Moritz Hess
Mannheim Centre for European Social Research (MZES)
Email: moritz.hess@mzes.uni-mannheim.de
Phone: +49-621-181-2827
Postal Address: University Mannheim, MZES, 68131 Mannheim, Germany

Determinants of Expected Retirement Age in Germany

The latest reforms of Germany's pension system and labour market aiming to prolong working life lead to an increase of older workers' employment rate and a rise of the average retirement age. However, recent studies indicate that the reforms might cause new social inequality. On the one hand, high skilled and well paid white collar employees have the means to voluntarily postpone their retirement. On the other hand, low skilled and low paid blue collar workers are forced to prolong their working life in unfavourable labour market positions to ensure a reasonable pension. This paper investigates a potential emergence of social inequality in retirement transition 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 middle educated peers, but their reasons differ markedly. While the high educated often stay longer because of their high job identification, the low educated name financial pressure as their main reason to postpone retirement. The results support concerns of social inequality in the retirement process.

Introduction

In the mid-1990s European and in particular German policy makers recognized that the welfare state's financial sustainability was under pressure by demographic aging, since fewer contributors were facing more beneficiaries in the public pension system (Nauman, 2014; Naegele & Walker, 2007). This development was reinforced by a policy of early retirement, which was introduced in the 1970s to combat raising unemployment rates (Naegele, 2014; Ebbinghaus, 2008). As a result, policy makers reformed the pension systems and the labour market. They shifted from a policy of early retirement to one of prolonging work life by abolishing early retirement pathways, raising the official retirement age, and implementing active labour market measures (Ebbinghaus & Hofäcker, 2014; Frerichs & Naegele, 2008). Consequently, older workers' employment rate increased, and the average retirement age rose from the turn of the millennium on (Brussig, 2009). This positive development is diminished by recent concerns that the reforms might cause new social inequality in the transition from work to retirement (Hofäcker & Nauman, 2014; Buchholz et al., 2013; Hochfellner & Burkert, 2013, Rinklake & Buchholz, 2012). In particular, low skilled and low paid older workers – often blue collar and in vulnerable labour market positons – are forced to postpone retirement in unfavourable employment situations to ensure a decent pension. By contrast, high skilled and well paid older workers have the means to retire late and even prefer to do so due to favourable working conditions and high job identification. Focusing on Gemany this paper investigates the question whether these concerns of rising social inequality in the retirement process are valid. It tries to answer it by comparing the planned retirement age of the two aforementioned groups of older workers. Analysing prospective instead of actual retirement behaviour has the advantage of capturing the reforms' potential negative side effects to their full extent: The effect of the reforms is lagged, influencing current pensioners only limitedly. However, the effect on future pensioners who must account for the changing institutional framework when planning their retirement should increase stronger (Hofäcker, 2014, Esser, 2006, Zappala et al, 2008). Thus, if the reforms cause social inequality, it should be more distinct among future pensioners. In addition to focusing on the future retirement, this study will go beyond previous literature by investigating differences in the mechanisms that drive prospective retirement timing. It tests the assumption of a rising social inequality explicitly by researching the reasons for retirement timing rather than with proxy measures like retirement age (Hofäcker & Nauman, 2014; Hochfellner & Burkert, 2013) and pension income (Buchholz et al., 2013). The key rationale for late retirement seems to be either *monetary* (for example the need to contribute longer to the pension systems) or *non-monetary* (for example high identification with job) reasons. The monetary rationale should be predominant amongst low-skilled workers, while high-skilled workers should postpone retirement mainly due to non-monetary reasons. This

assumption will be developed in more detail in the second part of the study. Subsequently, the data, methods, and results are presented, followed by discussing the latter's implications at the end.

Pension System reforms and Retirement Timing in Germany

The German pension system is a prototype of Bismarkian social security organization (Ebbinghaus, 2008). The mandatory PAYG system provides pension income actuarially proportional to the amount of contributions paid – this means the higher the contribution were and the longer they were paid the higher the pension will be. This basic principal of the German pension system has not been changed although it was reformed serval times in the last 50 years.

Facing rising unemployment rates in the 1970s, policy makers, employers, and trade unions implemented a policy of early retirement in Germany. Older workers were offered financially attractive opportunities to leave the labour market well before the official retirement age with comparably little pension deductions. The aim was to release the labour market of pressure and, decrease the unemployment rate of younger workers (Naegele, 2014; Dietz & Walwei, 2011; Ebbinghaus, 2008). Early retirement was possible via the unemployment and disability insurance and after 35 years of contribution to the public pension system. In addition the state subsidised old age part time retirement (*Altersteilzeit*). The early retirement policy was utilised most in form of the *Altersübergangsgeld,* which was implemented shortly after the German reunification and allowed workers from the former GDR to retire with 55 years (Radl, 2014; Schils, 2008; Kntuh & Kalina, 2002). Retirement before the official retirement age was considered as the regular exit from employment, while retirement at or even after the official retirement was perceived as rather the exception (Buchholz, 2006). Consequently, the average retirement age and older workers' employment rate began to fall steeply (Ebbinghaus, 2008).

At the beginning of the 1990s German policy makers became aware of the problems this policy of early retirement in combination with the demographic aging caused for the financial sustainability of the welfare state in general and the pensions system in particular (Brussig, 2009). Contributories were facing a growing number of pensioners. In addition, firms began to complain about a shortage of skilled personnel and increasingly perceived older employees as a valuable source of experienced and knowledgeable working force (Sporket, 2010). With the aim of postponing older workers' retirement, policy makers reformed the pension system and the labour market, while employers implemented age friendly human resource measures (Naegele, 2014; Dietz & Walwei, 2011). Probably the most prominent and controversially discussed reform in Germany was the raising of the official retirement age from 65 to 67 (Leve et al, 2009). This

increase was designed as a stepwise process, which started 2012 and will end in 2029. From 2012 till 2025 the increase will amount to one month and from 2025 till 2029 to two months per year (Schmähl, 2007). Less visible but similarly important were several other reforms, which closed the early retirement pathways or made them significantly financially less attractive (Naegele, 2014, Ebbinghaus & Hofäcker, 2014). Furthermore, the state paid subsides for training measures aiming at increasing older workers' employability. Likewise, the state subsidised firms that hired older workers (Singer & Toomet, 2013). These public efforts are now also supported by activities on the company level. In particular, in the high technology and, increasingly, also in the health care sector employers are facing a lack of skilled workers (Elias-Linde, 2012). Thus, human resources departments in these industries implement age management measures aiming at preserving older workers' experience and knowledge for the companies (Göbel & Zwich, 2010). The reforms took effect and older workers' employment rate began to rise rapidly from under 40 percent in 1998 to over 50 percent in 2008 (Brussig, 2009), and it still is increasing. This development was perceived as a very positive one, since it relieved the pension system of monetary pressure, and was promoted as benchmark for other countries.

However, recent studies (Hofäcker & Nauman, 2014; Buchholz et al., 2013; Hochfellner & Burkert, 2013) have raised concerns about negative consequences of the reforms being overlooked. 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 workplace surroundings have the individual resources and often the support of their employer to postpone their retirement easily. On the other hand, low skilled and low paid older workers in often precarious employment positions and disadvantaged workplace environments are struggling to meet the new paradigm of working longer. Nonetheless, they are increasingly working until and even beyond the official retirement age (Hofäcker & Nauman, 2014, Hochfellner & Burkert, 2013, Scherger, 2013), most likely because of financial necessity to ensure a decent pension. This is reinforced by the more actuarially neutral character of the reformed German pension system, since due to lower incomes and fragmented careers low skilled workers often have accumulated less pension claims. Thus, low skilled older workers seem to face a tough choice between either early retirement with severe monetary penalties or working more years under often unfavourable conditions. This development suggests the emergence of social inequality in the transition period from work to retirement. Analysing older workers' planned retirement age and its determinants this study will test the assumption of rising social inequality in the retirement transition.

Theoretical Considerations: Rational Choice Theory and Planned Retirement

Retirement decisions are amongst the most important decisions made in life and, hence, can be assumed to be based on rational considerations (Guillemard & Rein, 1993). Thus, it is reasonable to investigate retirement behaviour from a rational choice theory perspective. This means 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" (Hofäcker et al, 2015, p. 207). Applying such a rational choice theory and 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)*].

1. The preferred retirement age is the age at which an individual wishes to retire without considering contextual factors like institutional and workplace characteristics (Zappalà et al., 2008). Moreover, it is a situation in which "[…] financial consequences in case of retirement need not to be considered." (Esser, 2006, p. 17) 2. Several individual factors influence the utility of the planned retirement age. Two illustrative examples are older workers' employability and their family contexts. A higher employability is correlated with higher wages, a lower probability of unemployment, and prestigious occupations. Hence, for individuals with high employability the opportunity costs of retirement – the loss of the high wage and the job prestige – are higher than for older workers with lower employability (Radl, 2014). A second important factor for the planned retirement age is the family context. Older employees might want to delay retirement, but due to caring obligations to their parents or grandchildren they have to retire early (Hochman & Lewin-Epstein, 2013; Schneider, 2001). 3. Besides the individual situation, the workplace contexts are determinants for the planned retirement, as well. Based on reciprocity theory, previous literature has argued that older workers whose employer offered them training measures often plan to retire later to "pay back" the investment their employer has made in them (Montizaan et al., 2015). As second theory that helps explain the relation between workplace conditions and future retirement is Karasek's demand–control model of work stress. "[…] [I]t argues that any job environment can be characterized in terms of the combination of two dimensions: psychological work demands and the amount of control workers have to meet these demands" (Shultz et al, 2010, p. 22). Older workers with high psychological work demand and low control plan to retire early (Elovainio et al, 2005). 4. Previous literature has traditionally distinguished three types of institutional factors that influence the actual and planned retirement

age (Ebbinghaus & Hofäcker, 2014). Push and Pull factors describe institutional and welfare settings that promote early retirement. By contrast, Stay factors summarize factors at the country level that increase the utility of late retirement. Examples for Push and Pull factors are institutionalized early retirement opportunities, which increase the utility of earlier retirement by making retirement before the official retirement age financially attractive. Public subsidies for life-long learning programs aiming at increasing older workers' employability are one example for stay factors.

In addition, the different factors not only act on their own, but can interact with each other and also influence the utility of the preferred retirement age; the workplace environment can cause health problems (Oude Hengel et al., 2012), and age discrimination can result in a lower preferred retirement age (Schermuly et al, 2014).

Figure 1: Rational Utility of Planned Retirement Age

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

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

In a world without external constraint, preferred, planned, and actual retirement age would coincide. That means an individual would retire when he wishes and has planned to.

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. Bad health might force an older worker to plan early retirement although he would have liked to continue working. And a high official retirement age might impose financial pressure, which can result in working longer than originally favoured.

How do high educated high income workers differ from the lower skilled peers regarding the utility of the planned retirement age? High educated older workers have a high utility of late planned retirement, which is mainly driven by their higher utility of the preferred retirement age.

and this is independent of pension system reforms. They have a high identification with their job and, therefore, want to work longer. Furthermore, they have the individual and workplace resources to do so and are not hindered by the institutional context (Radl, 2014, Viertes Disspaper). For low skilled workers the utility values has been altered by the reforms. In the time of the early retirement policy, low skilled had a high utility of an early planned retirement age. Due to often low identification with their job they wanted to retire early and the institutional and workplace contexts with their different early retirement pathways allowed them to do so (Buchholz et al, 2013). The reforms abolished early retirement pathways, though. Due to the actuarial character of the German pension system low skilled older workers' utility of planned early retirement decreased while that of late retirement increased.

From what has been outlined above, I can derive the first hypothesis, proposing that *high and low skilled workers both plan to retire late.*

This reflects the u-shaped connection between education and retirement age found by Hofäcker and Naumann (2014) for actual retirement behaviour in Germany. However, as already described, it must be presumed that the reasons for delaying retirement or working beyond the official retirement age vary between these two groups of older workers. For the high educated it is mostly the utility of the preferred retirement age, while for the low educated it are factors of the changed institutional context that result in a high utility of late retirement. Until now, most research has derived this assumption implicitly from its results. Hofäcker and Naumann (2014, p.3) for example state: "Yet our results suggest that – in contrast to the higher educated who tend to voluntarily desire late exit – lower-educated worker may rather be driven by financial need to remain in employment". The following study will be the first to test directly, whether the reasons for later retirement timing vary amongst older workers.

Thus, the second hypothesis is that *among older workers who plan to retire later, 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 will use data from the *BIBB/BAuA Employment Survey of the Working Population on Qualification and Working Conditions in Germany 2012*. It was conducted in 2011 and 2012 by telephone among 20.036 individuals who were employed for at least ten hours a week (Hall et al., 2014). Self-employed workers were not included in the survey. The sample is restricted to workers older than 49 and younger than 65 because in this period retirement expectations tend

to be stable within one person (Ekerdt, 1976, Ekerdt et al, 2000) and a realistic evaluation when a person will retire is possible (Hofäcker, 2014). This restriction leads to a sample size of 5,029 individuals.

Dependent Variable

Three questions are used as dependent variables in the following analysis. The first asks the respondents when they plan to retire. The answer is coded in three categories: Before the official retirement age, at the official retirement age, after the official retirement age. The two additional questions aim for the reasons of the expected retirement timing. Several reasons for late as well as for earlier retirement are distinguished. For the analysis these different motifs are condensed in two types of retirement: *voluntary* and *involuntary* late and earlier retirement. Respondents planning on retiring early are offered three reasons: because work is too exhausting; because of health reasons; to have time for private interests. The first two categories were coded as *involuntary* and the third one as *voluntary early retirement*. Those who plan to retire after the official retirement also have three choices: because of financial reasons; because of fun at work; to do something useful. The first category was coded as *involuntary* and the second and third as *voluntary late retirement*.

Independent Variable

In line with previous studies researching social difference in the retirement process (Hofäcker & Naumann, 2014; Scherger, 2013) education will serve as the main independent variable to measure the respondents' skill level. 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 into the regression models to control for potential confounding effects. Previous studies have shown that age, gender, and marital status (in a relationship: yes/no) seem to influence the retirement planning and, thus, were incorporated into the analysis. In addition, the respondents' health status (good/bad), general satisfaction with work (good/bad), place of residence (east/west Germany), and time 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 the above defined control 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 1 depicts the planned retirement age of older workers differentiated by educational groups. The share of those with high (ISCED 5 – 6) and those with low education (ISCED 0 - 2) who expect to work up until or even beyond the official retirement age is higher than in the group with medium education (ISCED 3 – 4). The comparison of reasons for late retirement (Figure 1) supports the concern that in particular low educated and low skilled employees are forced to postpone their labour market exit because of financial necessities. Low educated older workers report financial reasons to be decisive for working beyond the official retirement age almost twice as often (22 percent to 13 percent) as their high educated peers. In addition, of those involuntarily postponing retirement, more than half (63 percent) of the low educated respondents report that if they expect to retire before the official retirement age their reasons are exhausting work conditions and bad health (Figure 1). It seems that having the choice when to retire – be it early or late - is privilege of those with higher education.

Figure 2: Prospective Retirement Timing and its Determinants for Educational Groups in Percent per Answer Category
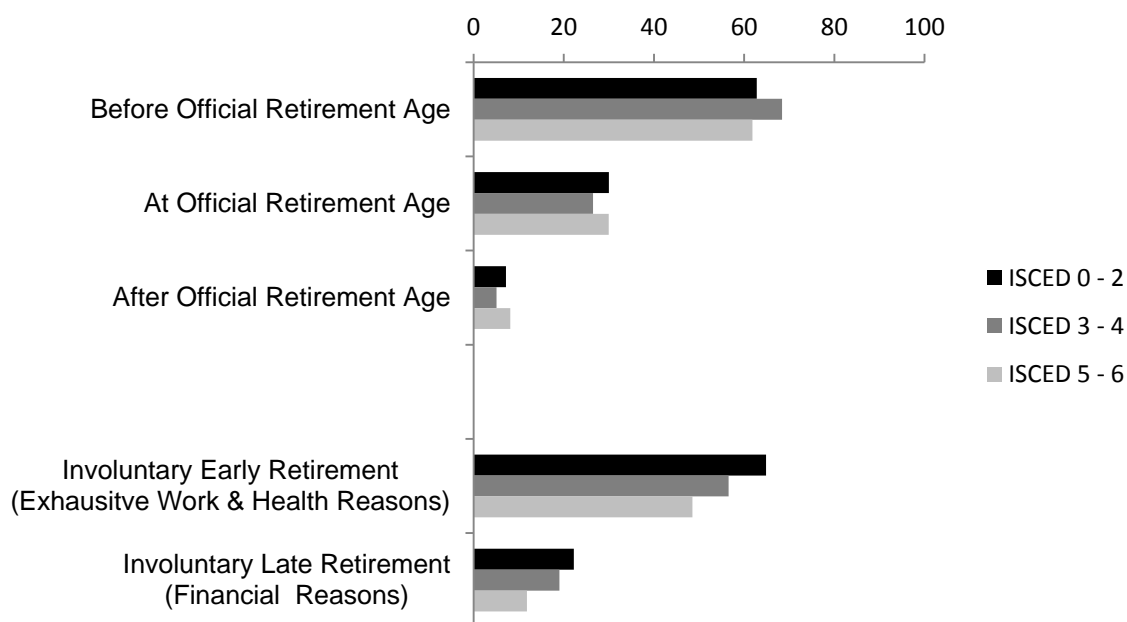

Table 1 shows the relative risk ratios of planned retirement at or after the official retirement age in comparison to retirement before the official retirement age, based on results of a multinomial logistic regression. Numbers higher than 1 show a higher probability, while numbers lower than 1 indicate a lower probability. The effects for the control variables resemble those of previous studies (Micheel et al, 2010; Szinovacz, et al. 2014; Hofäcker, 2014). The older respondents are,

the later they plan to retire, while those with bad health and unsatisfying work want 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 current workers is lower in East Germany (Brussig, 2012). At the company level, both the sector and firm size have significant effects: Employees working in the services and public sector expect to work longer, and the company size shows a negative correlation with planned retirement age. 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.

However, although observing the same behaviour, the reasons for it differ between the high and low educated older workers. Table 2 shows the odds ratios for expected involuntary retirement before (bad health and exhausting working conditions) and after (financial reasons) the official retirement age. Respondents with low educational background expect significantly more often to have no choice on their retirement decision. For them the financial motif is the main determinant of postponing the labour market exit (Table 2, first column). By contrast, those with high education, plan to extend their working life because of a high identification with their job. 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 do so involuntarily. By contrast, high educated older workers have more choices in their retirement decisions.

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

	At the official ret. age		After the official ret. age	
Individual Level				
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: No)				
-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)
Company Level				
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

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).

	Involuntary retirement before official ret. age		Involuntary retirement after the official ret. age	
Individual Level				
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)
Company Level				
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 R²	0.08		0.03	
*p<0.1;**p<0.05;***p<0.01, Ref= Reference Category				

Discussion

The abolishment of early retirement pathways and the raising of the statutory retirement age resulted in a postponement of retirement. This development seems to be particularly strong for two groups of older workers – skilled specialists with high income and a high identification with their occupation – often called "Silver Workers" (Deller and Maxin, 2008) on the one hand and low educated, often blue collar workers in unfavourable labour market situations on the other hand. In contrast to the positive term of silver workers one could call the latter "Rust Workers". Both continue to work up until the official retirement age and even beyond it more often than their peers with medium education (Hofäcker und Nauman, 2014), which supports the first hypothesis. 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 the first has a high occupational job identification (Micheel et al, 2010, Esser, 2006) and may also fear the loss of prestige accompanying retirement (Radl, 2007), while the latter postpone retirement or even work in addition to being retired due to financial reasons (Scherger 2013; Hochfellner & Burkert, 2013). Later retirement for the high educated older workers is strongly driven by utility of the preferred retirement age. For the low educated the reforms of the German pension system have decreased the utility of early retirement. The results, which are based on a recent data set, support the concern of raising social inequality in retirement. They extend previous literature by first, researching the re-emergence of social inequality in the retirement process with a focus on future pensioners instead of actual pensioners. Second, they explicitly prove the assumption made in previous studies that the two groups of older workers retire later for different reasons. When comparing higher and lower educated workers' retirement reasons, the results show that, indeed, the motifs for late retirement of the first are non-material gainful and identity enhancing employment, while for the second it is driven by financial necessity. Older workers with high education postpone their retirement voluntarily, while their lower educated peers are forced to do so. However, the results indicate that this cleavage between high and low educated workers in the reasons for prospective retirement timing does not only apply to late retirement. Involuntary earlier retirement – due to health reasons and exhausting workplace conditions - is more common among those with low education, whereas their high educated peers retire earlier 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 only lower education are set into a tight net of financial and health constraints which give them only little or no choice regarding the timing of their retirement.

Two caveats of this study have to be acknowledged. The first point of criticism is the selectivity of the data set since only older workers who are at work at least ten hours a week were included. No information on those who have already retired, are self-employed, and are inactive or unemployed is available. This potential selection bias in the analysis has to be acknowledged when interpreting the results. In addition to being selective the data is also not longitudinal, so a direct causal link between the reforms and the new social inequality in the transition to retirement cannot be made. Future research should address these two points of criticism by including also unemployed and inactive older workers into the analysis and by using longitudinal data. In addition to these scientific findings also societal and political implications can be derived from this study

This study has unveiled that, although observing similar patterns in deciding when to retire, high and low educated workers' reasons for their choice differ significantly. When planning further pension reforms, policy makers must consider that older workers are a very heterogeneous group and that some 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 older workers in their transition from work to retirement.

Literature

Anand, P. (1993) Foundations of Rational Choice Under Risk, Oxford, Oxford University Press

Buchholz S, Rinklake A & Blossfeld H.P (2013): Reversing Early Retirement in Germany. A Longitudinal Analysis of the Effects of Recent Pension Reforms on the Timing of the Transition to Retirement and on Pension Income. Comperative Population Studies 38(4)

Buchholz S. (2006) Men's late careers and career exits in West Germany. In: Blossfeld H-P, Buchholz, S, Hofäcker, D (eds) Globalization, Uncertainty and Late Careers in Society. Routledge, London, p. 55-77.

Brussig M (2012) Weiter steigendes Renteneintrittsalter, mehr Renteneintritte aus stabiler Beschäftigung, aber zunehmend geringere Altersrenten bei Langzeitarbeitslosen. Altersübergangsreport 2/2012

Brussig M (2009) Changes in labour market participation of older employees in Germany. The perspective of labour market research. Z Gerontol Geriatr 42:281-286

Deller J, Maxin, LM (2008) „Silver Workers": Eine explorative Studie zu aktiven Rentnern in Deutschland. Zeitschrift für Arbeitsforschung, Arbeitsgestaltung und Arbeitspolitik., 17: 166–79.

Dietz M, Walwei U (2011) Germany - no country for old workers? Zeitschrift für Arbeitsmarktforschung 44:363-376

Ebbinghaus, B. and Hofäcker, D. (2014): Reversing Early Retirement in Advanced Welfare Economies: Overcoming Push and Pull Factors. Comparative Population Studies

Ebbinghaus B (2008): Reforming Early Retirement in Europe, Japan and the USA. Oxford: Oxford Universtiy Press

Elias-Linde, Sabine (2012): Personalknappheit und nachhaltiges Humanressourcen management - Analyse, Lösungsansätze und Gestaltungsmöglichkeiten. Wiesbaden: Springer

Elovainio M, Forma P, Kivimaki M, Sinervo T, Sutinen R, Laine M. Job demands and job control as correlates of early retirement thoughts in Finnish social and health care employees. Work & Stress. 2005;19:84–92.

Engstler, H (2004) Geplantes und realisiertes Austrittsalter aus dem Erwerbsleben. Ergebnisse des Alterssurveys 1996 und 2002. Diskussionspapier des DZA Nr. 41

Ekerdt, David J., Karl Kosloski, and Stanley Deviney 2000   The Normative Anticipation of Retirement by Older Workers. Research on Aging 22(1):3-22.

Esser, I (2005) Continued Work or Retirement. Institute for Future Studies, Stockholm

Frerichs F, Naegele G (2008) Active ageing in employment – prospects and policy approaches in Germany. In: Taylor P (ed) Ageing Labour Forces. Promises and Prospects. Edward Elgar, Northhampton/Mass, p. 174-203.

Goebel, C. & Thomas Z. (2010): Which Personnel Measures are Effective in Increasing Productivity of Old Workers?. ZEW Discussion Paper, No. 10-069.

Guillemard, A. M., and M. Rein. 1993. "Comparative Patterns of Retirement - Recent Trends in Developed Societies." Annual Review of Sociology 19:469-503.

Hall, Anja; Siefer, Anke; Tiemann, Michael (2014): BIBB/BAuA Employment Survey of the Working Population on Qualification and Working Conditions in Germany 2012. suf_3.0; Research Data Center at BIBB (ed.); GESIS Cologne (data access); Bonn: Federal Institute for Vocational Education and Training. doi:10.7803/501.12.1.1.30

Hochfellner D, Burkert C (2013) Employment in retirement. Continuation of a working career or essential additional income? Z Gerontol Geriatr 46: 242-250

Hochman, Oshrat and Lewin-Epstein, Noah (2013): Determinants of early retirement preferences in Europe: The role of grandparenthood. In: International Journal of Comparative Sociology, 54 (1), 29-47

Hofäcker (2014): In line or at odds with active ageing policies? Exploring patterns of retirement preferences in Europe. First View 1-28

Hofäcker, D, Naumann E (2014) The emerging trend of work beyond retirement age in Germany. Z Gerontol Geriatr, AdvanceAccess

Knuth, M. & Kalina, T. (2002): Early exist from the labour force between exclusion and privilege: Unemployment as a transition from employment to retirement in West Germany. In: European Societies 4 (4), 393-418.

Leve V, Naegele G, Sporket M (2009) Retirement at 67 - Prerequisites for the ability of older female jobholders to continue working. Z Gerontol Geriatr 42: 287-291

Mermin, Gordon B. T., Richard W. Johnson, and Dan P. Murphy 2007   Why   Do Boomers Plan to Work Longer? The Journals of Gerontology Series B: Psychological Sciences and Social Sciences 62(5):S286-S294.

Micheel F, Roloff J, Wickenheiser I (2010): Die Bereitschaft zur Weiterbeschäftigung im Ruhestandsalter im Zusammenhang mit sozioökonomischen Merkmalen. Comparative Population Studies – Zeitschrift für Bevölkerungswissenschaft. 35 (4), p. 833-868.

Montizaan, Raymond, de Grip, Andries and Fouarge, Didier, (2015), Training Access, Reciprocity, and Expected Retirement Age, No 8862, IZA Discussion Papers, Institute for the Study of Labor (IZA).

Naegele G (2014) Older workers and older worker policies in Germany. In: Taylor P Older Workers in an Ageing Society: Critical Topics in Research and Policy. Eward Elgar, London, p 39–61

Naegele G, Walker A (2007) Social protection: Incomes, poverty and the reform of pension systems. In Bond J, Peace S, Dittmann-Kohli , Westerhof G (eds.), Ageing in society: European perspectives on gerontology. SAGE, London, p. 142-166

Nauman E (2014) Raising the retirement age: retrenchment, feedback and attitudes. In: Kumlin S, Stadelmann-Steffen I (eds.) How Welfare States Shape the Democratic Public: Policy Feedback, Participation, Voting and Attitudes. Edward Elgar, Cheltenham, 223-243

Oude Hengel, Karen, Brigitte Blatter, Goedele Geuskens, Lando Koppes, and Paulien Bongers. forthcoming. "Factors associated with the ability and willingness to continue working until the age of 65 in construction workers." International Archive of International & Environmental Health.

Örestig J, Strandh M, Stattin M (2013) A Wish Come True? A Longitudinal Analysis of the Relationship between Retirement Preferences and the Timing of Retirement. Journal of Population Ageing 6, 99-118

Rinklake A, Buchholz S (2012) Increasing inequalities in Germany: Older people´s employment lives and income conditions since the mid-1980s. In: Blossfeld H-P, Buchholz S, Kurz K (eds) Ageing populations, globalization and the labour market. Comparing late working life and retirement in modern societies. Edward Elgar, Cheltenham, p 35-64

Radl, J. (2014). Retirement Timing and Social Stratification. A Comparative Study of Labor Market Exit and Age Norms in Western Europe. Berlin: De Gruyter Open.

Radl, Jonas 2007: Individuelle Determinanten des Renteneintrittsalters. Eine empirische Analyse von Übergängen in den Ruhestand. In: Zeitschrift für Soziologie 36,1: 43–64.

Scherger, S. (2013) Zwischen Privileg und Bürde. Erwerbstätigkeit jenseits der Rentengrenze in Deutschland und Großbritannien. Zeitschrift für Sozialreform 59:137-166

Schermuly, C. C. , Deller, J., & Büsch, V. (2014): A Research Note on Age Discrimination and the Desire to Retire: The Mediating Effect of Psychological Empowerment. Research on Aging.

Schils, T. (2008): Early Retirement in Germany, the Netherlands, and the United Kingdom: A Longitudinal Analysis of Individual Factors and Institutional Regimes. In: European Sociological Review 24, 3, 315-329.

Schmäl, Winfried (2007): Kriterien zur Beurteilung der weiteren Altersgrenzenanhebung in der GRV. In: Wirtschaftsdienst, 87, 9, 592-599.

Schneider, T.; Drobnic, S. & Blossfeld H.P. (2001): Pflegebedürftige Personen im Haushalt und das Erbwerbsverhalten verheirater Frauen. In: Zeitschrift für Soziologie, 30, 5, 362-383.

Shultz, K. S., Wang, M., Crimmins, E. M., & Fisher, G. G. (2010). Age Differences in the Demand–Control Model of Work Stress: An Examination of Data From 15 European Countries. Journal of Applied Gerontology : The Official Journal of the Southern Gerontological Society, 29(1), 21–47. doi:10.1177/0733464809334286

Singer, Christine and Toomet, Ott-Siim (2013): On government-subsidized training programs for older workers. IAB-Discussion Paper 21/2013

Sporket, Mirko (2010): Organisaition im demographischen Wandel – Alternsmanagement in der betrieblichen Praxis. Wiesbaden: VS Verlag für Sozialwissenschaften.

Szinovacz, Maximiliane E., Lauren Martin, and Adam Davey 2014   Recession and Expected Retirement Age: Another Look at the Evidence. The Gerontologist 54(2):245-257.

Zappalà S, Depolo M, Fraccaroli F, Guglielmi D, Sarchielli G (2008) Postponing job retirement?: Psychosocial influences on the preference for early or late retirement. Career Development International 13, 150 – 167