplay of changes in culture and society that have accompanied economic development, has brought about a substantial shift in the proportions of the younger and the older age groups (Torp 2015, p. 2)”.

In the last 50 years the share of the population aged 60 years and older has risen steadily, and predictions show that it will increase further. The population share of those 80 years and older is growing even faster (Bond, et al., 2007; Ekerdt, 2010; Rechel et al., 2013). Figure 1 gives an overview of population aging in Europe, showing the ratio between the total number of persons aged 65 and over and the number of persons of working age. One clearly sees the increase in the old-age ratio from 1960 until 2014 across all European countries. Currently Ireland is the youngest European country and Italy the oldest, with Germany a close second and, hence, offers an interesting case study for this dissertation.

Figure 2 gives a detailed overview of the demographic development in Germany from the 1960s until the present and also provides predictions for the years 2030 and 2060. The median age is expected to rise from 34 in 1960 to 51 in 2060. When considering these two figures one can see the increased ratio of elderly in the total population. The share of those 65 and older will increase from 21 to 33 percent by 2060, and the share of those 80 and older will even double (Statistisches Bundesamt, 2015). Germany, as one the ‘oldest’ societies, will feel the impact of the demographic trend of ageing stronger than ‘younger’ countries and will face the subsequent challenges to the welfare state earlier.

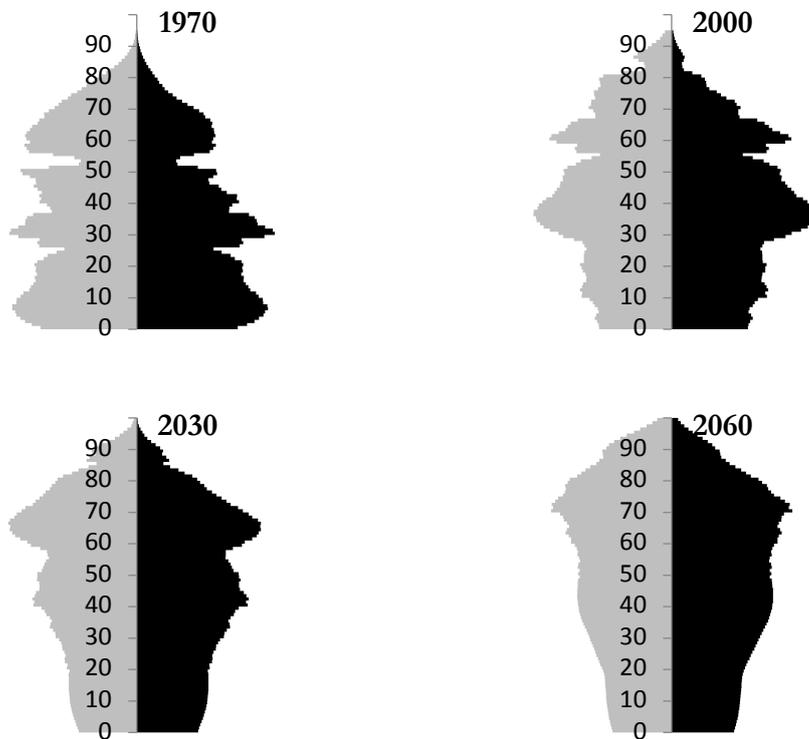
Figure 1: Old-age Ratios in Europe (Share of Population 65+)



Source: OECD

Figure 2: Aging in Germany

Shown here are share of population per age groups from 1970 till 2060. The grey bars are women and the black bars are men. The median ages are at 1979: 33.8; 2000: 39.6; 2030: 47.6; 2060 50.5



Source: Statistisches Bundesamt 2015

2.2 Challenges for the Welfare State

It has been shown that the ageing of societies affects many social spheres: the labor market (Taylor, 2008), architecture (Bond et al., 2007), the political system (Goerres, 2007) and the consumer market (Moody, 2006). Yet, in addition, the sustainability of the welfare state could be at particular risk. Harper (2015, p.23) summarizes this concisely: “[...] the social security systems now face serious financing problems as the number of beneficiaries is increasing at a time when the working population is declining – a simultaneous increase in payments and decrease in revenues”. In particular, pension and health care systems are facing the challenge of balancing shrinking numbers of contributors and a growing number of recipients (Delsen, 1996; Möhring, 2015), while simultaneously tackling the task of ensuring intergenerational justice and avoiding an intergenerational conflict (Naumann et al., 2015). The pressure caused by demographic aging was intensified in some countries by pension policies that followed a paradigm of early exit. Its rationale was to send older workers into retirement and, based on the lump-sum-of-labor idea, the hope was that unemployed younger workers could then fill the free jobs. As will be described below using the example of Germany, this policy of allowing older workers an early exit from work en masse led to an even more disadvantageous ratio of retired per working population. At the end of the 1980s and the beginning of the 1990s, politicians across Europe realized the financial threat to the long-term sustainability of their pension system resulting from these policies, and implemented several reforms with the aim of counteracting this development.

2.3 Pension and Labor Market Reforms in Europe

The main aim of these reforms was to extend working lives by delaying retirement transitions in order to increase the number of contributors and control social expenditure as well as provide companies that were facing labor shortage with skilled workers. Across Europe reforms were implemented that closed down early retirement options completely, or made them financially less attractive (Ebbinghaus, 2006; Reday-Mulvey, 2000). Many countries raised their official retirement age, which in actuarially pension systems made early retirement more expensive (Hofäcker & Unt, 2013; Latulippe & Turner, 2000; Möhring, 2015), and also introduced privatization and marketization elements into the pension (Ebbinghaus, 2015b). In addition to monetarily penalizing early retirement, policy-makers also tried to increase older workers’ employability with several life-long learning and health improvement programs, commonly summarized under the synonym of ‘active ageing’ (Walker, 2002). This development is reinforced by the Organisation for Economic Co-operation and Development (OECD) (Boppel et al., 2011) and the European Union (EU) (Walker & Maltby, 2012). Both international organizations support national efforts to increase employment rates among older workers; the EU even explicitly mentioned this as one target of the Europe 2020 strategy (Martens, 2010) and called the year 2012 the ‘European Year for Active Ageing and Solidarity between Generations’ (Börsch-Supan et al., 2013). Besides national governments and international organizations, employers are trying to delay older workers’ retirement, as in some sectors, e.g. high-technology and, increasingly, the health-care sector, they are experiencing a shortage of skilled workers (Dychtwald et al., 2013). For them, one solution to this labor shortage are older workers and, hence, they are increasingly

seeking to retain older workers, and their knowledge, in the companies (Fuchs, 2013). Thus, older workers' chances on the labor market have also increased. This development has been particularly strong in Germany (Buchholz et al., 2013).

2.4 Pension and Labor Market Reforms in Germany

The following section will now introduce the German pension system and its recent reforms. Germany has the prototypical Bismarckian pension system¹, named after Chancellor Bismarck who was the main initiator of the German welfare state foundation in the late 19th century. The public German pension is financed on a pay-as-you-go principle and covers about 80 percent of the employed population (Schulze, 2009). The pension income is related to contributions made to the pension system. Not included are tenured civil servants (*Beamte*) and most self-employed (Leifeld, 2013). Although the pension has undergone several changes it remains the main source of income in old age (78 percent), as occupational or private pension are not mandatory in Germany (Bridgen & Meyer, 2014).

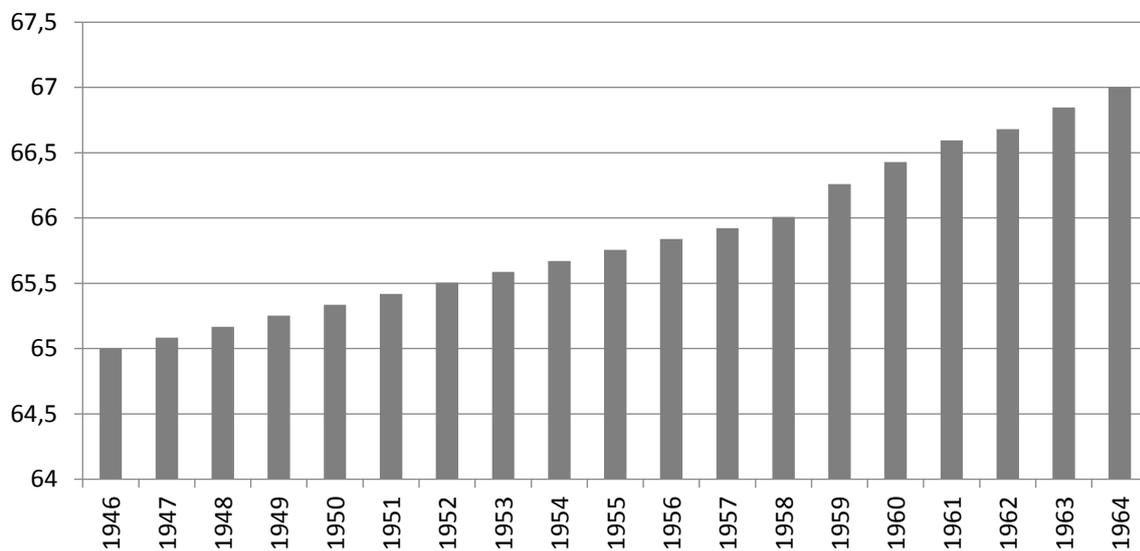
After the period of strong economic growth (*Wirtschaftswunder*) following the Second World War, the (West) German economy slowed down in the 1970s when it had to cope with the oil crises and international competition, particularly from Japan (Hofäcker, Neumann et al., 2015). In response, companies, especially in the large production sector, cut costs by dismissing older workers (Buchholz, 2006; Dietz & Walwei, 2011; Schmähl, 1998). Facing a rising unemployment rate, German policy-makers tried to relieve the labor market by pushing older workers into retirement and, based on the idea of the lump-sum-of-labor, hoped that younger workers could fill their positions (Ebbinghaus & Schulze, 2007; Rinklake & Buchholz, 2011). Retirement before the official retirement age – so called early retirement – was possible via several different 'pathways' (Kohli et al., 1991). The public pension offered men who had contributed to the pension for 35 years the possibility of retiring at the age of 63, and women could even retire at 60 (Radl, 2014). Men suffering from disability were also allowed to retire at 60. A second main pathway was facilitated through unemployment insurance; older workers who had been unemployed for one year were offered the possibility of retiring early, and long-term unemployment benefits were often used as a 'bridge' from work to retirement (Naegele & Krämer, 2001; Schmähl, 1998). In addition, the block model of the part-time retirement scheme was also (ab)used as an early exit pathway (Radl, 2007). All three options allowed older workers to retire with comparably small pension reductions (Naegele, 2013), and they were often complemented with additional monetary incentives by the employers. In particular, blue-collar workers and low-skilled white-collar workers in large production sector companies were sent into early retirement (Radl, 2007) and many older workers willingly used the opportunity to retire early with only small financial penalties (Buchholz et al., 2013). Retirement before 65 was seen as the 'normal' way of exiting the labor market, while retirement at or even after 65 was the exception. As a result, the older workers' employment rate fell rapidly even compared to other countries that also implemented a policy of early

¹ A common classification of the pension system distinguishes between Bismarckian and Beveridgean pension systems. In the Bismarckian pension system, the main goal is income maintenance after retirement (Schulze, 2009).

retirement (Figure 5). The employment rate of workers aged 50-64 fell from 80 to 60 percent between 1970 and 1990 for men, while for women it had been at a low level ever since the 1970s.

At the end of the 1980s and the beginning of the 1990s policy-makers in Germany became aware of the problems caused by the early retirement policy: As a shrinking number of contributors was facing a growing number of beneficiaries, the pension system's long-term sustainability was in jeopardy (Deller, Liedtke, & Maxin, 2009; Hess, 2016; Heywood & Jirjahn, 2015). In addition, companies in high technology, health care and, increasingly, the crafts sector (*Handwerk*) reported a shortage of skilled labor (Naegele, 2016). In reaction, policy-makers implemented several pension and labor market reforms to delay retirement, and employers introduced different measures to retain older workers in companies. Probably the most visible and controversial reform to be discussed was raising the official retirement age from 65 to 67 in 2008 (Brussig, 2011; Deller & Maxin, 2009; Leve, Naegele, & Sporket, 2009).

Figure 3: Development of Statutory Retirement in Germany by Birth Cohort

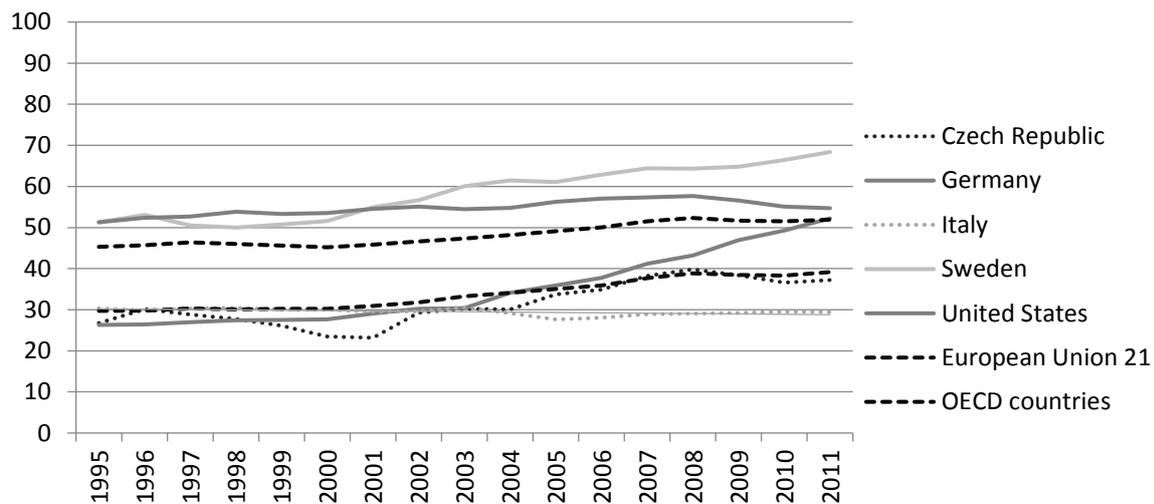


Source: Leve et al. 2010

The reform was implemented stepwise starting in 2012 and continuing until 2031. Thus, those born in 1964 would be the first birth cohort to have an official retirement age of 67 (see Figure 3). However, the increase of the official retirement age in 2008 was certainly not the first pension reform. The *Rentenreform*, enacted in 1989 but implemented from 1992 included an actuarial pension reduction by 0.3 percentage for every month a person retired before the statutory retirement, penalizing early retirement for eligible workers (Ebbinghaus, 2015b). Furthermore, the minimum exit age for the early retirement option for the long-term insured increased in the late 1990s, and with the *Hartz Reformen* early retirement via unemployment insurance was made financially unattractive (Schulze, 2009). The subsidies for the old-age part-time work scheme were disestablished in 2009 (Radl, 2007). In addition to closing the different early retirement pathways and raising the official retirement age, policy makers also tried to increase coverage of private pensions with the *Riester* pension subsidies aiming for marketization of the pension system (Ebbinghaus, 2011, 2015b; Gronwald, 2012), and to improve older workers' opportunities on the labor market with several active labor market programs. The state funded training programs for low-skilled older workers, like the *Weiterbildung*

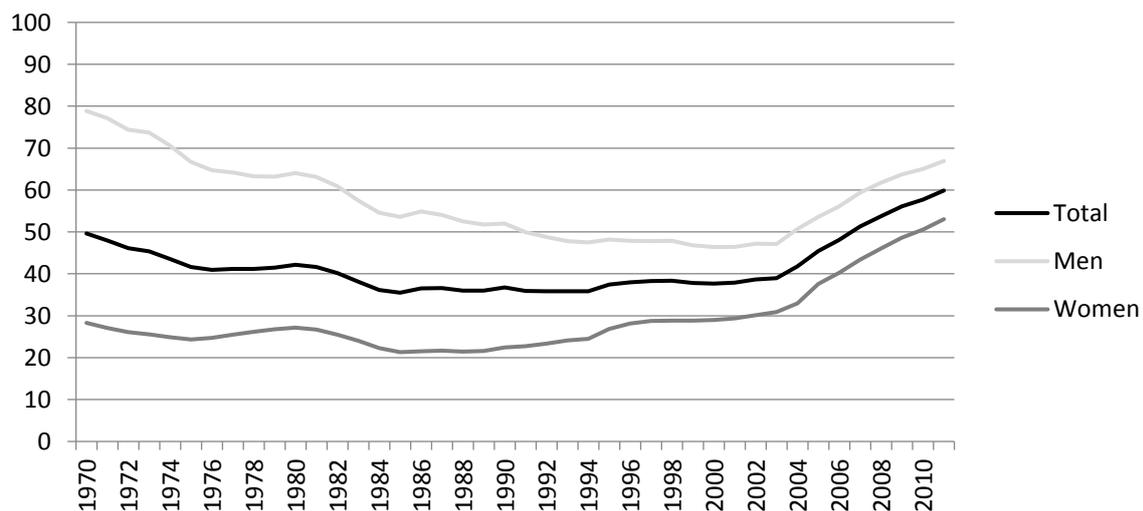
Geringqualifizierter und beschäftigter ältere Arbeitnehmer im Unternehmen (training for low-skilled older workers in employment) called *WeGebAU*, and paid subsidies to companies who hired older workers – examples being the *Eingliederungszuschüsse* (integration subsidies) and the *Entgeltssicherung* (integration vouchers) (Dietz & Walwei, 2011). However, not all older workers needed public support to find a job. As mentioned before, older employees in the high technology and health-care sectors have been increasingly seen as a valuable source of skilled work (Sporket, 2011). Companies started providing several human resources measures especially aimed at older workers, such as preventive health-care programs, part-time retirement programs and specific training programs (Göbel & Zwick, 2013; Leber, 2013.).

Figure 4: Employment Rate of Older Workers



Source: OECD

Figure 5: Employment rate of workers age 55-64 in Germany



Source: Eurostat

From the turn of the millennium older workers’ employment rates began to rise significantly, for manifold reasons. Changing pension regulation and employers new willingness to sustain and even hire older workers to counteract the lack of skilled labor certainly had an effect, but an overall positive economic development, generally rising female employment rates, and better qualification and health levels of new older workers were important as well (Brussig, 2009; Dietz & Walwei, 2011). Figure 4 shows that although

an increase took place in many European countries, it varied strongly across countries (Cooke, 2006; Ebbinghaus & Hofäcker, 2013; Ebbinghaus, 2015a) and it was steepest in Germany (Brussig, 2009; Deller, 2015). However, as described previously, the preceding decline had been also among the strongest. From 2000 until 2010 the employment rate of workers aged 50-64 increased from 40 to 60 percent and is still rising. This positive development, however, is accompanied by warnings that not all workers will be able to keep up with the requirements of the new active ageing credo in German pension politics. The concern is that some older workers might come under increasing economic pressure to delay retirement in often unfavorable working conditions to ensure a sufficient pension income (Heß & Landmann, 2015; Hochfellner & Burkert, 2013; Hofäcker & Naumann, 2015; Dirk Hofäcker, Hess, et al., 2015; Rinklake & Buchholz, 2011).

3 Expected and Preferred Retirement Age in Changing Institutional Contexts

After describing the new European policy of ‘Active Aging and Late Retirement’ and its consequences for older workers’ labor market and retirement behavior, this section will introduce the concepts of expected and preferred retirement in more detail. It provides a brief state of the art literature review of research on this topic, and states the dissertation’s main research questions. Finally I elaborate on two possible mechanisms explaining how older workers have adapted their retirement preferences and expectations to the changing institutional contexts, and from these I derive the dissertation’s hypotheses.

3.1 Definition of Expected and Preferred Retirement Age, Literature Review and Research Questions

Both the expected and the preferred retirement age govern individuals’ notions about the timing of their prospective retirement. The distinction between the expected and preferred retirement age is the consideration of contextual determinants. The *preferred* retirement is the intrinsic ideal age at which one would like to retire (Heß & Landmann, 2015; Hess, 2016; Zappalà et al., 2008). Although influenced by a country’s ‘retirement culture’ and retirement norms (Esser, 2006; Jansen, 2013), it is not necessarily dependent on the individual and workplace conditions. According to Esser (2006, p.191) it describes a situation whereby “[...] financial consequences in case of retirement need not be considered”. The *expected* retirement, in contrast, is a realistic assessment of the future retirement age (Esser, 2006; Heß & Landmann, 2015; Zappalà et al., 2008). When stating the expected retirement age older workers reflect on their individual situation as well as the institutional and workplace context (Coppola & Wilke, 2014). They take into account, amongst other aspects, their state of health, labor market opportunities, and job identification (McGarry, 2004; Örestig et al., 2013). In addition, they consider potential pension deductions or increases for early or late retirement respectively. In a world without external constrictions, preferred and expected retirement age would coincide. However, individual, workplace, and institutional factors span a complex net of constraints and possibilities for retirement decisions that individuals have to consider when planning their retirement age (Hofäcker, Hess, et al., 2015). Thus, for most older workers the preferred and expected retirement ages do not match (Esser, 2006; Heß & Landmann, 2015; Hess, 2016).

Why investigate expected and preferred retirement age?

The main argument for studying expected and preferred retirement age is the lagged effect of pension reforms aimed at a longer working-life. Most reforms do not implement abrupt shifts, but transform pension regulation in a step by step process. A good example is the increase of the official retirement age in Germany described in the preceding section. Hence, current pensioners have retired in an institutional context that has just begun to change. Often they were still able to use early retirement options, and the actuarial deductions for retiring before the official retirement age were still comparably small due to the slow and step by step raising of the official retirement age. In contrast, current older workers and future pensioners will have to consider the new pension regulations more seriously. For them early retirement will be more

‘expensive’ and they will experience the full impact of the changed pension system regulations. Hofäcker (2014, p.1531) states that “[...] retirement plans and preferences of future retiree cohorts [...] more likely have been affected by recent reform measures, thus allowing for a better assessment of their effectiveness”. This means researching prospective retirement age will help to better evaluate the success of these reforms, and also their potentially unintended negative consequences – like a reemergence of social inequality in retirement transitions as described at the end of the second section.

Although it seems that expected and preferred retirement ages are important and interesting research topics, only few studies have focused on them. Three studies (De Tavernier & Roots, 2015; Hofäcker, 2014; Steiber & Kohli, 2015), all of which are based on the fifth round of the ESS, and one analyzing data from a Eurobarometer (Esser, 2006), have investigated retirement preferences from a comparative perspective. They show that the average preferred retirement age correlates with the actual retirement age: older workers in countries with a high average retirement age prefer to retire later than older workers in countries with a low average retirement age. The studies also find that women, lower-educated older workers, employees in large companies, and individuals in a relationship would like to retire early. Similar results were found in studies exploring expected and preferred retirement age in just one country (Coppola & Wilke, 2014; de Grip, Fouarge, & Montizaan, 2013; Örestig et al., 2013; Sargent-Cox, Anstey, Kendig, & Skladzien, 2012; Szinovacz, Martin et al., 2014; Zappalà et al., 2008). In addition to testing individual determinants of retirement expectations and preferences, some studies have also analyzed how older workers adjusted their prospective retirement timing to pension reforms. Their results show that in Germany (Coppola & Wilke, 2014), Sweden (Örestig et al., 2013), and the Netherlands (de Grip et al., 2013) an increase of the official statutory retirement age correlates with an increase of the average prospective retirement age, suggesting that older workers are indeed adjusting to changing institutional contexts. The prospective retirement age of older employees in the USA seems to be influenced by economic development (Mermin et al., 2007; Szinovacz, Davey et al., 2014; Szinovacz, Martin, et al., 2014) and by the general policy trend towards active aging (Mermin et al., 2007; Sargent-Cox et al., 2012). In this dissertation I will extend these previous studies by analyzing in more detail the adaption process of the prospective retirement age to recent pension reforms, and by identifying the mechanisms and drivers of these adjustments. To achieve this aim, and in order to focus my research agenda, I formulate two main and four study-specific research questions.

Research Questions

The first main research question I strive to answer in my dissertation is: “How have future pensioners adapted their expected and preferred retirement age to the pension reforms aimed at later retirement?” Previous studies (Coppola & Wilke, 2014; de Grip et al., 2013; Örestig et al., 2013; Sargent-Cox et al., 2012; Szinovacz, Martin, et al., 2014) show that current workers increase their retirement preferences and expectations about when to retire after reforms aimed at delaying retirement. However, these studies have only used national data and relative short periods of observation of less than ten years. I go beyond previous research by analyzing this adaption process from a comparative, European and long-term perspective to

investigate whether it is limited to single countries or is pan-European, and whether it is a short or long-term process. My first two paper-specific research questions address these two topics. They are: “Is the adaptation of the expected and preferred retirement age a pan-European process or limited to particular countries?” (*Study I*) and “Is the adaptation of the expected and preferred retirement age a short or long-term development?” (*Study III*).

My second main research question addresses the mechanisms, and tries to identify the drivers of this adaptation process: “What are the mechanisms behind the adaptation of the expected and preferred retirement age?” To achieve this I research in detail how the expected and preferred retirement age differ in the adaptation process and what reasons older workers have for their prospective timing of retirement. Again I present two paper-specific sub-questions. First I will disentangle the expected and preferred retirement age and investigate their relationship: “How are individuals’ expected and preferred retirement ages related; do they concur or differ?” (*Study IV*). Second, the reasons for the expected retirement age are examined in more detail: “What reasons for expected retirement age can be identified and how do they differ between groups of older workers?” (*Study V*).

3.2 Theoretical Considerations and Hypothesis

In the following the research questions are set into a broader theoretical framework and testable hypotheses are derived. The dissertation’s questions are related to an interaction between the macro or institutional level – here the changes in the pension system – and the micro level or individuals’ behavior and attitudes – here the preferred and expected retirement age. Hence, the most suitable theoretical concept for this dissertation is one that explains how the macro- and micro-level are linked. An institutionalist approach offers such a linkage between institutions and individuals, as Naumann comments: “At the core of each institutional theory is the explanation of how institutions affect the behavior and the attitudes of these actors. (2014, p. 11)”. Hence, the dissertation is theoretically based on an institutionalist approach that allows a link to be made between the pension reforms and how older workers have changed their preferred and expected retirement ages.

Institutionalist research can be distinguished by three strands: rational choice, sociological and historical institutionalism² (Hall & Taylor, 1996). However, in institutionalism only two different approaches exist that explain how institutions affect individuals’ behavior and attitudes (Hall & Taylor, 1996; Knill & Lenschow, 2001; Mahoney, 2000; Searing, 1991): the ‘calculus approach’ and the ‘cultural approach’. The underlying assumption of the ‘calculus approach’ (De Tavernier & Roots, 2015) is that of a utility maximizing rational individual; the *homo oeconomicus*. Individuals have a fixed set of preferences, and rationally

² The third institutionalist strand historical institutionalism is not discussed in detail in this dissertation. Based on the ‘logic of path dependence’ the main focus of historical institutionalism is on institutional change, or to be more precise, why due to institutional path dependence institutions not or only very slowly change (Schmidt, 2010). To explain how institutions shape individuals’ behavior and attitudes, historical institutionalism relies on the ‘calculus approach’ and the ‘cultural approach’, and sometimes even on both (Hall & Taylor, 1996). Knill and Lenschow (2001, p.189) slightly ironically comment that historical institutionalism is “borrowing somewhat eclectically from the other two schools though with a special appreciation for the influence of history for present-day policy making”. Further recent types of institutionalism such as constructivist institutionalism (Hay, 2004) or discursive institutionalism (Schmidt, 2010) are also not discussed in this dissertation.

choose how to act and do so strategically and instrumentally to fulfil those preferences as best as possible; that is, to maximize their utility. The ‘cultural approach’ (Hall & Taylor, 1996), in contrast, claims that individuals are not only utility maximizing rationalists, but follow certain norms, moral concepts, and ideas about what is right and what is wrong. These concepts form the behavior, but also the preferences of the *homo sociologicus*. These two approaches coincide with the basic mechanism of how institutions influence individuals according to rational choice and sociological institutionalism, respectively.

This dissertation uses and tries to integrate rational choice and sociological institutionalism to explain how the pension reforms have shaped the preferred and expected retirement ages. In the following, the two schools of institutionalism are introduced in more detail, and selected hypotheses are developed thereupon. In a final step, I will address older workers’ heterogeneity and how different groups of older workers might vary with regards to the timing of their prospective retirement.

Rational choice institutionalism

Based on the idea of utility maximizing individuals who have fixed and endogenous preferences, rational choice institutionalism explains the influence of institutions on actors’ behavior with incentives and constraints (Shepsle, 2006). Institutions are seen as “[...] creating a certain frame within which individuals make decisions according to their needs and desires (Tavernier & Roots, 2015, p.6)”. According to the ‘calculus approach,’ this frame is incorporated in actors’ behavior by an internal conversation (Archer, 2000; Kiecolt-Glaser & Glaser, 2002). Before acting, individuals have a silent, internal conversation in which they weigh different alternatives against each other, considering their own preferences and constraints given by the institutions. Changes in the institutional framework alter the incentives and constraints and thereby the behavior, but not individuals’ preferences (Fleetwood, 2008). Rational choice institutionalists do not explain how preferences are formed, but “[...] they posit that the relevant actors have a fixed set of preferences or tastes (Hall & Taylor, 1996, p.994)”.

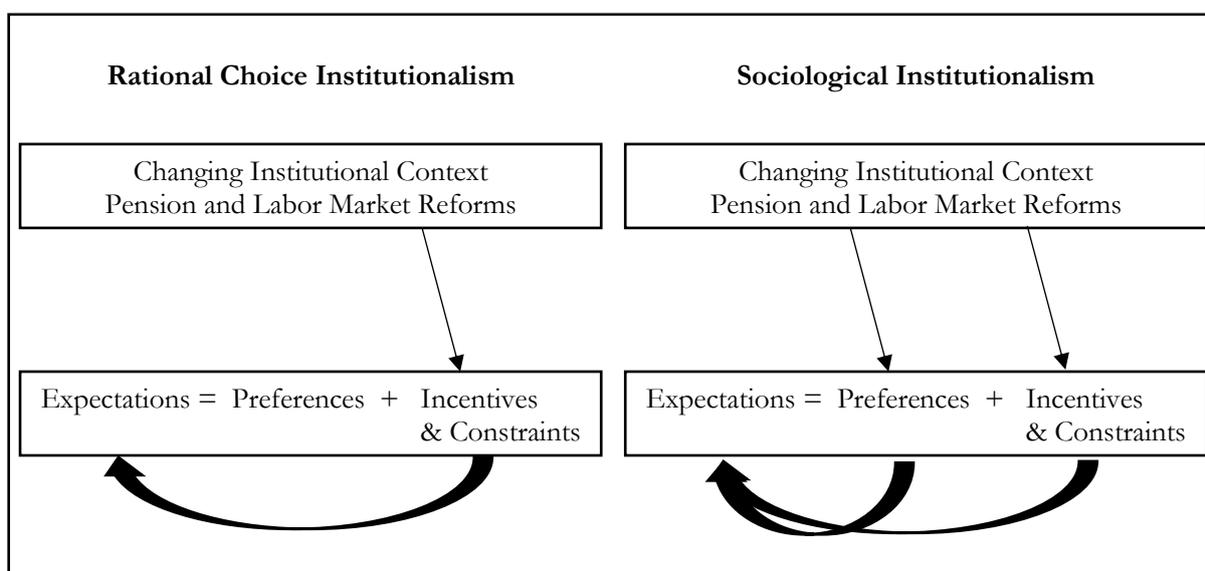
Applying the theory of rational choice institutionalism to retirement would mean that older workers approaching retirement age “[...] compare the subjective expected overall utility of working up to or past the official retirement age with the subjective expected overall utility of retiring early” (Hofäcker, Hess et al, 2015, p. 207). The preferences about when to retire are fixed and exogenous to the model (Hall & Taylor, 1996) and, hence, not influenced by institutional change. The expected retirement age is the result of a rational ‘calculation’ given the fixed preferred retirement age and a net of possibilities and limitations set by the pension regulations. This adaption to changing institutions can be assumed to be a short-term process. Thus, when one follows rational choice theory one comes to the conclusion that institutional changes – like changes in pension systems regulation – will affect the expected but not the preferred retirement age (Figure 6)³. Hence, based on rational choice institutionalism, the first hypothesis is (H1): The pension reforms aimed at delaying retirement will lead to an increase of the expected but not the preferred retirement age.

³ A concrete example is how an older worker in Germany who prefers to retire at age 60 and expects to retire at 63 can get a sufficient pension for his needs. The reforms in Germany made early retirement financially less attractive and this worker would now have to stay employed longer to receive the same pension. Although he or she would still prefer to retire at 60, the expected retirement age has increased to 67.

Sociological institutionalism

The main advantage of rational choice institutionalism is its clear arguments about how institutions influence individual behavior by shaping incentives and constraints. However, one it can be criticized on the basis that it fails to explain how individual preferences emerge or change. In contrast sociological institutionalism believes that institutions not only shape incentives and constraints of actors' behavior, but also change preferences, wishes and aspirations: "[...] institutions do not simply affect the strategic calculations of individuals, as rational choice institutionalists contend, but also their most basic preferences and very identity (Hall & Taylor, 1996, p. 948)". Institutions set a frame for what is right and what is wrong and individuals internalize these rules as their own preferences. Social comparison and the observation of peers' behavior are mechanisms of this internalization. The societally shaped preferences or norms then in turn determine individuals' behavior (Hodgson & Knudsen, 2004; Hodgson, 2007). When the institutional framework changes, actors adapt to the new framework and adjust their preferences.

Figure 6: Theoretical Schemata



Applying this argument to the effect of altering pension systems on preferred and expected retirement ages, means that the reforms will not only change the realistically expected, but also the preferred, retirement age. Sociological institutionalism would not deny that pension reforms alter the incentive and constraint structure for the retirement choice, and, hence, the expected retirement age. However, changes in the pension regulations will also influence the retirement norms of what an appropriate retirement age for a cohort of older worker is (Jansen, 2013; Radl, 2012), and, thus, the preferences for when to retire⁴. In contrast to the individual adjustment of the expected retirement age, this is a longer lasting and more

⁴Taking the example of how the older worker in Germany who wants to retire at 60 and expects to retire at 63 can get a sufficient pension for her or his needs: After the reforms she or he would increase the expected retirement age by adapting to the new institutional setting. In addition, a new notion of what the 'right retirement age' is would be internalized and the preferred retirement age would increase as well, which then in turn could again effect the expected retirement age.

fundamental process. Hence, based on sociological institutionalism and contradicting H1, my second hypothesis is (H2): The pension reforms aimed at delaying retirement will lead to an increase in the expected and preferred retirement ages.

Heterogeneity of Older Workers Regarding Expected and Preferred Retirement Age

To further disentangle the mechanism behind the adjustment process of expected and preferred retirement age, I investigate how different groups of older workers have adapted to the new credo of later retirement. In fact, a “[...] crucial point which is often neglected in the discussion of these general trends is the heterogeneity within the group of older workers” (Bennett & Moehring, 2015, p. 214). I argue that older workers benefit differently from the new policy of active aging. The main focus regarding these differences rests on older workers’ skill levels, employability, and income. As described in the second section low-skilled, low-income older workers are having problems fulfilling the requirements of the new policy of active aging in Europe (Hofäcker, Hess, et al., 2015), and particularly in Germany (Hochfellner & Burkert, 2013; Hofäcker & Naumann, 2015). If the reforms aimed at delaying retirement affect older workers’ actual retirement behavior differently, one would also expect to find such differences for the effect on the prospective retirement age. In this dissertation I will test such potential interaction effects between older workers’ skill levels and the effect of the pension reforms on expected and preferred retirement ages. Education is used as a measurement of the general skill level and as a proxy for income and employability. The third general hypothesis relates to this interaction (H3): Low and high-educated workers’ expected and preferred retirement ages are effected differently by the pension reforms aimed at delaying retirement.

In the following, three more detailed hypotheses regarding the relation of older workers’ education, their expected and preferred retirement age, and the pension reforms are developed. According to the theory of rational choice intuitionism, individuals incorporate changes of the institutional framework as alterations of the incentives and constraints that limit their behavior, and, thus, the pension reforms aimed at later retirement should lead to a rise of the expected retirement age. In particular those older workers should increase their expected retirement age for which the changes of the incentives and constraints were the strongest. As described in the last chapter, low-skilled workers with low wages have in particular felt the heaviest impact of the reforms. They were the ones who most frequently used the now abolished early retirement options and due to increasing actuarial deductions feel the largest financial pressure to delay their retirement in order to receive a decent pension. Therefore, one could expect that they will increase their expected retirement age more than better educated workers. Hence, the refined hypothesis is (H4): Low-educated older workers increase their expected retirement age more drastically than their better educated peers.

However, this increase seems to be driven mainly by financial necessity, instead of intrinsic motivation, implying that low-educated older workers would still prefer to retire early, and mainly financial reasons determine the expectation of a late retirement age. The two final hypotheses are based on these two potential observable implications. If, as rational choice intuitionism would predict, the increase of the expected retirement age for low-educated workers is caused by new financial constraints in the pension

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regulations, one can expect that low-educated older workers would name financial necessity as the main reason for a late retirement. The fifth hypothesis, hence, is (H5): Among older workers who plan to retire late, those with low education have mainly financial reasons for doing so.

If the increase of the expected retirement age is faster for low-educated workers as based on rational choice intuitionism (H4), and the increase of the preferred retirement age is slower than expected retirement age as predicted by sociological institutionalism, then the expected retirement age should be higher than the preferred. In addition the deviation of the two should be larger for low-educated older workers. The final hypothesis is (H6): The deviance between expected and preferred retirement age is larger for older workers with low education than for those with higher education.

4 Research Strategy and Design

To test the hypotheses I conducted four empirical studies that investigate the expected and preferred retirement ages from different perspectives, and one study that discusses the German institutional context, in which three of the other papers are set, in more detail. These five studies, their method of analysis, and potential problems and caveats are presented below.

4.1 Introduction of the Five Studies

The main aim of the dissertation is to investigate expected and preferred retirement ages in order to achieve a better understanding of how they evolve and interact. The dissertation explores if and how older workers have adapted their expectations and preferences about when to retire in response to the reformed policies aimed at later retirement. As extending working lives is the new leading idea driving pension reforms in almost all European countries, taking a comparative perspective helps to understand how older workers have adapted to these drastic policy changes. Using data from the EB and ESS I investigate how older workers in 12 European countries (Belgium, Denmark, Finland, France, Germany, Greece, Great Britain, Ireland, the Netherlands, Portugal, Spain, and Sweden) react to recent pension reforms and increase their preferred retirement age (*Study I*). In addition to reflecting the general European trend, the dissertation also aims at explaining cross-national differences in the development of the preferred retirement age.

To gain deeper insight into the mechanism behind this adaption process I complement this comparative study with four further papers researching the expected and preferred retirement ages in Germany. Focusing these complementary studies on just one country allows a closer, more detailed understanding of the research topic, in particular when researching the interaction of institutions and individual behavior. Case studies can be a contribution when the selection of the country is made for a certain reason, e.g.: “an extreme case that clarifies the outlier of previous statistical analysis; a typical case that stands for a larger set of countries; a crucial case that approaches most clearly the paradigmatic case of a particular theory; a counterfactual case that is a theoretical comparison of what might have happened with what actually did (Ebbinghaus, 2005, p.142)”. For this dissertation the case of Germany proves to be an ideal type of a country with classic early retirement policies until the early 1990s, and therefore it stands as an example of the large group of European countries fostering a policy of early exit. Secondly, Germany has shown itself to be a crucial case in comparison to other countries, as there the pension and labor market reforms were most far-reaching reform. This made Germany ideal for investigating how changing institutional contexts will affect individual retirement behavior. *Study II* of this dissertation discusses these German reforms in detail along with their consequences for the actual retirement behavior, and establishes the context for the three subsequent studies.

Study III describes how the average expected retirement age of older workers has developed during the pension policy shift in Germany over time. It uses the earliest available data on expected retirement age in the GSOEP from 1987 – a time when the early retirement policy was at its height. With data from DEAS (1996, 2008) the study retraces how German older workers have reacted to this policy change, first in the ambiguous 1990s when early retirement was still possible, and initial reforms aimed at longer working lives

were implemented, and second in the 2000s when the fundamental changes in the pension system were realized. It furthermore analyses differences between high, medium and low-educated older workers. Using education as a proxy for skill and income level, the distinction between these three subgroups allows an investigation to be conducted into the effect this policy change has on especially vulnerable labor market groups.

Study IV takes a simultaneous look at the expected and preferred retirement age by focusing on Germany at the end of the 2010s using data from the survey ‘Employment after Retirement’. The aim of this research is to investigate if older workers expect to retire when they would like to, or if they expect to work longer or shorter than their preferred retirement age. Again using education as a proxy, the study investigates the gap between preferred and expected retirement ages while distinguishing between different labor market groups.

Study V explores the reasons and motives German older workers have for deciding upon a certain expected retirement age and allows for the testing of H5, that predicts that low-educated workers have mainly financial reasons for delaying retirement. It uses data from the survey ‘Employment Survey of the Working Population on Qualification and Working Conditions in Germany’ in which employees were asked when they expect to retire, and if they will do so after the official retirement age they were asked to give a reason. The paper analyses how the expected retirement age and the reasons for it differ according to education.

4.2 Methods of Analysis

After this brief overview of the five studies, the remainder of the introduction will give more detail about the different analytical approaches used in the individual papers, before ending with a discussion of the main limitations of the analysis. The aim of the dissertation is to provide a descriptive overview of when older workers both prefer and expect to retire in Europe, with a special focus on Germany. In addition to describing the preferences and expectations of older workers regarding their exit from the labor market, the studies take into account the outcome of policy change, the reasons behind older workers’ decisions to retire and the variations of these according to social group. In order to understand the mechanism behind older workers’ preferences as well as their expectations, a qualitative approach might be more accurate, at least seen *prima facie*, instead of the chosen quantitative methodological approach. Nevertheless the approach adopted here allows for a comparative, broader view on the research topic. To uncover and understand the patterns of retirement preferences and expectations of older workers - across several European countries - furthermore helps to set the scene for future research with a detailed focus on individual behavior.

Different types of regression analysis serve as the main analytical tool in the respective studies. *Study I* uses hierarchical data and, thus, multilevel linear regressions were applied (Snijders, 2011). *Study III* used linear regression, while the *Studies IV* and *V* use (multinomial) logistic regression, as the first has a linear and the latter two have categorical dependent variables. The regressions were calculated using the statistical program STATA with data from different sources that are introduced below.

Main Dependent Variables

All regressions had the common feature that the dependent variables were the preferred and/or expected retirement age(s) stated by the respondents either as a concrete age or a tendency regarding whether they will retire before, at or after the official retirement age. In *Studies I, III and IV* the answers were collected as a concrete age and, thus, linear dependent variables were used in the analysis. *Study V* had a categorical dependent variable with the three categories (before, at, or after the official retirement age) and, in addition, a variable asking for the reasons for a certain expected retirement age was used in addition as a second dependent nominal variable. The exact wording of the questions is depicted in Table 2.

Main Independent Variables

Two main independent variables were included in the analysis. The first was the different institutional context in which the prospective retirement ages were surveyed. In order to estimate the impact of the above mentioned reforms aimed at delaying retirement on older workers' expectations and preferences regarding retirement, the factor 'time' has been shown to be crucial. I therefore assume that the later in years a survey was conducted the more advanced the reforms are. In the comparative *Study I* the institutional context also varied between countries. The second main independent variable was education, which is an excellent proxy for researching variation amongst older workers in the transition from work to retirement. "Education in particular seems to be a valid proxy to summarize several interrelated characteristics that are known to be influential individual-level determinants of the retirement decision (e.g. workplace characteristics and work autonomy, health, income, labor market chances) (Hofäcker & Naumann 2015, p.474)". Education was used in all five studies as an independent variable to improve the comparability between the studies and serve as a master variable through the dissertation. It was coded according to the ISCED (Sawiński, 2013) classification in three levels: lower secondary degree or less (ISCED 0-2), upper secondary and higher vocational (ISCED 3-4), and tertiary education (ISCED 5-6). In addition to education, income (*Study IV*) and occupational status (*Study III, IV, V*) were used as further explanatory variables. Due to data limitations, however, these variables were not available throughout all five studies. Since education is the only independent variable included in all five surveys, the results reported in this dissertation framework will focus mainly on the difference between educational levels.

Table 2: Studies & Methods

Study Number & Short Title	Main Research Questions	Data Source	Measurement of Prospective Retirement Age	Sample Sizes	Year of Data collection	Main Results
I Retirement Preferences in Europe	Have European adapted to the new policy of late retirement?	ESS & EB	At what age would you like to /would you have liked to retire?	EB: 3140 ESS: 4702	EB: 2003 ESS: 2010	Total increase & stronger for high educated
II Determinants of Retirement in Germany	How did German policymakers reform the pension system?	OCED	No measurement of Prospective Retirement Age	No information	From 1970 till 2014	Increasing employment rate of older workers
III Retirement Expectations in Germany	Have Germans adapted to the new policy of late retirement?	SOEP, DEAS	At which age do you plan to stop working?	SOEP: 638 DEAS: 767 & 1187	SOEP: 1987 DEAS: 1996 & 2008	Total increase & stronger for low educated
IV Retirement Expectations & Preferences	How do Retirement Expectations and Preferences interact with each other	BIBB	When would you prefer to retire regardless of potential deductions from your pension? When do you expect to retire considering potential deductions from your pension?	1392	2008	Preferences lower than expectation, deviation stronger for low educated
V Reasons of Retirement Expectations	How do the reasons for the planned retirement age differ?	BAUA	When do you plan to retire: before the official retirement age, at the official retirement age, or after the official retirement age? Why do you expect to retire before the official retirement age? <i>because work is too exhausting; due to health reasons; to have time for private interests</i> Why do you expect to retire after the official retirement age? <i>due to financial reasons; because of fun at work; or to do something useful</i>	3342	2012	High educated more non-financial & low educated more financial reasons.

Data Sources

This dissertation combines data from several sources. This has two main advantages: First it makes an in depth analysis of the development of the preferred and expected retirement possible from multiple perspectives. Second, it increases the results' robustness, as the hypotheses were tested with different datasets. *Study I* uses data from the fourth wave of the European Social Survey (ESS) which was collected in 2010 as well as from the Eurobarometer (EB) 60.2 which was collected in 2006. Both are ongoing surveys collecting data on the beliefs, behavior, and attitudes of Europe's citizens (van den Heuvel & van Santvoort 2011; Bläser, 2013), that are representative for the populations of the countries included, and contain precisely the same question about when Europeans prefer to retire. This allows a comparison to be made between the preferred retirement age of Europeans in 12 countries that were part of both surveys. *Study II* does not focus on the analysis of the timing of prospective retirement, but instead aims to describe the changing institutional context of retirement in Germany and their impact on the development of older workers' employment rate in Germany over time using official data from the OECD (2014). Analyzing the long-term development of the expected retirement age in Germany was the aim of *Study III*. The German Ageing Study (DEAS) did include a question on the expected retirement age in the survey waves of 1996 and 2008. The analysis of the DEAS data was enlarged with data from the third wave of the German Socio-Economic Panel (GSOEP) collected in 1987 to allow research into the long-term development of the expected retirement age in Germany. SOEP and DEAS are both representative of the German population. *Study IV* used data from the small survey 'Employment after Retirement' which was conducted by the Bundes Institut für Bevölkerungsentwicklung (BiB) in 2008 (Micheel, Roloff, & Wickenheiser, 2010). It is a survey of older workers' attitudes towards employment after retirement, and includes one question on the expected and one on the preferred retirement age, allowing a comparison of both. The analysis of *Study V* is based on data from the survey 'Employment Survey of the Working Population on Qualification and Working Conditions in Germany' that was conducted by the Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA) in 2012. The BAuA carries out regular surveys among German employees with questions in various areas. In 2012 one question on the expected retirement age was included, and those respondents that reported an expected retirement age higher than the official retirement age were asked why they expected to retire so late. The data for *Study IV* and *V* is randomly sampled out of all German employees working at least ten hours a week. Detailed information about the exact question asked, sample sizes and the year of data collection is presented in Table 2.

Sample Selection

The sample in all studies was restricted to older workers aged 50-65 (55-65 for *Study IV*) still in employment⁵. In most studies these were the only ones asked about their prospective retirement age. In addition, previous research has shown that older workers at this age have stable retirement preferences (Ekerdt et al., 1976; Ekerdt et al., 2000) and know quite well when they will retire (Örestig et al., 2013).

⁵ The exception is the Heckman test analysis in *Study I* and *Study III* in which respondents aged 50-65 who are not employed were also included.

4.3 Limitations of Analysis

When interpreting the results of my analyses I have to acknowledge at least three main limitations. The first problem lies with the question of whether older workers can actually distinguish between their preferred and expected retirement age when asked in a survey. The independence of the preferred and expected retirement ages is one fundamental assumption of the dissertation's research approach, but especially if the questionnaire includes only one question on either the expected or preferred retirement age respondents might answer a question aimed at their preferred retirement with their expected retirement age or vice versa. In addition, based on the idea of cognitive dissonance (Greenwald et al., 2013), it might be psychologically very costly to keep unrealistic retirement preferences, and individuals might adapt their preferences to their expectations. However when respondents are asked for their preferred and expected retirement age (*Study IV*) in the same survey they seem to clearly differentiate between the two, as the average ranges 1.75 years apart (Hess, 2016). In addition, other studies (Esser, 2006; Heß & Landmann, 2015; Zappalà et al., 2008), including both preferred and expected retirement ages, reinforce this assumption as their results also show that they do indeed differ. One could interpret this as an indication that respondents see a difference between preferred and expected retirement age. However, potential interdependencies between the preferred and expected retirement ages must be acknowledged when interpreting these results.

The second problem is a potential sample selection bias: "Selection bias is commonly understood as occurring when the non-random selection of cases results in inferences, based on the resulting sample, that are not statistically representative of the population (Collier, 1995, p.462)". The rationale for the dissertation's research approach is that only those respondents who are still employed are asked for their prospective retirement age, while those who are already retired are ignored (Dal Bianco et al., 2015). It is, however, plausible to assume that those who are still employed in old age differed systematically from those already in retirement. On average they are better educated, have a higher employability, and are more often men (Hofäcker, Hess et al., 2015). This systematic selection into employment - and, hence, the possibility of stating a preferred retirement age - might contort the results of the analysis. This problem has not been addressed in previous research on prospective retirement timing, which can be seen as a crucial research gap. As described in the first chapter, I evaluate this potential sample selection bias with the help of the classical Heckman test (Heckman, 1979). The Heckman test (or correction) is a statistical tool that allows potential selection biases to be checked for in the sampling procedure (Heckman, 1979; Puhani, 2000). It uses a two-step statistical approach: first conducting a regression for the sampling procedure and second conducting the actual regression of interest. This allows an estimate to be made of the potential contortion by the sampling procedure. One precondition of the Heckman test is the availability of data on respondents who have a missing value on the dependent variable. For my analysis this means that the Heckman test was only applicable when the survey also included data on older people that were not in employment. Both the data sets in *Study IV* and *V* only included older workers who were employed with at least 10 hours a week; hence a Heckman test was not possible due to the unavailability of data. In *Study I* and *III* the preconditions of the Heckman test were fulfilled, and the results remained robust indicating that the potential selection bias is negligible.

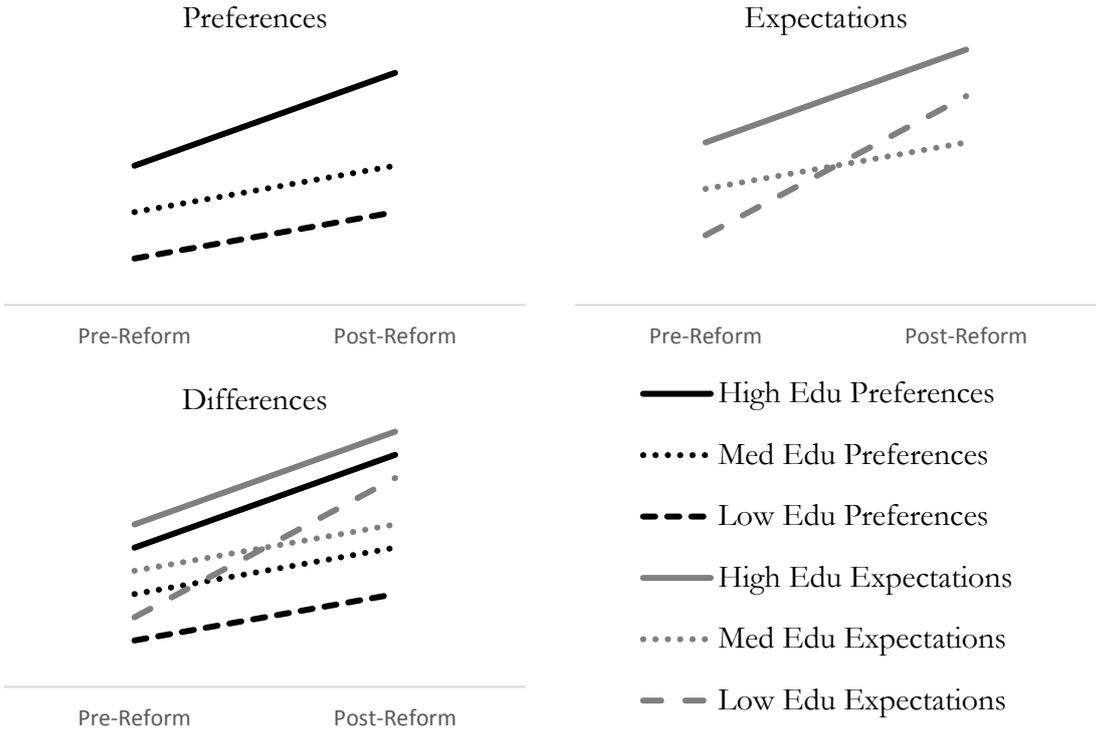
The last limitation of the analysis is the comparability of the results of the various studies. Different data are used in the studies and even within two studies, and the data might differ with regards to their quality of sampling. However, one could also interpret this more positively: as the tendency of the results did not vary across different datasets, this could be seen as an indication of the results' robustness.

5 Results

This section will give a brief summary of the five *Studies (I – V)*, report in particular on their main results and relate their findings back to the leading research questions and hypotheses. It connects the results of the five individual studies and discusses the overall implications of these findings. Figure 7, and in more detail Table 2, illustrate the main results of this dissertation.

The results show that the increase in the preferred retirement age seems to be a European development found in all 12 countries included in the analysis (*Study I*). However, the increase varies between the countries. It is the strongest in countries which were hit most severely by the financial crisis and where one can assume that welfare state retrenchment will be more severe. Secondly, differences were not only found between countries, but also between groups of older workers. Those with high education seem to have increased their preferred retirement age more than those with low and medium education⁶. When zooming in on the German context, the results show a different development for the expected retirement age (*Study III*). Although the average expected retirement age also rose in Germany, the increase was higher for older workers with low education.

Figure 7: Stylized Depiction of Results



Shown here are stylized results of the dissertation’s results for the development of the preferred and expected retirement ages by three age groups.

These findings are in line with the analysis that contrasts the expected and preferred retirement ages in Germany (*Study IV*). It shows that older workers in Germany would like to retire 1.75 years earlier than

⁶ Although the sample size was very small, the analysis of *Study I* was also run including just the Germany respondents and the results remained robust.

RESULTS

they expect to. However, the deviation between the expected and preferred retirement age does vary depending on the workers' education. While the difference for high-educated older workers is only 1.29 years, it is 2.37 years for those with low education. Comparable results were found in previous research (Garcia, et al., 2014; Heß & Landmann, 2015; Steiber & Kohli, 2015). A possible explanation for the expected retirement age is that low-educated future retirees mention financial necessity as a reason for their expected retirement age twice as often as their high-educated peers (*Study V*).

Although only the findings for educational differences are reported, as education was the only variable available for analysis in all five studies, income and occupational status – if available - were also tested as explanatory variables in the analytical models. Though, results from *Study I* show no difference for income for those with low income, the differences between preferred and expected retirement age is larger than for those with high income (*Study IV*). Significant occupational status differences were found in *Study III* and *IV*, but none in *Study V*. Those with a low occupational status increased their expected retirement age faster and the differences between preferred and expected retirement age is larger compared to those with high occupational status. In summary, the outcomes for income and occupational status are in line with those found for education.

What do these findings mean for the research questions and the hypotheses of this dissertation? Regarding the first research question (How have future pensioners adapted their expected and preferred retirement age to the pension reforms aimed at later retirement?) it seems as if the adaption process of the expected and preferred retirement age to the changes of the pension and labor market policies is a pan-European development and, at least in Germany, a longer lasting process that had already begun in the early 1990s. Regarding the second research question (What are the mechanisms behind this individual adaption process?) the results indicate that these differ between groups of older workers. Low-educated older workers show a strong increase in their expected retirement age and a weaker one in the preferred. It seems as if it is driven mainly by financial pressure to delay retirement to ensure a sufficient pension. High-educated workers also increased their preferred and expected retirement age, but in contrast the increase was stronger for the preferred age. Here the reasons might instead be non-monetary and more intrinsic. Relating these results back to the theoretical foundation and the hypotheses of the dissertation, I come to several conclusions. In general, the findings contradict rational choice institutionalism that predicted an increase of the expected, but not the preferred retirement age (H1). It seems that not only is rational calculation a foundation for the timing of individuals' prospective retirement, but that countries' 'retirement culture and norms' also play a central role. This supports the school of sociological institutionalism and the mechanism of changing norms (H2). However when comparing the increase of the expected and preferred retirement of different groups of older workers, one finds systematic differences (H3). Low-educated older workers increased their expected retirement age more than their preferred (H4), presumably due to a new financial necessity to remain in employment. One could speculate whether the mechanism of the adaption of the prospective retirement age differs by educational groups. While high-educated workers might acknowledge the new credo of 'late retirement' and first adapted their preferences and then their expectations, low-educated workers seem to perceive the changing regulations of the pension system as a modification to their

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structure of constraints and adapted their expectations accordingly, but not (or at least not as strongly) as their preferences about when to retire. This idea is substantiated by the findings of *Study IV* and *V* that show that the difference between expected and preferred retirement is larger for low-educated workers (H6) and that for low-educated workers financial reasons are more important than for their high-educated comparison group (H5). Relating these results back to the concerns about rising social inequality in the retirement process discussed in the second chapter, I come to the conclusion that these are supported by the dissertation's findings. Indeed some groups of older workers are expecting to work longer than they want to due to financial necessity.

6 Discussion and Outlook

After presenting the results in the proceeding section I will now draw some conclusion, outline possible implications, and, based on the research findings, give a societal as well as a scientific outlook. Going beyond the actual retirement behavior, this dissertation investigates prospective retirement behavior by focusing on current older workers' expected and preferred retirement ages. Results show that the adaption process of the expected and preferred retirement age to pension reforms, which aim to extend working lives, is a pan-European and a long-term development. They, furthermore, indicate that older workers are not a homogenous group when it comes to their expectations and preferences about when to retire, but differ meaningfully. The dissertation focused on variation by education and found that low-educated workers expected to retire significantly later than they wish to, and when stating their expected retirement age are strongly driven by financial reasons. In addition, the results remained stable when occupational status and income were used as differentiating variables between the groups instead of education in single studies of the dissertation, which showed the results' robustness.

The dissertation makes contributions on the conceptual, theoretical, methodological and political levels: 1) Conceptually it sheds light on how older workers adapted their preferred and expected retirement age to the new policy of late retirement. 2) On a theoretical level it shows that this adaption process is not only driven by incentives and constraints, but seems to also involve changes of the retirement culture and norms, supporting sociological institutionalism. Only a dissertation investigating preferred *and* expected retirement age could shed light on the theoretical differentiation of sociological versus rational choice institutionalism. 3) Methodologically it provides a solution to the selection bias problem using the Heckman Test. While all previous studies neglected the potential selection bias, this dissertation explicitly shows that despite a possible selection into employment, this does not change results on social inequalities in prospective retirement. 4) On the societal and political levels it supports recent concerns about a new phase of social inequality in the transition from work to retirement.

The dissertation adds to a better understanding of preferred and expected retirement ages, but at the same time also leaves some questions unanswered and poses new ones. First, although the dissertation is the first to investigate trends in the preferred retirement age from an international perspective, its main focus is on the German context. As explained, the pension reforms were far-reaching in Germany, and, hence, future research should try to replicate the results from *Studies III-IV* in other European countries and varying institutional contexts. Second, the dissertation uses longitudinal methods of analysis in *Studies I* and *III* and shows that older workers are indeed adapting their preferred and expected retirement ages to the reforms. However *Studies IV* and *V* are based on cross-sectional data sets and, here the effect of the pension reforms, even though highly plausible, can only be assumed. Future research should investigate the relationship between preferred and expected retirement ages and the motives for the latter using longitudinal data. Third, the methodical selection bias problem whereby only those older workers can state a preferred and expected retirement age who have not yet retired was addressed in *Studies I* and *III* with a Heckman test. Still, those older workers who are not yet retired and not employed – unemployed and housekeepers – were

not explicitly included in the analysis. Unemployed older workers in particular would be an interesting unit of analysis, and future research should include the so far neglected groups of older workers in their analysis. Besides unemployed older workers it might also be worthwhile conducting research on the prospective retirement timing of self-employed and civil servants in more detail. Both are groups that in many countries have their own separate old age security systems that is independent of the public pension system. In Germany, for example, civil servants (*Beamte*) would like to retire much earlier than they expect to, while for the self-employed the expected and preferred retirement age are much more similar (Heß & Landmann, 2015). Fourth, the dissertation did not focus specifically on potential variations between women and men regarding the expected and preferred retirement ages, neglecting the important topic of gender difference in the retirement process. The results show that women on average prefer and expect to retire earlier than men, however, no gender differences were found in the deviation between the preferred and the expected retirement age, nor in the reasons for the expected retirement age. Further research should conduct a detailed analysis of how men and women might vary in terms of prospective retirement timing, in particular, when regarding often unstable female career trajectories (Möhring, 2015). Fifth, the workplace perspective is not explicitly addressed in the dissertations' analysis. Although company size (*Study IV* and *IV*) and sector (*Study III* and *IV*) were included in the analysis as control variables, the effect of, for example, age-aware human resource measures or a company's culture towards older workers on the expected and preferred retirement ages were not researched due to data limitations. Still the company or workplace level is an important determinant for the actual as well as the prospective retirement age, and future research should investigate these mechanisms in more detail.

While the first five points are related to a group-specific detailed analysis, the sixth suggestion for future research relates to the theoretical foundations of the rising preferred and expected retirement ages. The dissertation shows that both the preferred and expected retirement age are rising, supporting sociological rather than rational choice institutionalism. It seems that not only do older workers make rational calculations about how to best synchronize their expected with their preferred retirement age in response to external incentives and constraints, but that the pension reforms have also changed the norms and values of retirement and the notion of what is the 'right' retirement age. This suggests that the adaption to the reforms is not only an individual, but also a societal process. The dissertations' results, though, also show that the adaption process varies between older workers. One could interpret this as reflecting that sociological institutionalism is better at predicting higher-educated older workers' expected and preferred retirement ages. However, those with low education show a stronger increase in their expected retirement age, hinting at the better explanatory power of rational choice institutionalism for this group. Future research might consider differentiating the theoretical assumptions and hypotheses for different groups of older workers and integrating the two theoretical approaches.

What implications can be drawn for policy and society? First, older workers are adapting to the changing institutional context. It seems as if they are considering the reforms aimed at later retirement when stating their expected as well as their preferred retirement age, and they are accepting that they will retire later than their predecessors. This is positive news for the pension systems' long-term sustainability.

However the results also support recent concerns about the reemergence of social inequality in the transitions from work to retirement (Heß & Landmann, 2015; Hochfellner & Burkert, 2013; Hofäcker & Naumann, 2015; Hofäcker, Hess, et al., 2015). These studies warn that not all older workers might be able to adapt to the idea of late retirement. They argue that workers with only small pension claims might be forced to delay their retirement to ensure a sufficient pension and have problems remaining in employment due to low employability. “Our results suggest that—in contrast to the higher educated who tend to voluntarily desire late exit—lower-educated workers may rather be driven by a financial need to remain employed” (Hofäcker & Naumann, 2015, p. 478). This dissertation’s findings support these warnings. The increase of low-educated older workers’ expected retirement age suggests that they have realized that they will have to work longer, although they would still prefer to retire early. It seems as if low-educated older workers’ adaption to pension reforms is involuntary and driven by financial need. The feeling of having to keep on working in often unfavorable working conditions although one would like to retire can not only cause personal frustrations, but can lead to stress, work disengagement, and lower psychological and social welfare (Damman et al., 2013; De Vaus et al., 2007; van Solinge & Henkens, 2008). Policy makers, employers, trade unions, and other societal stakeholder at the regional, national and European levels must acknowledge this problem when implementing further reforms aimed at delaying labor force exit, and must realize that a ‘one size fits all’ approach might not be appropriate for pension regulations. They should develop strategies for counteracting the threat of renewed social inequality in the retirement process and should adapt to the specific needs of different groups of older workers. This might include measures like subsidizing training programs for low-skilled older workers, adapting workplaces to older workers’ needs, flexible and gradual retirement programs, improving older-workers’ pension literacy, anti-age-discrimination policies, improving older-workers’ health, and emphasizing the importance of lifelong-learning. Combining these measures might mitigate the new social inequality in the retirement process.

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Study I: Rising Preferred Retirement Age in Europe – Are Europe’s Future Pensioners Adapting to Pension System Reforms?

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Rising Preferred Retirement Age in Europe –

Are Europe's Future Pensioners Adapting to Pension System Reforms?

Abstract

This study investigates whether older workers have adapted their preferred retirement age to the pension reforms aimed at extending working life. Based on data from Eurobarometer and European Social Survey in 12 European countries, the analysis shows that future pensioners have indeed increased their preferred retirement age and adjusted to the new credo of late retirement. However, the strength of the increase was found to vary between different groups of older workers: it is much stronger for high-educated than for the low-educated. This finding supports recent concerns of the re-emergence of social inequality in the retirement process.

Keyword: Preferred Retirement Age, Retirement Behavior, Active Aging, Social Inequality, Eurobarometer, European Social Survey

Pension systems in almost all modern societies are facing extensive pressure from demographic aging. Due to an increasing ratio of pension recipients to contributors and, hence, rising costs and shrinking revenues, the financing of the existing pay-as-you-go pension system is becoming critical (Harper, 2015; Walker, 2008). In many European countries, a policy of early retirement has exacerbated this development and increased the financial pressure on the pension systems' long term sustainability. Politicians in Europe became aware of this threat in the late 1980s and tried to counteract it with pension and labor market reforms (Redaymulvey, 2000). Statutory retirement ages were raised, early retirement pathways were closed, and labor market activation measures for older workers were introduced (Naumann, 2014; Blossfeld et al. 2011). These reforms were at least to some extent successful, and older workers' retirement ages and employment rates began to rise in Europe (Hofäcker et al., 2015).

While the consequences of this new "late exit" policy for older workers' actual retirement timing are quite well researched (Ebbinghaus & Hofäcker, 2013; Buchholz et al., 2013; Blossfeld et al., 2011; Zaidi & Fuchs, 2006), only little is known how it is perceived by future pensioners. Nevertheless, investigating future pensioners' attitudes in regard to the reforms of Europe's pension systems is of high scientific and societal relevance for two main reasons (Hofäcker, 2015; De Tavernier & Roots, 2016): First, most of the reforms have a time lagged effect. Hence, actual pensioners are not yet influenced strongly, while future retirement cohorts must account for the changing institutional framework when planning their retirement. Therefore, it seems reasonable to focus on future pensioners when studying the reforms' long-term effectiveness. Second, since actual older workers' retirement preferences are influenced by the reforms, it is highly relevant for the sustainability of Europe's pension systems to know if and how they adapt to the changes of the pension regulations. Only if they accept to retire later than their predecessors, Europe's societies will be able to finance their pension systems.

However, very few studies have focused on this topic. They have either examined the development of the preferred retirement age in only one country (Örestig, Larsson, & Stattin, 2013; Coppola & Wilke, 2010; Szinovacz et al., 2014; de Grip et al., 2013) or investigated the preferred retirement age from a comparative perspective at only one point in time (Hofäcker, 2015; De Tavernier & Roots, 2015; Sargent-Cox et al., 2012; Esser, 2005). The paper at hand complements these studies with a more dynamic analysis of retirement preference over time and over different institutional settings

by comparing the preferred retirement age of Europeans in 2003 and 2010. In addition, to the general development of the retirement preferences, I investigate whether the potential rise of the preferred retirement age varies among countries and social groups. To this end, the paper has the following structure: First, I will give a brief overview on how the institutional context of retirement transition has changed in the last decade. In the next section, the two data sets – Eurobarometer 60.2 from the year 2003 and the fifth wave of European Social Survey from 2010 – are introduced. Finally, I present descriptive and multivariate results on how retirement preferences have developed in twelve European countries (Belgium, Denmark, Finland, France, Germany, Greece, Great Britain, Ireland, the Netherlands, Portugal, Spain, and Sweden) and conclude with discussing these results.

Pension policy in Europe: From early retirement to active aging

After the economically booming 1960s, the oil crisis and international competition from Asia forced companies in Europe to cut cost by laying off workers (Naegle & Walker, 2007). To avoid unpopular high unemployment rates, politicians introduced a policy of early retirement that released older workers into retirement instead of unemployment, and in addition was thought to create jobs for younger workers on the labor market. In most European countries state subsidized programs made early transition from work to retirement financially attractive for older workers (Palmer, 2002). Employers supported this policy of early retirement since it allowed them to dismiss older workers without much opposition and they often complemented the public early retirement programs with additional monetary incentives offering older workers a “golden handshake” they could not refuse (Ebbinghaus & Hofäcker, 2013). Older workers and also the trade unions willingly accepted the offer to retire well before the official retirement age with comparably low or even no pension reductions. The early retirement policy evolved into a culture of early exit in which retiring before the official retirement age was the most common way of exiting the labor market, while retirement at or even after the official retirement was rather unusual (Taylor, 2011). Consequently, older workers’ employment rates and average retirement age fell all over Europe although with notable cross-national variation (Ebbinghaus, 2008). The average employment rate of European men aged between 60 and 64 fell from around 60 percent to just over 30 percent from 1970 to 1990 (Hofäcker et al., 2015).

In the late 1980s and early 1990s, policy makers became increasingly aware of the financial problems the programs of early retirement were causing given the demographic aging of the overall population and the labor force in particular (Domonkos, 2015; Naumann, 2014; Ebbinghaus & Hofäcker, 2013). With a shrinking number of contributors facing a growing number of beneficiaries, the pension systems' long term economic sustainability was in jeopardy. Politicians introduced several pension and labor market reforms, to increase the retirement age and the employment rate of older workers in order to relieve the welfare states (Naegele & Krämer, 2002; Palmer, 2002). With the turn of the millennium early retirement programs were abolished, official retirement ages raised, and life-long learning measures implemented to improve older workers' employability. Although the starting levels and also the actual efforts of these reforms varied across countries, the renunciation of the early retirement policy took place all over Europe. One main actor in the efforts to prolong work-life and rise the retirement age is the European Union that promotes the new paradigm of "Active Aging" (Lessenich, 2015; Taylor, 2008). It even called the year 2012 the 'European Year for Active Ageing and Solidarity between Generations', strengthened anti age-discrimination measures, and included increasing older workers' employment rate to 75 percent as a target of the Lisbon Strategy (Börsch-Supan, Brandt, Litwin, & Weber, 2013). In addition, companies in the technology and health care sector, facing a lack of skilled workers, realized the value of older employees' experience and implemented "age friendly" human resources measures to postpone the retirement of their qualified workforce (Naegele & Walker, 2011; Conen et al., 2011). Older workers adapted to the changing institutional and workplace context and, consequently, employment rates began to rise with notable cross-national variations (Ebbinghaus & Hofäcker, 2013; Löckenhoff, 2012; Zaidi & Fuchs, 2006). On average, the employment rate of European men aged between 60 and 64 rose from 30 to 40 percent from 1990 until 2010 (OECD, 2013). Based on the observation that active aging policies have affected the actual retirement behavior of current retire cohorts, this paper investigates whether these institutional changes have also influenced future pensioners' preferences and plans when to retire. In the following, I approach the question if current active older workers have adapted to the reforms and have increased their preferred retirement age.

Table 1: Countries which raised their statutory retirement age between 2003 and 2010

	Men	Women	Year of Implementation
Belgium	65	63 - 65	2003 - 2009
Germany	65 – 67	65 - 67	2012 - 2025
Denmark	65 - 67	65 - 67	2024 - 2027
United Kingdom	65	60 - 65	2010 - 2020

Source: OECD, 2003, 2011

Are preferred retirement ages rising in Europe?

The preferred retirement age summarizes employees' wishes, preferences, and plans when to retire (Zappala et al., 2008). It is not a free floating, intrinsic desire but embedded in institutional contexts like the regulations of the pension system and the reality at the workplace, and dependent on individual resources (Hofäcker et al., 2015; Esser, 2006). Hence, the preferred retirement age is influenced by individual as well as workplace and institutional characteristics, just like the actual retirement behavior. Examples for determinants of the preferred retirement age on the individual level are gender and education. Men prefer to retire later than women (Örestig, Strandh, & Stattin, 2013) and employees with high education and high skill level want to retire later than those with low education and skill level (Esser, 2005). The latter often hold vulnerable occupational positions with a high physical and mental strain and have earlier retirement preferences than those with more favorable working conditions (Örestig, Strandh, & Stattin, 2013). Not only the working conditions, but also age discrimination (Schermyly et al., 2014) and the company's industry sector (Zappala, et al 2008) are workplace determinants that affect the preferred retirement age. On the institutional determinants of the preferred retirement age, Hofäcker (2015) comments: "Nation-specific institutional settings represent the most abstract set of factors that may impact on retirement preferences. Their interplay creates the available opportunities and constraints for older workers to either continue working or to retire" (p. 1532). Examples for institutional determinants are the official retirement age at which the pension benefits are offered, the availability of early retirement options that allow an early retirement transient with comparably low pension deductions, and the existence of active labor market policies.

How do now changes of the institutional determinants affect individuals' preferred retirement age? The theory of sociological institutionalism offers an explanation as it argues that changes on the institutional macro level affect individuals' behavior and attitudes in two ways (Hall & Taylor, 1996). First, they alter the incentive and constraints structure of individuals behavior, and, second, they also change values and norms of what is right and what is wrong (Fleetwood, 2008). The institutional contexts of retirement transition have been and still are shifting in many European countries from a policy of early labor market withdrawal to one of active aging promoting longer working life (Naegele & Walker, 2007; Cooke, 2006). Following the argument of sociological institutionalism this means, first, that early retirement is constrained while late retirement is incentivized. Second, the changes should also influence the retirement norms what an appropriate retirement age is. As a result the preferred retirement age of older workers should increase.

This argument is supported by previous research that shows an increase of the preferred retirement age after pension reforms. However, these studies have only focused on single European countries (Örestig, Strandh, & Stattin, 2013; Coppola & Wilke, 2010; de Grip et al., 2013), the United States (Szinovacz et al., 2014; Sargent-Cox et al., 2012) and Australia (Sargent-Cox et al., 2012). I extend these studies with a dynamic, comparative and cross-national perspective and address the question how older workers have adapted to the credo of active aging and delayed retirement in all of Europe. Since pension reforms took place in all European countries (Ebbinghaus & Hofäcker, 2013) and the European Union is facilitating the idea of working longer (Walker, 2008), the assumption is that the increase of the preferred retirement age is not limited to the countries investigated in previous research, but can be seen as a pan-European development. To research in more detail the cross-country variation in the potential adaption process of the preferred retirement age, I use in line with previous studies (Coppola & Wilke 2010, Nauman 2014, de Grip et al 2013) an increase of the official retirement age as an indicator for a particular reform of the pension system. I argue that those older workers who are affected by an increase of the official retirement age, will increase their preferred retirement age more strongly than those not affected. In addition, I investigate how workers differ in the potential increase of the preferred retirement age regarding gender and education.

Data and Methods

To answer my research question, I needed data on older workers' retirement preferences at two different points of time. Therefore, I combined data from the Eurobarometer 60.3 (EB) with the fifth wave of the European Social Survey (ESS). Both are ongoing representative surveys, using multi-stage, random (probability) sampling, that collect data on the beliefs, behavior, and attitudes of Europe's citizens (Bläser, 2013; van den Heuvel & van Santvoort, 2011). Data collection for the EB survey was done in 2003 and for the ESS in 2010. In the seven years between the two data collections, actual retirement ages and employment rates of older workers have risen in almost all of Europe as shown in Table 1 (Ebbinghaus & Hofäcker, 2013). Therefore a comparison of these two years is a suitable approach to research a potential increase of the preferred retirement age. This is possible because in both surveys the exact same question is included: "At what age would you like to /would you have liked to retire?"⁷ which has been shown to be an approved method for measuring the preferred retirement age (Hofäcker, 2015; Zappalà et al., 2008; Esser, 2005). The answers to this question served as dependent variable in the following analysis. Data are available in both surveys for 12 European countries from four different welfare state clusters (Esping-Andersen, 2002): Great Britain and Ireland represent the liberal welfare state, while Denmark, Finland, and Sweden are countries with a social-democratic welfare state. The continental welfare state cluster consists of Belgium, Germany, France, and the Netherlands and from the southern welfare state cluster Greece, Portugal and Spain are in the sample. The sample was restricted to respondents who are working and older than 44 years since in ESS only respondents who were at least 45 and at most 67 years old at the time of the interview were asked the relevant question on when they wanted to retire. In addition, previous research has shown that older workers at this age have stable retirement preference (Ekerdt et al., 2000) and know quite well when they will retire (Hofäcker, 2015; Örestig, Strandh, & Stattin, 2013). These restrictions resulted in an overall sample size of 7,842 with 3,140 respondents in the EB and 4,702 in the ESS⁸.

⁷ The question is asked prospectively to employed and retrospectively to retired participants, thus the confusing wording. In this paper only respondents who are working are included in the analysis.

⁸ The country samples had the following sizes EB(BE=235, DE=600, DK=309, ES=134, FI=309, FR=210, GB=300, GR=256, IE=119, NL=152, PT=276, SE=240) and ESS(BE=314, DE=785, DK=392, ES=304, FI=418, FR=359, GB=503, GR=265, IE=293, NL=412, PT=263, SE=392).

Due to the combination of the two different datasets, only questions available in both surveys could be included into the data analysis limiting the number of possible explanatory variables. At the individual level I used gender, age, education and partnership status as explanatory variables. Education was collected in both surveys by asking for the age at leaving school and coded according to the ISCED classification in three levels: lower secondary degree or less (ISCED 0-2 = younger than 15), upper secondary and higher vocational (ISCED 3-4 = between 15 and 21), and tertiary education (ISCED 5-6 = older than 21). Partnership status was included with two values (Cohabiting and Not Cohabiting). The second and third rows in Table 3 show that these four variables were equally distributed in the two datasets and, hence, one can assume that they are comparable and suitable for the following analysis⁹.

The hierarchical structure of the data – with individual respondents nested in countries – allowed the application of multilevel regression technique and, hence, in addition to the individual level variables also the inclusion of country level explanatory variables into the models. At the country level three variables were used: the year in which the data was collected (2003 and 2010), the official, statutory retirement age, and the potential change of the official retirement age. The latter was matched to the respondents based on year of birth, country, and gender. The influences of the described individual and country level explanatory variables on the preferred retirement age were tested using multilevel regressions which in addition to including two levels of variables also allow testing for cross-level interaction effects.

The last step of the analysis was the implementation of a Heckman Test correction to control for potential biases in the sample composition (Heckman, 1979). The ratio behind this is that only respondents that are employed can state a preferred retirement age, while those who are already retired do not. It is, however, plausible to assume that those who are still employed at older age differ systematically from those already in retirement. They are better educated, have a higher employability and are more often male (Hofäcker et al., 2015). This systematic selection into employment and, hence,

⁹ The analyses were replicate with a data set in which the data from the EB were weighted towards that of the ESS on the variables gender, age, and education. The results remained stable. In addition, one regression was calculated including a variable on the subjective health status (Table 3A) indicating that the results also remained stable. This regression was not included in the main results section, because the merging of the health variables from the EB and ESS is not reliable. The wording and the answer categorizes were different, thus, the regression with health was included only as robustness check.

the possibility to state a preferred retirement age might contort the results of the analysis. A Heckman Test allows controlling for such a potential bias.

Results – The Rise of the Preferred Retirement Age

Figure 1 shows that the preferred retirement age rose for men and women from 2003 to 2010 in all twelve countries with an average increase of 1.52 years (Table 3). This suggests that older workers are indeed adapting their retirement preferences to the changing institutional and workplace context such as the pension and labor market reforms, the EU's new paradigm of active ageing, and due to a lack of skilled workforce employers increasing need to sustain and even hire older workers. This result is in line with different country studies that also find an increase of the preferred retirement age after pension reforms in Germany, the Netherlands and Sweden (Örestig, Strandh, & Stattin, 2013; Coppola & Wilke, 2010; de Grip et al., 2013). Although a rise is found in all 12 countries, it varies strongly (Figure 1). Interestingly, the variations seem to follow the classical welfare state typology. In liberal welfare states we find the strongest increase, while it is comparably small in the southern and social democratic welfare states. The continental countries lie in the middle. Germany with the lowest and Greece with the second highest increase are the exceptions in this pattern. The strong increase in Greece as well as in Ireland and Great Britain might be caused by the financial and economic crises in 2008, which forced the countries to execute rigorous budgetary cuts, which might affect the preferred retirement age. In contrast to this explanation Spain and Portugal, countries also severely hit by the crises, show a comparably small increase. When contrasting the preferred to the actual retirement age (Table 2), one sees that, first, in most cases the actual retirement age is higher than the preferred, and, second, that the actual and the preferred retirement age did increase more or less to the same extend with the exceptions of the United Kingdom, Ireland, and Greece, supporting the idea of the financial and economic crises having an effect. To conclude, the results show a clear rise of the preferred retirement age in all countries, but the size of the increase does vary between the 12 countries seemingly following no explicit pattern.

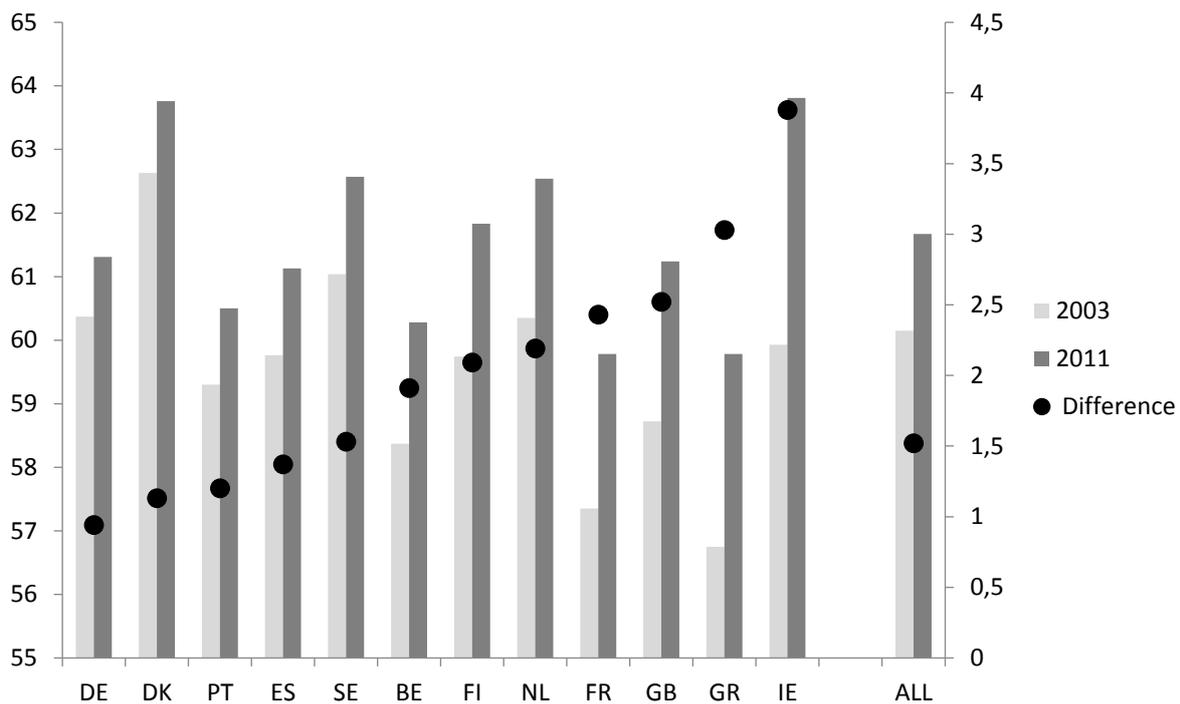
Figure 1: Preferred Retirement Ages (Years) in Europe

Figure 1 shows the average preferred retirement age (scale on the left) in 2003 and 2010 in years. The black dot indicates the differences between the two (scale on the right). Both scales have years as unit.

Table 2: Actual Effective Retirement Age

	DE	DK	PT	ES	SE	BE	FI	NL	FR	GB	GR	IE
2003	61.6	62.2	62.1	61.5	63.1	58.7	60.4	60.5	60	63	62.7	62.9
2010	62.4	62.3	63.2	62.3	64.4	59.2	61.7	61.5	60.2	63	61.5	64.2
Δ	0.8	0.1	1.1	0.8	1.3	0.5	1.3	1.0	0.2	0.0	-1.2	1.3

Source: Labor Force Survey

Table 3 shows how the preferred retirement age has changed for different subgroups in 2003 and 2010. In both years, men, the older group, those with higher education and income, and those not cohabiting prefer to retire at older ages compared to men, those with low education and low income, the younger age group, and those cohabiting. When comparing 2003 and 2010 the increase is slightly stronger for women than for men, for the older age group than for the younger, and for those with no partner than for those in a partnership. The strongest differences can be found for the educational groups. While those with low (ISCED 0-2) and average (ISCED 3-4) education increased their preferred retirement age by about 1.4 years the increase for the high educated (ISCED 5-6) is 1.81 years. The gender and educational differences in the increase of the preferred retirement age are relatively robust over the 12 countries,

indicating a stable pan-European development not limited to single countries (Table 1A). In all countries with the exception of the Netherlands and Ireland the increase is stronger for women than for men, but the gender difference is comparably small. It seems, however, as if the gender differences are larger in the countries that belong to the continental and southern welfare state typology. Here female labor market participation increased steeply in the last 20 years in contrast to the liberal and social-democratic welfare states where it had been higher before. This development is probably reflected in the “catching up” of women’s preferred retirement age in the continental and southern welfare states. The educational differences are remarkably similar across all 12 countries suggesting that they are independent of specific institutional contexts. Potential reasons for the educational variation in the increase of the preferred retirement age are discussed below.

Table 3: Sample Descriptive and Average of Preferred Retirement Age

Table 1					
	Shares in Sample (%)		Average of Preferred Retirement Age		
	2003	2010	2003	2010	Difference
Total (N)	3,140	4,702	60.15	61.67	1.52
Gender					
Men	49.59	52.28	60.59	62.02	1.43
Women	50.41	47.72	59.72	61.31	1.59
Cohabiting					
Yes	68.60	74.03	60.09	61.63	1.54
No	31.40	25.97	60.28	61.76	1.48
Age groups					
45-54	55.00	58.47	59.33	60.84	1.51
55-64	45.00	41.53	61.36	62.91	1.55
Education (ISECD)					
0--2	14.71	10.55	60.04	61.41	1.37
3--4	62.85	62.36	60.16	61.59	1.43
5--6	22.44	27.09	60.64	62.45	1.81

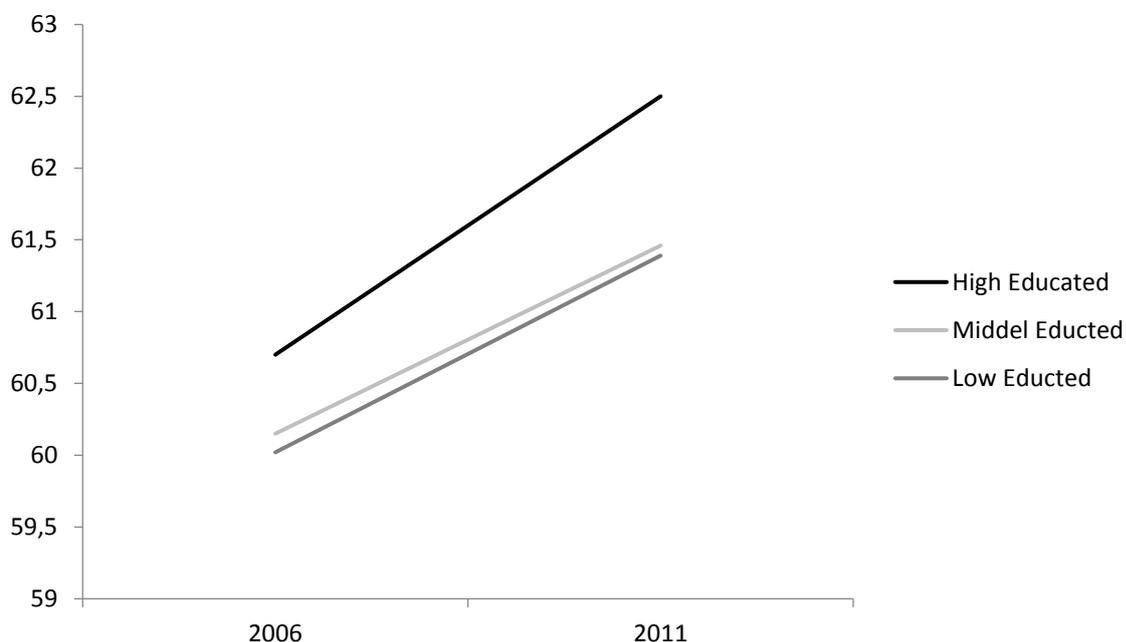
Table 4: Multi-level linear regression on the preferred retirement age

	Model 1		Model 2		Model 3	
Individual Level						
<i>Gender Ref: Man</i>						
Women	-0.75	(0.08)***	-0.77	(0.08)***	-0.70	(0.13)***
<i>Cohabiting Ref: No</i>						
Yes	-0.28	(0.08)*	-0.29	(0.08)*	-0.29	(0.08)*
<i>Age groups Ref: 45-54</i>						
55-64	1.73	(0.08)***	1.70	(0.07)***	1.91	(0.09)***
<i>Education (ISECD) Ref:</i>						
<i>Low</i>						
3--4	0.20	(0.11)	0.15	(0.10)	0.14	(0.12)
5--6	0.70	(0.11)***	0.63	(0.11)***	0.61	(0.16)***
Country Level						
Official Retirement Age	0.20	(0.04)*	0.20	(0.03)*	0.23	(0.04)*
<i>Year of Survey Ref: 2003</i>						
2010	1.45	(0.08)***	1.45	(0.16)***	1.40	(0.21)***
<i>Inc. Off Ret. Age Ref: No</i>						
Yes	-0.02	(0.03)	-0.02	(0.03)	-0.02	(0.04)
Cross Level Interaction						
<i>Year*Education</i>						
2010*Middle			0.24	(0.20)	0.19	(0.29)
2010*High			0.89	(0.23)**	0.94	(0.30)**
N	7,842		7,842		13,517	
Pseudo R ²	0.13		0.14		0.14	
ICC	0.07		0.07		0.07	
Levels of significance: *0.1; **0.05; ***0.01						

The results of the multivariate analysis are depicted in Table 4. The first model shows that women, the younger, those with low education, and those cohabiting want to retire earlier compared to the respective groups, which reflects earlier findings (Damman et al., 2015; Hofäcker, 2015). Two variables at the country level – the official retirement age and the year of the survey – are also significantly correlated with the preferred retirement age: The higher a country's official retirement age, the later its population wants to retire and those surveyed in 2010 show a higher preferred retirement age. Interestingly, those affected by a rise of the official retirement age show no stronger increase of the preferred retirement age than those not affected. To test whether the educational differences in the increase of the preferred retirement age remained stable when controlling for further variables, a cross level interaction effect between the year of data collection and education was included in the second model. It indicates that the increase of the preferred retirement age was significantly stronger for those with high education

compared to those with low education. Figure 2 shows the expected marginal values for the three educational groups in 2003 and 2010 controlled for the other explanatory variables, and illustratively depicts the educational differences. This finding is in line with the two country studies from the Netherlands (de Grip et al. 2013) and Germany (Coppola & Wilke, 2010) whose results also point to the fact that better educated individuals seem to react stronger to the reforms of the pensions system. Both authors explain this development with low educated workers' poor knowledge of the pension systems' regulations.

Figure 2: Expected marginal values for education and years of survey



Shown are expected marginal values for the three educational groups in 2003 and 2010 based on the multilevel regression from Table 4

The last model of Table 4 reports the results of the regression when using the Heckman Test, which, as described before, controls for potential biases in the sample composition. Although men, the younger and those with high income and better education have a higher probability of still being in employment at old age (Table 2A), the results of the regression analysis remain stable as can be seen when comparing models 2 and 3. One can summarize the multivariate results by saying, that the preferred retirement age rose between 2003 and 2010 and that this increase was the strongest for the high educated group, independent of biases in the composition of the older workforce.

Discussion

In this study I investigate whether Europeans have adjusted their preferred retirement age to the policy shift from early to late retirement. According to my assumption, the results show an increase of the preferred retirement age in all 12 countries included in the ESS and EB, suggesting that the adjustment of the retirement preference to the changing institutional and workplace context is a pan-European development. This outcome complements previous studies with the focus on single countries. Although the analysis found an increase of the preferred retirement age in all 12 countries, the size of the increase does vary between the countries.

However, one could speculate whether this variation – in particular in Ireland, the United Kingdom and Greece – might be partly explained by the financial and economic crisis which emerged in 2007 as well as by the Euro currency crisis in 2010. Ireland and the United Kingdom are both characterized by liberal pension systems in which a comparably high share of the retirement income is dependent on the developments of the stock market (Ebbinghaus, 2008). Hence, the financial crisis directly resulted in lower future retirement income and the future pensioners adapted by increasing the preferred retirement age. Greece was hit severely by the Euro currency crisis and policy makers had to implement fundamental welfare state retrenchment measures including cuts in the pension budget (Triandafyllidou, 2013). It is plausible that the strong rise of the preferred retirement age in Greece is driven by this retrenchment of the pension income. Concluding, the results show a consistent increase of the preferred retirement age between 1 and 2.5 years in all countries with the exceptions of Ireland and Greece where the older workers adjustment was much stronger and probably caused by the financial and economic crises. When comparing those older workers who will be affected by a rise of the official retirement age with those who will not, no significant difference in the increase of the preferred retirement age were found. The finding that the increase of the official retirement age is on its own no good predictor is in line with previous studies (Coppola and Wilke, 2010) and indicates that the increase of the preferred and also actual retirement age has multiple cause and cannot be allocated to one single reform.

The strength of the increase does not only vary between countries, but also between different groups of older workers within countries. The expected marginal values (Figure 2) that are based on the cross-level interaction effect show that high educated workers have increased their preferred retirement

age significantly more strongly than their peers with low education. De Grip et al. (2013) and Coppola and Wilke (2010) who both also observe a stronger increase for the high educated when analyzing Dutch respectively German older workers suggest that educational differences in the understanding of the pension systems might be an explanation for these differences. According to their view, high education correlates with a better understanding of the pension regulations in general, the impact of the reforms more specifically and how these might affect one's own future pension income and retirement age (Njuguna & Otsola, 2011). From this better "retirement literacy" it follows that high educated older workers are more likely to consider and incorporate the reforms and changing institutional context when reflecting upon their preferred retirement age than workers with lower education (Ekerdt, 2010). In addition, to more knowledge on the pension system, higher educated workers have also better means to adapt to the reforms and changes in Europe's pensions systems. They are employed in favorable working conditions and occupations that are not physically exhausting and health deteriorating (Radl, 2013). Furthermore, they benefit the most from employers' new attitude towards older workers and the novel age friendly human resource measures (Hofäcker & Nauman, 2014). Lastly, high education is correlated with high job identification (Radl, 2013) and, hence, high educated older workers who were pushed into retirement in former years can postpone their labor market exit and stay employed in jobs they like.

In addition, to giving a comprehensive overview on how Europeans have adapted their preferred retirement age to the pension system reforms and discussing the finding that education seems to moderate this adjustment process the study's third contribution is the application of the Heckman Test to control for potential sample composition biases. When researching the preferred retirement age one always has to acknowledge that information on the future retirement age is available only for those who have not yet retired. This study is to my knowledge the first to use a Heckman Test to control for such a potential sample bias (Heckman, 1979). The results show that although systematic gender, education and age difference between those working and those retired exist, these do not contort the correlation between the regression's explanatory variables and the preferred retirement age.

Although I did control for potential sample composition biases some limitation of the study have to be noted. As described above, financial and currency crises might severely bias the results by causing economic hardship and cutbacks in the welfare state; a problem previous research investigating trends

of retirement behavior from an international perspective have also encountered (Hofäcker et al., 2015). Related to this potential bias is the question what the main reasons for the increase of the preferred retirement age is. Although it is highly plausible that the pension and labor market reforms have a strong impact, changes on the labor demand side could be important as well. Future research on the development of retirement preference should extend the observational period and include more countries in the analysis to be less prone to biases from single events like economic crises. In addition, to the longer observational period and a larger number of countries future studies could investigate the educational difference in the increase of the preferred retirement age in more detail and clearly identify the mechanisms behind it.

Policy Implications

Population aging is threatening the financial sustainability of the welfare state in general and the pension systems in particular. Policy makers in reaction reformed the pension systems and labor markets with the aim of delaying retirement and extending working lives. However, the longer-term effectiveness of these reforms depends on today's workers willingness to work longer. In this study I show that, indeed, all over Europe older workers have increased their preferred retirement age. This could be interpreted as an adjustment process to companies' new demand for skilled and qualified older workers as well as changing pension and labor market regulations. Workers seem to have accepted that they will retire later than their predecessor and adapted their preferred retirement age to the new institutional and workplace context. This encouraging finding is dulled by the educational differences in the increase of the preferred retirement age. On the one hand we observe a group of high educated and qualified workers having the means and the wish to work longer than earlier cohorts due to a high identification with their work. Since education is closely correlated with skill and qualification these are exactly those older workers, employers facing a lack of skilled labor force are increasingly relying on. This can be interpreted as a positive finding. On the other hand, low educated workers in vulnerable labor market positions did not increase their preferred retirement age as strongly as their better educated peers and still will have to postpone their retirement to ensure a sufficient pension and avoid poverty in old age. The conclusion supports recent concern that not all older workers might profit from the new

credo of late retirement equally and substantiates warnings of rising social inequality in the transition from work to retirement (Hess, 2016; Hofäcker et al., 2015; Hofäcker & Naumann, 2014; Buchholz et al., 2013; Hochfellner & Burkert, 2013; Dietz & Walwei, 2011). Policy makers must recognize the heterogeneity amongst older workers and account for it when implementing further reforms. In cooperation with employers and trade unions they should strive to improve the working conditions and employability of low educated older workers in general and their “retirement literacy” in particular.

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Appendix

Table 1A: Expected Desired Ages in Europe

	DE	DK	PT	ES	SE	BE	FI	NL	FR	GB	GR	IE
Total												
2003	60.37	62.63	59.33	59.76	61.04	58.37	59.74	60.35	57.35	58.72	56.75	59.93
2010	61.31	63.76	60.51	61.13	62.57	60.28	61.83	62.54	59.78	61.24	59.78	63.81
Δ	0.94	1.13	1.18	1.37	1.53	1.91	2.09	2.19	2.43	2.52	3.03	3.88
Men												
2003	60.89	62.98	59.64	59.96	61.21	58.73	59.93	60.85	57.61	59.01	57.05	61.50
2010	61.75	64.01	60.61	61.21	62.46	60.55	61.95	63.08	59.85	61.47	60.00	65.49
Δ	0.86	1.02	0.97	1.25	1.25	1.82	2.02	2.23	2.24	2.46	2.95	3.99
Women												
2003	59.76	62.32	58.91	59.00	60.95	55.85	59.31	59.41	56.92	58.03	55.40	58.98
2010	60.87	63.51	60.16	60.85	62.72	57.82	61.48	61.35	59.5	60.7	58.47	62.73
Δ	1.11	1.19	1.25	1.85	1.77	1.97	2.17	1.94	2.58	2.67	3.07	3.75
Low Education												
2003	59.51	61.71	58.47	59.01	60.93	58.01	59.6	60.01	56.95	58.07	56.03	59.02
2010	60.22	62.67	59.19	60.24	62.34	59.79	61.63	62.04	58.99	60.33	58.57	62.68
Δ	0.71	0.96	0.72	1.23	1.41	1.78	2.03	2.03	2.04	2.26	2.54	3.66
Medium Education												
2003	59.97	61.87	60.29	59.8	61.06	58.4	59.71	60.38	57.21	58.73	57.02	60.08
2010	60.75	63.01	61.09	61.02	62.53	60.21	61.83	62.51	59.63	61.21	59.61	63.75
Δ	0.78	1.14	0.8	1.22	1.47	1.81	2.12	2.13	2.42	2.48	2.59	3.67
High Education												
2003	61.13	63.21	60.51	60.45	61.35	58.89	60.05	60.69	58.02	59.41	58.81	61.85
2010	62.45	64.46	61.99	61.99	62.97	61.01	62.21	63.02	60.78	62.16	62.15	66.02
Δ	1.32	1.25	1.48	1.54	1.62	2.12	2.16	2.33	2.76	2.75	3.34	4.17

Table 2A: Multi-level linear regression on the preferred retirement age with Heckman Test and detailed information

Regression coefficients		
Individual Level		
<i>Gender Ref: Man</i>		
Women	-0.70	(0.13)***
<i>Cohabiting Ref: No</i>		
Yes	-0.29	(0.08)*
<i>Age groups Ref: 45-54</i>		
55-64	1.91	(0.09)***
<i>Education (ISECD) Ref: Low</i>		
3--4	0.14	(0.12)*
5--6	0.61	(0.16)***
Country Level		
Official Retirement Age	0.23	(0.04)*
<i>Year of Survey</i>		
2010	1.40	(0.21)***
Cross Level Interaction		
<i>Year*Education</i>		
2010*Middle	0.19	(0.29)
2010*High	0.94	(0.30)**
<hr/>		
N	13.517	
Pseudo R ²	0.14	
ICC	0.07	
<hr/>		
Selection coefficients		
<i>Gender Ref: Man</i>		
Women	-0.21	(0.11)***
<i>Age groups Ref: 45-54</i>		
55-64	-0.45	(0.25)***
<i>Education (ISECD) Ref: Low</i>		
3--4	0.13	(0.16)*
5--6	0.26	(0.13)***
<hr/>		
Rho	0.31	
Sigma	0.46	
<hr/>		
Levels of significance: 0.1; 0.05; 0.01		
<hr/>		

Table 3A: Multi-level linear regression on the preferred retirement age including health as control variable

	Model 1	Model 2
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STUDY I

Individual Level			
<i>Gender Ref: Man</i>			
Women	-0.80	(0.10)***	-0.79 (0.07)***
<i>Cohabiting Ref: No</i>			
Yes	-0.21	(0.09)*	-0.22 (0.10)*
<i>Age groups Ref: 45-54</i>			
55-64	1.65	(0.08)***	1.67 (0.07)***
<i>Education (ISECD) Ref: Low</i>			
3--4	0.10	(0.11)	0.12 (0.10)
5--6	0.72	(0.11)***	0.69 (0.12)***
<i>Health Ref: Satisfied</i>			
Unsatisfied	-0.57	(0.13)**	-0.61 (0.16)**
Country Level			
Official Retirement Age			
	0.20	(0.04)*	0.20 (0.03)*
<i>Year of Survey Ref:2003</i>			
2010	1.45	(0.08)***	1.45 (0.16)***
Cross Level Interaction			
<i>Year*Education</i>			
2010*Middle			0.24 (0.20)
2010*High			0.89 (0.23)**
N	7.842		7.842
Pseudo R ²	0.13		0.14
ICC	0.07		0.07
Levels of significance:*0.1;**0.05;***0.01			

Study II: Germany: A Successful Reversal of Early Retirement?

Hess, M. (2016): Germany: A Successful Reversal of Early Retirement? In: Hofäcker, D; Hess, M. & König, S. (Eds): *Delaying Retirement: Progress and Challenges of Active Ageing in Europe, the United States and Japan*. Palgrave Macmillan. (Accepted for Publication)

Germany: A Successful Reversal of Early Retirement?

1. Introduction

Nowadays, demographic aging is placing European pension systems under considerable pressure. Due to the increasing ratio of pension recipients to contributors, financing the existing pay-as-you-go pension system is becoming ever more critical. Among Southern and Continental European countries, Germany is facing a particularly pronounced need to increase the labor force participation rate of its older workforce: From a demographic perspective, Germany is one of the ‘oldest’ countries in Europe, with a shrinking total population and a growing share of people older than 65 – as outlined in the second chapter of this book. Between 1990 and 2009, this share increased from 13 to 21 per cent and it is expected to rise to 29 per cent by 2030 (Statistisches Bundesamt, 2009). Together with an explicit policy of early retirement starting in the late 1970s, this has led to a gradual rise in the recipient-to-contributor ratio of the German public pension system (Wilke and Börsch-Supan, 2009). It was only in the late 1990s that German policymakers started to become increasingly aware of these developments and launched several reforms aimed at raising the average retirement age and the labor force participation rate of older employees (Bäcker et al., 2009). In the frame of far-reaching labor market reforms introduced by the 1998 coalition of Social Democrats and Greens with the intention of making Germany’s economy more competitive, the government adopted state subsidized, public early retirement programs and raised the legal retirement age from 65 to 67 (Micheel et al., 2010). In addition, companies were given subsidies for hiring older unemployed workers; and various training programs, partly financed by the state, were introduced for older workers. These reforms led to a steep rise in the employment rate among workers aged 55–64 from 40 to 60 per cent between 2000 and 2010 along with a shift in retirement entry from an average of 60.3 to 62.1 years. The increase in the average retirement age and the employment rate prove, beyond doubt, that these political reforms have substantially changed the opportunities and constraints under which older individuals, when reaching certain age limits, make their decisions regarding the transition from employment to retirement. Yet, it is not just the institutional framework that affects an individual’s decision on when to retire. Apart from institutional conditions, individual characteristics such as gender (Radl, 2012) and education (Hofäcker et al., 2015; Leinonen et al., 2012) along with workplace conditions such as company size (Brussig, 2009) or the availability of specific human resource measures for older employees (Rau and Adams, 2012) determine the age of retirement. For Germany, two examples of individual characteristics are the individual’s gender and the

company sector: Because the German welfare state is still based on the idea of the male breadwinner, women generally retire earlier and have a lower employment rate (Fasang et al., 2013). Apart from that, the production sector suffered severely from global competition and therefore pushed older blue-collar workers into early retirement (Rinklake and Buchholz, 2012).

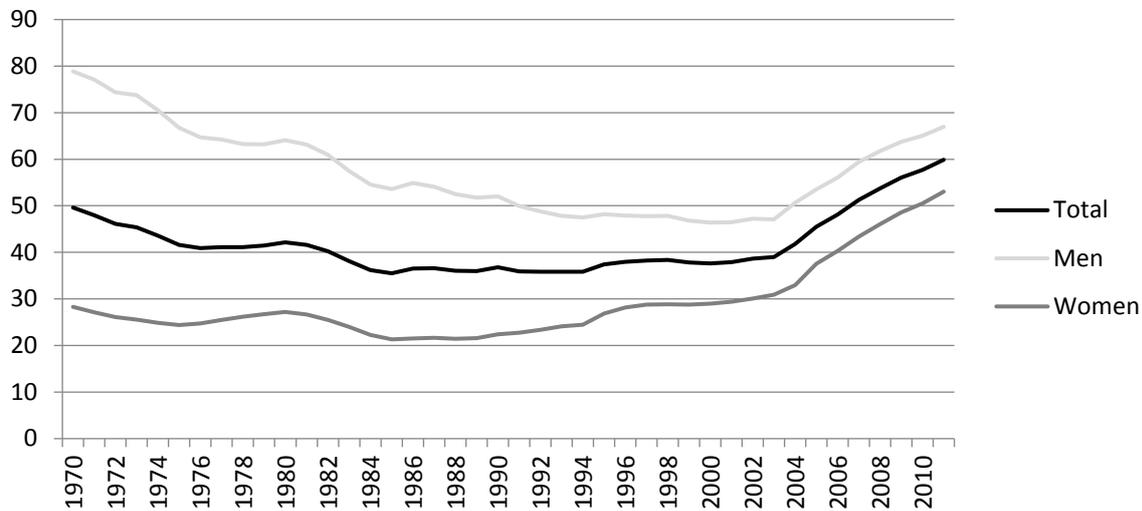
To summarize the conditions affecting employment and retirement decisions concisely and to outline their development over time, this chapter presents a review of the literature on how retirement decisions of women and men in Germany are influenced at the *macrolevel* by welfare state settings; at the *mesolevel*, by workplace conditions; and at the *microlevel*, by individual characteristics, while emphasizing possible interaction effects between these three levels of retirement determinants. Hence, this chapter is structured as follows: First, we briefly outline the main developments in the employment behavior of older workers in Germany over the last three decades. Then we turn to the various determinants affecting retirement decisions. In the third section, we provide an overview of the major trends in the German welfare state and particularly in pension policies; and we follow this in the fourth and fifth sections by discussing the effect of individual characteristics and workplace conditions on retirement decisions. We conclude by summarizing the main aspects of this country study and once more embed the determinants of early retirement within the theoretical framework.

2. Trends in the Employment Rate of Older Workers in Germany

Throughout the last 40 years, the employment rate of German older workers has been characterized by large fluctuations. Running at 70 per cent in 1970, international competition in the 1970s and 1980s, especially in the production sector, put pressure on German companies that were largely concentrated in the extractive and transformative sectors (Rinklake and Buchholz, 2012). Frequent reactions were personnel cutbacks, with different effects for workers depending on their age: Younger employees were offered less secure jobs and faced comparatively higher job insecurity than the previous generation of workers. In contrast, older workers benefited from the high level of job protection of the German labor market policy and, hence, could not be dismissed into unemployment, although being considered very costly due to the seniority wage principle (Buchholz et al., 2009). To solve this conflict, policymakers, employer associations, and trade unions jointly agreed to implement early retirement measures (Rinklake and Buchholz, 2012) that were adopted particularly by blue-collar workers. The massive utilization of these measures is reflected in a sharp and continuous decline in the labor

market employment rate of older workers in the 1970s, reaching its lowest level of just below 40 per cent in the early 1990s (Figure 7.1).

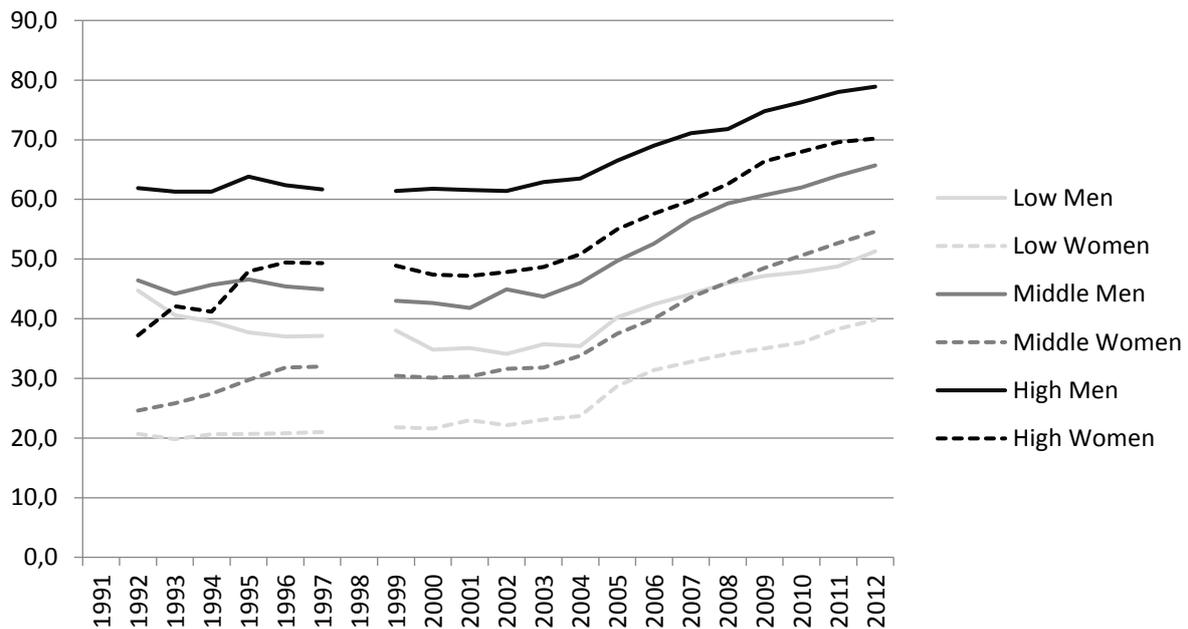
Figure 7.1 Employment rates of female and male workers aged 55–64



Source: OECD. Until 1990, data only for former West Germany. Downloaded on April 25, 2013 from http://stats.oecd.org/BrandedView.aspx?oecd_bv_id=lfs-data-enanddoi=data-00309-en#

However, the turn of the century marked the beginning of a reversal trend in employment rates. These have grown steadily since 2003, owing to labor market and pension system reforms such as raising the statutory retirement age and closing off early retirement pathways. By the year 2011 already, slightly more than one-half of all workers age 55–64 were in employment. A second indicator of this reversal trend was the increase in the effective retirement age: On average, men retired two and women three years later in 2012 than in 1996 (OECD, 2013).

Yet, Figure 7.2 shows that the employment rate of older workers and also its most recent development vary depending on gender and education. From an absolute perspective, the percentage of men and highly educated employees who are still working in their late 50s and 60s is higher than that in the respective group of women and people with lower education. Gender differences in older workers' employment can be related to the particularities of the German welfare state that long used to favor a male breadwinner model and, to some extent, still does so today (Fasang et al., 2013). Furthermore, higher education often implies better employability and, hence, less unemployment; or, in the case of older workers, a lower probability of involuntary retirement (Leve et al., 2009). Nevertheless, some differences between men and women can be found in the development of the employment rate: The rise was slightly stronger for women than for men. This has resulted in a closing of the gender gap in the employment rate, as can be seen in the figures.

Figure 7.2 Employment rate of older workers aged 55–64 by education and gender

Note: Education was coded according to the International Standard Classification of Education (Low = 0–2, Middle = 3–4, and High = 5–6)

Source: EuroStat. Data for the different education levels not available for the year 1998. Downloaded from http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/data/database

3. Institutional Determinants of Retirement Decisions in Germany

The trends in the employment of the group of older workers presented above reflect the aggregation of individual employment behavior. From a rational choice perspective, this behavior may be traced back to older workers' employment versus retirement decisions under the given opportunities and constraints. One major contextual factor affecting employment behavior is the institutional or welfare state setting in which retirement decisions are made. Earlier research has found three different types of institutional determinants influencing individual retirement decisions (Ebbinghaus, 2006; Ebbinghaus and Hofäcker, 2014). As described in the first chapter of this book, these are referred to as *push*, *pull*, and *stay factors*. In our analytical framework, we further distinguish the stay factor into *need* and *maintain factors*. The following description of the institutional determinants of retirement decisions is broadly structured according to this scheme of four different institutional determinants, while, at the same time, giving a brief chronological overview of their development in Germany.

When analyzing retirement determinants, one must always keep in mind that they are embedded in a more general welfare state setting. According to standard welfare state classifications, Germany belongs to the so-called 'conservative-corporatistic' welfare state

regimes characterized by high labor market rigidity, strong boundaries between different occupation levels, as well as a high standardization and stratification of the labor market (Blossfeld et al., 2006). Job protection is comparatively high and rises continuously with employment experience and job tenure.

Although policymakers have emphasized the need for private pension insurance such as the *Riesterrente* and private pension funds (Ebbinghaus et al., 2011), the main source of income for the retired is still the public pension (Ebbinghaus, 2006) that is based on contributions from previous employment and not on taxes. Until 2012, the statutory retirement age was fixed at 65 and the average pension replacement rate amounted to about 70 per cent of the last net wage, a ratio that can be considered rather generous in comparison to other continental European public pension systems.

Globalization as Push Factor

Over the last decades, older workers were particularly affected by major economic and technological transformations of the German labor market. The structural change described in the preceding section and the growing international competition in the 1970s led to a strong shift in the working force as a whole from production to the service sector (Schils, 2008) and a particularly strong decline in the demand for traditional blue-collar workers. Due to the lack of a tradition of life-long learning and the predominance of strict occupational boundaries, the requalification of such older blue-collar workers was not a realistic option (Rinklake and Buchholz, 2012). Furthermore, employers showed little interest in training older workers considering the short time they would remain in employment. On the contrary, employers wanted to shed their workforce in order to cut costs, and preferred to send their workers into long-term unemployment or retirement. As a result, particularly the low educated and low skilled blue-collar workers were ‘pushed out’ of employment (Flynn et al., 2013).

Early Retirement Paths as Pull Factors

As the ‘crowding out’ of older employees through dismissal proved difficult due to high legal protection as well as being very unpopular politically, a policy of early retirement had been fostered since the 1980s driven equally by policymakers, employers, and unions. The corporatist character of the German welfare state further enhanced this cooperation. Financial incentives to induce early retirement were introduced and used particularly by lower qualified workers, who were thus disproportionately ‘pulled’ out of employment into retirement.

To facilitate this transition, different routes to early retirement were established that enabled women and employees suffering from chronic illnesses or disability to retire at the age of 60 after having contributed to the public pension system for a sufficient time. Apart from that, men and women had the option of retiring at the age of 63 after 35 years of contributions (Knuth and Kalina, 2002). Furthermore, the *Altersteilzeit* (literally translated ‘old age part-time’) scheme was established. Supported by a public subsidy, it allowed older workers to effectively retire with only moderate pension cuts before reaching the mandatory retirement age of 65 (Duell and Vogler-Ludwig, 2012). There were two models of *Altersteilzeit*: the first was the so-called *Gleichverteilungsmodell* (literally: equal share model) that made it possible for older workers to reduce their working hours and work in part-time employment for the whole period until retirement age. The second was the so-called *Blockmodell* (block model) in which older workers worked full-time in the first half of the *Altersteilzeit* and effectively withdrew from employment only in the second half while receiving part-time-equivalent wages and benefits throughout the entire period. Among German employees, the *Blockmodell* was clearly more popular with 80 per cent of older workers in *Altersteilzeit* using it as their model of choice (Wanger, 2010). This clearly demonstrates that, in Germany, the *Altersteilzeit* scheme was used as a tool for early retirement, unlike in Scandinavian countries where companies made use of part-time programs mainly to retain older workers and their experience (Delsen, 1996).

Labor market exit through *unemployment insurance* constituted a third major pillar of the early retirement policy in Germany. This was used as a ‘bridge’ from employment to retirement. Older workers at age 57 could draw benefits from unemployment insurance for three years without being obliged to participate in the necessary activation measure and means test of unemployment insurance, and they were allowed subsequently to retire via the regular ‘early exit’ scheme (Rinklake and Buchholz, 2012). The policy of early retirement reached its peak shortly after German reunification in 1990 with the introduction of the *Altersübergangsgeld* (old age transition scheme) that made it possible for employees in East Germany to already retire at 55 in the case of unemployment (Bönke et al., 2009). As illustrated in Figure 7.1, this led to a sharp decline in the employment rate of workers age 55 and older.

German Active Aging Policy as Need and Maintain Factors

In the mid-1990s, triggered by, amongst others, a rising awareness of demographic aging and related workforce shortages, policymakers began to acknowledge the financial burden imposed on the German pension system by the early retirement policy, because fewer and fewer pension contributors were facing more and more benefit recipients (Dietz and Walwei, 2011).

Consequently, a slow but steady shift from an early retirement to an active aging policy took place (Brussig, 2009) with the aim of raising the retirement age and labor force participation among older German workers. This increasing share of older workers should help to ‘relieve’ the pension system from financial pressure while simultaneously countering the shortage of labor and employees with work experience in companies.

Need Factors: Making Early Retirement More Expensive

In recent years, several reform packages were approved and implemented. The most prominent was clearly the raising of the statutory retirement age from 65 to 67 (Sporket, 2010). This reform is designed as a stepwise process to be implemented between 2012 and 2029. From 2012 to 2025, the increase in the retirement age will amount to one month per year; and from 2025 till 2029, to two months per year. Employees born in 1964 will then be the first cohort with an actual statutory retirement age of 67 years. Given the actuarial character of the German pension system, the rise of the official retirement age made working longer financially attractive for older workers.

Less visible in the public and the media, but probably even more significant than the raising of the statutory retirement age, was the closing of existing early retirement routes. In this context, the subsidies for the *Altersteilzeit* and *Altersübergangsgeld* schemes were discontinued and the option of early retirement after 35 years of contribution was abolished¹⁰. Furthermore, older workers were affected by the radical *Hartz* labor market reforms in 2005 that aimed to activate the unemployed by combining unemployment benefits for long-term unemployed (*Arbeitslosenhilfe*) with welfare benefits (*Sozialhilfe*) and restricting the eligibility for full unemployment benefits for younger workers from two years to 12 months. For older workers, the entitlement period of the relatively generous unemployment benefits was cut from around 36 to 18 months¹¹, making it increasingly unattractive for older employees to use unemployment insurance as a ‘bridge’ from employment to retirement (Giesecke and Kind, 2013).

¹⁰ One very topical development in Germany is the reestablishment of the early retirement option via the public pension system after a set number of contributing years. The *Rente mit 63* (‘retirement at 63’) allows workers to retire 2 years before the official retirement age of their birth cohort if they have contributed to the public pension system for 45 years.

¹¹ The exact duration depends on the beneficiary’s age: 15 months for older workers aged 50 or older, 18 months for those 55 or older, and 24 months for those 58 or older.

Maintain Factors: Increasing Older Workers' Employability

Although Germany's efforts to increase the retirement age and to promote higher labor force participation rates among older workers should not be underestimated, it is obvious that, up to now, reforms have focused largely on labor market and pension policies. Although being essential for the employability of older workers, education and life-long learning do not play a major role for German policymakers. This still leaves considerable room to further improve the employability of older workers and, thus, to raise their employment rate. Especially in smaller companies and trades, older workers rarely participate in any kind of training measures (Goebel and Zwick, 2010). Furthermore, when looking at the participation rate of older employees in training measures, initial education is found to constitute a decisive factor: Almost 70 per cent of older workers with tertiary education participated in some kind of further training, whereas the respective rate for workers without a formal education ranges below ten per cent (Schmidt, 2009). This situation was improved slightly by the introduction of targeted state subsidies such as the pilot project *Weiterbildung Geringqualifizierter und beschäftigter ältere Arbeitnehmer im Unternehmen (WeGebAU)* that funds training costs for older low-skilled workers (Duell and Vogler-Ludwig, 2012). In 2009, a total of 102,000 older workers used this program (Lott and Spitznagel, 2010). Singer and Toomet (2013) found that participating in training financed by the WeGebAU improved older workers' job stability and survival in employment.

In addition to financially supporting training measures for older workers, the state also gives subsidies to employers for hiring older workers, for example, in the form of *Eingliederungszuschüsse* (integration subsidies) and *Entgeltsicherung* (integration vouchers) (Dietz and Walwei, 2011). The *Eingliederungszuschuss* is a subsidy that compensates companies for the potentially lower productivity of newly employed older workers (Stephan, 2009). The *Entgeltsicherung* is a subsidy that partly compensates wage losses for older unemployed when reentering the labor market in an occupation with a lower wage than the one they had before unemployment (Dietz et al., 2011). Brussig et al. (2006) claim that the *Entgeltsicherung* has not been very effective so far, due to the fact that it is not well known among potential beneficiaries and that the application process is relatively complicated. In fact, the figures show that, in 2010, the subsidy was used by only 18,000 older workers (Dietz et al., 2011).

In summary, in reaction to structural changes, Germany introduced a policy of early retirement in the 1970s that led to sharp declines in the retirement age and employment rate among older workers. In the 1990s, however, the increasing financial burden on the public pension insurance

led to a change toward a policy of active aging. In the course of this, several reforms were implemented including the raising of the statutory retirement age to 67 and the closing of early retirement routes as well as the payment of subsidies to encourage employees to hire older workers. Yet, comparably few improvements were made in the field of education and life-long learning. Nevertheless, the increasing labor market participation rate of older workers indicates an overall positive impact of the last pension system reforms.

However, apart from institutional and welfare state settings, the retirement age is also determined strongly by individual characteristics that we shall discuss in the following section.

4. Individual Characteristics as Determinants of Retirement Decisions

As earlier research on this topic has demonstrated, retirement decisions may be influenced by several individual level characteristics such as health, education, financial security, and personal relationship status.

From an economic perspective, *income* during employment is an important determinant for retirement decisions. Based on an analysis with data from the German Pension Fund in 2004, Radl (2007) finds a U-shaped connection between economic welfare, measured by the last wage before retirement, and the age of retirement for men. Accordingly, German men with either comparatively high or comparatively low economic welfare seem to retire later than those with an average income. He argues that individuals with a low income are often forced to work longer because they cannot financially afford to retire early. Moreover, individuals with a high income also avoid early retirement because they often occupy positions that are connected with a high reputation and work satisfaction that they do not want to lose. This accounts for their strong job attachment.

There is a similar relationship between *education* and early retirement, insofar as occupations with a high reputation and work satisfaction are often held by employees with a high level of education and qualification who are therefore more reluctant to retire early than lower skilled individuals. In addition, higher education also implies a better level of employability and, hence, a lower risk of involuntary (early) retirement (Blossfeld et al., 2006). Empirically, this positive connection between education and age of retirement in Germany has been found in several studies (Buchholz, 2006; Himmelreicher et al., 2009). Yet, a current development shows that lower educated workers also tend to retire later than workers with an average education. This can be explained by the closing of early retirement routes that were frequently used by low

educated blue-collar workers. Recent pension reforms have increased the need to work longer in order to ensure a sufficient pension particularly for this group, given that they generally earn and contribute less (Hochfellner and Burkert, 2013; Hofäcker and Naumann, 2014).

Health is another important individual characteristic affecting the retirement age. Empirical findings show that poor health (De Preter et al., 2012) and disabilities (Neuner et al., 2012) promote an early withdrawal from the labor force. For German men, occupational or general disability and chronic health impairments are the strongest predictors of early retirement (Siddiqui, 1997). Nonetheless, it has to be kept in mind that good health is only a necessary but not a sufficient condition for a later retirement (Ekerdt, 2009). Older workers might want to retire as early as possible independent of their health status, whereas they will work longer only when they are in good health. Not only may the health of the retiring persons themselves matter for retirement timing, but also the health of relatives and close friends. *Caring for older relatives* is a common reason for early retirement (Schneider et al., 2001) and has become more and more important throughout the last 20 years due to demographic aging and a growing share of the ‘oldest old’ facing high risks of dependency. Because the excessive burden of taking care of relatives while working at the same time impacts negatively on an individual’s physical and mental health, it is a common reason for early retirement. Furthermore, in the conservative German welfare state, up to 70 per cent of older people in need of care live at home and are nursed mainly by their relatives who receive financial support from the public long-term care insurance. Accordingly, the problem of balancing nursing and work affects comparably more persons in Germany than in countries such as Sweden with highly institutionalized nursing systems (Lyon and Glucksmann, 2008). Most of this informal nursing is done by daughters and daughters in law (Heinicke and Thomsen, 2010), who, in turn, are also mainly affected by early retirement due to nursing reasons. Based on a sample of 1,800 employed German women aged between 43 and 60, Leve et al. (2009) show that they spend an average of 20 hours a week nursing on top of their jobs.

Apart from income, education, and health, the coordination of retirement between *spouses* is an important factor for its timing, because spouses often try to synchronize their exits from employment. Given that women are, on average, younger than men when entering into marriage, they also tend to be younger when retiring. Differences in couples’ retirement behavior are also found depending on the spouses’ employment status, with full-time employment of both spouses fostering late retirement (Schneider et al., 2001). Not only the spouses themselves but also other family members matter for retirement timing. Apart from

caring for a dependent parent or another older relative, as explained above, children and grandchildren also affect the retirement age of older workers. They might want to spend more time with their grandchildren and, as a consequence, exit the labor market earlier. However, this decision is often not only one of leisure but is also determined by the parents' need of support in rearing their children. This effect is again reinforced by the conservative German welfare state: Although some improvements have been made in recent years, the coverage of kindergartens, day care centers, and all-day schools is still comparably low. Therefore, combining work and raising children still represents a challenging task (Hochman and Lewin-Epstein, 2013). As a result, the grandparents – in most cases, the grandmothers (Mahne and Motel-Klingebiel, 2010) – frequently step in and support their children by taking care of their grandchildren. To be able to offer such support, older employees with grandchildren often retire earlier than those without grandchildren (Hochman and Lewin-Epstein, 2013).

The discussion above already suggests that the determinants of retirement may differ according to *gender*. Within the German male breadwinner model, which has played a considerable role in previous retirement cohorts, female careers are often characterized by discontinuity and instability. These gender differences in retirement behavior are particularly prominent in Germany with its 'conservative-corporatistic' welfare state. The option of equally splitting income between spouses before taxation (the so-called *Ehegattensplitting*) and the low coverage of primary child care facilities provide incentives for married women and mothers to temporarily interrupt their working careers. In combination with a strict insider–outsider labor market, this often leads to fragmented employment histories (Fasang et al., 2013), lower individual pension claims, and a dependency on the husband's retirement income. Therefore, the coordination of the spouses' retirement age often involves the woman synchronizing her retirement with that of her husband.

Another important individual determinant of the retirement age is an employee's personal desires, wishes, and preferences about the optimal retirement age. Considering the context created by welfare state settings, workplace characteristics, and social networks, individuals will try to move their actual retirement age as close as possible toward their *preferred retirement age* (Raymo and Sweeney, 2005). Literature on retirement desires is comparatively scarce, particularly in Germany. A study by Micheel et al. (2010) shows that older employees working in small companies and in positions with a higher occupational status plan to retire late. A high income, however, is correlated with the desire to leave the labor market at an earlier stage. Not only the actual retirement behavior, but also the preferred retirement age seems to be affected

by the institutional changes in the German pension system. In fact, since 2002, the preferred retirement age has increased by two years (Coppola and Wilke, 2010).

A final characteristic influencing the age of retirement on the individual level is *employment status*. In Germany, self-employed persons tend to retire late, because the statutory retirement age of 67 is not applicable for them. They are not eligible for public pensions and hence have no access to any early retirement option. Their privately organized pensions often force them to contribute longer and therefore to postpone retiring (Schils, 2008). Added to that, due to occupational selection, the self-employed often have a high job motivation and attachment (Gorgievskia et al., 2010) and therefore prefer extending their working life (Schils, 2008). Employment status as an individual determinant links up closely with the next section that describes different workplace characteristics as determinants for retirement.

5. Workplace Characteristics as Determinants of Retirement Decisions

Besides welfare state settings and individual factors, conditions and contexts at the workplace also influence retirement decisions. These include the type of industry, the direct environment of the workplace such as ergonomic seating, as well as the ‘scope’ of work such as whether it is part- or full-time.

Earlier research found that both *industry* and *firm size* matter for retirement decisions. As mentioned above, early retirement was used most intensively in the German manufacturing sector, in which older low-skilled workers were frequently ‘forced’ into early retirement to facilitate downsizing or company restructuring. In contrast, high-skilled workers in the service sector, which was not affected as negatively by globalization, were and still are less likely to retire involuntarily (Buchholz, 2006). Early retirement has also been shown to be particularly widespread within large companies. One reason for this could be age discrimination that is found especially in larger businesses (Micheel et al., 2010). In addition, most large companies in Germany are located in the production sector that has suffered heavily from increasing international competition. This led to a common company policy of labor force shedding through either dismissing older workers or offering them financially attractive compensation in exchange for their early employment withdrawal (Bäcker et al., 2009).

Not only the kind of industry, but also the workplace’s *regional infrastructure* is an important factor, as some German regions suffer more from demographic aging than others. Of particular interest in this respect is the east of Germany, where the transition from the policy of early

retirement to active aging took part at an extremely accelerated speed. After German reunification, the hardly efficient, state-run East German companies were faced with particular labor market pressures, often resulting in mass early retirement. As mentioned in section three of this chapter, the program of *Altersübergangsgeld* allowed older employees who were facing unemployment to retire as early as age 50 (Bönke et al., 2009). Together with the migration of high-skilled younger workers to the west and especially to the south of Germany, this led to a shrinking work force in the east (Juessen, 2009). Due to this selective outmigration, since the turn of the millennium, companies in the east of Germany have been facing severe problems in finding skilled workers and are relying more and more on older employees (Klüsener and Goldstein, 2012). Alongside the differences between the east and the west of Germany that stem from the division into two Germanys, there are also other regional differences in the general labor force demand. Generally, this demand is higher in the economically prosperous south of Germany. As in parts of the east of Germany, companies are facing a shortage of qualified workers (*Fachkräftemangel*) and are therefore trying to extend the work life of their older workers and even hire new older employees (Elias-Linde, 2012). Against the background of demographic aging, retirement age is expected to rise especially for industries that suffer most from labor shortages, namely high-technology industries with highly skilled employees (Mueller, 2012).

Another important aspect at the company level is the prevalence of *human resource measures* focusing particularly on the needs of older workers. One example is the reduction of working time by offering part-time contracts and thus allowing older employees to retire gradually (Goebel and Zwick, 2010). Goebel and Zwick (2010) explore the effect of such human resources measures on older employees: Based on data from 2008, they find that more than 50 per cent of German older employees have participated in at least one specific measure for older employees, even though the participation rate varies between different companies with higher rates in larger companies.

6. Conclusion

Demographic aging is imposing increasing pressure on Europe's and especially Germany's social security systems. A low fertility rate and a policy of early retirement have led to fewer and fewer contributors being confronted with more and more recipients in the public pension system. To counteract this development, German policymakers are currently trying to switch from the former policy of early retirement to a policy of active aging by implementing several

pension system and labor market reforms aimed at raising older workers' labor force participation rate. Yet, not only the government but also companies have become aware of the aging workforce, because some industries are already experiencing difficulties in finding qualified workers, and, therefore, gradually shifting their attention to older workers. In order to increase older employees' work ability and prolong their professional life, and, hence, also to preserve their knowledge and experience in the company, several human resource measures particularly addressing this group have been introduced. These changes in the institutional and organizational determinants of retirement have led to a steep rise in the employment rate of German workers aged 55 and older.

When linking the three levels of retirement determinants in Germany, one comes to the conclusion that individual older workers (microlevel) are affected differently by changes in the welfare state and labor market (macrolevel), and workplace characteristics (mesolevel). Two examples are gender and qualification: The German welfare state used to, and to some extent still does, foster the model of the male breadwinner. Childcare and the nursing of older relatives led to instable female careers and consequently to lower pension claims, whereas men were in continuous full-time employment. Hence, many women relied and still rely on their partner's pension. Although a slow convergence of male and female older workers' labor force participation rates can be observed, gender differences and inequalities clearly persist.

Recently, an apparent social inequality between high and low skilled workers can be observed in Germany in the transition from work to retirement. High skilled white-collar workers with a high income easily meet the requirements of the new policy, in the sense that they are less reluctant to work longer, also due to a high identification with their job. Furthermore, being the main target group of human resource measures, they profit highly from training measures. In contrast, the increase in the employment rate of lower skilled manual workers is driven mainly by monetary pressure. Owing to the reforms, early retirement has become financially less attractive; and hence, in order to ensure a sufficient pension, many are forced to work longer not only in often unfavorable employment conditions (Hochfellner and Burkert, 2013; Hofäcker and Naumann, 2014) but also for employers who offer only few human resource measures. Referring to the theoretical framework, we may summarize that the main reasons why high skilled older workers postpone their retirement in Germany are *maintain factors*, whereas the low skilled are driven mostly by *need factors*.

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Study III: Retirement Expectations in Germany – Towards Rising Social Inequality?

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Retirement Expectations in Germany – Towards Rising Social Inequality?

Abstract

In the last 20 years German policy makers have reformed the pension system and the labor market with the aim of prolonging working life: They increased the statutory retirement age, closed early retirement pathways, and implemented programs to increase older workers' employability. As a consequence, older workers' employment rate and the average retirement age rose. In addition to the actual behavior of today's retiree cohorts, the reforms also influence the expected retirement age of future pensioners, the development of which will be investigated in this paper, arguing that they have adapted to the reforms and increased their expected retirement age. Main target groups of the historic early retirement pathways were blue-collar and low-skilled white-collar workers. Hence, the hypothesis is that the potential increment of the expected retirement age was stronger for low-skilled than for high-skilled workers. This assumption is supported by the paper's analyses based on data from the SOEP and DEAS study. While high-skilled workers both want and expect to retire late, low-skilled workers prefer to retire early but expect that they have to work longer in order to ensure a reasonable pension. This finding hints at a potential rising of social inequality in the transition from work to retirement.

Keywords: Retirement, Germany, Social Inequality, Expected Retirement Age, DEAS, SOEP

Introduction

In Europe, the aging of the societies is challenging the sustainability of the pension systems, and reforms aiming at an increase of the average retirement age have been implemented in most European countries. Future pensioners will have to adjust to these changes of the institutional contexts in which they will make their retirement transitions. Taking Germany as an example, in this paper I will examine whether future pensioners have adapted to the reforms of the pension systems by answering the following research questions: Have they increased their expected retirement age? Does this potential increase vary between different social groups? Moreover, do these differences between groups hint at the (re-)emergence of social inequality in the retirement process? The German case is well suited to study these questions. With decreasing fertile rates and increasing life expectancy, Germany is one of the fastest-aging countries in the world, and predictions show that the share of people aged 65 and older will increase from 21 percent in 2010 to 28 percent in 2030 (German Federal Statistical Office 2010). The welfare state's financial sustainability is under pressure due to a growing number of beneficiaries and less contributors, and in particular the public pension system is expected to face severe economic problems in the future (Harper 2014, Naumann 2015). In reaction, German policy makers have introduced several far-reaching reforms with the aim of increasing the retirement age and, thus, relieve the pension system of financial pressure: They lifted the statutory retirement age from 65 to 67 (Leve et al 2007), introduced training programs for older workers (Frerichs & Naegele 2008), and abolished early retirement pathways (Moehring 2015, Ebbinghaus & Hofäcker 2013). Consequently, the average retirement age and the employment rate of older workers began to rise (Dietz & Walwei 2011, Brussig 2009). However, it is important to study not only the actual behaviour of the current pensioners but also future retirees' opinions about their retirement timing, as expectations and plans when to retire have proven to be a good proxy for actual retirement behaviour (Wong & Hardy 2013, Örestig 2013, Cobb-Clark & Stillmann 2009). This is crucial for the long term sustainability of the German pension system. Future pensioner cohorts have to agree with the reform, increase their expected prospective retirement age, and accept that they will retire later than their predecessors. Previous literature has shown that, the expected retirement age has indeed risen after pension system reforms, for example in Sweden (Örestig et al 2015) and the Netherlands (de Grip et al 2013). I will go beyond these studies by including a longer observational period of almost 20 years into my analysis. Earlier work researched the development of the expected retirement age mostly over a time span of ten years. In this study, data from the mid-1980s to the late 2000s are used in order to test whether the trend of increasing the expected retirement age is a rather

recent phenomenon which started only in the 2000s or if it is a longer-lasting development. In addition to investigating a longer period of time, the analysis will also examine if the increase of the expected retirement age is stable or varies across different types of older workers. Recent studies (Hofäcker & Naumann 2015, Hochfellner & Burkert 2013) show that especially two groups in Germany continue working past the statutory retirement age: employees with high education, because they often have a high identification with their job, and employees with low education, because they are under financial pressure. This paper will investigate whether a similar trend can be found for the expected retirement age as well. To summarize, the first aim of this paper is to investigate how future pensioners have adapted their expectations concerning their retirement timing to the reforms. The paper's second aim is to explore how these adaptations towards the reform vary between social groups. I argue that, with the closing of the early retirement pathways, in particular low-educated and low-skilled workers feel the financial pressure to delay their retirement in order to receive a decent pension. Therefore, they have increased their expected retirement age stronger than better-educated workers. This indicates a potential emergence of social inequality in the retirement process, which has already been found in previous German studies (Hess 2016, Hochfellner & Burkert, 2013, Buchholz et al 2013). The assumption is tested by combining data from the German Socio Economic Panel (GSOEP) and the German Aging Survey (DEAS), which allows comparing the expected retirement age in 1987, 2006, and 2008. The paper is structured in the following way: First, I will describe the reforms of the German pension system and the labor market in more detail and will derive hypotheses. Subsequently, the data set and method of the analysis are introduced and the results presented. A discussion of the findings and a delineation of potential societal implications will conclude the paper.

The Reforms of the German Pension System

Germany's economy, which had been rapidly growing after the Second World War, faced its first severe problems in the 1970s, when the oil crisis and growing international competition put the important production sector under pressure. In reaction to this, companies cut costs by dismissing their workers into unemployment (Ebbinghaus & Hofäcker 2013). Fearing unpopular high unemployment rates, German policy makers tried to relieve the labour market of pressure and, hence, reduce the unemployment rate (Dietz & Walwei 2011). In the field of pension policies, the idea of early retirement became the dominant principle. Older workers were offered financially attractive early retirement opportunities, which they willingly made use of (Rinklake & Buchholz 2012). Policy makers, companies, and trade unions alike hoped

that the younger workers would fill the resulting vacancies and that the unemployment rate would consequently decrease (Ebbinghaus 2008). Early retirement was possible via different routes which offered older employees generous compensation for retiring earlier than at the statutory retirement age of 65 (Rinklake & Buchholz 2012, Radl 2014). Men who had contributed to the public pension insurance for 35 years were enabled to retire at age 63, women even earlier, with 60 years. The unemployment and the disability insurance provided further pathways for early retirement. Older men suffering from disability and who had contributed to the public pension system for 35 years were allowed to retire at the age of 60 (Radl 2014). The same was possible for older workers who had been unemployed for at least one year. A fourth early retirement option was the block model of the old-age part-time work scheme, which allowed workers to retire before the age of 65 with comparably small pension deductions. After the German reunification in 1990, the Old Age Transition Scheme made it possible for employees in East Germany to retire already at 55 if becoming unemployed (Bönke et al 2009). These generous retirement options were financed by public subsidies, which were often complemented by payments from the companies. Especially large companies in the production sector pushed unproductive blue-collar workers and white-collar employees holding low hierarchical positions into retirement in order to lower labour costs (Rinklake & Buchholz 2012). Older workers willingly used the opportunity to retire early with only small financial penalties and retirement before 65 was seen as the standard, while retirement at age 65, or even later, was the exception (Naegele 2014). Consequently, the employment rate of older workers declined drastically (Brussig 2009; Buchholz, 2006), falling from 50 to 35 percent for the age group of 50 to 65 between 1970 and 1990 (Hofäcker et al 2015a). However, this decrease varied according to different groups of older workers: It was stronger for the low educated than for the high educated, because especially blue-collar workers and low-qualified employees in the production sector were pushed out of employment and most frequently used the early retirement options via the unemployment and disability insurance (Hofäcker & Naumann 2015). In 1990, the employment rate of male older workers with lower secondary education was at 40 percent, while it was at 60 percent for their counterparts with tertiary education.

At the end of the 1980s and at the beginning of the 1990s, German policy makers became aware of the problems caused by the policy of early retirement, threatening the financial sustainability of the public pension system since fewer contributors faced a growing number of beneficiaries (Harper 2015). In addition, a shortage of qualified labour force in high technology industries and the health care sector became visible in the early 2000s (Buchholz et al 2006). These effects were further reinforced by the demographic aging of the German population. In

response, policy makers introduced measures to delay retirement timing and prolong working life (Leve et al 2009, Frerichs & Naegele 2008). The first *Rentenreform* (pension reform) was designed in 1989 and implemented in 1992. The main modification concerned the introduction of actuarial pension reductions by 0.3 percent for every month the pensioner retired before the statutory retirement age, making early retirement financially less attractive (Radl 2014, Rürup 2002). In 1997 and 1998, the retirement age was raised for the early retirement pathways via the early retirement option of long-term insured as well as via the disability insurance (Radl 2014), and in 2009, the subsidies for the old-age part-time work scheme were abolished (Dietz & Walwei 2011). In 2008, the government finally introduced a reform to raise the general official retirement age from 65 to 67 over a period from 2012 to 2031 (Leve et al 2009). Besides the closing of early retirement pathways and the raising of the retirement age, the German state also started subsidizing private pension insurances called *Riesterrente* (Corneo & Schröder 2012) and implemented active labour market policies. Subventions, such as the *Eingliederungszuschüsse* (‘integration subsidies’) and the *Entgeltsicherung* (‘integration vouchers’), were introduced for employers who hire older workers (Dietz & Walwei 2011). Furthermore, the state pays for programs—for example, the *Weiterbildung Geringqualifizierter und beschäftigter ältere Arbeitnehmer im Unternehmen (WeGebAU)*—which fund training costs for older low-skilled workers (Duell & Vogler-Ludwig 2012). These programs have been quite successful at improving job stability and survival in employment of older workers with only little education, and, hence, a larger risk of being unemployed and in vulnerable labour market positions. In combination, all of these reforms have changed the institutional contexts of retirement transition in Germany from allowing a financial attractive early retirement to promoting later retirement. The pension system and labour market reforms in Germany are regarded as very profound in comparison to other countries (Hofäcker et al 2015a). In addition to these institutional changes, employers also altered their opinion of older workers. Facing a shortage of skilled and qualified workers, they started to see the older workers as a potential source of experienced and trained labour force (Naegele & Walker 2011) and began implementing “age-friendly” human resource measures to make older workers—and with them their experience—remain in the companies (Naegele & Sporket 2009). Although discussions are still ongoing on how strong the reforms’ impact actually is and whether the overall positive development of the economy and the generally rising female employment rates are actually more important, it is more than clear that older workers’ employment rates and average retirement ages have started to rise in Germany (Dietz & Walwei 2011, Brussig 2009). In fact, the employment rate of workers older than 50 years has increased from 40 to 60 percent from

the mid-1980s to the mid-2010s (Hofäcker et al 2015a), and their retirement age increased as well. This paper will now test how future pensioners in Germany have adapted their expectations of when to retire to the reforms of the pensions system and the labour market.

Expected Retirement Age in Germany

The main argument for studying the expected retirement age is that of the time-lagged effect of the pension systems reforms, for example, regarding the stepwise increase of the official retirement age in Germany. Hofäcker (2015: 1531) states “[...] retirement plans and preferences of future retiree cohorts [...] have been affected by recent reform measures, thus allowing for a better assessment of their effectiveness.” In addition, the expected retirement age is a reasonably precise proxy for the actual retirement timing, since older workers generally have a good knowledge of when they will retire (Wong & Hardy 2013, Örestig 2013). This knowledge is based on a realistic evaluation of the pension system rules, institutional and workplace contexts (Zappala et al 2008, Esser 2005). Hence, older workers consider pensions systems and companies’ regulation as well as pension deductions for early retirement on the one hand, and pensions increments for postponing retirement on the other (Hofäcker 2015, Zappala et al 2008, Esser 2005). Thus, a change of the institutional context like a reform of the pension system should influence the expected retirement age. Studies from the Netherlands (de Grip et al., 2013), Sweden (Örestig et al 2015), the United States (Szinovacz et al 2014, Sargent-Cox et al 2012), and Australia (Sargent-Cox et al 2012) support this assumption, as they find an increase in the planned retirement age after reforms of the pensions system and the labour market. I expect a similar development in Germany also for the longer observational period, since the changes of the pensions system cannot be attributed to one single reform but to several reforms which started in the beginning of the 1990s and lasted until the end of the 2010s, as described in the previous chapter.

Hence, the first hypothesis of this paper is:

- 1) The average expected retirement age in Germany has increased from the mid-1980s to the mid-2000s.

Furthermore, I assume that this potential increase of the expected retirement age varies between different groups. I expect that low-skilled older employees have adapted their retirement expectations stronger than high-skilled workers with tertiary education, as low-skilled blue-collar workers in the production sector were the main target group of the early retirement policy (Rinklake & Buchholz 2012). They made frequent use of the possibility to retire early via the unemployment and disability insurance, and consequently, when the recent reforms in Germany

closed these two pathways into retirement, they had to use alternative, financially less generous retirement options. However, in contrast to the high-skilled “silver workers”, who often occupy identity-enhancing and emotionally rewarding employments and therefore retire late, low-skilled workers now feel the financial necessity of continuing to work and postpone retirement (Hochfellner & Burkert 2013). They expect that they have to work and contribute to the pension system longer in order to achieve sufficient retirement benefits that provide an adequate pension income. This leads to the second hypothesis:

- 2) The potential increase of the expected retirement age is stronger for low-educated than for high-educated older workers.

Methods

To test the hypothesis, I use two datasets: The retirement expectations in the 1980s are derived from the SOEP (1987), and the DEAS serves as data source for the retirement expectations in the 1990s and 2000s (1996 and 2008). Both are high-quality panel studies: The SOEP draws respondents from a nationally representative sample of individuals aged 16 years and older, comprising approximately 20,000 individuals which were interviewed yearly over the period under consideration (Wagner et al 2007). The DEAS includes a nationally representative sample of 4,000 respondents older than 39 years, which are interviewed every six years (Motel-Klingbiel et al 2010). The sample used for this analysis is restricted to workers older than 49, because, at that age, retirement expectations tend to be stable within one person (Ekerdt 1976), and a realistic evaluation of the actual retirement can be made (Hofäcker 2015). This reduction leads to sample sizes of 642 in 1987, 771 in 1996, and 1,190 in 2008.

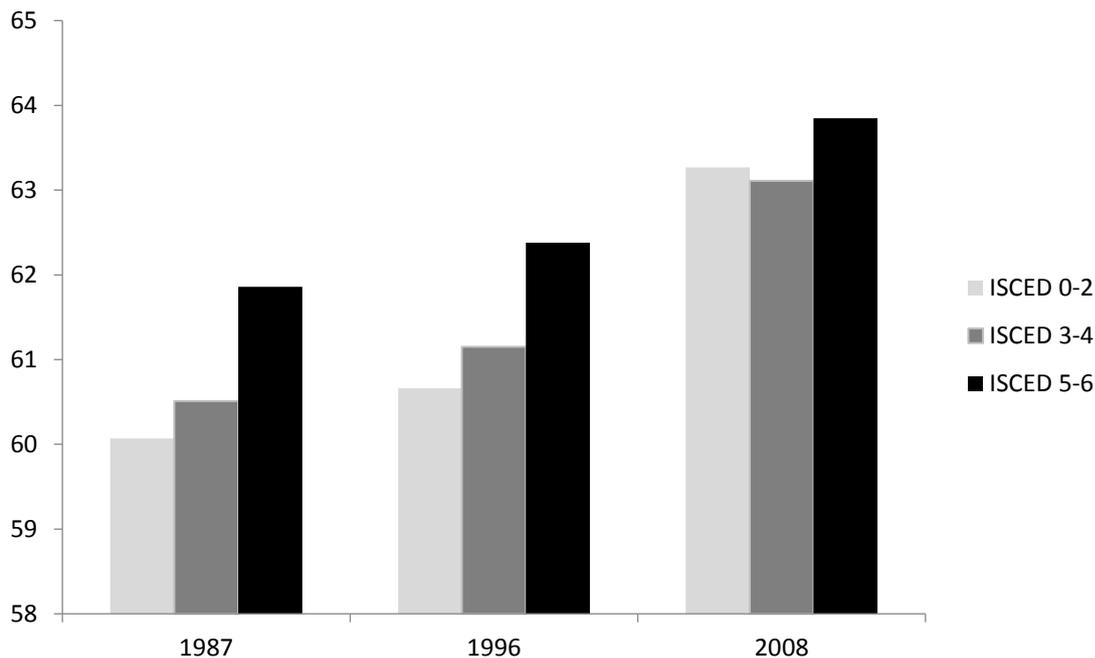
In all three datasets, a question is included that asks the respondents at which age they expected to receive their first pension. This expected retirement age is a realistic evaluation of when an individual will actually retire, taking into account the pension system’s regulation, the institutional and workplace context, and potential pension deductions as a consequence of early retirement (Zappala et al 2008, Esser 2005). In line with previous studies that research social difference in the retirement process (Hofäcker & Naumann 2015, Micheel et al 2010, Hess 2016), education will here serve as the main independent variable to measure the respondents’ skill level. “Particularly education seems to be a valid proxy to summarize several interrelated characteristics that are known to be influential individual-level determinants of the retirement decision (e.g. work place characteristics and work autonomy, health, income, labour market chances) (Hofäcker & Naumann 2015: 476).” I distinguish three educational levels: lower secondary degree or less (ISECD 1/2 - low), upper secondary or higher vocational education

(ISCED 3/4 - medium), and tertiary education (ISCED 5/6 - high). Gender and marital status (in relationship and not in relationship) are included in the analysis as control variables. In addition, the respondents' occupational position (blue-collar, white-collar, public servant and self-employed) and whether the respondents had an occupational pension (yes or no) are accounted for. Standard linear regressions with robust standard errors investigate the influence of education on the expected retirement age.

As robustness check, a Heckman correction to control for potential biases in the sample composition (Heckman 1979) was implemented. It is realistic to assume that the respondents who are still employed at an older age differ systematically from those already in retirement: They are better educated, have a higher employability and are more often male (Hofäcker et al 2015b). This systematic selection into employment—and, hence, the possibility of stating a preferred retirement age—might bias the results of the analysis, what is impeded by a Heckman test.

Results

Figure 1 illustrates how the expected retirement age has developed in Germany from 1987 until 2008 for the three levels of education. In these 19 years, it has risen considerably across all groups of education; the average retirement age for all educational groups has increased from 60.77 over 61.51 to 63.48 years, supporting the first hypothesis of a rising expected retirement age. The finding that the highest expected retirement age can be observed for the high educated is in line with previous studies (Honig 1996). Having favourable working conditions, a higher job identification, and better means to remain longer in the labour market, they prefer and also expect to retire later than the lower educated. Yet, of more interest for this study are the other two groups: In 1987, the expected retirement age of the low educated was lowest in comparison, and while it was approaching that of the middle educated in 1996, it was even higher than that in 2008. At least from a bi-variate perspective it seems as if the relation between education and expected retirement age has changed from a linear to a u-shaped one.

Figure 1: The Development of the Expected Retirement Age by Educational Group

The descriptive results are supported by those of the multivariate analysis. Table 1 shows the results of a linear regression of education and the mentioned control variables on the expected retirement age in the three years of observation. The control variables' effects reflect those found in earlier studies. Women and individuals with a partner expect to retire later than men and those without a partner (Radl 2013). Self-employed also expect to work longer. Due to occupational selection, self-employed are often intrinsically motivated concerning their work and, hence, have a preference for a longer work life (Schils 2008). The results for education—the main explanatory variable of this analysis—support Hypothesis 2, which assumes that the increase of the expected retirement age was stronger for the low educated. As depicted in Figure 2, a linear connection between education and expected retirement age can be observed in the 1980s. This linear relationship shifts into a rather u-shaped one, as in 1996 older workers with medium education already expect to retire earlier than those with low education, and this gap even widens in 2008, although not significant. In contrast, the deviation of the expected retirement age between high- and low-educated older workers decreases and is not significant anymore in 2008. The findings for education are partially reflected in those for occupational status. While in all three observed years self-employed have the highest expected retirement age, blue-collar workers are closing up with white-collar workers and public servants. The results also remain stable when applying the Heckman test to control for a potential selection bias. Although it clearly shows (Table A1, lower section) that female, lower-educated and older

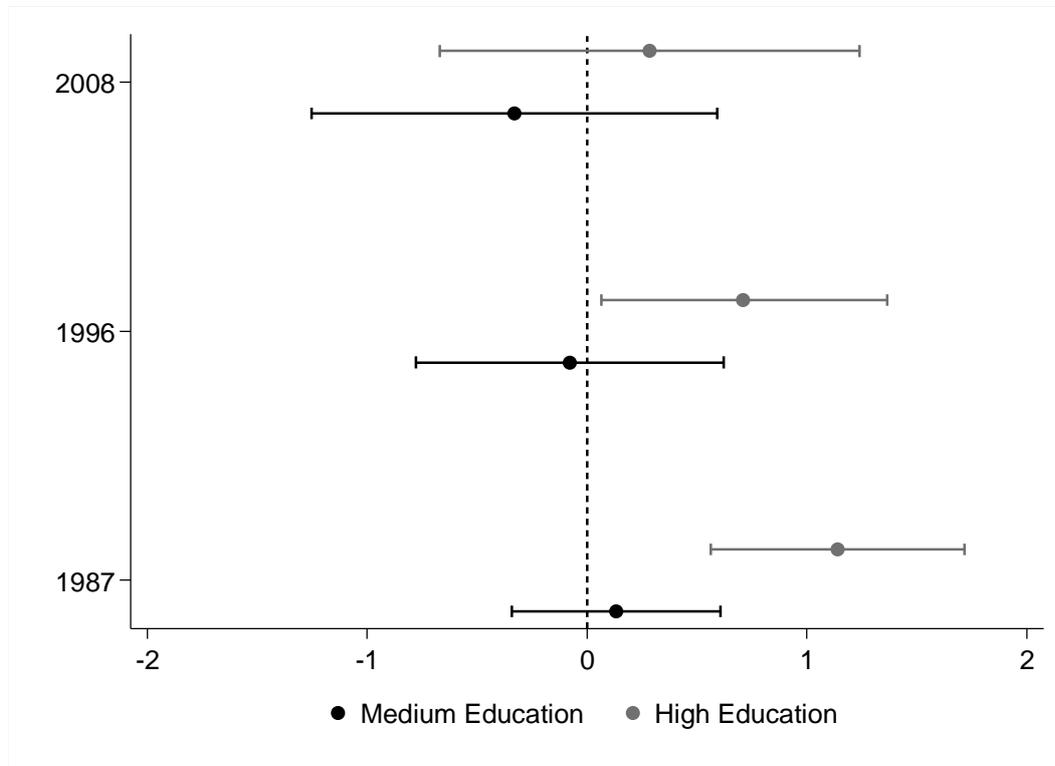
respondents have a higher probability of not answering the question—because they have a lower employment rate—, this does not bias the results (Table A1, upper section).

Table 1: The Relation of Education and Expected Retirement Age

	1987	1996	2008
<i>Education (Ref: ISCED 0-2)</i>			
ISCED 3-4	0.19(.24)	-0.07(.35)	-0.32(.47)
ISCED 5-6	1.35(.29)**	0.71(39)+	0.28(.48)
Women (Ref: Man)	-1.03(.22)**	-1.09(.21)**	-0.61(.18)**
Partner (Ref: No Partner)	-0.44(.24)*	-0.67 (.29)**	-0.78(.25)**
<i>Occupational Position (Ref: Blue-Collar)</i>			
White-Collar	0.31(.22)*	0.58 (.23)*	0.01(.24)
Public Servant	0.35(.34)	-0.30 .40	-0.31(.36)
Self-Employed	2.50(.29)**	1.99 (.33)**	1.67(.32)**
Occupational Pension (Ref: No Occ.Pension)	-0.68(.34)**	-0.60 (.20)**	-0.45(.19)*
Constant	61.01(.24)	62.41(.44)	64.47(.53)
Number of Observations	638	767	1,187
R ²	0.18	0.15	0.07

+<0.1; *<0.05; **<0.01

Figure 2: The Relation of Education and Expected Retirement Age.



Based on the regression in Table 1. Reference category is Low Education (ISCED 0-2). The relationship is statistically significant when the 90% of the confidence interval (gray and black vertical lines) does not overlap the dotted line.

Conclusion

Germany's pensions systems and the labour market have undergone many strong reforms in the last 20 years. Early retirement pathways were closed, and the statutory retirement age was raised (Brussig 2009, Buchholz 2006). In addition, the German state implemented programs training older low-skilled workers and subsidized companies for employing older workers, while employers introduced human resource measures aimed at older workers (Naegele & Walker, 2011, Naegele & Sporket 2009). As a result, the employment rate and average retirement age of older workers increased (Brussig, 2009). The reforms not only influenced the retirement behaviour of today's retirees but also future pensioners' expectations of when to retire. In this paper, I investigated the development of the expected retirement age in Germany from 1987 to 2008 and complemented previous research by showing that the increase of the expected retirement age also takes place in Germany and that it is a longer-lasting development of the last 20 years instead of a rather recent phenomenon. A second contribution of the paper is that it supports recent concerns about rising social inequality in the retirement process.

The results show, as stated in Hypothesis 1, that the expected retirement age has increased between 1987 and 2008 for all educational groups; however, the increase was strongest for workers with low education. I also showed that the increase of the expected retirement age was strong particularly for low-skilled workers, supporting Hypothesis 2, as they were the main target group of the early retirement pathways and, when these were closed, had to adapt most to the new situation. This finding is also reflected in the strong increase of the expected retirement age of blue-collar workers, which again supports the findings on educational differences. To conclude, the results of this paper indicate that expected retirement ages have shifted between educational groups. The findings are in line with previous studies which show that 1) social inequality in the transition from work to retirement is increasing (Hofäcker & Naumann 2015), 2) the increase of the statutory retirement age is more acceptable to those with high education (Naumann 2014) and 3) the share of low-skilled and low-educated older workers in Germany who have to work beyond the official retirement age to ensure a decent standard of living is increasing (Hochfellner & Burkert 2013, Scherger 2013).

Two main caveats have to be acknowledged when interpreting the study's results. First, the data is derived from two different studies; therefore, the questions on the expected retirement age differed slightly. However, only questions that have standardized answers (For example the ISCED) or that are identical were used for the regression's explanatory variables so that one can assume a high comparability across the datasets. Second, the analysis was limited to Germany and, thus, a comparison between countries was not possible. More countries

should be included into the analysis to ensure a wider range of comparison of the expected retirement ages and to examine how the different reforms vary in their impact.

To conclude, these scientific findings also carry societal and political implications. As we have seen, the findings in this paper support the concerns of rising social inequality in the transition from work to retirement (Rinklake & Buchholz 2012, Dietz & Walwei 2011). While the high-skilled employees with tertiary education not only expect but also desire to work longer (Hess 2016), we find a different development for low-educated older workers. They seem to have adapted their expected retirement age because of financial needs and in order to ensure a reasonable pension (Hochfellner & Burkert 2013, Scherger 2013). While in the last century the early retirement pathways allowed them to withdraw early from the labour market with only low pension deductions, they now have to delay retirement and extend their employment in often unfavourable working conditions. Although the study at hand is based on German data one could assume to find similar development in other countries. Policy makers, trade unions, and employers therefore have to consider these developments when implementing further pension and labour market reforms in Germany and other countries facing demographic ageing and implementing reforms aimed at delaying retirement.

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Appendix

Table A1: OLS Regression on the Expected Retirement Age with Heckman Test Control

	1987	1996	2008
<i>Education (Ref: ISCED 0-2)</i>			
ISCED 3-4	0.39(.32)	-0.13(.37)	-0.22(.48)
ISCED 5-6	1.68(.38)**	0.66(.41)+	0.45(.50)
Women (Ref: Man)	-1.60(.30)**	-1.08(.22)**	-0.68(.19)**
Partner (Ref: No Partner)	-0.41(.25)	-0.65(.29)**	-0.75(.25)**
<i>Occupational Position (Ref: Blue-Collar)</i>			
White-Collar	0.33(.23)*	0.57(.23)+	0.00(.26)
Public Servant	0.33(.36)	-0.30(.40)	-0.33(.36)
Self-Employed	2.45(.35)**	1.87(.34)**	1.55(.32)**
Occupational Pension (Ref: No Occ.Pension)	-0.48(.39)	-0.59(.20)**	-0.44(.18)*
Constant	58.69(.37)	62.12(.46)	63.81(.55)
Number of Observations	612	767	1,187

Selection coefficients

<i>Education (Ref: ISCED 0-2)</i>			
ISCED 3-4	0.27(.15)**	0.20(.20)*	0.42(.18)*
ISCED 5-6	0.57(.18)**	0.43(.21)**	0.52(.19)**
Women (Ref: Man)	-0.46(.05)**	-0.20(.11)+	-0.14(.09)+
<i>Age Groups (Ref: 50-55)</i>			
56-60	-0.98(.24)**	-0.69(.23)**	-0.57(.21)**
61-65	-1.23(.45)**	-1.01(.34)**	-0.78(.29)**
Rho	0.64	0.61	0.55
Sigma	1.05	2.78	3.14

+<0.1; *<0.05; **<0.01

Study IV: Expected and Preferred Retirement Age in Germany

Hess, M. (2016): Expected and Preferred Retirement Age in Germany. *Zeitschrift für Gerontologie und Geriatrie* (Online First)

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Study V: Determinants of Intended Retirement Timing in Germany

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Determinants of Intended Retirement Timing in Germany

The latest reforms of Germany's pension system and labour market, which aimed at extending working life, led to an increase of older workers' employment rate and to a rise of the average retirement age. However, recent studies indicate that these reforms might have caused a new form of social inequality in the transition from work to retirement. On the one hand, high-skilled and well-paid employees have the financial means to postpone their retirement and also prefer to do so. On the other hand, low-skilled and low-paid workers are forced to prolong their working life in unfavourable labour market positions in order to ensure a sufficient pension income. This paper investigates a potential emergence of social inequality in retirement transitions by focusing on future pensioners. An analysis of the data set *BIBB/BAuA Employment Survey of the Working Population on Qualification and Working Conditions in Germany 2012* shows that both low- and high-educated older workers plan to retire later than their medium-educated peers, whereas their reasons differ markedly. While the high educated tend to favour a later exit from the workforce due to a strong identification with their job, the main reason for the low-educated to postpone retirement is financial pressure. The results of this study support the concerns about social inequality in the retirement process.

Keywords: Retirement, Germany, Social Inequality, Expected Retirement Age

Introduction

In the mid-1990s, European and particularly German policy makers became aware of the growing pressure imposed on the welfare state's financial sustainability by demographic aging, as fewer contributors were facing more beneficiaries in the public pension system (Nauman, 2014; Naegele & Walker, 2007). In many countries, this negative development was reinforced by a policy of early retirement, introduced in the 1970s to control rising unemployment rates (Möhring, 2015; Naegele, 2014; Ebbinghaus, 2008). To counter this problem of financial imbalance, pension system and labour market reforms were implemented: early retirement options were abolished, the statutory retirement age was raised, and active labour market programs were launched (Ebbinghaus & Hofaecker, 2014; Frerichs & Naegele, 2008). This resulted in an increase of the employment rate of older workers, and a rise of the average retirement age since the turn of the millennium (Brussig, 2009). However, this positive development is overshadowed by recent concerns that the reforms might have caused a new form of social inequality in the transition from work to retirement (Hofaecker & Nauman, 2014; Buchholz et al., 2013; Hochfellner & Burkert, 2013; Rinklake & Buchholz, 2012). In particular, low-skilled and low-paid older workers – often blue collar employees in precarious vulnerable labour market positions – are forced to postpone retirement and remain in unfavourable employment situations in order to ensure a sufficient pension. By contrast, high-skilled and well-paid older workers have the financial means to retire late and even prefer to do so due to favourable working conditions, a strong identification with their occupation, and high job satisfaction.

With a specific focus on Germany, this paper investigates the legitimacy of the concerns about rising social inequality in the retirement process. Since the policy shift from early to late retirement was most fundamental in Europe (Ebbinghaus & Hofaecker, 2014), Germany represents a suitable object of investigation. The paper tries to answer its research question by comparing the planned retirement age of the two aforementioned educational groups of older

workers. Analysing prospective instead of actual retirement behaviour enables to capture the reforms' potential negative side effects to their full extent. As the effect of the reforms is often lagged, its influence on current pensioners is only limited, while future pensioners will have to account for the full impact of the reforms (Esser, 2006; Zappala et al, 2008). Hofaecker (2014, p.1531) comments “[...] retirement plans and preferences of future retiree cohorts which more likely have been affected by recent reform measures, thus allowing for a better assessment of their effectiveness.” Hence, if the reforms cause social inequality, it can be supposed to be more distinct among future pensioners. In addition to focusing on the future retirement age, this study will go beyond previous contributions (Hofäcker, 2014; Oerestig et al., 2013; Esser, 2006; Zappala et al, 2008) by investigating differences in the mechanisms that drive prospective retirement timing. The study will test the hypothesis of growing social inequality by directly exploring the reasons for retirement timing rather than using proxy measures such as retirement age (Hofaecker & Nauman, 2014; Hochfellner & Burkert, 2013) or pension income (Buchholz et al., 2013). The key rationale for late retirement seems to be either *monetary* (e.g., the need to contribute longer to the pension system) or *non-monetary* (e.g., high identification with the occupation and high job satisfaction). For the concerns of social inequality in the process of retirement to be legitimate, the monetary rationale can be assumed to be predominant amongst low-skilled workers, while high-skilled workers can be assumed to postpone retirement mainly due to non-monetary reasons. This assumption will be developed in more detail in the third section of the study, preceded by a concise summary of the latest pension system reforms in the following section. In the fourth section, the data, methods, and results will be presented. The fifth section will conclude the paper with a discussion of the results and their implications for future policy and company interventions.

Pension System Reforms and Retirement Timing in Germany

The German pension system is a prototypical Bismarckian form of social insurance (Ebbinghaus, 2008). It is based on the mandatory pay-as-you-go model which provides pension income actuarially proportional to the amount of contributions paid – this means that the eventual amount of pension is dependent on the level and period of contribution. Although the German pension system has undergone several reforms over the last 50 years, this basic principal has not been changed. The first main phase of reform took place in the 1970s, when rising unemployment rates induced policy makers, employers and trade unions in Germany to implement a policy of early retirement. Older workers were offered financially attractive opportunities to leave the labour market well before the mandatory retirement age with comparably little pension reductions/cuts. The aim was to relieve pressure on the labour market and, thus, decrease the unemployment rate of younger workers (Naegele, 2014; Dietz & Walwei, 2011; Ebbinghaus, 2008). Employees were enabled to retire after only 35 years of contribution to the public pension system or by making use of unemployment and disability insurance. In addition, the state subsidised an ‘old-age part-time retirement program’ (*Altersteilzeit*). The early retirement policy was employed mostly in the form of *Altersuebergangsgeld*, which was implemented shortly after the German reunification and allowed workers from the former GDR to retire at the age of 55 (Radl, 2014; Schils, 2008; Knuth & Kalina, 2002). As a result, both the average retirement age and the older workers’ employment rate began to decrease considerably (Ebbinghaus, 2008). Retirement before the mandatory retirement age was considered as the regular exit, while retirement at or even after the mandatory retirement age was perceived as rather the exception (Buchholz, 2006).

At the beginning of the 1990s, German policy makers became aware of the problems imposed on the financial sustainability of the welfare state in general and particularly the pensions system by this policy of early retirement in combination with demographic aging (Brussig, 2009), as a decreasing number of contributors was facing a growing number of

pensioners. In addition, companies began to experience a shortage of skilled personnel and increasingly perceived older employees as a valuable source of experienced and knowledgeable workforce (Sporket, 2010). With the aim of postponing older workers' retirement, policy makers initiated a second phase of pension system and labour market reforms, while employers implemented age-friendly human resource measures (Naegele, 2014; Dietz & Walwei, 2011). The raising of the official retirement age from 65 to 67 was probably the most prominent and controversially discussed reform in Germany (Leve et al, 2009). It is designed as a stepwise process, in which the increase of the retirement age amounts to one month per year from 2012 to 2025 and to two months per year from 2025 to 2029 (Leve et al, 2009). Less visible but similarly important were several other reforms, which closed the early retirement pathways or made them financially less attractive (Naegele, 2014; Ebbinghaus & Hofaecker, 2014). Furthermore, the state introduced subsidies for training measures aimed at increasing older workers' employability and financial support for firms that hired older workers (Singer & Toomet, 2013). These public efforts are currently accompanied by activities at the company level. In particular, the high technology and increasingly also the health care sector are facing a lack of skilled workers (Elias-Linde, 2012). Thus, human resource departments in these industries implement age management measures which aim at retaining older workers and their experience and firm-specific knowledge in the companies (Goebel & Zwich, 2010). However, these measures mainly address high qualified workers who possess the skills companies are looking for. The reforms and a generally good economic development led to a rapid increase of the older workers' employment rate in Germany, which rose from under 40 percent in 1998 to over 50 percent in 2008 (Brussig, 2012) and is still rising. This development was perceived as very positive, since it relieved the pension system of monetary pressure, and was promoted as benchmark for other countries.

However, recent studies (Hofaecker & Nauman, 2014; Buchholz et al., 2013; Hochfellner & Burkert, 2013) have raised concerns about negative consequences of the latest

reforms, which have so far been ignored. They point out that the institutional changes of the pension systems and the labour market regulation might affect the employment situation of distinct types of older workers very differently. On the one hand, high-skilled white collar workers in favourable working conditions have the individual resources to postpone their retirement and are often encouraged by their employers to do so. On the other hand, low-skilled and low-paid older workers in precarious employment positions and disadvantaged workplace environments are struggling to meet the new standard of a longer work life. Nonetheless, they increasingly tend to continue working until and even beyond the official retirement age (Hofaecker & Nauman, 2014, Hochfellner & Burkert, 2013, Scherger, 2013), most likely due to the financial necessity to ensure a sufficient pension income. This development is reinforced by the actuarially neutral character of the German pension system, as low-skilled workers have generally accumulated less pension claims retirement due to a lower income and often fragmented careers (Ebbinghaus, 2008). Consequently, low-skilled older workers seem to face a tough choice of either retiring early with severe monetary penalties or continue working under unfavourable conditions. This development suggests the emergence of social inequality in the transition period from work to retirement, which makes an analysis of planned retirement age and its determinants interesting.

Theoretical Considerations: Rational Choice Theory and Planned Retirement

Retirement is a major life event; the decision of retirement timing ranges amongst the most important ones made in life and can therefore be assumed to be based on mainly rational considerations (Guillemard & Rein, 1993). Thus, it is reasonable to investigate retirement behaviour from a rational choice theory perspective, meaning that individuals “[...] compare the subjective expected overall utility of working up to or past the official retirement age with

the subjective expected overall utility of retiring early” (Hofaecker et al, 2015, p. 207). Applying the rational choice theory and an expected utility hypothesis approach (Anand, 1993) to the prospective retirement age, I argue that individuals weigh the utilities of different prospective retirement ages against each other and choose the one with the highest value. As depicted in Figure 1, the expected utility of a certain planned retirement age [$U(Planned\ RA)$] is based on the utility of the preferred retirement age [$U(Preferred\ RA)$], individual factors [$F(Individual)$], workplace factors [$F(Workplace)$], and institutional factors [$F(Institutional)$].

[Figure 1 about here]

In a world without external constraints, preferred, planned, and actual retirement age would coincide. This means that an individual would retire when he wishes and plans to. However, individual, workplace, and institutional factors create/constitute a complex net of constraints and possibilities that individuals have to consider when planning their retirement (Montizaan et al., 2015; Schermuly et al., 2014; Oerestig et al., 2013; Mermin et al., 2007). To give an example, bad health might force an older worker to plan early retirement despite his preference of continuing to work. A high official retirement age, in contrast, might impose financial pressure on an individual, possibly resulting in the decision to work longer than originally favoured.

Considering this, the question arises how the utility function of the planned retirement age has been influenced by recent pension system reforms in Germany and if the concerns of the re-emergence of social inequality in the transition to retirement can also be reflected in the planned retirement age of older workers. The reforms of the pension system have changed the institutional factors in a way that early retirement became more expensive and, thus, the utility of planned early retirement decreased. However, I expect these changes in utility values to vary

between different groups of older workers. I distinguish between three educational groups of older workers: high-, medium- and low-educated. The argument is that the pension system reforms have affected low-educated workers more strongly than their high-educated peers. During the phase of early retirement policy, the low-skilled had a high utility of a planned early retirement age. Due to a generally low identification with their job and unfavourable working conditions they preferred to retire early and the institutional and workplace contexts with different early retirement pathways favoured these intentions (Buchholz et al, 2013). Yet, the 1992 pension reforms abolished early retirement pathways and due to the actuarial character of the German pension system the utility of planned early retirement for low-skilled older workers decreased while that of late retirement increased. On the other hand, also high-educated older workers have a high utility of planned late retirement, which however is mainly driven by the higher utility of the preferred retirement age, irrespective of pension system reforms. They often have a strong job attachment and, therefore, prefer to work longer. Furthermore, they have the individual and workplace resources to do so and are not hindered by the institutional context (Radl, 2014). I assume that both high- and low-educated older workers have a high utility of late retirement, even if for different reasons. While for the high educated the utility of the preferred retirement age is more important, financial factors are the main determinant for the low educated. I investigate this assumption by testing two hypotheses: the first hypothesis concretises the first part of the assumption, that both high- and low-educated older workers have a high utility of late retirement. A high utility of late retirement implies that older workers also plan to retire late. Thus, I derive the first hypothesis proposing that *workers with both high and low education plan to retire later than those with medium education*.

The second hypothesis formalizes the assumption that the utility reasons differ between high and low-educated older workers. For this purpose, it juxtaposes the reasons of planned retirement of high- and low-educated older workers. For those with a high education, the main determinant is the utility of the preferred retirement. They plan to retire late, because it is their

personal preference. Low-educated older workers in contrast are more affected by the pension system reforms that abolished the financially attractive early retirement options, and are now forced to work longer to obtain a sufficient pension income. Thus, the second hypothesis is that *among older workers who plan to retire late, those with low education have mainly financial reasons to do so, while those with high education postpone their retirement because they wish to do so.*

Data and Methods

The analysis is based on data from the *BIBB/BAuA Employment Survey of the Working Population on Qualification and Working Conditions in Germany 2012* which was conducted by telephone in 2012 among 20.036 individuals who at that time were employed for at least ten hours a week (Hall et al., 2014). Self-employed workers were not included in the survey. For the analysis, the sample is restricted to workers older than 50 and younger than 65 because in this period retirement expectations tend to be stable within one person (Ekerdt et al, 2000), what accounts for a realistic evaluation of the actual retirement timing (Hofaecker, 2014; Oerestig et al., 2013). These restrictions lead to a sample size of 5,029 individuals.

Dependent Variable

Three questions are used as dependent variables in the following analysis. In the first question, respondents are asked when they plan to retire. The answer is coded in three categories: before the official retirement age, at the official retirement age, or after the official retirement age. The question does not indicate a particular mandatory retirement age, as the respondents belong to the cohorts that are affected by the stepwise increase of the official retirement age, and hence, it varies according to each birth cohort. The two additional questions address the reasons of the expected retirement timing. Several reasons for late as well as for early retirement are distinguished. For the analysis, the different motives are condensed in four types of retirement

(Figure 2): voluntary and involuntary *late* and voluntary and involuntary *early* retirement. Respondents planning on retiring early are offered three reasons: because work is too exhausting, due to health reasons, or to have time for private interests. The first two categories are coded as *involuntary* and the third one as *voluntary early retirement*. Individuals who plan to retire after the official retirement also have three choices: due to financial reasons, because of fun at work, or to do something useful. The first category is coded as *involuntary* and the second and third as *voluntary late retirement*.

[Figure 2 about here]

Independent Variable

In line with previous studies (Hofaecker & Naumann, 2015; Scherger, 2013) on social differences in the retirement process, education will serve as the main independent variable to measure the respondents' skill level. "Particularly education seems to be a valid proxy to summarize several interrelated characteristics that are known to be influential individual-level determinants of the retirement decision (e.g. work place characteristics and work autonomy, health, income, labour market chances) (Hofaecker & Naumann 2015, p.476)." Three educational levels are distinguished: lower secondary degree or less (ISECD 1/2 - low), upper secondary or higher vocational education (ISCED 3/4 - medium), and tertiary education (ISCED 5/6 - high). In addition to education, further variables were included in the regression models to control for potential confounding effects. Previous studies (Micheel et al, 2010; Szinovacz, et al. 2014; Hofaecker, 2014) have shown that age, gender, and marital status (in a relationship: yes/no) seem to influence the retirement planning and, thus, were incorporated in the analysis. In addition, the respondents' health status (good/bad), general satisfaction with work (good/bad), place of residence (east/west Germany), and years of working at the same

company were added as control variables. On the company level, firm size (<10, 10-50, 51-1000, >1000) and sector (production, service, and public) serve as control variables.

Multinomial logistic regressions examine the effect of education on planned retirement timing while controlling for potential confounding influences on the basis of the other explanatory variables. Logistic regressions were used to investigate the connection between involuntary early (health and exhausting workplace conditions) and late (financial necessity) retirement on the one hand and education on the other.

Results

The upper part of Figure 3 illustrates the planned retirement age of older workers, differentiated by educational groups. The share of workers who expect to work up to or even beyond the official retirement age is higher for workers with high (ISCED 5 – 6) and low education (ISCED 0 - 2) than for workers with a middle level of education (ISCED 3 – 4). The comparison of the reasons for late retirement (Figure 3) supports the concern that particularly the low-educated and low-skilled employees are forced to postpone their labour market exit due to financial needs. Low-educated older workers report financial reasons to be decisive for continuing to work beyond the official retirement age almost twice as often (22 percent to 13 percent) than their high-educated peers. In addition, more than half (63 percent) of the low-educated respondents report that the main reasons for an expected withdrawal from work before the official retirement age are exhausting work conditions and bad health. It seems that the choice of when to retire – be it early or late - is reserved to workers with higher education.

[Figure 3 about here]

Table 1 shows average marginal effects of planned retirement at or after the official retirement age in comparison to retirement before the official retirement age, based on results of a multinomial logistic regression. The effects for the control variables are similar to those of previous studies (Micheel et al, 2010; Szinovacz, et al. 2014; Hofaecker, 2014). The older the respondents, the later they plan to retire, while those who suffer bad health or are unsatisfied with their work plan to retire earlier. Women have a lower probability of planning to work beyond retirement. No difference in the planned retirement age was found between East and West German older workers, although the actual retirement age of workers is currently still lower in East Germany (Brussig, 2012). At the company level, both the sector and firm size have significant effects: employees working in the service and public sectors expect to work longer; company size shows a negative correlation with planned retirement age (Hofaecker, 2015). The main results of the regression is that the “u-shaped” relation of education and planned retirement age remains stable after controlling for the individual- and company-level variables since those with high and low education report a significantly higher probability of planned late retirement than those with medium education. This finding supports the first hypothesis.

However, although observing the same behaviour, the reasons for late retirement differ between high and low-educated older workers. As Table 2 shows, respondents with a low educational background significantly more often expect to have no choice over their retirement decision. The financial motive is the main determinant of postponing the labour market exit (Table 2, first column). By contrast, the respondents with high education plan to extend their working life due to a strong job affiliation. In addition, if low-skilled older workers plan to retire early, they do so because of bad health or exhausting working conditions. Those with high education plan to retire early mainly to enjoy their new leisure time. To conclude, the results show a significantly higher share of low-educated older workers expecting to

involuntarily continue working. If they plan to retire early, they also do so involuntarily, while high-educated older workers have more choices in their retirement decisions.

[Table 1 about here]

[Table 2 about here]

Discussion

The abolishment of early retirement pathways and the raising of the statutory retirement age resulted in a postponed retirement. This development seems to be particularly strong for two groups of older workers – skilled specialists with high income and a strong affiliation to their occupation, often called “*Silver Workers*” (Deller & Maxin, 2008), on the one hand and low-educated, blue collar workers in unfavourable labour market situations on the other hand. Analogously to the positive term *Silver Workers*, the latter could be called “*Rust Workers*”. Both groups more often continue to work until the official retirement age and even beyond than their peers with a medium level of education, which supports the first hypothesis of a “u-shaped” correlation of education and prospective retirement timing. Referring to the rational choice model in the theoretical section of this paper, this means that for both the high- and low-educated the utility to retire late is higher. Yet, this development is driven by different mechanisms for these two groups of older workers (Scherger 2013; Hochfellner & Burkert, 2013; Micheel et al, 2010). As stated in the second hypothesis, high-educated older workers have a high job attachment (Micheel et al, 2010, Esser, 2006) and may also fear the loss of prestige accompanying retirement (Radl, 2007), while the low educated postpone retirement or even continue working in retirement due to financial reasons (Scherger 2013; Hochfellner & Burkert, 2013). The results, which are based on a recent data set, support the concern of rising social inequality in retirement transitions. They extend previous literature by studying the re-emergence of social inequality in the retirement process with a focus on future pensioners

instead of actual pensioners. Furthermore, the results explicitly prove the assumption made in previous studies that the reasons for late retirement differ between the two groups of older workers. When comparing higher and lower educated workers' retirement reasons, the results show that, indeed, the motives for late retirement of the first group are non-material, gainful and identity-enhancing employment, while the second group is driven by financial necessity. Older workers with high education voluntarily postpone their retirement, while their lower educated peers are forced to do so. However, the results indicate that this cleavage in the reasons for prospective retirement timing between high- and low-educated workers does not only apply to late retirement. Involuntary early retirement due to health reasons and exhausting workplace conditions is more common among those with low education, whereas their high-educated peers retire earlier in order to enjoy their free leisure time. Therefore, the choice, when to retire, seems to be a privilege of those with higher education and better skills, while older workers with lower education are set into a tight net of financial and health constraints which gives them only little or no choice regarding the timing of their retirement.

Two limitations of this study have to be acknowledged. The first point of criticism is the selectivity of the data as only older employees who work at least ten hours a week were included. There is no information available on individuals who have already retired, are self-employed, inactive or unemployed. This potential selection bias of the analysis has to be kept in mind/considered when interpreting the results. In addition to being selective, the data is also not longitudinal; hence, a direct causal link between the reforms and the new form of social inequality in the transition to retirement cannot be made. Future research should address these two points of criticism. The present scientific findings, also have societal and political implications. This study has unveiled that, although observing similar patterns in deciding when to retire, the reasons of choice differ significantly for high- and low-educated workers. When planning further pension reforms, policy makers must consider that older workers are a very heterogeneous group and that some individuals have fundamental problems meeting the

requirements for a long working life. At the company level, employers and trade unions must develop solutions that support all types of older workers in their transition from work to retirement.

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Table 1: Average marginal effects based on multinomial logistic regression with retirement before official retirement age as reference category

	At the official ret. age		After the official ret. age	
<i>Individual level</i>				
Education (ref: Medium ISCED 3-4)				
-Low (ISCED 0-2)	0.021*	(0.012)	0.044*	(0.045)
-High (ISCED 5-6)	0.046**	(0.017)	0.058***	(0.031)
Age				
-Years	0.003***	(0.001)	0.001***	(0.001)
Gender (ref: male)				
-Female	0.001	(0.009)	-0.032***	(0.012)
Residence (ref: west Germany)				
-East Germany	0.004	(0.013)	-0.006	(0.016)
Health status (ref: Good)				
-Bad	-0.046***	(0.005)	-0.037***	(0.007)
In a relationship (ref: Nono)				
-Yes	0.007	(0.009)	0.013	(0.019)
Time working at company				
-Years	-0.001***	(0.001)	-0.001***	(0.001)
Satisfaction with work (ref: Good)				
-Bad	-0.058***	(0.011)	-0.062*	(0.019)
Occupation (ref: Blue collar)				
-White collar	0.005	(0.010)	0.017*	(0.012)
-Public servant	-0.002	(0.014)	-0.002	(0.009)
<i>Company level</i>				
Sector (ref: Production)				
-Service	0.010*	(0.013)	0.007	(0.017)
-Public	0.030**	(0.014)	0.009	(0.015)
Firm sizes (ref: <10)				
-10-50	-0.009	(0.013)	-0.046*	(0.016)
-51-1000	-0.008	(0.010)	-0.054***	(0.011)
->1000	-0.008	(0.012)	-0.053**	(0.013)
N= 3342, McFaddens R ² =0.05				
*p<0.1; **p<0.05; ***p<0.01, ref= reference category				

Table 2: Marginal treatment effect based on logistic regressions of reasons for retirement and their determinants

	Involuntary retirement before official ret. age		Involuntary retirement after the official ret. age	
<i>Individual Level</i>				
Education (ref: Medium ISCED 3-4)				
-Low (ISCED 0-2)	0.051*	(0.015)	0.034*	(0.052)
-High (ISCED 5-6)	-0.068***	(0.007)	-0.008	(0.041)
Age				
-Years	0.000	(0.001)	0.001	(0.004)
Gender (ref: Male)				
-Female	0.008	(0.011)	0.013	(0.055)
Residence (ref: West Germany)				
-East Germany	0.032***	(0.013)	0.051*	(0.044)
Health status (ref: Good)				
-Bad	0.067***	(0.017)	-0.005	(0.056)
In a relationship (ref: No)				
-Yes	0.003	(0.013)	0.007	(0.072)
Time working at company				
-Years	0.001	(0.00)	0.001	(0.002)
Satisfaction with work (ref: Good)				
-Bad	0.021***	(0.015)	-0.016	(0.053)
Occupation (ref: Blue collar)				
-White collar	0.002	(0.021)	-0.013	(0.047)
-Public servant	0.006	(0.017)	0.016	(0.063)
<i>Company Level</i>				
Sector (ref: Production)				
-Service	-0.039***	(0.009)	-0.008	(0.035)
-Public	0.006	(0.013)	-0.006	(0.035)
Firm Sizes (ref: <10)				
-10-50	1.11	(0.021)	0.014	(0.086)
-51-1000	-0.017**	(0.011)	-0.007	(0.043)
->1000	-0.021*	(0.012)	-0.008	(0.056)
N	2040		241	
McFaddens R ²	0.08		0.03	
*p<0.1;**p<0.05;***p<0.01, ref= reference category				
First column shows involuntary retirement before official retirement age due to exhausting work conditions or bad health (reference category is voluntary early retirement). Second column shows involuntary retirement after official retirement age due to financial reasons (reference category is voluntary late retirement).				

Figure 1: Rational utility of planned retirement age

$$U(\text{Planned RA}) = U(\text{Preferred RA}) + F(\text{Individual}) + F(\text{Workplace}) + F(\text{Institutional})$$

<i>U(Preferred RA)</i>	<i>e.g., work motivation, reward and appreciation in the job, job satisfaction, fear of social isolation, personality</i>
<i>F(Individual)</i>	<i>e.g., wealth, health, current wage, prospective retirement income, employability, caring duties</i>
<i>F(Workplace)</i>	<i>e.g., age discrimination, supervisor, colleagues, facilities, training programs</i>
<i>F(Institutional)</i>	<i>e.g., official retirement age, early retirement opportunities, labour market structure</i>

Figure 2: Types of retirement reasons

	<i>Early</i>	<i>Late</i>
<i>Voluntary</i>	time for private interests	fun at work to do something useful
<i>Involuntary</i>	work is too exhausting health reasons	financial reasons

Figure 3: Prospective retirement timing and its determinants for educational groups in percent per answer category

