

Occupational Pensions in Germany: An Economic Geography

Csaba Burger

St. Peter's College and University of Oxford
School of Geography and the Environment

Thesis Submitted to the University of Oxford in Partial Fulfilment of the
Requirements for the Degree of Doctor of Philosophy

Supervisors:

Prof. Gordon L. Clark

Dr. Dariusz Wójcik

Michaelmas Term, 2010

Occupational Pensions in Germany: An Economic Geography

Csaba Burger

St. Peter's College and University of Oxford
School of Geography and the Environment

Abstract

By the end of the twentieth century, the generous German public pay-as-you-go pension system had been struggling with a serious deficit due to the country's ageing population. In 2001, the German government enacted the "Riester" pension reform, named after Mr. Walter Riester, the Labour Minister brokering it, which reduced the level of publicly provided pensions, and strengthened the funded occupational and private pillars in order to replace the loss in retirement income.

This thesis investigates the role and structure of occupational pensions during the Riester-reform and in its aftermath, using an economic geography perspective. In doing so, it discusses the role of trade unions and employer associations (social partners) in moulding the structure of the occupational system, and investigates the geography of occupational pensions both at employer and at employee level. Empirically, the thesis is based on an in-depth interview with Mr. Walter Riester, and a unique, proprietary dataset of a German occupational pension provider, containing information on 332 thousand employees and over 12 thousand employers.

The results show that the internal division of social partners played a critical role in leaving occupational pensions voluntary, but they have been successful in setting standards on the occupational pension market by means of collective bargaining. Employers and employees show systematic spatiotemporal patterns in their pension-related decisions, confirming the importance of local relationships and local contexts in implementing social partners' measures and in the transformation of the welfare state. It is finally pointed out that the Riester-reform was a part of a gradual transition, which has been reducing employers' autonomy in order to reinforce the social role of occupational pensions. To achieve that and to catalyse the reform process, employers' and employees' risk exposure has been mitigated in the hope that old-age poverty can be avoided.

Michaelmas Term, 2010

Table of Contents

LIST OF TABLES.....	5
LIST OF FIGURES.....	6
ACKNOWLEDGEMENTS	7
1 INTRODUCTION	8
1.1 RESEARCH BACKGROUND AND SIGNIFICANCE.....	8
1.2 THEORETICAL FOUNDATIONS.....	10
1.3 RESEARCH OBJECTIVES AND SIGNIFICANCE.....	15
1.4 STRUCTURE, SCOPE, METHODOLOGY AND EMPIRICAL EVIDENCE	20
1.4.1 <i>Thesis Structure</i>	20
1.4.2 <i>Scope and Methodology</i>	22
1.4.3 <i>Empirical Evidence</i>	23
1.5 SUMMARY OF THE CONTRIBUTIONS	27
1.5.1 <i>Specific Contributions</i>	27
1.5.2 <i>General Contributions</i>	29
1.6 LIMITATIONS.....	30
2 LITERATURE REVIEW	35
2.1 INTRODUCTION	35
2.2 THE STRUCTURE OF RETIREMENT INCOME	37
2.3 THE POLITICAL GEOGRAPHY OF FINANCE AND PENSIONS.....	43
2.4 THE GEOGRAPHY OF CORPORATE FINANCIAL DECISIONS.....	53
2.5 THE GEOGRAPHY OF INDIVIDUAL FINANCIAL BEHAVIOUR	59
2.6 IMPLICATIONS FOR THE RESEARCH	65
3 THE ROLE OF SOCIAL PARTNERS IN TRANSFORMING THE GERMAN PENSION SYSTEM	68
3.1 INTRODUCTION	68
3.2 WELFARE RETRENCHMENTS AND SOCIAL PARTNERS	71
3.3 BACKGROUND ON SOCIAL PARTNERS AND THE ‘PENSION ISSUE’	76
3.4 ANALYSIS OF INTERESTS.....	82
3.5 THE PENSION SYSTEM AFTER THE REFORM	89
3.6 IMPLICATIONS AND CONCLUSIONS	94
4 ADOPTION PATTERNS OF OCCUPATIONAL PENSIONS IN GERMANY	98
4.1 INTRODUCTION	98
4.2 THE FRAMEWORK	101
4.2.1 <i>The structure of occupational pensions</i>	101
4.2.2 <i>Hypotheses on employers’ pension adoption</i>	104
4.2.3 <i>Hypotheses on employees’ pension adoption</i>	107
4.2.4 <i>Expected relationships between employers’ and employees’ decisions</i>	109
4.3 DATA AND METHODOLOGY	110
4.4 EMPLOYERS’ ADOPTIONS.....	114
4.5 EMPLOYEES’ ADOPTIONS	120
4.6 IMPLICATIONS AND CONCLUSIONS	129
5 GEOGRAPHY OF SAVINGS IN THE GERMAN OCCUPATIONAL PENSION SYSTEM	
133	
5.1 INTRODUCTION	133
5.2 PENSIONS AND GEOGRAPHY	136
5.2.1 <i>A Global Model on Retirement Savings</i>	136
5.2.2 <i>Regional Variability in the Model of Retirement Savings</i>	140
5.3 DATA AND METHODOLOGY	146
5.3.1 <i>Data</i>	146
5.3.2 <i>Methodology</i>	148

5.4	ANALYSIS	150
5.4.1	<i>Descriptive Statistics</i>	150
5.4.2	<i>Modelling</i>	155
5.5	IMPLICATIONS AND CONCLUSIONS	165
6	THE GERMAN MODEL OF RISK DISTRIBUTION IN SUPPLEMENTARY OCCUPATIONAL PENSIONS	169
6.1	INTRODUCTION	169
6.2	OCCUPATIONAL PENSIONS AND THE RIESTER REFORM.....	173
6.3	RISK DIMENSIONS: SCOPE AND SHARING.....	176
6.3.1	<i>Risk Dimension I: Scope</i>	177
6.3.2	<i>Risk Dimension II: Sharing</i>	181
6.4	DATA, HYPOTHESES AND METHODOLOGY	184
6.4.1	<i>Data</i>	184
6.4.2	<i>Hypotheses and Methodology</i>	186
6.5	ANALYSIS OF RISK DIMENSION I: SCOPE OF THE RISK	189
6.5.1	<i>Employers' Choice</i>	189
6.5.2	<i>Employees' Product Choice</i>	192
6.6	PRODUCT CHOICE: REGRESSION ANALYSIS	194
6.7	ANALYSIS OF RISK DIMENSION II: RISK SHARING	199
6.7.1	<i>Choice Distribution</i>	199
6.7.2	<i>Determinants of Risk Distribution</i>	200
6.8	IMPLICATIONS AND CONCLUSIONS	203
7	CONCLUSION	206
7.1	INTRODUCTION	206
7.2	SPECIFIC RESEARCH QUESTIONS AND POLICY RECOMMENDATIONS	207
7.2.1	<i>Specific Research Question 1</i>	207
7.2.2	<i>Specific Research Question 2</i>	208
7.2.3	<i>Specific Research Question 3</i>	210
7.2.4	<i>Specific Research Question 4</i>	211
7.2.5	<i>Policy Recommendations Based on Specific Findings</i>	212
7.3	GENERAL RESEARCH QUESTIONS AND THE CONTRIBUTION TO LITERATURE.....	215
7.3.1	<i>General Research Question 1</i>	216
7.3.2	<i>General Research Question 2</i>	217
7.3.3	<i>General Research Question 3</i>	218
7.3.4	<i>General Research Question 4</i>	220
7.4	DIRECTIONS FOR FURTHER RESEARCH.....	221
8	APPENDIX: GERMAN OCCUPATIONAL PENSIONS – RESULTS OF AN EXPERT-BASED SURVEY OF RESPONDENT OPINIONS	225
8.1	INTRODUCTION	225
8.2	SURVEY DESIGN.....	227
8.3	EMPLOYER PENSION POLICY	229
8.4	IMPLEMENTATION OF PENSION POLICY	235
8.5	RESPONDENT AFFILIATION AND OPINIONS.....	239
8.6	IMPLICATIONS AND CONCLUSIONS	241
8.7	APPENDIX I: THE ORIGINAL QUESTIONNAIRE WITH ENGLISH TRANSLATION	243
9	REFERENCES.....	246
10	CONFIRMATIONS ON PAPER SUBMISSIONS AND CO-AUTHORSHIP	270
10.1	ENVIRONMENT AND PLANNING C	270
10.2	ENVIRONMENT AND PLANNING A	271
10.3	REGIONAL STUDIES.....	272
10.4	THE JOURNAL OF RISK	273
10.5	CONFIRMATION ON CO-AUTHORSHIP.....	274

List of Tables

Table 1.1. Research questions and the thesis.....	16
Table 1.2. The original research chapters and their structure.....	21
Table 3.1. The decision matrix of the pension reform.....	86
Table 3.2. The results of the vote in the Bundesrat on the 11th May 2001.....	89
Table 4.1. Summary of hypotheses on enrolment decisions	110
Table 4.2. Proportion of employers joining before the end of 2003	116
Table 4.3. Relative share of employers across the Bundesländer at the end of 2009...	117
Table 4.4. Results of Model 4.1.....	119
Table 4.5. Relative share of employees across the Bundesländer at the end of 2009 (100%=Germany total).....	121
Table 4.6. Proportion of employees joining before the end of 2003.....	122
Table 4.7. Average date of enrolment according to gender and geographical location	123
Table 4.8. Employees' average enrolment date and age	124
Table 4.9. Results of the employee-level Cox-regression (Formula 4.2).....	125
Table 5.1. Research hypotheses.....	146
Table 5.2. Descriptive statistics, following the logic of the hypotheses	151
Table 5.3. Overview of the models.....	158
Table 5.4. Random-effect coefficients of the local models.....	159
Table 6.1. Distribution of employers and individual employee contract numbers.....	190
Table 6.2. Results of the binomial logistic regression on the product choice	195
Table 6.3. Results of the multinomial logistic regression on product choice.....	197
Table 6.4. Logistic regression explaining choice between German DB and German DC	202
Table 8.1. Opinion on pensions as social duty or as individual responsibility	233
Table 8.2. Opinion on employers' subordinated guarantee and PSV aG	237

List of Figures

Figure 2.1. Gross pension replacement rates from the different pension pillars	40
Figure 4.1. Share of employers according to enrolment year.....	114
Figure 5.1. Average yearly savings in €	153
Figure 5.2. Average yearly savings of new contracts in € according to gender, source of financing and enrolment year	155
Figure 5.3. Unstandardised residuals of the global model (Model 5.0)	156
Figure 5.4. Predicted effect of the Länder and the urban/non-urban address on the logarithm of savings (Model 5.2)	161
Figure 5.5. Predicted yearly savings difference between men and women (Model 5.3)	162
Figure 5.6. Predicted effect of gender on the logarithm of the savings.....	163
Figure 6.1. The legal environment of occupational pensions.....	175
Figure 6.2. Risk protection in the reformed occupational pensions	178
Figure 6.3. Distribution of decisions between the stakeholders	183
Figure 6.4. Employers according to the number and type of products on offer	191
Figure 6.5. Employee contracts at employers with one product on offer.....	192
Figure 6.6. Employee contracts at employers with two products on offer	193
Figure 6.7. Employee contracts at employers with three products on offer	194
Figure 6.8. Distribution of German defined benefit and German defined contribution plans.....	200
Figure 8.1. Opinions on ‘The role of the compensation policy is to support corporate strategy’	231
Figure 8.2. Relationship between compensation policy and automatic enrolment	235
Figure 8.3. Problems seen in occupational pension provision	239
Figure 8.4. Respondents’ affiliation and selected statements.....	240

Acknowledgements

Writing this thesis on Germany would hardly have been possible without a strong *Hinterland*. Accordingly, my gratitude to my supervisors, Professor Gordon L. Clark and to Dr. Dariusz Wójcik cannot be overstated. I am grateful for their help and support throughout the whole research project. Gordon has always been inspiring and encouraging while discussing literature and research evidence and while preparing for meetings. Moreover, his amazing responsiveness, patience and focus on the issue impressed me from time to time. I am similarly indebted to Darek for his analytical rigour and inspiring discussions, which often ended in talks over various topological and geographical maps about economic issues.

I would also like to thank Heribert Karch, Dr. Jörg Heldmann, Jörg Resech and to all their colleagues for their professional and personal support throughout the years I have spent carrying out the present research. Without the encouragement of Heribert, the sympathetic comments of both Jörgs, and their detailed knowledge of the German pension market this thesis would not be an integrated whole. Moreover, I am grateful to Mr. Walter Riester for offering his time and expertise at the personal interview conducted on 19th May 2009 in Berlin. The talk with him has been extremely helpful in framing the research towards its current form.

I wish to thank all people helping me, reading and commenting my papers and my thesis, and giving me encouragement to continue on my journey, namely (in alphabetical order): Prof. Harald Bathelt, Prof. Christian Berndt, Dr. Paul Cox, Dr. Adam Dixon, Prof. Johannes Glueckler, Prof. Britta Klagge, Caitlin McElroy, Dr. Ruth Ripley, Olga Thönissen, Paloma Ubeda and Beáta Ugodi. I am very grateful to László Váry for the proof-reading he carried out. Nevertheless, none of the persons mentioned should be held responsible for errors, omissions or any opinions expressed herein.

I owe a debt of gratitude to Dr. Tamás Halm, András Sugár, Luuc Turkstra and Prof. Jochen Wilhelm for their support during the application process to the Doctor of Philosophy programme at the University of Oxford as well as in the preparation phase of my research. Furthermore, the research was only possible with the solid German language skills and cultural knowledge obtained during my studies at the Deutschsprachiger Studiengang at the Corvinus University of Budapest and Universität Passau. Furthermore, I am indebted to Prof. Katalin Botos and Dr. Zoltán Gál for the discussions and support related to my research.

Finally, I would like to thank my family and Melinda for their support, love and patience.

Csaba Burger
Oxford, November 2010

1 Introduction

1.1 Research Background and Significance

“Europeans thought they were progressing towards an ideal civilisation. Now time is up, and it hurts”

The Economist, (2010a)

Although the provocative sentence of The Economist expresses a biased and debatable opinion about European welfare state retrenchments, it shows that studies about pension reforms do have relevance today. European welfare states, known for the key role the state plays in the provision of resources in order to promote the wellbeing of its citizens (Esping-Andersen, 1990: 160), have been on a politically and socially problematic retreat since the 1970s (Pierson, 1996). This process was mainly caused by demographic ageing, increasing life expectancy and high unemployment due to the fierce competition from developing countries, and it increased deficits in public pension systems too (Taylor-Gooby, 2004). As a result, occupational (and private) pensions have been gaining importance. European citizens were forced to realize that maintaining the living standards of current pensioners, and having similar standards in their own retirement require significantly less consumption today.

Germany, the largest European economy in terms of GDP and the world champion in exports until recently (Joebges et. al., 2009), could not escape from these changes either. Its pension reform of 2001 had been preceded by long-drawn political battles since the beginning of the 1990s. Political powers had been struggling between their short term survival interests, and long term moral dilemmas concerning the pension reform. One main debate has been around the choice between increased degree of individual responsibility and social solidarity (Schmähl, 2003, Hassel, 2003), which included the

discussion about employers' autonomy in issues related to occupational pensions. Although the reformers decided to cut the level of public pensions, and introduced voluntary supplementary occupational and private pensions to replace the reduced public retirement income, some observers believe that the dilemmas of 2001 have not been solved until today. First, the country's demography and the economic performance of global capital markets may reduce public pensions further (Börsch-Supan, 2004a). Second, since enrolment in the supplementary system is voluntary, and several savings parameters are to be determined by employers and individuals saving for the retirement, it is far from obvious that supplementary income replaces the withdrawal of the state (Börsch-Supan et. al., 2008). Therefore, a comprehensive judgement of the German pension reform of 2001 and its effect on occupational pensions has yet to be made.

The humble aim of this thesis is to investigate the economic geography of occupational pensions in the light of the German pension reform. More specifically, the thesis consists of a literature review, four original research papers and a conclusion, studying the reform of 2001 and its consequences on the reformed occupational pensions from different perspectives. The first research paper analyses the political origins of the German pension system, by looking at the behaviour of political actors and its effect on the structure of the reformed pension system, with an emphasis on occupational pensions. The second and the third studies address employer and employee behaviour in pension decision making, by looking into the geography of occupational pensions in Germany. They discuss geographical differences in the uptake and in personal savings decisions between 2002 and the end of 2009. Finally, the last study describes the risk-sharing between employee and employer in occupational schemes, and contributes to the understanding of occupational pensions in the German society.

This thesis uses Germany to illustrate European welfare state retrenchments and its relationship with human financial decision making for the following reasons. First, it is an interesting political case: it has recently introduced several measures to overcome its economic problems by driving its financial markets closer to the Anglo-Saxon systems, by introducing the Euro and by reducing various parts of its welfare measures (Streeck and Trampusch, 2005, Clark and Wójcik, 2007). Second, the country is heterogeneous in terms of culture, history, economy and even language dialects, which may imply different human behavioural patterns both on individual and on organisational level (Falck et. al., 2010). Third, there has already been an ongoing research on Germany's diverse financial markets and its employers' geographically varying response to the structural changes, underscoring the potential reward coming from geographical investigations (Wójcik, 2002, Martin et. al, 2002). Accordingly, this thesis aims at engaging with these and further authors by contributing to the relevant literature: the disciplines of economic geography, political economy and behavioural finance.

This introductory chapter is structured as follows. The next section outlines the theoretical foundations of the thesis, followed by a section describing its aims and significance. The fourth section depicts the structure of this thesis, followed by a short summary of its findings. Finally, the last section describes the limitations of the research. However, none of these sections is meant to replace the literature review, research chapters or the conclusion.

1.2 Theoretical Foundations

The theoretical underpinnings of this thesis originate from economic geography, more specifically, the geography of finance (Clark and Wójcik, 2007). This means that

attention is drawn to the multidimensional nature of economic and financial phenomena when discussing the dualism of behaviour and environment. The following two arguments specify what this approach means for the study of occupational pensions and its transition in the course of the German pension reform.

In a certain sense, the transformation of the German pension system follows the same pattern as the change in many other European countries (Clark and Whiteside, 2003). Although these countries show a variety of institutional arrangements, including the different roles of public and private institutions in old age finances (Hyde et. al., 2003), they all seem to have increased the extent they take the pressure of the global financial order into consideration (Dixon and Sorsa, 2009). The appearance of the financial logic in everyday decision making, financialization, not only affects institutional or political level decision-making, however. Global forces transforming welfare systems challenge the way employers treat old age benefits provided to their employees (Langley, 2004), and profoundly alter social behavioural norms in pension-related and other financial matters on the level of the individual (Langley, 2008). Although the overarching convergence/divergence framework is not necessarily emphasized at each step of this research, its relevance and implications are discussed in detail by the literature review (Chapter 2) and the conclusion (Chapter 7).

Given this overarching background about capitalist systems, the thesis looks into the particularities of the German transformation, using the example of occupational pensions after the pension reform of 2001. More specifically, it investigates the change of the pension system caused by a series of political transactions, followed by a comprehensive inquiry about its consequences on its main stakeholders, using the

perspective of an economic geographer. Although transformation may be considered as a two-step process – a change in pension systems and its consequences – the thesis refrains from strictly distinguishing between structural changes and impact analysis. The reason for this is that such an approach would misleadingly limit the definition of structural change to a set of legislation or to a narrow timeframe around the pension reform. Instead, the thesis distinguishes three distinct layers of the pension system which were strongly affected by the pension reform of 2001, and looks at their development during a longer period.

The first layer of the analysis engages with the political dimension of the pension system, and looks at the relationship between formal mechanisms providing old age income (World Bank, 1994, OECD, 2009) and political actors, more specifically, the government and the social partners (trade unions and employer associations). However, in order to avoid the ‘dependent variable’ trap (Starke, 2006), the thesis does not want to explain the structure of the pension system with actor behaviour (Hall and Soskice, 2001), or argue that behaviour is encoded in the legal or other origins of a given geographical region (La Porta et. al., 1998). Instead, the emphasis is laid on the co-evolution of actor behaviour and system outcomes. This is done with an iterative analysis of stakeholder interests during and after the pension reform (Pierson, 1994, Rhodes, 2000, Hassel, 2009).

The second and the third analytical layers deal with the main stakeholders of the occupational pension system, the employers and the employees respectively. The underlying assumption applied to understand both organisational and individual behaviour is the behavioural theory of human decision-making, describing behaviour as

the joint outcome of environmental factors and of human cognition (Simon, 1955). Both of these categories are analysed using a geographical lens: pension-related decisions are in the focus, and are explained with the help of localised explanations (Bathelt and Glückler, 2003: 124). This means the insistence on that both the ‘environment’ and ‘human cognition’ of financial decision making of Simon can be created locally. On employer-level, organisational behaviour related to pensions is under investigation. For instance, the pension-related decision environment of the ailing automotive corporations concentrated in the US Midwest, largely generated by their unfunded pension promises to their employees (Monk, 2008), not only affects giant corporations, but influences the whole region as a set of production systems (Walker, 1989).

On employee level, similar forces in play underscore the expectation that the individual-level manifestation of the pension reform shows spatial patterns and local relationships for the individual. This involves the role of available information (Pred, 1967), or the broader category of behavioural economics that coheres with local context (Strauss, 2008, Clark, 2010). To illustrate this latter argument, there is a relationship between German language dialects, grammatical features and internal migration decisions even today. This means that past cultural identities still influence today’s economic exchange (Falck et. al., 2010). Finally, the bond occupational pensions represent in the local relationship between employer and employee is analysed. This relationship has been changing as a consequence of the pension reform and of social partners’ measures, and antagonism has been arising between the local employer-employee and the central state-citizen relationship. As a result, centrally imposed measures such as using automatic enrolment in occupational pensions face resistance from some employers in Germany,

while it is gaining political and economic popularity in the US and UK (Clark and Urwin, 2010, NEST, 2010).

The behaviour of political, corporate and individual actors is investigated in their respective environments throughout the thesis. The second chapter provides a detailed overview of the relevant literature in geography, discussing its implications on political, corporate and individual behaviour acting within their local environments, and altering structures judged as costly burdens of the past. The specific question asked by the literature review is: what are the implications of the environment-cognition dualism for pension-related decisions? Following that, the third chapter investigates how the behaviour of political actors and the national structure of the German pension system affected each other in the period from the 1990s till 2009. The background provided in the literature review on the global hegemony of finance (Clark, 2005) shows that political questions of Chapter 3 contribute to debates in economic geography. Moreover, understanding the political environment is essential in order to comprehend the contribution of the remaining parts of the thesis. The fourth and the fifth chapter look at the geography of corporate and individual pension decision-making, by discussing enrolment and savings decisions respectively. They provide an understanding of corporate and human behaviour in their given legal, economic social and cultural environments, with an emphasis on explanations in space and in time. Finally, the sixth chapter analyses how the given legal system affects risk taking behaviour in the German occupational pensions. This last research chapter leads back to the discussion in social sciences about the global hegemony of finance, since it answers the question how actors manage the volatility of global finance.

1.3 Research Objectives and Significance

Having shown the overarching theoretical underpinning of this thesis, two specific research questions are formulated:

- How have political actors, corporations and individuals been adapting their pension decision-making under the pressure of the ageing German society?
- What are the local explanations for geographically varying political, corporate and individual decision-making related to occupational pensions?

These research questions are approached with the help of four distinct research papers (from Chapter 3 to Chapter 6), submitted to scientific journals. Moreover, it is complemented with the reproduction of an additional report in the Appendix. Following the logic of the main research questions, all the four main papers have two types of messages: specific and general (Table 1.1). Specific questions address the issue of retirement income and occupational pensions in Germany. Accordingly, Chapter 3 analyses the political economy of the pension reform by investigating the role of social partners in transforming the German pension system; and the implications of the social partners' and the government's behaviour on the structure of retirement income. Chapter 4, 5 and 6 look at the consequences originated from the pension system's structure determined by the reform. More specifically, the fourth chapter investigates the questions what effect geography has on the timing of the enrolment decision in the voluntary supplementary pension pillar, both in the case of employers and employees. The fifth looks at how the relationships explaining individuals' yearly savings vary over the geographies within Germany, while the sixth investigates which characteristics correlate with investment choice and risk distribution between employers and

employees (Chapter 6). Finally, the Appendix investigates the opinion of German experts on the employer-employee relationship in the question of occupational pensions.

Table 1.1. Research questions and the thesis

	Specific research question	General research question
The thesis	How have political actors, corporations and individuals been adapting their pension decision-making under the pressure of the ageing German society?	What are the local explanations for geographically varying political, corporate and individual decision-making related to occupational pensions?
Chapter 2 Literature review	What geographic implications does the scientific literature carry about differences in pension structures and behaviour?	
Chapter 3 Research paper 1	What has been the role of trade unions and employer associations in transforming the German pension system?	What is the relevance of agreements between governments and social partners on welfare state institutions?
Chapter 4 Research paper 2	What are the spatial and temporal patterns of the new pension product adoptions?	What is the role of geography in transmitting financial innovations?
Chapter 5 Research paper 3	How do relationships between savings decisions and individual traits vary over geographies?	What is the role of context in financial decision making?
Chapter 6 Research paper 4	What is the extent of risk individualisation in the German occupational pensions?	How did the structure and role of occupational pensions transform in the German society over the last century?
Chapter 7 Conclusion	Summary of findings and conclusion	
Appendix Survey report	What is the role and significance of occupational pensions for German employers according to experts?	

General research questions are formulated about the broader implications of the thesis and contribute to the general literature. Chapter 3 contributes to the literature of political economy, and accordingly, it addresses the issue whether social pacts between the government and the social partners considered by the literature as ‘failed’ (Streeck and Hassel, 2003, Hassel, 2003) can deliver benefits to the participants. By doing so, it contributes to the discourse about welfare state retrenchments in Europe. Chapter 4 and 5 are both studies in economic geography, pondering over the role of geography in transmitting information, knowledge and trust related to financial innovations (Chapter 4), and over the role of context in financial decision making (Chapter 5). Finally,

Chapter 6 contributes to the understanding and development of financial risk in occupational pensions, by looking at its legal history, and the expressed preferences of today's pension plan participants. This chapter describes how the institution of occupational pensions transformed from being a perk benefit provided by the employer into a serious pillar of retirement income with a social function assigned by the state. This research question completes the investigation about the transformation of the German pension system, since it addresses the growing importance of occupational pensions.

Five arguments are brought to explain the significance of the research questions described above. First, the research explains decision-making processes related to the issue of pensions. Understanding this became crucial over the last century: according to The Economist (2009a), the average life expectancy at birth for the whole world was 30 years in 1900, which grew now to 67. In the rich countries, this value went from 50 to 78 years during the same period. Since this change was not accompanied by a growth in fertility or by a similarly dramatic increase in the effective retirement age, one person in three is expected to be a pensioner by 2050. As a result of that, the advanced G-20 countries are expected to accumulate a fiscal deficit of approximately 400 percent of their annual GDP as a result of ageing-related spending (on pensions and old-age healthcare), unless fundamental structural changes are introduced. For comparison, the financial crisis of 2008-2009 was estimated to cost a tenth of this value (IMF, 2009: 44). It is therefore essential to understand how politicians, corporations and individuals deal with the looming pension crisis.

Second, the focus of this research is Germany, a country with significant economic power and with an ageing population. This country has been the largest exporter of goods and the third largest of services in the world until 2009. Therefore, the European Union and the rest of the world will notice if Germany fails or succeeds with its ageing problem. This problem is particularly serious: Germany had nine births per thousand inhabitants in 2008, the lowest number in the world. Since women's fertility rate dropped below the sustainable value of 2.0 in the 1970s (Reinheckel et. al., 1998), and life expectancy has surpassed 80 years, the median age of German citizens skyrocketed. It now achieves the second place in the world, 43.9 years, overtaken only by Japan (44.4). It is therefore obvious that Germany has a grave ageing problem which may serve as a good or bad example for Europe and the whole world (figures are cited from *The Economist*, 2009b, unless otherwise stated).

Third, as stated at the beginning of this chapter, Germany is a heterogeneous country with a recent reunification, and with sixteen federal states, the *Bundesländer*, making the investigation of local relationships more appropriate. The country's regions have different legacies in terms of history, culture, religion, among others. Religion can be selected to briefly illustrate this argument. The Southern part of Germany has been typically under catholic influence, while the Northern under protestant. The work of Max Weber 'The Protestant Ethic and the Spirit of Capitalism' (Weber, 1904/05) described a link between religion and economic performance, which has been widely debated ever since (Blum and Dudley, 2001, Cantoni, 2010). However, few people seem to challenge the behavioural effects of the protestant work ethic on individual decisions (for an overview, see Furnham, 1984). It has recently been shown again that general risk aversion typically correlates with religious affiliation, using the case of

Germany (Bartke and Schwarze, 2008). Therefore, it is reasonable to expect that social structures and economic behaviour do not follow the same patterns over the country.

The previous paragraph leads to the fourth argument underscoring the significance of this investigation. By analysing actors in the pension reform, and looking at employer and individual pension decision-making from a geographical perspective, this study contributes to the understanding of financial decision-making in general. Although there are sophisticated formal models which have been widely applied all over the world, there are serious doubts if humans really act following formal rationality on all fields of economic decisions (Akerlof and Shiller, 2009). It seems that individual behaviour is sensitive to changes in the environment (Simon, 1955, Kahneman and Tversky, 1979), and that formal rationality is substituted with the ‘sticky’ practices of heuristics, intuition and imitation (Kahneman, 2003). These observations are not only relevant on individual level, but can also affect the behaviour of organisations, or result in macro-level phenomena such as bubbles on the stock market (Soros, 1987). The thesis represents a step towards understanding financial decision-making.

Finally, by understanding determinants of human and organisational behaviour, and by seeing how economic, political and societal structures change along with it, the thesis contributes to the convergence/divergence debate present in contemporary essays about capitalism. Although the multitude of pension systems observable in OECD and in other countries presents an intimidating variety (OECD, 2009), the thesis highlights general processes and features common to these countries using the example of Germany.

1.4 Structure, Scope, Methodology and Empirical Evidence

1.4.1 Thesis Structure

The structure and format of the thesis follows the requirements set by the Examination Regulations of the University of Oxford. Accordingly, the four research chapters correspond to four research papers submitted to scientific academic journals (Table 1.2). Chapter 3 has been submitted to the *Environment and Planning C*, describing the role of social partners in transforming the German pension system. This paper draws on the theories of social pacts (Hassel, 2009), welfare retrenchments (Pierson, 1994) and pension systems (Clark and Whiteside, 2003) in explaining behaviour and the structure during and after the pension reform. Chapter 4 has been submitted to *Environment and Planning A*, studying the adoption patterns of occupational pensions in Germany. This study relies on geographical investigations explaining diffusion and adoption of innovations (Mahajan et. al., 1990, Allaway et. al., 1994, 2003, Howells, 2006, Wójcik, 2009). The paper found in Chapter 5 has been submitted to *Regional Studies*, discussing individual savings decisions in the case of occupational pensions in Germany. The paper is a contribution to understanding the geographical context of individual decisions, using the findings of critical quantitative geographers (Strauss, 2009, Zolnik, 2009, Schwanen and Kwan, 2009). Finally, the last research paper (Chapter 6), co-authored with Professor Gordon L. Clark, looks into the issue of risk sharing in the new, reformed occupational pension schemes in Germany (Wiedemann, 1991, Beckstette and Zwiesler 2004, Clark et. al., 2009). This paper has been accepted by *The Journal of Risk* and is forthcoming in Spring 2011, within a special issue devoted to risk sharing within pension schemes. Each chapter is an independent work with contributions to the research community, understandable on their own right. However, together they represent a comprehensive analysis of the pension reform.

Table 1.2. The original research chapters and their structure

	Chapter 3 Research paper 1	Chapter 4 Research paper 2	Chapter 5 Research paper 3	Chapter 6 Research paper 4
Submitted to	<i>Environment and Planning C</i>	<i>Environment and Planning A</i>	<i>Regional Studies</i>	<i>The Journal of Risk</i> ; forthcoming: Spring 2011
Specific theoretical background	Theory of social pacts and general literature on pension reforms and welfare retrenchments	Geographical diffusions and adoptions	Critical quantitative geography	Theories on risk sharing and behaviour under risk and uncertainty
Period under investigation	1990s-2009	2002-2009	2002-2009	Post World War II - 2009
Methodology	Decision-matrix based reasoning, extended with a long term analytical perspective	Cox-type proportional hazard model with mixed effects (frailty model)	Mixed-effects regression analysis with crossed effects	Review of legal changes; multinomial regression
Main empirical evidence	Personal interview with Mr. Walter Riester, Press search	Access to the proprietary data of a multi-employer pension provider, covering 15 percent of all employees and 60 percent of all employers in the metal and electric industry in Germany, investigation on legal background, contemporary literature and reference to qualitative information		

There is a practical and a logical reason for the papers' succession. First, it follows a sequential logic of pension decision-making. According to that, the German pension reform of the year 2001 created and set off a new, voluntary market of supplementary pension products (Chapter 3). Only after that were employers and employees able to adopt a new occupational pension savings scheme (Chapter 4). Once the adoption decision is made, individuals and employers determine the annual savings they contribute to their savings accounts (Chapter 5). Finally, the last stage of the sales process is the investment decision jointly reached by employers and employees (Chapter 6). These research papers cover the entire 'value chain' of the pension reform with the exception of the retirement phase.

Second, the order of the papers follows the logical analytical concept to investigate the impact of the welfare state transformation. The pension reform was a prerequisite for the appearance of financial logic in pension-related everyday decisions. It then arrived first at employers and then at individuals in a stepwise process. Moreover, as the research is going to argue, this process followed a typical geographical pattern: large metropolitan areas and large employers were reached earlier than small companies and individuals living in smaller settlements. The transformed pension system then requires individual decisions; these are about savings and about risk-sharing during the accumulation phase. The pension reform can only be judged after having seen this cascade of changes.

1.4.2 Scope and Methodology

The structure of the thesis and the theories applied in the chapters indicate that each of them requires a different methodological approach (see Table 1.2). This thesis complements the qualitative analysis of Chapter 3 with three quantitative studies in Chapters 4 to 6. However, the reasoning of the regression-analysis based studies is complemented with qualitative evidence from the literature and discussions with practitioners and experts on the field. The core period under investigation starts from the origins of the pension reform, 1990s until the end of 2009. This lends sufficient time to judge the salience of the behaviour of each political, corporate and individual actor in relation to occupational pensions. Chapter 6 extends this timeframe and provides an overview about the role of occupational pensions in the last sixty years.

Chapter 3 is based on an in-depth interview with Mr. Walter Riester, the Labour Minister brokering the reform, press reporting and current scientific literature. It applies

a decision-matrix-based reasoning to study the stakeholders' political situation during the run-up to the final vote about the reform, as well as the role of the social partners in pension provisioning after the vote, up until most recent times.

Both Chapters 4 and 5 use quantitative models capable of identifying local relationships as opposed to a single global model (Kwan and Schwanen, 2009, Strauss, 2009 and Zolnik, 2009). In Chapter 4, geographical location is used along with other explanatory characteristics to explain the timing of enrolment decisions (Cox, 1972, Fox, 2002, Therneau and Clinic, 2009); while Chapter 5 isolates the effect of a region on other explanatory variables and on the annual savings amounts (Pinheiro and Bates, 2000, Baayen et. al., 2008, Bates, 2009). In both cases, additional information is obtained from the literature to explain the reasons for *local* relationships. Finally, while Chapter 6 discusses the issue of risk in case of the new supplementary occupational pensions, and looks at the discrete outcomes of risk-related decisions empirically.

1.4.3 Empirical Evidence

The thesis relies on two main sources of evidence. First, the thesis benefited from a meeting with Mr. Walter Riester, the former vice-president of IG Metall, the trade union of the metal and electric industry, and later the Labour Minister brokering the pension reform of 2001. Mr. Riester was the key person in pension-related political issues towards the end of the 1990s, both at IG Metall, and in the first government of Mr. Gerhard Schröder after 1998. The pension reform of 2001 has been referred to as the 'Riester-reform' ever since, and the private pensions the reform introduced are often called as 'Riester-pensions' (but remarkably, not the reformed occupational pensions).

His personal considerations and decisions were crucial in framing the structure of the current German pension system.

The interview with Mr. Riester took place on the 19th May 2009 in Berlin. This event has been more than an interview in its classical sense: it was virtually an entire day spent with Mr. Riester. The day included informal discussions in the corridors of the Bundestag and elsewhere, and a structured and recorded interview lasting for approximately four hours. This event took place at a relatively early stage of the research project; therefore it provided solid foundations for the remaining investigation. Strictly speaking, considerations from the interview have been used in Chapter 3 only. However, receiving his experience and expertise helped the author with formulating the research questions and thus designing the whole thesis. The author would like to express his gratitude to Mr. Riester for his help again.

Obviously, the critique may be formulated that the view Mr. Riester provided is limited to his position during the pension reform. Therefore, the interview has been complemented with the findings of the relevant literature, analysis of contemporary press reporting and further informal conversations with practitioners about their opinion on the pension reform and occupational pensions. The information obtained from these latter sources seem to confirm that relevant questions were discussed in the interview with Mr. Riester, and that the talk with him delivered insightful recognitions not available by other means, contributing to the value of the interview and of the thesis.

The second main source of evidence has been a proprietary database of a German occupational pensions provider, containing the records of 12 500 employers and of 332

thousand employees¹ working in the German metal and electric (M+E) industry and in its related areas. This data is unique: it covers approximately 60 percent of all employers and 15 percent of all employees active in the M+E industry. Since the M+E industry was responsible for half of all exports of Germany in 2008, it has a prime significance to the German economy (Gesamtmetall, 2010:4; Destatis, 2009: 73 and 644). The pension provider has offered exclusive access to its anonymised records for the purpose of this thesis; which means that no other research has been based on it which could have delivered similar results.

One of the reasons this data-set has been appropriate for this study is its size and geographical comprehensiveness. Its coverage provides sufficient number of observations for every region in Germany, defined by the first two digits of its respective postcodes. As a result, it offers a sufficiently detailed scale for regional comparisons. Moreover, it gives a reliable picture of occupational pension plan enrolments and suspensions between the years of 2002, the starting year of the new pension market, and the year of 2009, the worst year of the financial crisis. Since the pension reform was followed by a series of legal and institutional changes over the years, including new collective agreements in 2006, or shorter working hours during the crisis year of 2009 (*Kurzarbeit*), the effect of these can be investigated too.

Using a proprietary data-set has advantages. First of all, the amount of information it contains can hardly be reproduced by conventional questionnaire-based projects due to constraints in terms of access to this number of employees and employers, time and

¹ Each chapter uses a sub-sample of the original data, according to the availability of information on specific variables. Accordingly, Chapter 4 and 5 use the records of 286 thousand employees, while Chapter 6 is limited to information about 276 thousand employees. Similarly, employer numbers alter between 12 500 and 12 000. References to market shares have been adjusted accordingly.

financial budget. Moreover, the data contains more than records at one point in time. It covers employer and individual decisions over a relatively long time-period of eight years (2002-2009). Finally, the records comprise actual decisions, as opposed to self-reported information, which significantly reduces the risks of under-reporting or errors. As a result of these facts, the insights provided by the data are also unique: Chapter 4 delivers findings about the spatiotemporal spread of the new occupational pension products; Chapter 5 investigates savings decisions over space and over time; and Chapter 6 offers recognitions how employers' and employees' risk-related decisions have been evolving over time. The access to the proprietary data has been essential to answer these questions.

On the other hand, the use of proprietary data also has disadvantages. For instance, the data is limited to the German metal and electric industry. Notwithstanding its already mentioned significance – half of Germany's goods exports and ten percent of its employees – it necessarily has a geographical and economic structure which may be different from the country's remaining industries. Industry clusters, geographic concentrations of interconnected companies and institutions in a particular field (Porter, 1998: 78), are present in most German industries (Brenner, 2006). For instance, automotive clusters are present around Ingolstadt, München, Regensburg, Stuttgart (Gertler, 1996), Brunswick, Bremen, Starkenburg and in the Ruhr-region, and other manufacturing clusters scattered around different parts of the country (for an overview of clusters in Germany, see Sternberg and Litzenberger, 2004). This means that certain geographical concentrations of M+E activities may draw different geographical tendencies than other industries would.

However, this critique can be justified only partially. The point of the thesis is to show how economic matters – in this case, pension-related decision-making – can have localised explanations. This means answering the question what role geography has in adoption and savings decisions (Chapter 4 and 5); and how investment risk is distributed between the employer and its employees in occupational pensions (Chapter 6). Obviously, while the M+E and its related industries may require different explanations than other industries would in certain cases, there are issues and contexts where industry-affiliation does not play a significant role. These explanations have to be selected with critical sensitivity (Schwanen and Kwan, 2009).

1.5 Summary of the Contributions

1.5.1 Specific Contributions

It is always too early to judge the effects of a pension reform. This thesis shows that discussing the outcome of ‘failed’ social pacts, as referred by the literature (Streeck and Hassel, 2003) is difficult immediately after the pension reform of 2001. Social partners’ internal division prevented the cooperation with the government, but their behaviour was sufficient to block the implementation of a mandatory supplementary system. Moreover, they achieved concessions in exchange for not vetoing the reform. Subsequently, their involvement in pension provision turned out to be the gold standard. For the future, Dixon (2009) urges the social partners to constantly monitor the effect of their intervention, and dynamically mould their measures to the changing socio-economic contexts.

However, this ‘gold standard’, the privileged status of collective agreements on the field of occupational pensions, has its limitations. First, enrolment in the supplementary savings schemes is *voluntary*. Employers and employees individually opt in the system, resulting in peculiar patterns. One of them is the impact of geography in influencing the timing of enrolment decisions. Probably no politician or social partner intended to differentiate between regions, cities, men and women, or small and large corporations in a systematic manner when they created the pension system in 2001. Another similar effect is individuals’ freedom to choose their yearly savings contributions, which shows remarkable spatial differences too. Social partners were able to limit these unintended consequences by their collective agreements since 2006, but these are just partial solutions to the underlying problems.

Occupational pensions turned out to be substitutes of public pensions (Schmähl, 2003), and, as a result, employers now fulfil a social duty by distributing them. Since employers remained liable for the nominal value of occupational pension savings, including the amounts contributed by the employee from their salaries (*Entgeltumwandlung*), a complex institutional risk-sharing mechanism was created to protect them from these consequences. The volatility of global capital markets is offset with conservative investment policies and a chain of reinsurance elements. Despite this mechanism, employers often prevent their employees from choosing riskier investment options, and often behave in order to further reduce their exposure to occupational pensions. From this study it seems that their involvement in sharing the risks of occupational pensions is not considered as their task.

1.5.2 General Contributions

Moving on to the general contributions, the thesis argues that explaining the institutional diversity of pension systems across the world is just a partial research aim. As the example of the German pension reform shows, the outcome of political discourses depends on minor details of political and economic situations. Slight differences in interests of or in the power of political actors may result in fundamentally different economic and societal structures. Therefore, the thesis argues, the analysis of structural changes should consider profound transitions during reforms *together* with individual and organisational behaviour. Moreover, the timeframe of the analysis should include the reform and stretch out in time to include evolutionary changes which follow the spectacular political discourse.

Despite the statements in the previous paragraph against the convergence of economic systems, there are structural similarities which seem to be present in the German change processes. There is no doubt that actors never challenged the need to change the German pension system. They all accepted the financial constraints in which the country and the old pension system became unsustainable. This feature confirms the argument about the ubiquity of the financial motive in decisions (Clark, 2005, Dixon and Sorsa, 2009). Moreover, corporations and individuals make financial decisions according to similar patterns as in other regions and countries. They seem to share behavioural shortcomings, namely that individuals procrastinate savings decisions or do not recognise the salience of own pension savings (Clark et. al., 2009).

Despite the above mentioned similarities, there are systematic variations over geographies in human behaviour. The following chapters depict patterns in pension

decision-making which cannot be explained without engaging with local context, or without additional assumptions about the actors' economic, social or cultural backgrounds (Strauss, 2008). At first, local explanations are often of economic nature, since pension-related decision making is an economic issue. However, human behaviour is 'social-cum-spatial' (Strauss, 2009), economic backgrounds can often be traced back to cultural or social phenomena. Chapter 4 and 5 explicitly show and explain such local patterns, while Chapter 6 shows commonalities of individuals sharing similar employer characteristics. Although this last case does not explicitly address geographical location in its physical sense, it addresses the issue how an employer decision affects its employees.

The thesis thus provides evidence against treating individuals as isolated decision-makers. It seems that studies not accounting for interactions between individuals, and between organisations formed by individuals miss the point of human existence. Humans are embedded in their respective environments, influenced by their peers (Kahneman, 2003), by problem framing (Kahneman and Tversky, 1979) and decision contexts (Thaler and Sunstein, 2003). Applying a geographical perspective to study financial decision making is a promising and practical tool to uncover these patterns.

1.6 Limitations

This section follows the dual approach of the research questions, and discusses specific and general limitations. A few concerns have already been discussed by the section dealing with the empirical evidence of this thesis. However, there are further issues beyond the limitations mentioned there. First, it is time to repeat a sentence from above: it is always too early to judge the effects of a pension reform on occupational pensions

and on employees. This was acknowledged by the German legislators too, and ordered the government to prepare a monitoring report about the revenues and expenditures of the public pension system annually (*Rentenversicherungsbericht*), as well as about the actual and expected old age income situation of German citizens in each election period (*Alterssicherungsbericht*). Should the committee consider intervention as necessary, the government has to do so (§154 SGB VI, The Sixth Book of the Social Security Code). In contrast to the rolling and repeated nature of the governmental report, this thesis looks at a limited period, and, most probably, will not be reproduced annually. Therefore, the true impact of the ‘failed social pact’ or ‘behavioural shortcomings’ on retirement income are not identified by the thesis.

Closely related to the previous argument, the thesis is limited to the issue of pensions. More specifically, it only discusses the reformed occupational pensions available to employees in the private sector (direct insurance, *Pensionskasse* and *Pensionsfonds*). This has three implications. First, by concentrating on pensions, the political analysis of Chapter 3 does not discuss backstage ‘deals’ between the government and the social partners on other fields. Therefore, existing literature is cited at points where considered necessary, in order to offset the missing link to other discourses. It should be noted already that in a certain sense, the pension issue was typical for the relationship between government and the social partners. Reformulating the words of Streeck and Hassel (2003): ‘the pillars of social partnership were crumbling’. This not only influenced the success of the pension reform, but limited the scope for cooperation in other issues.

Second, Chapters 4 to 6 contain little original empirical evidence about issues outside the framework of the reformed occupational pensions. This means that other

occupational pensions, namely, direct pension promises (*Direktzusage*) or support funds (*Unterstützungskasse*) are not discussed. These vehicles represent approximately one-third of all occupational pensions in Germany (Alterssicherungsbericht, 2008: 132), and thus have significance. As this thesis argues in Chapter 3, these pension products were not promoted by political forces to supplement public pensions, and are therefore not discussed. Moreover, the information about employees' other financial assets, marital status, family- or health condition, or career paths is not used, since the aim of the thesis is not to provide a perfect financial analysis of the household sector. Instead, it looks for geographically varying tendencies in a given financial decision. Third, public sector employees are not considered by this analysis. As Mr. Walter Riester admitted, he regrets too that the pension reform failed to alter eligibility rules accordingly (Riester, 2009). However, the Civil Servants' Pension Scheme in the public sector was providing occupational pensions to all public employees already in the pre-reform times (Schmähl, 2003: 119-121).

Another serious limitation of this thesis is the scant evidence about employers' economic or other circumstances. The report in the Appendix has been added to this thesis in order to overcome this problem. It is an expert-based survey executed at the conference organised by the Association of Occupational Pensions (aba) in Bonn, May 2010. The goal of the Appendix is to contribute to the discourse about the role of occupational pensions, and to see how German experts see the relationship between pensions and German employers. It confirms an existing divergence between two expert-groups: one group in favour of the idea that German employers should strive to maximise participation in their occupational pension plans, and another believing that employers should use occupational pensions as an HR-instrument to reward loyal

employees and increase employee-retention. Based on the analysis it seems that the proposal to introduce automatic enrolment would transform the local employer-employee relationship into a state-citizen relationship, which imposes duties upon the employers. Therefore, some experts fiercely oppose it, unless occupational pensions are profoundly changed again.

Moving on to methodological limitations, the research has limitations in its geographical scope. First, it focuses on Germany, but references are made to experience in other countries. Second, the geographical information available in the data is limited to administrative regions. This has the consequence that the analysis of local explanations and of context is limited to these administrative areas. Actual spatial interactions may happen in different spaces. For instance, the pension-related decision of a München-based employee may be under the influence of his or her colleagues living in Frankfurt, Düsseldorf or Hamburg. In other words, the analysis provides local relationships up to the detail of these administrative regions, and is not able to accommodate non-proximity based geographical logic.

Although the applied quantitative methods of Chapter 4 and 5 are widely accepted means for operationalization of local behaviour and can capture intrinsic differences (Anselin, 1995, Fotheringham, 1997, Fotheringham et. al., 2000), they are used to study territorial data. As a result, they fail to explain the effects of non-local social networks and ties. However, social networks *are* often local, and territorial analyses may as well deliver the same results as social network based analyses, as the example of industrial clusters show (Sorenson, 2003). Admittedly, there are techniques to investigate non-local social networks, as the investigation of co-authorships of scientific journals shows

(Barabási et. al., 2002). Nevertheless, the thesis discusses local territorial regions which are of particular importance.

Finally, the applied quantitative techniques may be criticised for failing to establish the link between the technical appearance of context and the substantive context interpretations. Indeed, additional information is required that explains the reasons for the systematic differences in human behaviour. For this reason, some economic geographers promote ‘close dialogue’ with the subject of the investigation (Clark, 1998), including researchers advocating in-depth interviews and involvement in their situation (Thrift, 1996, McDowell, 1997). Their approach may provide sufficient information that complements quantitative studies. As a result, no quantitative analysis is sufficient without the results of additional investigations (Strauss, 2008, Zolnik, 2009). Therefore, this thesis establishes the link between context and quantitative observations with the help of critically selected qualitative literature, which is an accepted way of pursuing research in economic geography (Schwanen and Kwan, 2009).

Despite these shortcomings, this thesis provides the first economic geographic perspective of the German pension reform. Because it addresses questions of critical importance, its limitations are opportunities. Therefore, the concluding chapter returns to some of the points discussed by this section, and formulates further research proposals using the findings of the thesis.

2 Literature Review

2.1 Introduction

The twenty-first century has arrived in Europe with ageing populations, high unemployment levels and unsustainable public pension systems (Taylor-Gooby, 2004). As a result, most governments had to implement welfare retrenchments, and significantly curtail the pension levels provided by the public, pay-as-you-go pillars. In order to offset the cutback and to prevent old-age poverty, funded, supplementary pensions were introduced or strengthened. In most cases, the pension reforms were milestones towards individualisation, in the sense that they increased the individual's freedom and responsibility to influence his or her expected retirement income, and to determine several details how pension savings are invested (Schmähl 2007c). However, as behavioural sciences and real life examples confirm, individuals often fail to prepare old age finances adequately (Mitchell and Utkus, 2004), and therefore have to accept a significant drop of living standards in the retirement. To make things more complex, the reforms also had the implication that individuals saving for the old age face an increased exposure to the global capital markets, and often have to accept a certain degree of uncertainty in their existing pension rights and savings (Dixon and Sorsa, 2009).

The purpose of this chapter is to understand this phenomenon by reviewing the economic and political geography literature related to pensions, to describe the broader research background of the following parts of this thesis, and to identify unanswered questions and research areas not clarified so far. The reasons why geography is an adequate discipline for the study of pensions is threefold. First, the political, economic and social transformation, called financialization, implemented the financial logic in

everyday decisions. This means that local decisions all over the world are often made in the light of the global financial situation, and more often carry consequences interrelated with the developments on global capital markets (Clark, 2005). Since economic geography has a range of analytical tools and already existing literature about the global-local dualism of financialisation, investigating pension-related decisions of political, corporate and human actors can benefit from using it.

Second, human nature is inherently ‘social-cum-spatial’ (Strauss, 2009). Social ties, networks and local decision environments together strongly influence human decision making of given geographies, such as poor pension decisions in specific depressed regions or risk-averse investment choices at certain employers. Therefore, the geographical lens applied to understand pension decision-making contributes to the understanding of human nature by allowing the identification of local explanations to economic behaviour (Bathelt and Glückler, 2003). Third, partly as a consequence of the previous argument, no environment permits unaffected decisions (Thaler and Sunstein, 2003). Therefore, using the previously mentioned geographical lens and mapping local explanations can contribute to the creation of better decision environments, in order to avoid behavioural shortcomings related to pensions.

This chapter first briefly discusses the recent developments related to pension systems from a structural, comparative aspect. It is followed by three sections, corresponding to the political geography of finance and of pensions, the corporate geography of pensions and the economic geography of human financial decision making. The emphasis is put on the welfare states of Continental Europe, since its purpose is to provide a background research on Germany. However, adequate illustrations and examples are considered

from the Anglo-Saxon world too. The final section discusses the implications of the literature review, and identifies directions where further geographical investigation can be fruitful.

2.2 The Structure of Retirement Income

The Europe-wide survey of Aviva (2010) calculated the difference between expected retirement income based on actual savings and actual wealth, and between an adequate pension level of around seventy percent of average lifetime earnings². The survey identified a ‘pension gap’ of 1.3 trillion € for the generations retiring between 2011 and 2051, equal to 19 percent of the European GDP in 2010. According to the study, the annual amount necessary for individuals to avoid significantly lower living standards in the retirement reaches on average 1 900 € in Hungary, 11 600 € in Germany, and 12 300 € in the UK. Investigations about the European pension gap by Börsch-Supan (2004b), Antolín and Whitehouse (2009) or the OECD (2009) depict similarly bleak pictures, lending significance to the issue of pensions. Therefore, understanding the reasons how politicians, employers and individuals deal with pensions are the first steps towards avoiding a poorer time in retirement.

Attention directed towards pension reforms grew significantly after the Chilean reform in 1981, followed by reforms of nine other Latin American countries before the millennium (Mesa-Lago, 2002), and continued by Eastern European countries liberated from communism (Fultz and Ruck, 2001). Pension issues gained additional devotion from researchers and policy makers when developed countries started to notice the

² The survey has calculated with 90 percent of average lifetime earnings in the case of low-earners, 65 percent in case of mid-earners and 55 percent in case of high-earners (Aviva, 2010).

burden of their ageing populations (Thompson, 1998). As a result, a set of system-design recommendations have been formulated by institutions such as the World Bank³ (World Bank, 1994, Holzmann, 2000, Holzmann and Stiglitz, 2001, Barr, 2006, Barr and Diamond, 2008). The main inevitable decisions concerning pension systems are simple in theory. Number of years spent in retirement multiplied by the level of pensions provided determines the liability side, while the decision about pension sources is the asset side on a pension system's imaginary macro-scale balance sheet.

Surprisingly, the attention paid to the length of retirement by the World Bank's policy recommendations mentioned above is less than its significance would suggest. While increasing life expectancy is a good development which is to be supported *per se*, influencing the effective retirement age is an arguable political choice, and is often subject to hefty political disturbances in any pension reform. From the 1970s onwards, early retirement has been an increasingly encouraged way to alleviate the gravening unemployment situations in Continental Europe, which subsequently raised expenditures in the pay-as-you-go pension systems⁴ paid by the working populations (Esping-Andersen, 1996, Gruber and Wise, 1998). One study by Ebbinghaus (2006: 7) investigates the seriousness of early retirement, showing that the share of retirees in the 60-64 age cohorts grew from 25 percent in 1970 to 65 percent around 1995 in case of men for the four countries of (West) Germany, Italy, France and the Netherlands. The same figures changed in the same direction in the Nordic countries, but reached lower levels. This trend has turned around recently, as governments tightened eligibility rules to public and often to private pensions in the case of individuals younger than the

³ The book 'Averting the Old Age Crisis', written by the World Bank (1994) talks about developing countries with pension systems 'nearing collapse' in its foreword, without making any reference to more developed countries. Reference to the developed countries appears in later publications only.

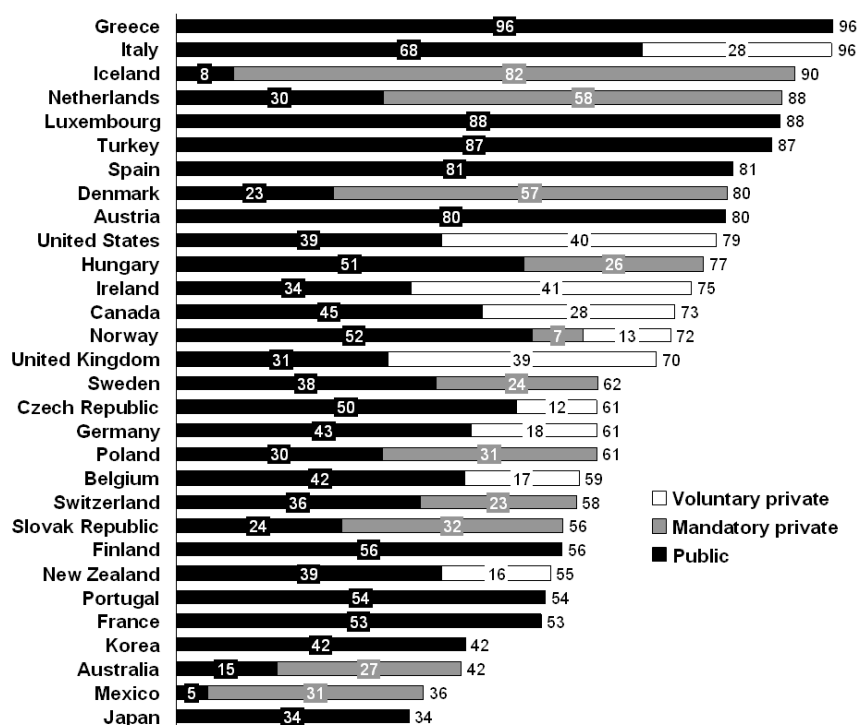
⁴ In pay-as-you-go schemes, the working population pays the pensions of the current retirees.

official retirement age (European Commission, 2010). Even after these developments, debates about retirement age are far from over. It stayed on the agenda of political debates, economic and fiscal considerations, and clashes between street protesters and the police, among others in France, in the UK (Cutler and Wain, 2010), Germany (Scheibel et. al., 2009) and in Spain (Catalán et. al., 2010). The Economist (2010b) notes: “[g]et used to it: we are heading towards a pension age of 70.”

Despite the growing retirement age, several questions related to retirement income remain unanswered. The replacement ratio, the level of expected pensions relative to previous labour income, varies greatly among the OECD and other countries (Figure 2.1). Moreover, the expected level of pensions is strongly interconnected with the structure of pension sources and with other economic and social issues, creating a high degree of complexity and a huge number of possible solutions. For instance, the dilemma between voluntary and mandatory pension arrangements alters the expected retirement income of certain social groups, since voluntary schemes ignore public policy objectives such as poverty relief or redistribution (Barr and Diamond, 2008). Moreover, evidence from behavioural finance shows that individuals do not always act in order to maximise their self-interests and often fail to make informed choices. As a result, the coverage of voluntary schemes remains far below the sufficient levels (Mitchell and Utkus, 2004: 3). By contrast, mandatory schemes often appear as too rigid for today’s rapidly changing labour markets and untraditional career paths (Bonoli, 2003), and may act as a disincentive to stay on the labour market (Börsch-Supan, 2000), or decrease the country’s competitiveness by raising the cost of labour (Botos, 2006).

There are further reasons for the diverse pension landscape. Debates about mandatory-voluntary enrolment mechanisms trigger discussions about the adequate public-private mix, and about whether the schemes should be financed with the help of capital accumulation or with pay-as-you-go schemes. The way of funding has consequences on capital markets, enterprise financing, and on the structure of the institutional investment industry. In the US for instance, pension funds accumulating and managing the employees' private savings are the greatest single sources of capital on the national stock exchanges (Clark, 2000). Pension funds act as important shareholders, determining the future of firms, industries (Baker et. al., 2005) or even tendencies related to climate change (Woods, 2011). The liberalization and privatization of public pension schemes contributed to the decline of traditional banking and the rise of alternative financial intermediation (Dore, 2002). In summary: pension financing influences a set of motivators and incentives in a country's economic structure.

Figure 2.1. Gross pension replacement rates from the different pension pillars



Note: values correspond to the expected retirement income as a percentage of average lifetime earnings, using the example of a male with uninterrupted career

Source: OECD Pensions at a Glance (2009)

The omnipotent approach of the World Bank (1994) promotes liberal pension systems, and thus suggests that privately managed, funded pensions largely driven by market forces provide efficient solutions to the pension problem. The comparative literature of pension reforms has described that there are signs which could imply that changes towards such an 'ideal' system have been happening. For instance, almost all OECD countries curtailed the level of public pensions (Martin and Whitehouse, 2008) in order to ensure their long-term financial sustainability, and to alleviate the social contract between generations (Clark, 2003b). However, both the extent of these reductions and their accompanying measures show diversity. Some pension retrenchments have been simple parametric changes. In Italy, for instance, the pensions' calculation formula was altered from price to wage indexation in 1992 (Disney and Johnson, 2001). In other cases, paradigmatic changes took place. One such example is the introduction of the state-run reserve fund in France, financed by taxes and further miscellaneous revenues (FFR, 2010). The goal of this reserve fund is to complement the pay-as-you-go system through the approaching period of demographic imbalances after the year of 2020 (Palier, 2003). Another example for a profoundly different paradigmatic change is the successful transition from a fully pay-as-you-go public system to a mixed one in Sweden (Green-Pedersen and Lindbom, 2006). Given these puzzling developments in Europe, the first question of this chapter is to identify what the literature says about the convergence or divergence in pensions systems.

In any case, the reduction in public pensions increases the relevance and the proportion of private pensions within the total retirement income. As a consequence, occupational pensions gained importance too, as the example of Germany (Schmähl, 2003) or the Netherlands show (van Riel et. al., 2003). Given this increased social and economic

importance, employers, surprisingly, struggle with identifying the right attitude towards and role for occupational pensions. In cases, they accept it as a human resources tool, and use it to reward loyal and competent employees. However, this view is not shared by all of the employers, and the distinction among employees in relation to occupational pensions may even be illegal in some countries. If that is the case, occupational pensions have to be considered as social entitlements (Clark and Urwin, 2010). Identifying employers' attitude is particularly interesting in pension systems where they are forced to dedicate considerable amount of management attention and other resources towards occupational pensions. In some countries, such as Hungary, employers are only administrative members in occupational pensions' distribution chain. By contrast, they may have to carry investment, longevity or other type of risks, as it is the case with defined benefit occupational schemes in the UK (Purple Book, 2009), or in Germany (BetrAVG, 2001, §1). Showing what explains employers' behaviour is therefore the second question of this literature review.

Finally, the consequence of the developments described above on individuals has been serious. Political emphasis is increasingly moving towards the rhetoric of individual planning and individual responsibility in retirement finances in the UK (Rowlingson, 2002), in Germany (Dixon, 2009) and in fact in all European countries where public pensions are on the retreat. Therefore, the deeper understanding of individual behaviour and pension decision-making is necessary. This represents the third research question of this chapter. The remaining part of this chapter presents the relevant geographic literature related to the three questions formulated in this section.

2.3 The Political Geography of Finance and Pensions

According to the critique of Agnew (2003), contemporary political geography is neither political nor has to do too much with geography. Studying the political geography of finance and, more specifically, of pensions however, passes this requirement for the following reasons. Such a study belongs to the discipline of geography, since it looks at the structure of pension arrangements of countries, industries and regions in a comparative perspective. A slight re-formulation of the rough but concrete words of Cox (1979), 'who gets what and where' in the issue of pensions, justifies that. It is also a political investigation: although pensions serve an economic purpose – providing income in the retirement – the economic decision whether to finance pensions from capital or from labour income has a political edge (Taylor, 1982: 20). Despite the neo-Marxist taste of the previous argument, investigations towards this direction became particularly popular following the book of Peter Drucker (1976) about pension fund socialism. He stated that employees, while accumulating savings for the retirement, gradually became owners of corporate America via the pension funds.

There is a third argument linking pensions with political geography. Pension systems are good case studies to contribute to the convergence/divergence debate of political and economic systems present in contemporary geography. Investigations about dramatic changes to the public pension systems in Continental Europe and elsewhere often report about changes driven by the power of global finance (Clark and Whiteside, 2003). In a slightly simplified way, this debate is about whether pension reforms have been contributing to the ubiquity of finance, and whether financial motives gained more relevance in everyday decisions of local agents acting in the economy. Some even state that finance has been the trigger for changes, squeezing political and economic actors to

re-structure pension provision according to the financial logic (see for instance Clark et. al., 2009b). Therefore, essays contributing to this debate in political geography may originate from various disciplines. They may include the field of comparative politics, studies about political and institutional change, and the analyses of individual subject-formation (Belfrage, 2008).

The often mentioned expression of ‘financialization’ or the ‘implementation of the financial logic in everyday decisions’ is addressed, before discussing the political geography of pensions specifically, since this is the key issue behind this section. A practical way to capture it could start from the ideology behind the economic recommendations summarized as the “Washington consensus” (Williamson, 1990). These economic ‘recommendations’ have been pragmatically enforced by US-based institutions such as the IMF and the World Bank, and were able to swiftly discount the political and economic autonomy of South American (Rodrik, 2006) and of Central European countries (Hoff and Stiglitz, 2004), paving the way for radical privatizations, including their pension systems. As a result, funded individual pension arrangements managed by the foreign-owned private sector became common (Ferge, 2001, Buchholz et. al. 2008). Alarmingly, Central European countries even ‘out-liberalized’ the old member states of the European Union, showing the asymmetric nature of these ‘recommendations’ (Orenstein, 2008). The study of Dymski (2009a: 58) also shows that the acceptance of recommendations of the Washington consensus caused serious crises in South-Korea, Mexico and other countries throughout the 1990s. However, his detailed description highlights the fact that local stakeholder institutions can affect the impact of these ideologies, and that societal and economic changes can be altered by the behaviour of local political and other actors.

As it can be seen from the example above, financialisation embraces several processes, and raises many further questions. First of all, this illustration has shown that financialisation can be approached both from a functional-descriptive and from power-, interest- and legitimacy-related directions⁵. This thesis aims to contribute to the understanding of the former category. Second, the term financialisation has been suffering from “conceptual stretching” (Engelen, 2008), meaning that it has been applied to a variety of phenomena which are not necessarily on the same level of abstraction. To resolve this, Engelen (2008) proposes a structure which identifies the relative position of concepts often used in conjunction with financialisation. In his structure, each concept is attributed to a hierarchical level according to the degree of its abstraction. He considers globalization as the most abstract concept, followed by the sub-processes of financialisation and commodification at a lower level. Moving to more specific hierarchical levels, financialisation comprises three sub-processes: securitization, disintermediation and liquidification; while commodification includes the concepts of liberalization and privatization (Engelen, 2008: 116). As Engelen notes, his proposed structure is not only a hierarchy of different abstraction-levels, but also a topology that links global concepts (globalisation) to ideas that are local by definition (for example, privatization of local institutions).

However, the strict categories of the Engelen-hierarchy limit the applicability of the term financialisation, and eliminate the global-local dualism. For instance, Langley (2008) depicts financialisation as a local-global-local chain of processes, specified with the help of consumption culture, consumer credit boom and its implications for changing individual behaviour. His starting point is the growth in the issuance and

⁵ For an overview on power-, interest- and legitimacy-related approaches, see Engelen (2008: 117).

trading of financial market instruments, complemented with the scientific and calculated belief to distribute and to manage risk. These together enabled financial institutions to provide credit products *en masse*, changing consumer behaviour and the US society profoundly. Clearly, several elements of the Engelen-hierarchy appear in his argumentation, both local and global concepts. A second example for a definition is of Froud et. al. (2002), who depict financialisation as the effects of today's widespread share and bond ownership on the behaviour of all households. As a result, households turned out to be the 'lenders of last resort', and 'buffer institutions', which have to adjust their everyday life according to stock market dynamics (Froud et. al., 2002: 144). A third, similar illustration originates financialisation from the recent rise of shareholder value-oriented corporate governance that aims at increasing returns to the owners of capital. This in turn crowds out returns to labour, resulting in inequalities in the society. As a consequence, a gap widens between shareholders and non-shareholders, affecting both their financial and social behaviour (Williams, 2000, Froud et. al., 2000). These definitions grasp financialisation as a relationship between local decisions and global tendencies.

There are further views on financialisation, limited to one topological level, such as the one of Krippner (2005). She defines financialisation as the relative profit growth of the financial, investment and real estate industries compared to the rest of the economy. She elaborates the definition with microeconomic theory, stating that financialisation is the growing demand for financial services (see also Crotty, 2008). Her study deconstructs the origins of financial profits into its parts such as interest income, capital gains or dividends, and discusses its effects on corporate control and corporate structures. However, her conclusion raises a sense of urgency to investigate how financialisation

changes political and societal structures, admitting that the concept has implications which are not on the same topological level.

Having shown a set of definitions to financialisation, it is obvious that it cannot be isolated from its related processes such as privatisation and liberalisation, and that no political or societal change can be depicted without discussing it in conjunction with finance. Accordingly, this thesis works with the concept of financialisation as follows. It starts from the description of Clark (2005), who derivates today's economic landscape from the global flows of capital. Local economic and social landscape is subsequently formed by these flows. Here Clark uses a metaphor: household and other savings flow among financial institutions as the chemical element mercury does: it runs together, forms pools, and is poisonous if poorly managed (Clark, 2005: 105). This means that the society and further elements of its environment adapt to the nature of finance, so that it serves the interest of its users and does not do any harm. Therefore, financialisation also triggers the use a new set of competition rules, industries and production techniques, among others (Boyer, 2000). Similarly, the restructuring of public pensions became necessary for governments to maintain their financial positions. The decisive move towards funded and partly or entirely privately managed arrangements has thus been triggered by this process.

The general definitions of financialisation could imply that pension system restructurings change economic and social orders in the same direction. They even share similarities regarding their triggers. Accordingly, increasing competition from developing countries, sharp increase in the prices of oil and other natural resources, and population ageing resulted in unsustainable increases of social security expenditures

relative to its revenues (Esping-Andersen, 1996, World Bank, 1994, Pierson, 1996, Holzmann and Stiglitz, 2001, Taylor-Gooby, 2004, Nyce and Schieber, 2005, Hassel, 2009, Dixon and Sorsa, 2009). As a result, welfare retrenchments, including changes to the existing pension systems, have been introduced. These often resulted in significantly curtailing public pension benefits and in the increased role of private institutions in pension provision (Clark, 2000, Clark and Whiteside, 2003, Queisser et. al. 2007).

These developments suggest that the apparently costly historical pension commitments and institutional structures were all replaced with cheaper or more efficient solutions (Clark and Wójcik 2007). However, this statement leaves several issues unanswered, and does not explain the variety of pension systems shown in the previous section (Figure 2.1). It is unclear to what extent cost-benefit analyses of past systems dominate over other forces, and it is debated in what direction these changes drive inherited pension structures. For instance, there is a group of literature saying that structure and the direction of change is inherently embedded in the legal origin of the country (La Porta et. al., 1998). The Legal Origin Theory argues that general structures and the direction of reforms are primarily affected by the legal protection rights of investors. As a result, capital market structure, unemployment rates, interest-rate spreads (La Porta et. al., 2008) or the funding structure of pension arrangements (Perotti and Schwienbacher, 2009) are strongly influenced by the legal system applied in a given country.

One of the main critiques directed towards the Legal Origin Theory argues that legal systems may be just proxies for something else. For instance, the legal system may not be the dependent variable (La Porta, 2008). Instead, the presence of information sharing institutions (Djankov et. al., 2007), and the quality of legal enforcement (Djankov et.

al., 2010) are significant determinants of economic structures too⁶. Moreover, the theory focuses on institutional ‘equilibrium’ rather than on reform processes and on the outcome of structural changes.

Another approach discussing pension reform outcomes in particular, and economic structures in a more general way, is of Hall and Soskice (2001). Their ‘Varieties of Capitalism’ approach, which relies heavily on the earlier work of Michel Albert (1992), refers to coordination mechanisms embedded in the society as the main drivers of economic outcomes. They depict a dichotomous world, where national economies either have liberal, market-based coordination or are coordinated by non-market forces. The former is characterised by competitive market arrangements while the latter depends on collaborative solutions as opposed to competitive ones. As the theory states, coordination mechanisms determine national economic structures, and strongly affects the outcome of reforms and economic configurations. Moreover, one of the main foundations of this theory is institutional ‘equilibrium’ (Wood, 2001: 258), which originates the stability of institutional configurations from the absence of Pareto-efficient alternatives. Therefore, changes happen if the situation or the environment creates the option of better configurations.

In a similar manner as Hall and Soskice (2001) divide the world, Hyde et. al. (2003) describe two types of measures the state can use to withdraw the provision of pensions: by actively organising other institutions to replace the retreat of the state (coordination, in the sense of Hall and Soskice use), and by a passive withdrawal, leaving the replacement of the missing pensions up to other stakeholders (liberal approach).

⁶ Admitting the fact that these variables correlate with the legal origin.

According to the use of active and passive withdrawal measures, and whether the actively involved member is the individual or groups of individuals, they distinguish three distinct pension reform outcomes. First, they describe France as a social partners-based collectivist model. This model combines the social partners-controlled pay-as-you-go (PAYG) element with a state-led funded institution, which manages assets as any other capitalist pension fund (for details, see Dixon, 2008). Second, they bring Finland as an example for the social market model. Here, pension reform aimed at maintaining social cohesion and a certain degree of redistribution, but left some space for market mechanisms (Sorsa and Roumpakis, 2010). Finally, they talk about the UK as an example for the regulated market model, with significant parts of the pension system contracted out to the market, but with initiatives endorsed by the state (see for instance PADA⁷, 2010, NEST, 2010).

The classification of Hyde et. al. (2003) is one among many others that provide a good snapshot about existing differences. For instance, Esping-Andersen (1996) originates welfare transitions from the corporatist, liberal and social democratic welfare systems; or MacGregor (1999) offers the categories of welfare, post-welfare and paternalistic social states. However, these theories, including the Varieties of Capitalism theory, pay little attention to the convergence-divergence debate, to the reasons for the changes, and to the new structures of pension provision. Moreover, the institutional equilibrium or ‘conservative bias’ of such studies misses the gradual, incremental transformation of institutions (Streeck and Thelen, 2009: 106). To overcome these critiques, more recent studies incorporated dynamical change in the ‘Varieties of Capitalism’ theory, happening due to external shocks or endogenous ‘reinterpretation’ of institutional rules

⁷ The Personal Accounts Delivery Authority (PADA) has recently been integrated into the National Employment Savings Trust (NEST).

(Hall and Thelen, 2009). However, two further problems remained. First, these theories mask the outcome of reforms, meaning that neither the details nor the main circumstances of the change processes stand clear, including the implementation of financial logic in pension arrangements (Howell, 2003: 120). Second, the applicability of this and related theories to explaining the role of stakeholders during and after pension reforms is limited. For instance, they do not clarify the different roles similar interest groups in and after pension reforms of different countries, as the comparison of France and Italy shows. Putting this example in another way, these theories do not explain why the French trade unions and employer associations take part in the provision of pensions, while Italians do not (Natali and Rhodes, 2004).

The first critique has been addressed by the paradigm of Campbell (2004). It rejects simplifications and system-categorisations, and rather tends to pay attention to particularities. This paradigm is extremely helpful in identifying change processes such as ‘bricolage’, the recombination of existing institutional elements in order to create new institutions; ‘translation’, the import and adaptation of foreign ideas into national setups. These are powerful tools which help to understand the particular solutions in reformed systems. Possibly the closest application of Campbell’s theory to pension systems has been provided by Dixon (2009), and later Dixon and Sorsa (2009), addressing the financialisation processes sweeping across Continental Europe. They exploit the analytical power of bricolage, translation, and add the concept of ‘conversion’, the re-direction of institutions towards new goals (resembling slightly to ‘reinterpretation’ in the sense Hall and Thelen (2009) use it). The analysis of Dixon and Sorsa (2009) explain both continuous and abrupt changes in institutional configurations. Furthermore, their illustrations show that change processes are converging only in the

sense that they happen under the pressure of global finance. In other words, the 'logic of finance' is implemented while the underlying country-specific institutional systems do not necessarily converge or diverge.

In order to overcome the second critique, Pierson (1994, 1996) directs the focus towards the stakeholders' power-resources in a pension reform while explaining its outcome. He argues that political stakeholders' aim is 'blame avoidance', in order to maximise votes and minimise the loss of public support. Moreover, he states that governments and stakeholders have to make strategic choices in the course of a reform, and their success pursuing that strategy depends on their power base. Therefore, the outcome of the change processes is not pre-determined. Hassel (2009) proposes a framework to investigate the 'more likely' choices in given situations with the help of similar analysis of stakeholder interests, but her contribution has the emphasis on players, instead of the system. This area seems to represent a fruitful field for further investigations. The research question of Chapter 3 looks into this issue in detail.

In summary, this section has shown that the framework of political geography can accommodate the general foundations for the analysis of pensions. According to the arguments described above, recognitions about local phenomena in Germany can contribute to the convergence/divergence discussion. In some sense, not only the thesis as a whole, but also the individual research questions of Chapter 1 are related to the process of financialisation. However, this section has dealt with how the global transformation, and discussed its local political consequences. Therefore, the following two sections consequently describe the role of employers in pension systems, followed by a discussion about the implication of these changes for the individual.

2.4 The Geography of Corporate Financial Decisions

Occupational pensions, besides private ones, are alternatives to the public pensions. Therefore, the attitude and behaviour of employers affects political discourses and alters the manifestation of financialisation directly. In economic terms, occupational pensions may be defined as ‘privately managed pensions offered by employers to attract and retain workers’ (World Bank, 1994: 8). However, employees often aspire to occupational pensions as their entitlement instead of rewards from their employers (Clark and Urwin, 2010). This pursuit has recently been supported by legislation and the political rhetoric, as for instance in the UK (Rowlingson, 2002). As a result, today’s occupational pensions fulfil a social task, the replacement of public pensions, regardless whether employers want it or not.

Grasping certain geographical aspects of the corporation (Walker, 1989) is a major milestone on the road towards understanding the geography of occupational pensions. First an illustration is described to highlight this argument, followed by a systematic analysis. Early versions of occupational pensions were initially organized on a voluntary basis by local guilds, serving the interests of local industries. This means that pensions – just like employers – were integral parts of the local communities. Later, the institution of occupational pension transformed, as large, capital-extensive corporations emerged, hiring armies of workers in the mid-nineteenth century. Among others, such corporations were the Gute-Hoffnungs-Hütte⁸ (with occupational pensions from 1850), Siemens (from 1872) or BASF (from 1879) in Germany (Horn & Partners, 2010). The rise of these employers and the appearance of institutionalized occupational pensions coincided with the first of employee movements and the foundation of the first German

⁸ Later known as Maschinenfabrik Augsburg-Nürnberg or MAN AG (Historisches Lexikon Bayerns, 2010)

trade unions, fighting for centralized bargaining with the employers (Kronstein, 1952). Therefore, the geography of the employer changed in line with employment relationships and with its occupational pensions.

The employer-worker relationship, of which occupational pensions are only one tiny aspect, has been changing in Continental Europe both in behavioural sense and in legal practice. Early publications of behavioural theories of the firm, and the example above explain that the employer-worker relationship is not a clear bilateral situation. In fact, what are referred to as ‘employer’ decisions, are jointly influenced by organisational structure, coalitions’, employees’ and shareholders’ interests, among others (Coase 1937, March, 1962, Cyert and March, 1963). This observation has recently been reinforced by the argument of Zingales (2000), emphasizing the rising role of implicit contracts within the firm among several stakeholders in financial decisions.

The behavioural theory of the firm thus acknowledges that corporate behaviour is a joint outcome of its stakeholders, and that has several geographical implications. To start with, it means that the analysis has to differentiate among the stakeholders according to the degree they can influence corporate decisions. For instance, firm owners’ ability to determine corporate behaviour is strongly affected by the legal system of a country, but also by industry affiliation or location within a country. The standards and practices of corporate governance (the ways to ensure the flow of returns to the providers of finance (Shleifer and Vishny, 1997)), have been swiftly converging in Europe. However, there are still persistent differences between countries, and among corporations in the same locations according to their industry-affiliation (Wójcik, 2006). This may imply

geographically different decisions related to corporate finances and to occupational pensions, even if the interests of owners are similar.

Second, geographical differences in corporate behaviour are not only influenced by the legal environment and country-level variables, but also by local circumstances, such as the shareholder structure (Bebechuk and Roe, 1999). Obviously, the degree an owner can control a corporation depends on his or her share of voting blocks. Strikingly however, the bigger control an owner has over a company, the more likely it comes from the companies' geographical proximity (Wójcik, 2002)! This means that the closer the owners to the corporation are, the better they can protect their interests over other stakeholders of the firm.

Moving on to another stakeholder-group, financiers, creditors and the financial services industry are discussed. Mason and Harrison (2002) find that the concentration of venture capital in the UK had been decreasing due to the regional development plans of the UK-governments, mainly thanks to the even distribution of 'merchant' type of venture capital financing, meaning the buy-outs and corporate restructuring. However, the classic type of venture capital, financing small and innovative enterprises, remained highly concentrated around London and in the South-East of the country. Martin et. al. (2005: 1216) have an answer for that process: "*it is likely that perceived risk increases with distance between the venture capital firm and potential investee companies*". This highlights the fact that proximity matters in the supply of financial products through the mechanism of trust and knowledge, which diminishes with increasing distance.

The role of information in the relationship between a corporation and the financial services industry is underscored by the second example. Given the uneven geographical distribution of information, trust and knowledge, firms located in cities with a concentration of financial industry are more likely to go public (Wójcik, 2009) or to engage with international cross-listings (Wójcik and Burger, 2010). Wójcik (2009) proposes a few reasons why companies in financial centres are more likely to list on a stock exchange. One of them is their better access to financial know-how or to specialized labour markets. This argument includes not only the financial industry in a strict sense, but also auxiliary services, such as the global network of the ‘Big Four’ auditor companies, management consultancies and legal services. It has been shown that local relationships indeed matter in the case of management consulting companies. However, cities also catalyse the birth of ‘translocal’ relationships, meaning that service provider companies and thus financial and management know-how spread more easily between cities (Glückler, 2007). Accordingly, firms located in large metropolitan areas are more likely to be under the influence of globally spreading new practices. For instance, the adoption of ISO certifications can be associated with trade ties and cultural similarities (Albuquerque et. al., 2007), which process is catalysed by the presence of consultancies.

The last few paragraphs have delivered a few promising arguments which are summarized here. First, ‘employer behaviour’ as such is a complex result of several stakeholders’ parallel actions, including owners, suppliers, the management and employees⁹. Second, corporate decisions about providing financial services to employees, such as about occupational pensions, heavily depend on firm owners who

⁹ These categories may in fact overlap in Germany, and result in a complex organisational structure and behaviour. One good way to capture the common element in such an interlocking nexus is to approach it from the viewpoint of economic geography (see Wójcik, 2003 on the example of cross-holdings).

aim at maximising their returns; and on the financial industry, which supplies additional financing and provides financial know-how about the latest financial developments. This latter may be particularly important after a fundamental pension reform, such as the German reform of 2001, which created totally new circumstances for occupational pensions, including new products. Third, the nature of influence the owners and the financial industry can exercise depends on their geographical location relative to the corporation and in absolute terms. Therefore, mapping the geography of owners and of the financial industry can already serve a few hypotheses on employers' behaviour related occupational pensions. These hypotheses are constructed in the following chapters (Chapter 4 and 6).

The literature can deliver applications of the findings discussed previously related to occupational pensions. The experience of US and UK employers made with defined benefit (DB) or final salary pension schemes, promising guaranteed pension-level to their retired employees, shows how sensitive old-age income arrangements are to the decisions of the corporate-stakeholders. The 'perfect storm' in these schemes, described among others in detail by Langley (2004) and Clark and Monk (2007a), denotes the critical underfunding of employer-sponsored DB-schemes due to low capital market returns compared to the unexpectedly high longevity of plan participants. In the sense Zingales (2000) uses, unfunded and underfunded pension promises are implicit contracts between the generations of employees. Since these contracts must be fulfilled, these schemes are often referred to as sunken (legacy) costs firms must face to (Clark and Wrigley, 1995). However, since fulfilling them threatens the viability and competitiveness of corporations, industries and whole communities, they most probably cannot be kept. The re-negotiation of these contracts is therefore a necessity, whereby

the interest of retired employees, currently working employees, and the shareholders (among others) clashes. The process is a lot more complicated than a bilateral negotiation between 'employer' and its 'workers' could be (Monk, 2008).

One of the studies in the literature talks about four distinct ways out (Clark and Monk, 2007b): the substitution of DB-schemes with defined contribution (DC) schemes, the hybridization of DB schemes with DC schemes, the pooling of DB promises with other employers, and finally, the removal of pension-arrangements from the occupational domain. In short, the solution lies in risk-reduction for the employer (Munnell, 2006), which in this context means the protection of future operations. This transition often exposes current employees to higher financial risks than their retired employees have, therefore the process of financialisation spreads out on the field of occupational pensions (Langley, 2004).

Another application of the behavioural firm-theory is delivered by studying the changes in global accounting practices related to pension liabilities. The lack of adequate information about past pension legacies was recognised as a threat to the 'fair value' view of corporations. Accordingly, the International Financial Reporting Standards has been adjusted to transform off-balance sheet pension liabilities to actual financial liabilities, and further legal requirements turned lax financing requirements into strict (Dixon and Monk, 2009). This change particularly affects companies which receive uninterrupted feedback on their performance from their share price. Therefore, companies large enough to gain admittance to stock exchanges may be exposed to portfolio investors immediately re-adjusting their corporate valuations when new information arises. By contrast, the share-price of family-owned companies does not

draw such a volatile pattern (Clark and Wójcik, 2007: 70-74), implying that family-owned and not publicly traded companies probably have different planning horizons, diverging goals and varying resources to manage their investments. This probably has consequences on their attitudes towards long-term obligations such as occupational pensions, which are worth exploring.

Based on the argumentation above, geography is expected to play a role in corporate decisions about pension arrangements in Continental Europe and in Germany too. The geographically bounded nature of information, trust and financial know-how, the interplay of interest groups and stakeholders of the firm and the burden of past legacies may play a role in the corporate geography of occupational pensions.

2.5 The Geography of Individual Financial Behaviour

Understanding human behaviour is essential in order to identify the reasons for the pension gaps mentioned in the first part of this chapter. Relevant questions range from enrolment decisions in voluntary systems, from investment- and savings-related product choices to career-related decisions such as returning to the job market after child-birth, or leaving the job market for the sake of higher education. In short, a practical and applicable theory of financial and non-financial human behaviour is necessary to understand the existence of pension gaps.

Having discussed the political and corporate implications of pensions, it is obvious that changes and processes happening on those levels alter the significance of individual decisions. For instance, the existence of a generous public pension system decreases the role of occupational pensions in the war against old-age poverty. Accordingly, the

literature of financialisation, pension privatization and corporate restructuring are essential for grasping the significance of individual behaviour. Moreover, the geographical differences on political and on corporate level influence the geography of individual decisions. However, geography has not only a role in individual decisions related to pensions on the right of institutional circumstances, but also on its own. Economic decision making is ‘social-cum-spatial’ (Strauss, 2009: 302), meaning that it is happening in a social space which has a geographical dimension too.

There is a broad range of literature explaining why individual behaviour has both a social and a spatial dimension. One way to capture it may originate from the notion of Simon (1955), describing human decision making as a joint outcome of individual cognition and the surrounding environment. In order to construct the geography of individual pension decisions, the environment of Simon is conceptualized from two viewpoints.

The first viewpoint originates from the seminal paper of Kahneman and Tversky (1979). Their study states that the mere reformulation of the same economic problem alters individuals’ risk-attitude and therefore their revealed behaviour¹⁰. The extent of change in behaviour shows profound variations according to the salience of the decisions in question, to manipulations to the reference point and to the procedural features of the experimental settings (Kühberger, 1998). Even slight differences in problem-

¹⁰ In their experiment, groups of individuals were involved in two types of choice-situations, differing only in their formulations. Their research has shown that individuals tend to avoid risks when deciding between a fixed but low gain, and a stochastic gain between zero and a certain amount. This was contrasted with the mathematically identical situation, when participants were offered a fix amount of money, and were asked whether they would rather choose a fix amount of loss, or participate in a gamble with a probable but greater loss. In the choice situation where problem formulation approached from the loss-perspective, individuals were more likely to behave in a risk-seeking manner. In other words this means that individuals exhibit inconsistent preferences when the same choice is presented in different forms (Kahneman and Tversky, 1979).

formulation can alter the patterns in human behaviour. For instance, the different formulation of pension investment-options at different employers leads to fundamentally different individual decisions¹¹ (Choi et. al., 2005). Based on theories and evidence similar to the ones discussed here, the paper of Thaler and Sunstein (2003) arrives at the conclusion that there are no uninfluenced decisions. Their proposition is that any planner designing choice-situations influences decisions, and therefore has to take a position between deliberate and random forms of influence. One obvious example for influencing decisions is the issue of enrolment. There is a striking difference in occupational pension participation-rates between employers who enrol individuals automatically with the possibility to opt-out and employers not enrolling individuals by default, but offer them pension savings opportunities (Choi et. al., 2002, Choi et. al., 2004, Beshears et. al., 2009).

The second viewpoint conceptualizes the social aspects of the environment, emphasizing the social embeddedness of individuals and decisions (Granovetter, 1985, Yeung, 2003). This relates to knowledge and behavioural forms too. First, the work of Mihály Polányi (1966), *The Tacit Dimension*, talks about the tacit nature of knowledge. This writing inspired Gertler (2003) to ask the questions how tacit knowledge is transmitted, and arrives at the answer that geographical boundaries pose a hurdle to its spread. He defines tacit knowledge with the help of social ties, as ‘the know-how that is acquired via the informal take-up of learned behaviour and procedures’ (citing Howells, 2000: 53). Second, similarly to the previous case, the spread of learned behavioural forms such as heuristics, habits, imitation and intuition are also determined by social and thus geographical limitations (Kahneman, 2003, Clark, 2010).

¹¹ An additional example is the menu-dependence of decisions (Tversky and Simonson, 1993). For example, the appearance of an alternative, adding candy to a set of fruits, may make the new choice-situation worse for the individual (Kőszegi and Rabin, 2008).

The researcher can achieve two goals by directing attention towards the social nature of knowledge and of behavioural forms. First, he or she ‘downplay[s] deliberation and calibrated judgement’ (Clark, 2010: 3). This gains relevance in certain socio-economic groups where the relative frequency of individuals not recognising the salience of retirement planning is higher than in the entire population (Clark et. al., 2009a). The UK government has recognised this issue, and launched a non-profit initiative to provide low-to-moderate earners with occupational pensions (see PADA, 2010). Second, the researcher can offer explanation to a set of phenomena otherwise inexplicable with the help of the rational agent model. For instance, decision practices related to occupational pensions have proven to be very similar in the case of employees working for the same university department, even after controlling for socio-economic variables (Duflo and Saez, 2002). This means that decision-practices spread locally, and that peer-pressure is an important factor in explaining decision outcomes¹².

There are further applications of the previously mentioned observations to the investigation of retirement finances. Three more examples are cited from the literature. First, individuals often rely on the recommendation of relatives, friends and colleagues when planning for the retirement (Clark and Knox-Hayes, 2007, Clark et. al., 2009a). Although this argument obviates a part of the previously discussed theory about tacit knowledge, since it talks about explicit knowledge-transfer, it supports that financial decisions are not made in isolation. Second, there are socio-economic status-related roles in local communities which strongly influence individual financial decision-

¹² Admittedly, peer-pressure is not necessarily a result of imitation or socially ‘sticky’ decision practices. Sen (1994) talks about the situation when well-behaving individuals do not pick the last or the biggest apple from the basket when others are present, but they would do so alone. In such situations individual behaviour is socially influenced and is geographically bounded, supporting the argument that decision-making is social and spatial.

making. For instance, the number of employed women in the City of London was kept at minimum by the ‘macho atmosphere of fast money’ up until a little while ago. Those women who were there, ‘were extremely forceful’ (McDowell, 1998: 2134, 2137), and probably were willing to accept little financial dependence in their retirement. A similarly cultural phenomenon has been East-German women’s desire for financial independence and thus their higher labour-market participation (Rosenfeld et. al., 2004). Obviously, these two examples can be exacerbated by the structural features of the environment. For example, the possibility to leave childcare to the Kindergarten are structurally embedded in the environment.

Third, the example of behavioural shortcomings is brought to illustrate the use of the above mentioned theories. Behavioural shortcomings can be depicted as the wedge between normative preferences (the economic actor’s true interests¹³), and revealed preferences (the empirical observations of individual choices) (Beshears et. al., 2008). Beshears et. al. (2008) suggest a set of situations for behavioural shortcomings. These are passive choice (choosing the default option), complexity (due to the high number of options or the long time-horizon), third-party marketing diverting decisions, too little personal experience and intertemporal choice (e.g. changing preferences). Surprisingly, various studies highlight the fact that behavioural shortcomings are more common in given socio-economic groups and in certain geographical areas. Some of these contributions even argue that socio-economic status and home address can be substitutes for each other (Clark and Knox-Hayes, 2007). Indeed, as information,

¹³ The school of normative economics argues that opportunity has value on its own right, and rejects defining the ‘true interests’ of an actor according to exogenous norms (Sen, 1991, Arrow, 1995). Similarly, Bernheim and Rangel (2009) propose the libertarian fundamentalist approach of respecting the freedom of choice, instead of identifying normative preferences or behavioural shortcomings. According to their view, the *option* to choose means welfare, and behavioural shortcoming *per se* should not be discussed.

knowledge and behaviour is geographically bounded, behavioural shortcomings may occur disproportionately often in certain geographical areas, where individuals fail to comprehend and to use financial services adequately (Leyshon et. al., 1998).

Admittedly, these phenomena not only originate from the individual or from social contexts, but are rather joint outcomes of social contexts and decisions of the financial sector, discussed in the previous section. For instance, there are social contexts and geographical areas entirely avoided by the retail financial sector due to their low profitability (Leyshon and Thrift, 1995, Dymski, 2009b). Some even advocate that finance is systematically biased against certain social classes and geographies, which is not a result of behavioural shortcoming (Martin et. al., 2008). However, financing initiatives sufficiently willing to engage with social contexts may change communities offering low return-potentials at first sight into profitable enterprises. ‘Village banks’, microfinance institutions backed by a government, a non-profit organisation or even by a profit-oriented bank operate through actively using peer pressure and other contextual factors discussed above (Martin, 2003).

In any case, the consequence of the above discussed factors is that individual financial decision-making shows systematic variations across space and time (Strauss, 2009, Clark, 2010). Therefore, accounting for geography and for location are essential components of a behaviour-related investigation (Yeung, 2003), which always has to be complemented with location-dependent explanations (Bathelt and Glückler, 2003). This means that a comprehensive geographical analysis of pension geography cannot limit to an isolated analysis of individual decision-making, without paying attention to the political situation or to the individual’s employment relation.

2.6 Implications for the Research

Why are there pension gaps and what is the reason for the geographical differences? An investigation attempting to explain this question is necessarily an interdisciplinary undertaking. Pensions serve political, economic and business interests, and have sociological, psychological and ethical roles, among others. The aim of this literature review was to conceptualize the research done so far on this field, to discover recent developments, and to identify debates in the literature, in order to prepare the ground for the research coming up in the following chapters.

Three research questions were formulated at the beginning of this chapter. First, it has been asked what the literature says about the convergence-divergence of pensions systems. As it turns out, one of the most important contributions of the literature is the process of financialisation. To put it in a short sentence, the financial wellbeing of today's generations now and in the retirement increasingly depends on the performance of global capital markets in virtually all countries and regions of the world. This was not so in the previous decades - the process of importing financial motives and arguments accelerated since the 1970s only. However, this transition can be fundamentally affected by political decisions, compromises and pacts. Therefore, attention directed towards the behaviour of political actors and towards change processes of underlying systems simultaneously seems to be a fertile direction for further investigations. This will be analysed in Chapter 3, using the example of the German pension reform of 2001.

Showing what explains the geography of occupational pensions on employer-level has been the second question of this literature review. Although firms function as gatekeepers between political and individual decisions, investigation on their level has

significance on its own right. The geography of organisational behaviour is an inspiring field of research: as in the case of politics, organisational decisions are made and executed by coalitions in a broader sense. Accordingly, corporate decisions related to occupational pensions are made by local shareholders, global portfolio investors, the management and interest groups of young employees and employees closer to retirement, among other stakeholders. Moreover, the group of stakeholders is complemented by players of the financial industry and auxiliary services. Therefore, shareholders' financial and other goals compete with the interests of employees, who aim for sufficient labour and retirement income. This process is complicated with each stakeholder's geographically varying interests and ability to influence corporate decisions. Distance-dependent availability information, know-how and trust are as important factors in occupational pensions-related decision making as formal assessments at corporate finance departments.

Occupational pensions are benefits provided to employees, which represent financial burden for the firm's future cash flow and balance sheet. These benefits could be paid out immediately, but instead, they are invested on behalf of the employee. As a result, they represent a risk for the company. The literature review suggests that employers increasingly reject the participation in sharing this risk with the employee. It therefore deserves empirical investigation what motivates employers to offer new occupational pension products, and to what extent they are ready to take up risks. Chapter 4 and 6 look into these questions.

The third question of this literature review formulated a desire to grasp individual's pension decision-making better. Dealing with pensions means dealing with financial

and other types of risk and uncertainty. Two main recognitions were found. First, problem-framing can significantly alter human behaviour. As a result, differences in the way employers offer occupational products may deliver unexpected differences in participation, savings and investment decisions. Second, most decisions are influenced by the social nature of human existence. Tacit imitation of others, copying of heuristics and asking friends' advice are useful concepts in describing the social embeddedness of individual behaviour. Although these behavioural forms do not explicitly formulate concepts such as local culture and local traditions; they are also part of the picture. As a consequence, individuals can hardly act as independent decision makers, and differences can be expected between individuals' decision-making process according to their geographical belonging. Chapter 5 is dedicated to the investigation of this notion.

It seems to be clear that no political force can prevent that the ubiquity of finance reaches old age pensions. Consequently, political, organisational and individual decisions are needed which deal with finance, risk and uncertainty. Since the interplay of structure and social configurations together build context for those decisions, the general message of this chapter is that the relationship between human cognition and context should be better understood. This literature review closes with the argument of libertarian paternalists: the recommendation of this thesis should be used to design adequate decision environments and to introduce measures that can prevent bad decisions. As a result, pensions may fulfil their duty: provide sufficient income in the retirement.

3 The Role of Social Partners in Transforming the German Pension System

3.1 Introduction

Although the privatization of retirement finances is observable across various countries and geographies (Clark and Whiteside, 2003, Schmähl, 2003, Queisser et. al. 2007), its exact institutional manifestation shows great diversity across the OECD countries (OECD, 2009). Two groups of literature attempting to explain pension reforms are highlighted here. The first one, the theory of social pacts suggests that pension reforms can be supported or blocked by the social partners (trade unions and employer associations) (Fajertag and Pochet, 1997, Ebbinghaus and Hassel, 1999, Rhodes, 2000, Natali and Rhodes, 2004, Hassel, 2009). Since reforms are good opportunities to increase power position of both the social partners and of the government, short-term popularity gains may be preferred by the actors as opposed to the long-term policy interest of their members or voters (Hassel, 2009). To illustrate, this notion is a useful concept to understand why the French government managed to implement a ‘pre-emptive trade-off’ with its social partners, which involved them in running the new social security funds, and gave concessions to some categories of workers in the course of the Raffain-reform (Natali and Rhodes, 2004).

The second group of literature, the general literature of pension reforms, discusses reform outcomes and its effects on the individuals. Such categorisations explain the structure of reformed pension systems with the help of the nature and extent of liberalization introduced by the reforms (MacGregor, 1999), or the proportion of active and passive measures the government may use to invite other institutions in the

provision of supplementary pensions (Hyde et. al., 2003). Accordingly, this literature helps to identify why the different proposals regarding pension systems may be favourable to individuals and interest groups, and subsequently win their support. Moreover, it highlights the fact that some social groups may be at the risk of being excluded from the gains of a pension reform. For instance, individuals not recognising the need to save for the old age face the risk of old-age poverty if the enrolment in pension schemes is voluntary (Ginn, 2003, Hyde et. al., 2004).

Despite the advantages of the theoretical literature mentioned above, they have not been used together to explain pension reform outcomes. The German pension reform of 2001 provides an excellent opportunity to do so. At the beginning in the 1990s, the ageing German society, burdened by high unemployment, created a growing deficit in the public, pay-as-you-go pension system. The government made several attempts to reform the labour market, to move the official retirement age and to discount the value of public pension benefits, but the majority of these attempts were rejected by the social partners. Although a paradigmatic reform finally curtailed public pensions and created the option of contributing to tax-preferred or subsidized supplementary pension savings schemes, social partners hardly supported the Social-Democratic/Green party coalition (SPD and Bündnis 90/Die Grünen). The reform is often referred to as the 'Riester' reform, after the Minister of Labour brokering it. Despite the failed social pact (Hassel, 2003), social partners provide successful non-profit alternatives to profit-oriented companies, and can set standards on the market via collective bargaining (Bispinck, 2007, Dixon, 2009).

This paper clarifies the link between how the failed social pact between the German government and the social partners resulted in the social partners' success on the voluntary, market-based supplementary pension market. More specifically, this paper addresses the following three research questions:

- Why did social partners fail to offer alternative pension provision to the public pensions at the time of the reform?
- What explains the government's move to introduce voluntary subsidized individual pensions with some scope for collective bargaining?
- What accounts for the difference between the social partners' policy-making (and political lobbying) before the reform and implementation (self-regulation via collective bargaining) after the reform?

The research is based upon an in-depth interview with Mr. Walter Riester, the Minister of Labour brokering the pension reform, underpinned with current literature and press reporting. It is first shown that the cooperation between employer associations and trade unions to offer a viable alternative to public pensions before the reform failed. This failure can be explained with the weakness of their respective leading bodies to implement unified strategies. Second, the content of the passed reform proposal is justified by the failed social pact between the government and the social partners. According to that, social partners were still divided, but were strong enough to block the introduction of a mandatory supplementary pension system. Given their protests, the government was forced to implement the system with voluntary enrolment mechanism. This move represented a smaller short term loss for the trade unions, and offered an opportunity to negotiate with employers about pensions as a part of the collective bargaining process. The change in economic circumstances permitted the successful

launch and financing of new collective pension funds (Versorgungswerke), and social partners turned out to be significant determinants of the supplementary pension market.

The study contributes to the literature in several aspects. First, it highlights the relationship between a failed social pact and the pension system. Second, the paper underscores the fact that the analysis of the political discourses and actors should not be limited to pension reforms. Instead, a comprehensive assessment has to take into consideration both the abrupt changes during reforms and long term, evolutionary processes. Based on that, the study illustrates the evolution of social dialogue in Germany, which embraced and benefited from taking up a role in supplementary pensions following the pension reform of 2001.

3.2 Welfare Retrenchments and Social Partners

The trigger for most European pension retrenchments was in most cases related to the increasing competition from developing countries and to the demographic ageing of the Western societies¹⁴. As a result, these welfare states suffered from growing unemployment, aggravated by the oil shocks and the consequent structural changes in the global economy. To illustrate the point: pension expenditures as a percentage of GDP surpassed the nine percent mark by 1993 and reached 9.5 percent by 1996 in Germany. Among the OECD countries, only Austria, Italy and France had higher

¹⁴ In these countries, female fertility rate dropped significantly. In Germany, this value stabilised around 1.3 children per woman in Germany, as opposed to the 2.0 of US (World Bank Social Protection Project, 2009). At the same time, life expectancy increased significantly. The number of individuals above the age of 65 was predicted to grow from 23 percent of the population to 28 percent by 2005 and to 48 percent in 2030. For comparison, the same figures for the US were 24 percent in 1995 and 34 percent by 2030, according to the UN World Population Prospects (2008). According to the UN World Population Prospects (The 2008 Revision, medium variant), German old-age dependency-ratio, i.e. the ratio of 65 years or older to the population of 16-64 years, increased from 23% in 1995 to 28% in 2005 and will grow to 48% in 2030. The same figures for the US are 25%, 24% and 34% respectively.

figures (10.3, 10.2 and also 10.2 respectively). Although other countries had lower figures (Sweden with 7.4, Denmark and the US with 5.2), the growing trend was similar (OECD, 2007). Therefore, it became the main political priority of several governments to increase employment indicators and thus pension revenues; and to decrease pension expenditures (Esping-Andersen, 1990, Esping-Andersen, 1996).

Germany had had a generous pay-as-you-go public pension system in place since 1957, directly linked to the individuals' own lifetime earnings, replacing on average seventy percent of the salary (Schmähl 2007a). The high level of public pensions not only caused the deficit mentioned before, but also turned into a heavy burden for the employers and employees. The value of their joint pension contributions surpassed the forty percent mark of gross labour income by 1996 (Richter 2001: 74). In addition to the problems of the pension system, general economic conditions were unfavourable. By 1997 unemployment reached record heights: almost 4.4 million people (Statistisches Jahrbuch, 2009: 81). This was partly attributable to the reunification and the structural change of the East-German industry. In this situation, existing welfare institutions were unaffordable, and drove the country into high governmental debt. The debt grew from twenty percent of the GDP in 1992 to 66 percent in 1996 (Streeck and Hassel, 2003: 106). At the same time, the European economic integration imposed strict guidelines on governmental deficits, and therefore impeded any further fiscal expansion.

The World Bank (1994) developed and recommended the 'three pillars approach' to governments with pension problems. According to this proposition, old age income was to be provided by three 'pillars': with the help of a public, pay-as-you-go, mandatory pillar with a redistributive function; complemented by two private, funded pillars, a

mandatory and a voluntary one. The function of the first is to provide a minimal support, while last two was meant to function as salary replacement in the retirement. However, most European governments faced several obstacles in introducing such a system. Since the three pillars approach implied profound pension privatization and an additional burden on employers and employees saving for the retirement, most governments played the 'politics of blame avoidance' in such situations (Pierson, 1994). This means that they avoided reducing welfare measures openly in order not to lose the support of their voters. As Pierson (1994) concludes, governments of successful reforms have three viable strategy-options: the compensation of other stakeholders for the retrenchment in other areas, their division or their obfuscation. The actual choice of strategy is influenced by existing political institutions and structures of social provision.

Starke (2006) proposes that the parallel application of various fields of literature yields promising findings about the behaviour of actors during pension reforms. Accordingly, the literature of social pacts may help to understand the government's and the social partners' actual strategy choice. Fajertag and Pochet (1997) and Ebbinghaus and Hassel (1999) argue that since social partners are often able to block the implementation of retrenchment measures, governments are forced to make 'deals' with them. 'Weak' trade unions are particularly willing to accept cut-backs on welfare benefits in exchange for increased centralised power, as the authors point out the case of Italy in the nineties. Similarly, in France, trade unions in the 1990s were politically divided; therefore, the government was able to cut back on welfare measures. In return, selected social partners preserved significant roles in pension provision, and gained new ones in funds management (Natali and Rhodes, 2004). In Sweden, social partners' new role consisted of communication and distribution of the new pension products after the reform

(Belfrage and Ryner, 2009). To put it shortly: weak social partners cannot prevent the profound alteration of pension benefit structures, but may attain new roles in exchange.

Based on the observations above, Hassel (2009) formulates a general analytical framework to the study of social pacts. According to that, governments and social partners both have to choose between lobbying in accordance with their short term 'power interests' and long term 'policy interests'. As Hassel (2009) and Hamann and Kelly (2007) argue, policy and power interests are almost always simultaneously present, but to a different extent. However, the contrast between short and long term interests is particularly pronounced in the case of retrenchment, as opposed to regular tripartite negotiations about wages and in other issues.

Accordingly, Hassel (2009) concludes that German trade unions were rather focusing on their long-term goals while negotiating about a potential social pact with the German SPD/Green coalition government. However, she states, the pact failed, and the government did not use the social partners as an ally during the pension reform of 2001. In another essay, Steeck and Hassel (2003: 118) originate the failure from the diverging interests of the chemical and metal industry, both for unions and employers. They state that the social partners' were unable to negotiate effectively in the course of the reform, and could only attain minor concessions from the government. The way to resolve this apparent contradiction in the social partners' power position lies in the extension of the analysis' time-scope. Weak social partners may fail to strike deals with the government due to their internal division, but can make use of their minor achievements following the pension reform. The brief example of Sweden may illustrate this. The Swedish pension reform of 1999 is considered as an example of failed cooperation between the

government and the social partners (Hassel, 2003). However, after the pension reform, the Swedish blue-collar union federation took an active role in the creation of a ‘mass investment culture’, according to Belfrage and Ryner (2009). It seems that it is the trade unions, in particular, that may gain from activities related to replacing public pensions. As the mentioned examples shows, trade unions’ gains can be realized several years after the reform, on the long run.

Why trade unions? Rhodes (2000) directs attention towards another categorisation of social pacts, which proves to be a helpful addition to understand that. His first category, distributional social pacts, contains agreements between the government and the social partners that create policies altering the reform’s ‘inclusiveness’. This means in his illustration that labour market ‘outsiders’, mainly individuals, may gain admittance to the labour market. His second category refers to productivity-related social pacts, describing agreements which result in higher productivity and economic growth. These two categories neither consider the political actors individually, nor do they focus on the actors’ interests, since these may vary according to the particular political constellation. Rather, the ‘distributional’ concept of social pacts is important in the light of research conducted over ‘new social risks’, referring to income inequality, poverty, or the reconciliation of work and family life in women’s case (Beck, 1992, Bonoli, 2006). Welfare retrenchments altering existing labour markets often increase these risks (Ginn, 2003), and that is where trade unions can leverage their fame, access to employees and power ensured by legal privileges.

When adopting this framework to the analysis of pension reforms, the distributional dimension of social pacts refers to the inclusion or exclusion of individuals in the

accumulation of supplementary pension savings, or to the mandatory involvement of employers to spend more on non-wage labour costs, such as pension contributions. Obviously, these attainments are consequences of agreements between trade unions and employer associations, and employer associations are almost as important as trade unions. Nevertheless, trade unions benefit directly, while employer associations may do so only indirectly. In summary, the power and policy interests of political actors are strongly affected by the exact content of the pension reform, and thus offer an opportunity to explain the relationship between the outcome of a social pact and the structure of a pension system. This approach is however insufficient to explain the role of the social partners. In order to do so, the analysis of their behaviour following the pension reform is inevitable.

3.3 Background on Social Partners and the ‘Pension Issue’

Germany was often referred to as the ‘German model’ with unique, strongly interrelated economic and social structures, including unique forms of corporate governance and a tripartite decision making between the government, employers and employees (Katzenstein, 1987). The unique status of the German trade unions and employer associations is ensured by the Collective Agreement Act of 1949, binding for all employers and employees of their respective regions and for a specific industry (*Flächentarifverträge*). The regional character of collective agreements means that one region initiates and conducts the collective bargaining process for a year, usually where the trade union is strongest (often Baden-Württemberg for the metal and electric industry), and then its agreement serves as a model for other regions. The first industry to negotiate the agreements is usually the German metal and electric industry, since its social partners are considered strong and experienced in collective bargaining.

Subsequently, other industries use this agreement as a reference point. Therefore, German social partnership is often directed by the decisions made between IG Metall, the trade union, and Gesamtmetall, the employers' association (French 2000: 200).

Collective agreements can regulate anything the contractual law permits, including welfare measures, such as minimal wages or pension contributions. Since these rules affect the working conditions of the majority of the German workforce (in 2000, collective agreements covered approximately 85 per cent of the employees in the West and 78 per cent in the East of Germany, see Streeck and Hassel 2003: 109 and Streeck and Rehder 2005: 57), any measure they introduce has far reaching effects.

However, trade unions' and employer associations' power waned, partly induced by the mentioned economic difficulties and profound societal changes of the 1990s and 2000s. As a result of these, social partners were continuously losing members, legitimacy, as well as membership revenues. Trade unions failed to address the female, white collar and young workforce adequately (Streeck and Hassel 2003: 109). Similarly, employer associations were unable to keep members. Their main attraction, the sectoral collective bargaining which simplified wage and employment negotiations, lost its popularity. The large, export-driven companies could afford the wages prescribed by the collective agreements, while they were pushing for low prices from their small and medium-sized (SME) suppliers. As a result, SMEs were unwilling to maintain collective wage levels, and, in order to avoid the binding force of the collective agreements, did not become members of the associations. Association memberships with exemption from the collective agreements (*ohne Tarifbindung*) were introduced, but these were not attractive enough to boost SME membership figures (Silvia and Schroeder 2007).

The background and significance of the social partners explains why their regular annual social dialogue embraced the problem of growing unemployment in 1984. Trade unions demanded the reduction of the weekly working time to 35 hours to provide jobs for the unemployed. Indeed, the announced aim of IG Metall was to fight ‘against mass-unemployment and to preserve the social state’ (Lang and Kuhlmann 1996: 194). Finally, a general, but smaller reduction of working hours was agreed upon, which also included an increase in employer flexibility in allocating them. However, the work councils and the management of the Opel factories deviated from this agreement, and preferred early retirement to shorter working hours. Subsequently, earlier retirement became a part of the collective agreement as an alternative to shorter weekly working hours for others (Riester 2004: 56).

The option of early retirement was made possible by the pension reform of 1972. This reform in effect created a ‘window of retirement’ for individuals between the ages of 60 and 65 with sufficient working history, who, when retired, did not face any decrease of pension benefits (Börsch-Supan and Wilke, 2006: 3). As a consequence, actual retirement age dropped. This, together with the increased life expectancy and the decreased fertility rate aggravated the growing pension deficit. In 1992, the conservative-liberal coalition (CDU/CSU and FDP respectively) introduced parametric measures of minor actuarial adjustments to the pension formula, in order to close the window of early retirement. These adjustments however, were still insufficient to compensate for the deficit, since the discount of public pensions was smaller than the drop in the effective retirement age required (Börsch-Supan and Wilke, 2004: 27). For this reason, the government was planning to increase the official retirement age to 65

years, and to add another pension adjustment based on a demographic factor, which would alter pension levels according to the relative number of retirees (Hering, 2001).

As a result, the changes of 1992 made it more costly to retire before the official date. Some trade union representatives proposed to support the changes of the government, and to benefit from it by providing an additional service to trade union members. Accordingly, Mr. Walter Riester, the then vice-president of IG Metall, presented an idea on the institution of 'Tariffonds'. Tariffonds were imagined as institutions governed and funded by the social partners in order to substitute the income of early retirees until they become eligible for the full amount of the public pensions. This, in combination with existing tools, such as the part-time work of employees close to the retirement, was to be negotiated as a part of the regular discourses about collective agreements. Mr. Riester proposed to finance funds from the collective wage increases, without a decrease in the nominal wage levels (Riester, 2009).

A savings scheme offering voluntary savings products to the employees or prescribing mandatory contributions for the members covered by the collective agreements may provide several advantages to the trade unions. First, they may provide a new and very important service to the employees and retirees. Second, together with employer associations, they may be able to make investment decisions with the pension savings of their beneficiaries, which is of increasing importance. Given that pension savings are 'the largest single source of savings in Anglo-American economies' (Clark 2000: 76), and thus imbued with an enormous financial and non-financial power, Tariffonds may have gained some significance similar to that in the long term.

However, there are at least three reasons why Tariffonds were not introduced. First, employer associations did not see gains for their members. Employers were already struggling with high non-wage labour costs, which eliminated a great fraction of their competitive advantage. Second, both trade unions and employer associations expressed concerns how early retirement would affect unemployment figures (Riester, 2004: 75). Welfare measures provided at the expense of additional labour costs decrease the amount of labour purchased, which is not necessarily offset by individuals giving up their jobs using the early retirement option (Snower and Merkl, 2006). Third, the introduction of Tariffonds may have represented an ideological drawback for the trade unions, since they may have been criticised for ‘selling’ the welfare state for their own success (Fajertag and Pochet, 1997). In fact, Mr. Riester’s proposal of Tariffonds, financing of early retirement by the social partners, divided the trade unions about the cooperation with the conservative-liberal coalition government. As a result, Tariffonds were not founded in the years following the (parametric) pension reform of 1992.

In the absence of cooperation, in 1996, the government announced a unilateral action to cut public pensions further, and to increase retirement age from 60 to 65. This move triggered trade unions’ resistance (Streeck and Hassel, 2003: 108), since pensioners were not to be compensated for the decrease. The cut in pensions was meant to be introduced with the help of a demographic factor that adjusts pension levels according to the relative number of pensioners, so that pension contributions remain unaffected by the demographic transition of the population. By contrast, employers were in favour of increasing retirement age which was to eliminate additional pension contributions (PNP, 1999).

The government's pension policy divided social partners; it triggered protest from the trade unions but earned the approval of employers. Following that, in 1998, the social democratic party's election campaign promised to eliminate these pension measures altogether (Hering, 2001: 6). The Helmut Kohl-led CDU/CSU lost the 1998 federal elections – after 16 years of reign. The biggest loss of votes came from the new, eastern Länder (federal states) (James 2000). These were mostly affected by the structural economic crisis, including high unemployment, which followed the former two German countries' unification, and thus were in the greatest need for fundamental reforms.

The new social democratic/green party government revoked the demographic factor of the previous coalition, as promised, but left retirement age at its increased level. The SPD chancellor Gerhard Schröder underpinned his earlier promise of a new political era by nominating new first-line politicians in the government. The new team of right-wing social democrats¹⁵ included Walter Riester from the management of IG Metall, as the Minister of Labour (Hering, 2001: 9). The choice of Mr. Riester, given his reputation, was perceived by the social partners as a sign of cooperation. Accordingly, when he realized the need to reduce the public pension deficit, he was determined that an altered version of the Tariffonds with the social partners would lead to success. His idea was that social partners would organise pensions; but instead of financing early retirement, these institutions would provide supplementary pensions to substitute for the decrease of public pensions. He was pursuing negotiations in order to achieve a 'social pact' that involves the government and the social partners (Riester, 2009). Despite his efforts, contemporary interviews with the chancellor deviated from this policy of the Ministry

¹⁵ Other persons were among others Ulla Schmidt, representing a right wing block within SPD (*Seeheimer Kreis*); Franz Münterfering, leader of SPD in Nordrhein-Westfalen, which represents 25% of all SPD members (Hering 2001: 9).

of Labour (Streeck and Hassel, 2003: 116). Mr. Schröder's plans contained proposals about amending the public system, without mentioning secondary pillars. According to the interviews with him, the decrease of retirement age to 60, financed by the original version of Tariffonds would offer jobs for the young; which consequently generates sufficient public revenue to finance the pay-as-you-go public pensions (PNP, 1998). It was only in the background that he supported Mr. Riester's idea (Riester, 2004: 141, Riester 2009).

3.4 Analysis of Interests

As studies have found, the extent of welfare retrenchments depends on the actors' power and interest situation (Hassel, 2009), institutional configuration and path dependence (Starke, 2006). Therefore, the interest status of the stakeholders as well as their dilemmas following the election of 1998 are analysed in the following paragraphs.

The negotiation forum between the partners and the government, the Alliance for Jobs (*Bündnis für Arbeit*), was, among others, intended to discuss reform elements. However, as a result of the participants' division in pension-related and other questions, it turned into a 'photo opportunity' for the participants rather than an effective political forum (Streeck 2003: 9). Since negotiations got stuck with the social partners, the discussion at the Alliance for Jobs was gradually losing its focus on making agreements. By contrast, the new government was 'in the need' to overcome the dire state of public finances, and was forced to take unilateral action. Given these circumstances, it is important to understand the government's dilemma, before discussing the social partners' division and reaction to the government's move.

The German government could not afford to increase pension taxes or revenues. As a result, it had two options left: to raise retirement age or to decrease the level of public pensions. Since retirement age was already raised by the conservative-liberal coalition to 65 in 1996, it was in the best interest of the social-democratic/green coalition not to address this issue again. Employers favoured the 65-limit too; the government could face demands only from the trade unions. The second option, the decrease of public pensions, was a more problematic issue. First, a plain cut-back without the introduction of supplementary pensions was attempted by the previous government before 1998 and had to be revoked, because of the promise made during the election campaign. Therefore, any parametric adjustment to the public system without profound alterations could have triggered the criticism that the SPD's election campaign was based on a plot. Moreover, if the level of public pensions is decreased, supplementary savings are necessary to ensure the living standards of the retirees. Consequently, the government's attempt to introduce a pension decrease without any formal additional savings facility was doomed to fail (Ebbinghaus and Hassel, 1999). It became clear that the reduction of public pensions was to be accompanied by the introduction of a supplementary pension system. Thus, the governments' dilemma was between a mandatory and a voluntary supplementary system.

While a mandatory system had the clear, long term advantage of including all employees in supplementary savings and thus reducing the social risk of old-age poverty, it had drawbacks. A mandatory system is an increase in labour costs that decreases the country's competitiveness, and may motivate firms to relocate production and to substitute labour with capital. Moreover, as the opposition and some members of the government argued, immediate social risks arise when a mandatory system is

imposed upon the poor, since they may be unable to afford the additional savings (Riester, 2004: 141). By contrast, a voluntary system is a burden only to those who recognise the salience of old age savings and enrol. However, in the absence of automatic enrolment, incentives are necessary to reduce old age social risks. Several studies have pointed out that people hardly realise the importance of retirement finances in time. Usually certain groups of society tend to recognise the need to save in time (see Clark et. al. 2009 for the UK, reinforced for Germany by Börsch-Supan et.al. 2008). Even individuals willing to save tend to procrastinate enrolment or ‘undersave’ (see Laibson, 1998; O’Donoghue and Rabin, 1999, later Diamond and Kőszegi 2002). Therefore, an adequate incentive structure is necessary. That requires additional funding from the social security.

Employer associations were clearly against any rise in mandatory pension contributions. One of the pension reform’s triggers was the increasing burden of social contributions to the public budget, exceeding forty percent of the labour costs by 1996 (Trampusch, 2006: 64). Employers were unable to afford higher labour costs due to the enormous cost pressures on Germany’s export-oriented ‘original equipment manufacturers’ (Silvia and Schroeder, 2007: 1445). Therefore, it was unlikely that employers would voluntarily agree on additional pension contributions, unless this was diverted from another, existing labour cost element. Although the proposal about using employee-financed Tariffonds to save for supplementary pensions instead of early retirement circumvented this problem, they were divided. The chemical industry had already been using jointly governed funds to finance unemployment benefits, which illustrates that some sectors or companies were ready to negotiate such changes. As a consequence, employer associations achieved legitimacy to support the concept of flexibility only:

increased autonomy for local, company- or industry-level agreements between capital and labour (Trampusch, 2006: 66-67). Mandatory supplementary pensions may hardly be referred to as flexible solutions.

Similarly to employer associations, trade unions were divided about the question of supplementary pensions. According to Mr. Riester, the trade union of the chemical industry (IG Chemie) was open to the proposal about a Tariffond-like institution to substitute the drop in public pensions, and they signed a binding collective agreement on prescribing mandatory employer contributions to the occupational pension accounts of all employees (Riester, 2009). However, the IG Metall remained divided, according to Mr. Riester. Its leader, Mr. Zwickel firmly rejected the altered version of Tariffonds, fearing that this ‘would solve the problems of the social security by using our money’ (Riester 2004: 134)¹⁶. He argued that Tariffonds should finance early retirement (at 60). This move would eliminate older workers from the labour market and thus create sufficient number of new jobs for the young. This, in turn, would generate additional social security revenues, making the reduction of public pensions unnecessary (PNP, 1998).

As the different opinion of IG Metall and IG Chemie showed, the question of opposing or supporting the government in the pension retrenchment was not one with an obvious answer for the trade unions. While they might have been able to achieve an indispensable role in pension provision and thus boost their relevance to their members, they have had to pay a political price for it by assisting the government in decreasing

¹⁶ „It almost looked like, as they thought, I would keep the funds from the collective agreements for myself” („Fast kam es mir vor, als dachten sie, ich würde die Mittel aus den Tarifabschlüssen für mich behalten wollen!” Riester 2004: 134)

the level of public pension benefits. Should they have gone for this option and had supported the government, the enrolment question had posed another dilemma. On one hand, although mandatory enrolment could have been seen as an imposed ‘tax’, as Mr. Zwickel did (Trampusch 2006: 68), it could have reduced the risk of old age poverty. On the other hand, a voluntary system may have been used to boost the trade unions’ attractiveness by providing benefits to their members, compared to employees not covered by these services.

Table 3.1. The decision matrix of the pension reform

		1. Government’s proposal	
		Mandatory enrolment	Voluntary enrolment
2. Social partners’ reaction	Support the reform proposal	<ul style="list-style-type: none"> • Trade union IG Chemie • Employer association of the chemical industry • Employers – if no employer financing 	<ul style="list-style-type: none"> • Employer associations
	Oppose the reform proposal	<ul style="list-style-type: none"> • Trade unions • Employer associations – with employer financing 	<ul style="list-style-type: none"> • Trade unions

Note: the table contains social partners’ response, depending on the government’s proposal

Source: author’s own analysis

This political situation between the government and the social partners may be interpreted as a decision ‘game’ (Table 3.1). At first, the government had to choose between proposing a supplementary system with mandatory or with voluntary enrolment. Following its choice, social partners had to react to the government’s proposal. In case both social partners decide to support, they were promised special rights in pension provision and fund management in return (Riester, 2004: 134). However, as it looks from the current analysis, a mandatory proposal promised little success to the government. Why did the government propose it then?

Mr. Riester was forced to take unilateral action, and suggested the introduction of supplementary pensions financed by employee contributions, with universal, mandatory coverage in June 1999. This solution had the advantage that no incentive system was necessary, and thus did not require additional social expenditures from the treasury. His ideological consideration was that a mandatory system would leave no one out (Riester, 2004:143). Moreover, although Mr. Riester saw the division within the trade unions, he *believed* in trade unions', particularly the IG Metall's support, given the support of the chemical union (Riester, 2004: 143).

Moreover, the government aimed at attaining the employers' support, and proposed financing savings according to the original Tariffonds plan, partly from wage increases. This meant employee contributions only, and therefore it was interpreted by the trade unions as a true threat. Consequently, IG Metall and other trade unions fiercely rejected the government's proposal (StZ, 1999, BZ, 2000). Mr. Zwickel regarded it to be shameful for a social democratic government to leave pension savings entirely to the employees (StZ, 1999). Since savings were to become mandatory, they would be perceived as taxes. The net effect is therefore a decrease of the wage-levels. Retirement income would not increase either, since the new savings would only replace the public pensions. Trade unions perceived the government's proposal as an intervention and an offence to their bargaining competence (Trampusch 2006: 69).

The public response to Mr. Riester's mandatory proposal was surprisingly intense. It was interpreted as 'forced savings' and as a *de facto* increase of social contributions (Riester, 2004: 142). Trade unions and the parliamentary opposition together were sufficiently strong to foil this plan: the uproar isolated Mr. Riester even within his

government, so he had to abandon the mandatory proposal (Riester, 2009). Interests for a mandatory system never disappeared, as some SPD and even CDU officers declared later, in the autumn 1999 (TZ, 1999b), although the issue of the mandatory system did not return to the governmental agenda again. The SPD was losing elections in several Länder in a row, therefore the Ministry of Labour had to choose options of least resistance (Streeck and Trampusch 2005: 182). The government changed its strategy, and started offering concessions in all fields, including the pension reform. The new proposal incorporated an enrolment option to the secondary system, whereby the pension contributions were planned to be exempt from income taxation. It was only in case the coverage turned out to be insufficient that the government would have to reconsider mandatory enrolment.

The voluntary system and the cut in public pensions divided the trade unions, since this was still a welfare retrenchment without the benefit of any special rights received. They revised their opinion: on 6th July 1999 trade unions and employer associations signed an agreement about strengthening the occupational pension system as an alternative to the public pensions (Eiro, 1999). By this move they expressed their interest in pension provision, but did not support the government in the retrenchment of public pensions in a straightforward manner. Quite to the contrary, some trade unions were still threatening to block the reform by strikes. In order to prevent this, the government offered concessions to them (Streeck and Trampusch, 2005: 182). One of these concerned the government's proposal on the decrease of the public pensions, which was very similar to the conservative-liberal government's demographic factor. Due to the trade unions' protest the government replaced this element with a smaller reduction (Riester, 2004: 157). Another concession was that the collective agreements were allowed to overrule

individual employer-employee agreements on the matter of occupational pensions (*Tarifvorbehalt*). Furthermore, all employees had the right to transfer their gross salaries into a savings account and thus receive tax subsidy (*Entgeltumwandlung*). However, private pensions gained similar significance in replacing public pensions (Börsch-Supan and Wilke, 2006: 15).

3.5 The Pension System after the Reform

The reduction of the public pensions did not need approval from the Länder and the Bundestag voted in favour of it on the 26th January 2001. The SPD, with its coalition partner, the Green Democrats, had the necessary amount of votes to achieve sufficient support (they supported, while CDU/CSU, FDP and PDS opposed the reform). The CDU was criticising for the social risks induced by the proposed system, and for leaving vulnerable parts of society without an adequate old age income. Their argument was that only wealthy households would benefit from the tax-favoured savings opportunities. Therefore, they demanded the introduction of direct subsidies as one of the conditions of their support. As a result, special subsidies were incorporated for families with children, but not for widows (Riester 2004:152). According to the minutes of the Bundestag, this was one of the reasons why the CDU remained dissatisfied. (Deutscher Bundestag, 2001: 16430).

Table 3.2. The results of the vote in the Bundesrat on the 11th May 2001

	Number of votes	Vote	Remark
Niedersachsen	6	yes	SPD majority
Nordrhein-Westfalen	6	yes	'Won' by the CDU financing scandal (Helms, 2003: 422)
Rheinland-Pfalz	4	yes	'Won' at the Land-election in March, by concessions on the pension reform proposal (Heimpel, 2003: 78)

Schleswig-Holstein	4	yes	'Won' by the CDU financing scandal (Helms, 2003: 422)
Sachsen-Anhalt	4	yes	SPD 'tolerated' by PDS
Brandenburg	4	yes	Promise of new jobs (SPD-CDU coalition) (Heimpel, 2003: 76)
Berlin	4	yes	Promise of new jobs (SPD-CDU coalition) (Heimpel, 2003: 76)
Hamburg	3	yes	SPD/Grünen majority
Mecklenburg-Vorpommern	3	yes	SPD risked the coalition with FDP (Heimpel, 2003:76)
Baden-Württemberg	6	no	CDU majority
Bayern	6	no	CSU majority
Hessen	5	no	CDU majority
Thüringen	4	no	CDU majority
Sachsen	4	no	CDU majority
Saarland	3	no	CDU majority
Bremen	3	abstained	Result of the SPD/CDU coalition
Total	69		Number of 'yes' votes: 38 (55%)

Note: although the Länder differ by the number of delegates and therefore weights in the Bundesrat, each Land has to vote with a unanimous decision

Sources: www.bundesrat.de, Helms (2003), Heimpel (2003)

The government had to engage with other parts of the society in order to ensure the necessary majority in the Bundesrat, the assembly of the Länder-representatives. Most representatives of the Länder are affiliated to the parties, but they are elected locally. Therefore, the pension reform proposal had to be adjusted according to local political situations (Table 3.2). Such local political constellations could have even turned SPD-led Länder against their government (Riester, 2009). An example for a compromise with the representatives of the Länder was the promise of new (local) jobs: since two types of incentives were developed, two institutions with around one thousand public employees were necessary to manage the subsidy-system. The CDU labelled the idea as a complex, bureaucratic 'monster' (Deutscher Bundestag, 2001: 16433). Nevertheless, the creation of these institutions proved to be beneficial in the short term: the votes of Brandenburg and Berlin were obtained by the promise that the new administration would go there and create new public jobs (Riester, 2004: 169).

The government made further concessions to convince the Länder-representatives and to ensure majority in the Bundesrat (Heimpel, 2003, Helms, 2003). In the local elections in Rheinland-Pfalz and Baden-Württemberg, local political leaders, regardless of their party-membership, actively requested changes to the pension proposal. The SPD-representatives of Rheinland-Pfalz promised the voters that savers would be able to use their individual pension-savings for real-estate purchase (Heimpel, 2003: 76). This request coincided with the demand of the building industry. Votes from several other SPD-led Länder were ensured by concessions in other fields, such as increase in child allowance and increase in funds to the Länder (Heimpel 2003:70). The SPD of Mecklenburg-Vorpommern risked violating the coalition agreement with FDP by voting in favour of the reform. Furthermore, according to Helms (2003: 432), the unexpected revelation of the CDU-financing-scandal created a ‘window of opportunity’ for a wide range of institutional changes, including the pension reform. After the scandal, the CDU lost the local elections in Nordrhein-Westfalen and Schleswig-Holstein (in February and May 2000, respectively), and the SPD obtained several seats in the Bundesrat. The Bundesrat approved the pension proposal by a narrow margin.

Social partners were unwilling to cooperate with the government in the course of the pension reform for the reasons discussed above. Despite the failed attempt to achieve cooperation, social partners managed to obtain a minor privilege for the collective agreements in pension provision. These agreements can overrule individual employee-employer agreements about occupational pensions. In general, however, occupational pensions are eligible to the same type of subsidies and treatment as private pensions. The final legal text left the choice between private and occupational supplementary pensions virtually undecided (Börsch-Supan and Wilke, 2006: 15). As a result of this,

social partners' means attained during the reform remain limited to issues related occupational pensions. As a result, occupational pensions became part of the collective bargaining process. Collective agreements were achieved in two major areas in relation to this: employer support in pension contributions, and the foundation of pension providers owned and managed by the social partners (Bispinck, 2002).

Almost all collective agreements provided some degree of employer support to sponsor occupational pension plans from 2002 onwards, but show a great variety of solutions. The summary provided by Bispinck (2002) highlights this: there are firm-level agreements, regional and industrial agreements, as well as schemes with proportional employer contributions to individual savings, or other schemes with flat contributions to all employees. This provided sufficient flexibility to the employers.

The second area of collective negotiations after the pension reform was the creation of collective pension funds. Social partners jointly govern these non-profit initiatives, usually one provider for one industry¹⁷ (Versorgungswerke). These companies or cooperatives organise pension provisioning by outsourcing most parts of their activities. Asset management and distribution is executed by the financial industry, since even these could not escape from the logic of finance (Dixon and Sorsa, 2009: 359). The greatest assets of social partners' pension providers are their reputation and the number of employees enrolling in a pension plan; therefore, they exploit these to achieve cost advantages at their for-profit partners. However it must be pointed out that the prescribed employer contributions are not linked to the enrolment at one of the social

¹⁷ For instance, *HoGa-Rente* for Hotelling-Restaurant-Catering, *Chemie Pensionfonds* for the chemical industry, *MetallRente* for the metal and electronic industry, *Wertguthabenfonds* for the locomotive drivers, *ZununftsFonds* for paper, print and media, *SoKaBau* for the construction industry.

partners' pension schemes. The reason for this is their internal division again: several large employers manage their own, traditional Pensionskassen (a type of pension product) or newly founded pension funds, and they would hardly give up these for the sake of the jointly governed Versorgungswerke. Therefore, the Versorgungswerke were interpreted by Dixon (2009) as the social partners' symbolic efforts to offset the individualised nature of the pensions.

The role of social partners in pension provision was decisively changed by the uniform collective agreements of 2006 in the metal- and electric (M+E), and the chemical industries, applying to all employees and employers covered by the agreements. The M+E-collective agreement closed down an existing type of employee-benefit aimed at asset accumulation (*vermögenswirksame Leistungen*), which offered a range of savings possibilities, including real-estate purchase, life insurance, bank savings accounts or contributions to a pension plan. From 2006 onwards, these resources were exclusively dedicated to the last option, to pension savings (*altersvorsorgewirksame Leistungen*). As a result, all employees covered by collective agreements are enrolled in a pension savings plan if they require so, and receive automatically a yearly amount of employer contributions of 319.08€ per full time worker (TV AVWL, 2006). Although this savings amount is relatively small, the automatic enrolment proves to be an efficient tool in pension provisioning. The chemical industry introduced similar measures, also in 2006. It offers a slightly higher amount of fixed employer contributions and an additional variable amount, depending on the employee's own savings (Chemie, 2006). The measures of the two most important industries show that the social partners changed their attitude towards the voluntary nature of the secondary pension system. According

to the collective agreements of 2006, employees are 'forced' to put aside the employer contributions for the retirement, as opposed to more liquid investments or cash payout.

There are several reasons for the change in the social partners' attitude. First, the reform of 2001 did not solve the deficit of the public pension system. A further decrease of the public pension levels was accepted in 2004, creating a system similar to the ones with notional defined contributions (NDC) (Börsch-Supan and Wilke, 2006: 25). In addition, official retirement age was increased to 67 years. As a result, the importance of the supplementary system increased, and so did the social risk of not saving for the retirement. Second, Germany overcame some of the difficulties of the late-nineties. Real wages hardly increased, and the country gained competitive advantage. It has been referred to as the export-champion since, being only recently surpassed by China (Joebges et. al. 2009). Finally, social partners' membership numbers dropped further. Both the trade unions and the employer associations continued losing members. While the Confederation of German Trade Unions (DGB) had eight million members in 1999, 6.5 million remained by 2006 (DGB, 2009). Gesamtmetall, the employer association of the metal- and electric industry had around 6500 member employers. Although this figure decreased only slightly, to around six thousand by 2006, two thousand of them were exempt from the collective agreements (GesamtMetall, 2009: 10). They were increasingly interested in finding new roles.

3.6 Implications and Conclusions

The demographic ageing in the Western societies and the rise of the global competition profoundly challenged the sustainability of the German public pension system in the nineties, therefore reforms became inevitable. International experience shows that

welfare retrenchments and pension reforms hardly pass without the involvement of political and social institutions, including the social partners. Deals or ‘social pacts’ made with them can not only change the destiny of political actors involved, but can also profoundly alter the underlying political and economic structure.

The current analysis has cast light on the relationship between the political actors’ interest situations and the underlying pension structure, using the example of the German pension reform in 2001. While doing so, it has contributed to the existing literature. First, this paper has investigated new aspects of the power positions related to the pension system. As it has been shown, social partners were not sufficiently unified to find a compromise in the pension issue. Although trade unions could express sufficient and decisive protests against the government’s proposal to introduce a supplementary system with mandatory enrolment, they could not force the government to reduce retirement age to 60 again, or to prevent the decrease of public pensions. Trade unions’ main achievement was the change from mandatory to voluntary enrolment mechanism, and minor privileges in a market-based supplementary system. Employers aiming for flexibility in supplementary pension issues also favoured a voluntary system, but with less ‘spectacular’ political involvement.

The real implication of this political situation cannot be understood immediately after the reform. Admittedly, it is tempting to judge the consequences of the pension reform by looking at the dramatic alteration of power situations. If the analysis did that, it could note that the social pact failed, and trade unions’ demands were not fulfilled. However, as the example of the long term investigation has shown, the fiercest protesters of the reform, the trade unions, turned out to benefit from it by adjusting their behaviour once

the reform was over. They finally founded the collectively managed pension funds, and could manage them successfully. This was achieved with the help of smart market strategies *and* collective negotiations. The attained employer-financing increased the attraction for employees to be covered by a collective agreement. As a result, collective agreements now set the standard in the question of occupational pensions. Employers and employees not covered by these agreements may be in a worse position, since they do not receive pension provisions. Therefore, it seems to be a promising field of interest to investigate the power of the social partners' on the market, and the effect of their standards on employers not served by them.

Second, the analysis has shown that although the social partners benefited from the failed cooperation with the government, it had profound implications for the employees and retirees, particularly in the question of old age poverty. Although the number of savings plans has been growing since their introduction, studies show that some individuals have more than one savings plan, while others have none (Börsch-Supan et. al., 2008). Moreover, even those saving for their old age may still contribute too little amounts. It is therefore important to monitor and understand the motivations of employers and employees enrolling and saving for the retirement.

Finally, the analysis is an addition to the existing literature. It supports the argument that the studying of pension reforms and social pacts should not be restricted to the spectacular and profound changes during reforms. As this paper has shown, periods between abrupt changes may deliver similarly serious modifications in system characteristics. Moreover, a better understanding of 'power interests' and 'policy interests' is inevitable to understand the decisions of political actors, since it seems that

the heterogeneity of concepts such as 'trade unions' or 'social partners' makes the application of the social pact theory more challenging.

4 Adoption Patterns of Occupational Pensions in Germany

4.1 Introduction

The adoption of financial products has been subject to geographical and other type of research for a long time (Hägerstrand, 1965, Pred 1973, Bass, 1969, Allaway et. al., 1994, 2003, Huberman, 2001). As the literature of geographical diffusion processes explains, spatiotemporal patterns of innovation adoptions may be results of several forces in play, such as the available knowledge of and trust towards the innovation (Wójcik, 2009), which may be distance-dependent (Rodríguez-Pose and Zademach, 2003), or other forces, such as the importance of local context and local circumstances in a world with increasingly better information availability (Ormrod, 1990). The identification of adoption patterns is the first step towards understanding the structure of diffusion processes.

The German pension reform of 2001 offers a unique opportunity to investigate the objective of this paper, namely, to study the adoption patterns of a financial innovation. This pension reform significantly decreased the level of public pensions. To replace the loss in retirement income, individualised secondary occupational and private pensions were introduced (Schmähl, 2003, Börsch-Supan and Wilke, 2006). The enrolment in these occupational (and private) schemes has been voluntary with an opting-in system. Since there is no legally set mandatory employer contribution, most savings plans are financed from the employees' salaries and state subsidies. These occupational pensions are provided by specialist financial companies, which offer their products to the employers first, and only then to the employees. This means in other words that the

prerequisite to the individual adoption of the financial innovation is the employer's decision to adopt the product¹⁸, making the investigation more rewarding.

This employer-employee process offers an interesting avenue for geographical research. The diffusion and adaptation of information about innovations is locally bounded, as for instance Hägerstrand (1965) has shown with the help of stochastic models. As a result, the information available varies according to the distance between the source and adopter (Loughran and Schultz, 2005). Once the necessary information is there, local circumstances still alter the geography of diffusions systematically (Ormrod, 1990). For instance, employers' and organisational behaviour varies across geographies (Monk, 2008). Employee decisions are likely to be affected by individual behavioural shortcomings which show geographical variations (Clark, 2010). Individuals prefer present income to income in the future (Laibson, 1998, O'Donoghue and Rabin, 1999), and the extent of short-termism is again typical for certain locations (Clark et. al., 2008). Finally, employees' adoptions often depend on the employers' timing. Employers not only remind employees on the importance of retirement-savings by adopting occupational pensions, but also is the adoption the moment when the innovation and the necessary information become available locally (von Hippel, 1994).

There is a reason to believe that the voluntary occupational pension schemes created by the German pension reform of 2001 show typical spatiotemporal patterns, based on the arguments above. This paper aims of this paper is to uncover these patterns by looking at employer-level adoptions first. Then, employee-level enrolments are analysed, followed by the identification of relationships between the two. Implications are drawn

¹⁸ Employer-level adoption can nevertheless be initiated by an employee, since he or she has the legal right to do so (Börsch-Supan and Wilke, 2006). This feature is discussed in detail in the next section.

for further research using a unique, proprietary data-set of a German pension plan, covering more than twelve-thousand employers and 286 thousand employees, enrolling between 1st January 2002 and 31st December 2009. The paper addresses the following research questions:

- Do employers of metropolitan areas adopt occupational pensions earlier than their surroundings?
- What pattern do employee-level adoptions follow?
- How does the employers' timing of enrolment affect employees' behaviour?

The data, and therefore the analysis, refers to the German metal- and electric industry (M+E). This industry is of enormous economic importance: it represented app. ten percent of all employees in Germany, and roughly the half of all national exports in value terms in the year of 2008 (Gesamtmetall, 2010; Destatis, 2009: 73 and 644). Furthermore, the profound change in the social policy of its trade union and employer association makes the case of the M+E-industry more compelling. The collective agreement of 2006 prescribed employer contributions to all employees covered by these agreements, but employees still have to opt-in to receive these benefits (Bispinck, 2007). Altogether, it is a unique opportunity to investigate the regional impact of several forces affecting the geography of pensions.

In short, the study delivers the following findings. Both employers and employees located in metropolitan areas adopted earlier than their counterparts outside those locations. Furthermore, the research shows that Western employers and employees adopted earlier than their Eastern counterparts did. Employee decisions are influenced

by the employers' adoption: employers with an existing relationship to an occupational pension provider were more likely to enrol employees earlier than employers without. Furthermore, geographical differences in the gender-gap are identified, meaning that women on average were less behind men in enrolment-timing in the East than in the West.

The study is structured as follows. The following section constructs the research-framework, and creates hypotheses on the diffusion patterns based on the relevant literature. The third section talks about the data used and the methodology. The fourth looks at the spatial diffusion of the new pension products on employer-level, while the fifth analyses employee-level adoptions. The last section draws implications for the financial industry and for researchers, which may serve as hypotheses for future investigations.

4.2 The Framework

4.2.1 The structure of occupational pensions

Traditionally, German employers decided on offering and financing pensions as additional benefits within the framework of an employer-employee relationship (Wiedemann, 1991). This has not been and uncommon: many large employers have a tradition in occupational pensions, as well as small- and medium- sized enterprises have been involved in the 'production of welfare' (Berndt, 2000). There were roughly 9.5

million such occupational pension contracts¹⁹ at the end of 2001 (Alterssicherungsbericht, 2008: 131).

When the generous, pay-as-you-go German public pension system became unsustainable due to the country's ageing society, the German government reduced the amount of public pensions from seventy percent of the average lifetime earnings to fifty-five percent in 2001, and to forty percent in 2004 (Börsch-Supan and Wilke, 2006:22; 29). In order to offset the drop in retirement income, the system of occupational (and private) pensions was altered from several aspects. Following these changes, approx. 4.3 million new occupational pension contracts were signed between 2002 and the end of 2007 (Alterssicherungsbericht, 2008: 131).

An important change introduced by the reform was that the new occupational schemes available from the beginning of 2002 could be requested and financed by employees too. This means that employees may trigger the adoption on employer-level by deciding to convert a part of their salaries into (tax-subsidized) occupational pension savings (BetrAVG (2001) §1a) since the beginning of 2002. The pension reform of 2001 did not prescribe mandatory employer contributions; neither there is an automatic enrolment mechanism in place. Employers may finance new plans (and old, un-subsidized plans too). Moreover, co-financing is also possible.

Another change to occupational pensions was that collective agreements may overrule individual employee-employer agreements over occupational pensions, and prescribe employer contributions (BetrAVG (2001) §17(3)). For instance, all chemical and M+E

¹⁹ These products may have been internally managed, such as the *Direktusage* (direct pension promise) and the *Unterstützungskasse* (support fund), or externally managed and funded, such as *Pensionskasse* or the direct insurance.

employees covered by the collective agreements received pension contributions from their employers from 2006 onwards (Chapter 3). Finally, the new occupational products may only be managed by specialized financial companies. Therefore, employers can rarely distribute and manage the products themselves.

There has been extensive research conducted on the take-up of supplementary pensions over time (Börsch-Supan et. al., 2008). However, regional patterns of the diffusion process have been neglected so far, to the best of the author's knowledge. Models looking at the effect of geography in the adoption of innovations offer a wide range of methods to fill the hole in the literature (Mahajan et. al., 1990, Allaway et. al., 1994, 2003, Howells, 2006). The focus of the current study is the adoption of the new occupational pensions reformed in 2001²⁰. As other diffusion-analyses, this study looks at time: what characterises employers and employees who adopt the new products earlier than others. The process is investigated as a joint outcome of the employer- and employee-level decisions. The employer first has to sign a contract with a specialist financial company to offer the product to its employees, and only then can employee-level adoptions start. Accordingly, the following factors are discussed explicitly: patterns appearing in the employer-level adoptions, patterns describing employee-enrolment, and interdependencies between employees' and employers' adoption-timing.

The goal of this paper is to uncover regional and temporal adoption patterns. While this research can be a rewarding undertaking *per se*, no quantitative investigation can be complete without qualitative engagement with the local context (Strauss, 2008:147). This means in other words that the causality between patterns and hypotheses needs to

²⁰ The study focuses on the occupational pension products direct insurance, pension fund and *Pensionskassen* eligible for salary sacrifice (*Entgeltumwandlung*) introduced in 2001.

be tested with the help of qualitative research. Nevertheless, as Schwanen and Kwan (2009) argue, quantitative analyses can be useful without additional research too, if results are interpreted with critical sensitivity. Therefore, identified patterns can deliver unique insights; it remains subject to further research to confirm causality.

4.2.2 Hypotheses on employers' pension adoption

The literature of new product diffusions explains adoption patterns with the help of spatiotemporal spread of information about the innovation (see Hägerstrand, 1965, or Pred, 1973, who underpin identified urban-rural differences with the availability of information), and with further systematic variations in the time and probability between the availability of the innovation and adoption (Bass, 1969, Clark et. al., 2008). These two forces matter both in case of organisations (Ormrod, 1990, Strauss, 2009) and in case of individuals (see Brown et. al., 2008, who explain stock market participation with neighbourhood-effects). The expectations for enrolment patterns are thus underpinned with both types of arguments both for employers and employees.

In the first instance, employers' geographically varying adoption patterns are explained with the help of literature focused on the role of information. First, the financial industry does not have the same type of contacts to, information on, and access to the employers, depending on location. Financial centres are unevenly distributed across Germany (Klagge and Martin, 2003, Martin et. al., 2005, Sunley et. al. 2005), situated more densely in the West, with a slightly worse coverage in the Eastern part of the country. As Loughran (2007) argues, information dissemination is quicker in the case of local firms, which are better known by the financial sector due to their proximity. To illustrate this, he and his colleague looked at investors who traded stocks of urban

companies more often and in higher quantities than stocks of rural ones (Loughran and Schultz, 2005).

Moreover, employers have different access to financial expertise according to their location and the distance to the financial industry. As a result, remote employers do not know financial innovations as well as their local counterparts. The example of listing on a stock exchange illustrates this explicitly: German and other employers located in financial centres are more likely to go public, not least because of the local presence of intermediaries, such as investment banks, consultants and auditors possessing the know-how necessary for public listings (Wójcik, 2009). Another example is provided by Rodríguez-Pose and Zademach (2003), who isolate the effect of geographical proximity and general economic activity in explaining mergers and acquisitions in Germany. The study suggests that geographical distance is indeed an important determinant of the available information about the target company.

In the second instance, employers' adoption is explained with other factors not strictly dependent on the knowledge of the innovation. For instance, employer size and industry-affiliation may explain regional differences in timing. It has been shown that large German employers with tradition, experience and expertise in occupational pensions were most likely to start offering the new products immediately after the reform, while their small- and medium sized peers followed later (Dummann, 2008, TNS Infratest, 2008). Furthermore, larger employers were more likely to be covered by collective agreements, while their smaller counterparts were not. Given the mandatory employer contributions prescribed by the M+E agreement from 2006 onwards, a difference is suspected between the employer adoption patterns of the periods 2002-

2005 and 2006-2009. This expectation serves later as an element in the model (without formulating it as an explicit hypothesis).

Furthermore, auxiliary industries such as financial and management consultants, and companies involved in accounting may catalyse adoptions. Such ‘knowledge-based’ service industries are over-represented in large cities, and obtain their clients by leveraging their personal relationships, as the example of management consulting firms shows (Glückler, 2007). Accordingly, metropolitan areas, defined as settlements and agglomerations over the population of half a million, are used to represent both business and financial centres in Germany, following the recommendation of Brinkhoff (2010). Hypothesis 4.1 of this chapter is formulated as follows: the adoption of the new occupational pensions may be better fostered in metropolitan areas, as opposed to non-metropolitan areas²¹.

Moreover, a general East-West gap is suspected in employers’ enrolment timing. This assumption is based on partly the previously mentioned interplay between employer size and the timing of the enrolment: while the average number of employees per employer²² was 91 within the boundaries of the former German Democratic Republic, the East of the country, the same figure was 167 in the metal- and electric industry at the end of 2009 (Gesamtmetall, 2010:4). The East-West gap may also be a result of the previously discussed role of information: in the East, the number of financial centres is relatively less, than it is in the West (Klagge and Martin, 2003). As a result, employers

²¹ One could possibly argue that large employers are often headquartered in metropolitan areas and are better targets. First, headquarter location does not necessarily reflect all business sites, which may organise pension provision differently. Second, without mentioning names, several large employers are located outside metropolitan areas. Third, large employers may have their own pension providers, and are therefore not attractive targets.

²² Considering employers with an average number of employees 20 or greater.

(and employees) in the East are expected to have adopted on average later than their Western counterparts (Hypothesis 4.2).

4.2.3 Hypotheses on employees' pension adoption

Having shown the expectations on employer decision patterns, product diffusion among employees is discussed (B). Employees have a good reason to save for the retirement. The reduction of the public pensions did not affect existing retirees; it has been introduced gradually so that individuals with little time until retirement face smaller reductions. Regardless of birth cohort, the same tax- and direct-subsidies were created for every employee in the private sector in order to promote enrolment and savings. As a result, individuals closer to retirement can benefit from saving for the retirement with the help of the new products, receive the full subsidy-amount in each year they save, and receive the relatively higher public pensions later. In contrast to that, younger birth-cohorts will be eligible to lower public pensions, but are entitled to subsidies over more years.

Regional patterns in employees' timing may be results of several causes. Humans tend to procrastinate decisions that involve immediate costs and future rewards (O'Donoghue and Rabin, 1999). Older workers are more effective in saving for the retirement (Clark et. al., 2009), while young employees rather save for short-term purposes (Börsch-Supan et. al., 2008: 26-33). As shown in other studies, average age in the Eastern population is significantly higher (38.7 in 1999) than of the Western population (37.2) due to a migration-wave after the country's re-unification (Burda and Hunt, 2001: 21, 53-5). The case is similar with the metropolitan/non-metropolitan difference: according to the German Statistical Office, the share of the population between the age of 45 and

64 is higher in cities than it is outside them (Destatis, 2010). This may suggest that employees in metropolitan areas and in the East were quicker in the uptake.

Hypotheses can be formulated on geographical differences in adoption patterns comparing enrollees of the same age. Not only may the above mentioned concentration of financial knowledge in metropolitan areas cause similar geographical patterns in the case of employees, but it may be well the result of higher level of education in cities. Moreover, employees of metropolitan areas usually have higher wages thus higher disposable income in nominal terms, offering more opportunity to save²³. This may serve as an incentive for the financial industry to approach metropolitan employees first, and non-metropolitan later. In summary, there is likely to be a metropolitan-effect in employee-enrolment decisions too (Hypothesis 4.3).

Besides age, gender is expected to be a determinant of adoption-decisions. Women are in general more willing to plan their retirement finances (Clark et. al., 2009), therefore they are expected to enrol in the new occupational pensions at an earlier age than men. However, in the East, besides the better availability of state-owned childcare facilities, a cultural effect may drive women to enrol earlier in savings plans. Women's aspirations have been profoundly different in the East, preferring financial independence to staying at home (Rosenfeld et. al., 2004). By the same token, the gender gap in timing may be narrower in the East in the West (Hypothesis 4.4).

Similarly, female roles within the society differ between South and the North of the country (Sackmann and Häussermann, 1994: 1383). Women return to their jobs after

²³ Notwithstanding the fact that price-levels in cities are usually higher too.

maternity leave more often in the South (Bayern and Baden-Württemberg), meaning that women aim for paid work and financial independence in the North less often than in the South. Therefore, as a part of the Hypothesis 4.4, the North-South difference is tested: women are expected to enrol in the South closer to men than in the North.

4.2.4 Expected relationships between employers' and employees' decisions

Employee take-up also depends on the timing of employer-adoptions. Technically, it takes time for the employer to adopt a product; individual adoptions can only follow later. Moreover, individual decisions are not made in isolation. Rather, they are often based on the recommendations of friends and colleagues (Clark et. al., 2009). People uninterested in occupational pensions may become engaged with time, as a result of social network-effects within a company (Duflo and Saez, 2002, 2003), or as a result of the employers' active engagement in advertising occupational pensions (see Appendix 1). Finally, if employer size matters and large employers hire young individuals every year, they are more likely to produce a constant flow of new enrollees. These arguments altogether suggest that the time passed since the pension product has been on offer at an employer is expected to play a role in individual decisions. Hypothesis 4.5 is thus formulated: once the relationship to the financial provider is established, individuals can acquire occupational pensions quicker.

The hypotheses about the spatiotemporal diffusion are collected in Table 4.1. The diffusion of the new occupational pensions depends on when employers adopt it (A), when employees adopt it (B), and how employers' timing affects employees' adoption (C). Geography is assumed to have an effect on employers (A), and assumed to have

another effect on employees (B). Their difference is partly explained by (C). This proposed enrolment-model does not imply that there would be no exogenous effects that influence (C). Employer size therefore most probably affects patterns observed in (C). The model proposed here merely formulates expectations on enrolment patterns.

Table 4.1. Summary of hypotheses on enrolment decisions

	Metropolitan effects	Regional effects
(A) Employers' adoption date	Hypothesis 4.2: employers headquartered in metropolitan centres adopt earlier	Hypothesis 4.1: employers in the West adopt earlier
(B) Employees' absolute date of enrolment	Hypothesis 4.3: employees living in metropolitan areas adopt earlier	Hypothesis 4.4: the difference between men's and women's adoption is narrower in the East and in the North than in the West and South
(C) Employees' adoption decision relative to employers' adoption	Hypothesis 4.5: once the relationship to the financial provider is established, individuals can acquire occupational pensions quicker	

4.3 Data and Methodology

This analysis is based on a unique proprietary piece of data offered by a leading German occupational pension provider. The profile of this company is to distribute the new subsidized occupational pensions, and to manage pension assets afterwards. The data considered by this analysis comprise 286 379 individuals and 12 500 employers, active in the metal- and electric industry, one of the most prominent industries of the German economy. The analysis does not cover aspects of competition or sales success in Germany or within any of its regions. The sole aim of this investigation is to contribute to the literature of economic geography.

One of the greatest advantages of this unique data-set is its comprehensiveness. First, it represents approximately ten percent of all employees in the metal- and electric

industry, highlighting the importance of the analysis. Second, its coverage provides sufficient number of observations for every region in Germany defined by the first two digits of postcodes, making detailed regional comparisons possible. Third, it gives a reliable picture of occupational pension plan enrolments and suspensions between the years of 2002, the starting year of the new pension market, and the year of 2009, the worst year of the financial crisis. Since the pension reform was followed by a series of legal and institutional changes over the years, including new collective agreements in 2006, or shorter working hours during the crisis year of 2009, the effects of these can be investigated.

The data contains information about the pension contract of each enrolled employee. It contains the starting date of the contract (enrolment date), the participant's gender and date of birth. It also provides the first two digits of the enrollee's home postcodes. The data-set informs us whether the pension product is financed by the employer, or it involves any employee contributions, as the two outcomes of a binary variable. This means that the variable has the value of one in the case of pure employer financing, and the value of zero if the plan is with mixed- or purely employee-financing. The value of zero means therefore some degree of present sacrifice from the individual from the date of the decision onwards, whereas the value of one means no additional effort from the employee. Furthermore, a categorical variable that links enrollees to one single employer is also available. The first two digits of the employers' postcodes (headquarters²⁴) are also available.

²⁴ The geographical reference for the employers has the implication that employees of business sites different from the headquarters are attributed to headquarter-location. Therefore, employee-decisions are modelled with home postcodes, which reflect actual working locations better.

The two digit postcodes determine 95 areas in total, as used by the Deutsche Post. These were classified whether they contain metropolitan areas. The classification was done on the basis of population-size: postcode-areas covering cities or agglomerations with over 500,000 inhabitants are called metropolitan areas (Brinkhoff, 2010). Remaining regions were classified as non-metropolitan regions. Population figures were obtained from the Statistisches Bundesamt publicly available *Gemeindeverzeichnis*. Furthermore, the two-digit postcode areas were linked unanimously to the Bundesländer. In cases when a postcode-area belongs to two or more Länder, observations (employees and employers) were evenly distributed.

The analysis is prepared in two steps, first for the employer- and then for the employee-level diffusion. Both the employer- and the employee-level adoptions are investigated with the help of an event history or survival analysis technique, called the Cox-type proportional hazard model (Cox, 1972, R Development Core Team, 2009). This method looks at the time elapsed until the occurrence of an event, which is in this case, the adoption of the new occupational pensions. It calculates the absolute value of a baseline risk (or hazard-ratio) that applies to all observations. Furthermore, it identifies the effect of the covariates on the baseline risk: covariates are assumed to alter it proportionally. The employers' headquarter-location illustrates this effect: the regression calculates how many times greater or smaller the chance of the enrolment is, if the headquarters are located in a metropolitan centre, as opposed to a non-metropolitan location.

The Cox proportional hazard method suits the purpose of this paper for several reasons. First, since this paper intends to verify hypotheses about differences in the timing of the enrolment decisions, identifying the exact shape of the baseline hazard is not relevant.

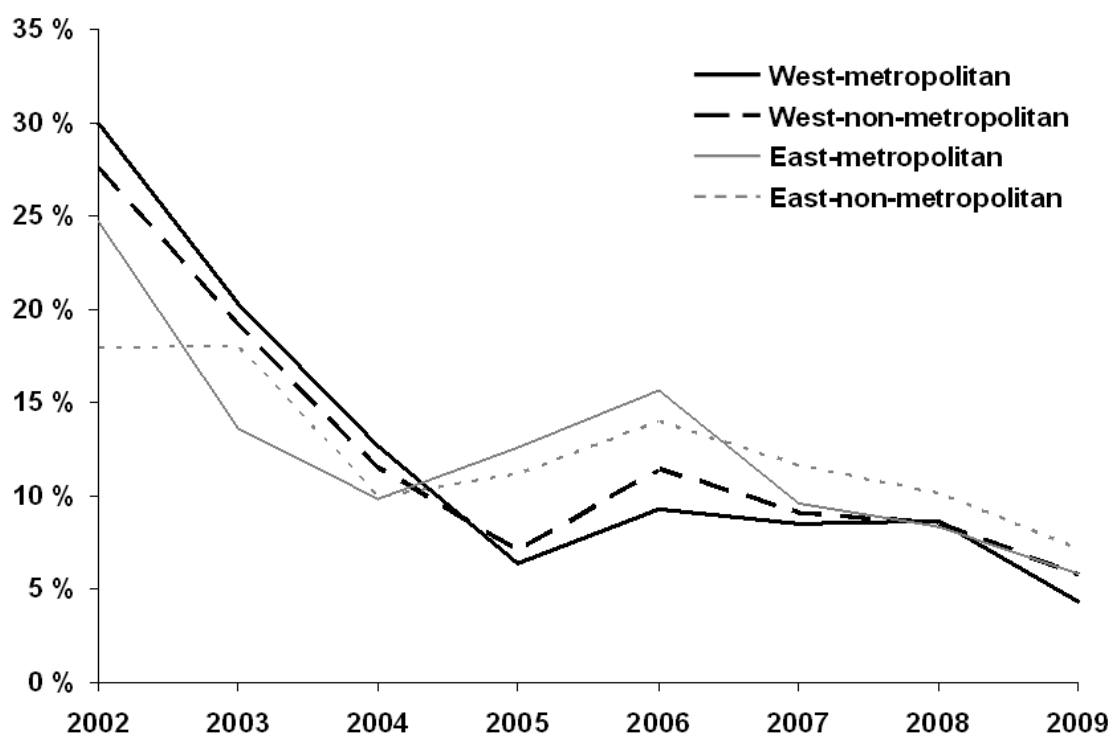
Second, the underlying data is not representative for all employers and employees, since it does not contain subjects not adopting occupational pensions during the observation period at all. Therefore, differences in enrolment-risk correspond to differences in the timing of the adoption. And that is exactly what the hypotheses are about.

Since this study of decisions is aimed at understanding similarities within the same groups of employees or employers (for instance a Bundesland), and differences across the different groups (the different Bundesländer), an altered version of the Cox-model is used, the Cox-type proportional hazard models with mixed effects (Therneau and Clinic, 2009), also known as frailty models. Mixed models go beyond traditional regressions by incorporating random effects. Random-effects are additional error terms that account for correlations within groups or clusters of the data, such as Bundesländer. This allows separate variance estimates among individuals of the same group (same Bundesland), as well as variances between the groups. The investigation will therefore deliver parameters associated with all occupational pension enrollees (fixed effect intercept and fixed effect covariates) and parameters which belong to the groups only, such as Bundesländer (random effect intercepts and random effect covariates) (Pinheiro and Bates, 2000). Mixed models are helpful in the current analysis, since they save the reader from looking at a reference-category when using geographical dummy-variables (random-effect intercepts). Furthermore, they allow different covariate values over the groups of the data, so that the effect of the metropolitan variable may vary across the Bundesländer (random-effect covariates).

4.4 Employers' Adoptions

Employer-level diffusion has been following a continuous growth, albeit at a changing pace (Figure 4.1.). 2002, the first year, delivered the greatest number of employers enrolling. After that, the yearly number of new employers kept decreasing, almost in a linear manner until 2006. 2006, the year of the new collective agreement, gave another push to the number of new employers (the second wave). After that, new employers kept joining at a decreasing pace again. The development of enrolling employers in the data is very similar to the development observed within all industries of the German economy, published by TNS Infratest (2008: 32) for the years before 2008.

Figure 4.1. Share of employers according to enrolment year



The timing of adoptions differed between East and West. Employers of Western Länder adopted the new occupational products on average half a year earlier than employers from the East. 47 percent of the Western employers joining between 2002 and 2009 had

joined by the end of 2003, as opposed to 37 percent in the East. Similarly to the East-West adoptions-gap, there was a metropolitan and non-metropolitan division. According to the descriptive statistics, 30 percent of all Western metropolitan employers joined before the end of 2002, while the same value was 28 percent in case of the non-metropolitan Western employers. In the East, the same figures were 25 and 18 percent respectively. Furthermore, the year of the collective agreement delivered different results in metropolitan and non-metropolitan areas: after 2006, the East produced over-proportional enrolment results, compared to the West.

Almost all metropolitan areas enrolled a greater share of their employers within the first two years than their surrounding Bundesland²⁵. 60 percent of all München- and Stuttgart- headquartered employers joined by the end of 2003, whereby only 46 and 49 percent for the remaining parts of Bayern and Baden-Württemberg, the respective surrounding Bundesländer for the two cities. With the exception of Nordrhein-Westfalen and Bremen, all metropolitan areas rank higher than their surroundings (Table 4.2). Another observable phenomenon is that the share of employers adopting in the first two years was lower in the Eastern (mainly in Sachsen, Sachsen-Anhalt, Thüringen, Mecklenburg-Vorpommern and Brandenburg) and Northern Länder (non-metropolitan part of the Hansa-city Hamburg, Schleswig-Holstein), regardless of the metropolitan/non-metropolitan nature of the region.

The share of employers headquartered in metropolitan areas was 27 percent by the end of 2009. Further weights of the different geographical areas according to the data follow

²⁵ Although the total number of employees at an employer is not available, the total number of savings contracts is there. Using this latter figure, metropolitan employers do not deliver more contracts on average than their non-metropolitan counterparts. One explanation may be that employers in the M+E industry located in metropolitan areas are not larger (calculation is not shown).

the regional distribution of the M+E industry provided by Gesamtmetall (2010: 4), meaning that the data has a fairly uniform coverage of the Länder, as of the end of 2009 (Table 4.3).

Table 4.2. Proportion of employers joining before the end of 2003

Bundesland	Metropolitan cities	Metropolitan	Non-metropolitan	Difference
Bayern (BY)	München	60%	46%	14%
	Nürnberg	57%		11%
Hamburg (HH)	Hamburg	40%	29%	11%
Baden-Württemberg (BW)	Stuttgart	60%	49%	11%
	Mannheim	55%		6%
Hessen (HE)	Frankfurt	53%	44%	10%
Niedersachsen (NI)	Hannover	48%	44%	5%
Brandenburg (BB)	Berlin (formally not part of Brandenburg)	44%	42%	1%
Sachsen (SN)	Leipzig	34%	33%	1%
	Dresden	30%		-3%
Nordrhein-Westfalen (NW)	Ruhr-area	50%	51%	-1%
	Köln	44%		-7%
Bremen (HB)	Bremen	47%	53%	-5%
Mecklenburg-Vorpommern (MV)	n.a.		26%	
Rheinland-Pfalz (RP)	n.a.		44%	
Schleswig-Holstein (SH)	n.a.		36%	
Saarland (SL)	n.a.		45%	
Sachsen-Anhalt (ST)	n.a.		33%	
Thüringen (TH)	n.a.		40%	

Note: calculated as a percentage of employers joining between 2002 and the end of 2009

To investigate the adoption-patterns further, a Cox-type survival regression is used (Cox, 1972, Fox, 2002). Cox models are semi-parametric (survival) models to predict the occurrence of an event, in this case, the adoption of the new occupational pensions. The advantage of the model is that no assumption has to be made about the baseline hazard function $h_0(t)$. However, it is assumed that the effect of the covariates is proportional and constant over time, representing an implicit assumption.

Table 4.3. Relative share of employers across the Bundesländer at the end of 2009

(100%=Germany total)

	Share of employers within the data of the pension provider	Gesamtmetall (all M+E employers)
Sachsen	3%	4%
Brandenburg	2%	1%
Thüringen	2%	2%
Berlin	2%	1%
Sachsen-Anhalt	2%	2%
Mecklenburg-Vorpommern	1%	1%
Eastern part of Germany total	11%	12%
Nordrhein-Westfalen	25%	20%
Baden-Württemberg	22%	24%
Bayern	17%	21%
Niedersachsen	9%	8%
Hessen	6%	6%
Rheinland-Pfalz	5%	4%
Schleswig-Holstein	2%	2%
Saarland	1%	2%
Hamburg	1%	2%
Bremen	0%	1%
Western part of Germany	89%	88%
Germany total	100%	100%

Source: data of the pension provider, Gesamtmetall (2010)

The observation time t for the employers is the time passed since 2002 until the date of the adoption. By using this definition for the observation time, the model makes another assumption, namely that the employers in the data existed in 2002 already. To understand the differences caused by the regional variable, enrolment hazard $h_i(t)$ is approximated with random-effect intercepts varying over the different geographies (Therneau and Clinic, 2009). The formal model is:

$$h_i(t) = h_0(t)e^{Zb} \quad (\text{Formula 4.1})$$

whereby $h_i(t)$ is the hazard rate for the employer i in time t , $h_0(t)$ is the baseline hazard, b is the random-effects vector with the design matrix Z over the geographical areas. This model does not contain fixed-effect variables. Model 4.1 looks at the employer-level enrolments between 2002 and 2009 (Table 4.4). Overall, Model 4.1 is significant

(p value virtually equals zero). No significance-level is calculated for the coefficients, following the recommendation of Baayen, et. al. (2008), since the traditional t-tests would create an overoptimistic estimation of the coefficient-related p-values. Instead, the coefficient-specific standard errors indicate the impact of the variable. As a rule of thumb, if zero is not within the radius of the coefficient two times the standard error (a substitute for the z-value of 5 percent), the coefficient has an impact on the enrolment hazard, compared to the baseline risk.

The exponential values of the coefficients show whether a covariate alters the baseline hazard, or equivalently, changes the baseline odds of enrolment. A value of one would indicate that a covariate does not have any effect on the baseline hazard. A value greater than one means that the odds of adaptation is higher for the employers headquartered in that given region, compared to the average.

The results show that the greatest exponential values belong to South-Western regions, Stuttgart, München and Frankfurt, followed by their non-metropolitan surroundings, while the lowest values belong to North-Eastern regions and non-metropolitan areas. This confirms Hypothesis 4.2. Furthermore, the ranking of the random-effects shows that all metropolitan areas rank higher or at similar levels than their non-metropolitan surroundings. Although the metropolitan/non-metropolitan difference is not significant in all cases, it is significant in the case of Bayern (München vs. BY), Baden-Württemberg (Stuttgart vs. BW), Hessen (Frankfurt vs. HE) and Niedersachsen (Hannover vs. NI). Hypothesis 4.1 can be confirmed for these regions, but not for the remaining geographical areas.

Table 4.4. Results of Model 4.1

Model 4.1	p	AIC	BIC
Integrated log-likelihood	0	83,66	76,22
Penalized log-likelihood	0	92,54	-66,60
	coefficient	exp(coef)	Penalized standard error of the coefficient
Stuttgart (Baden-Württemberg)	0.25	1.28	0.06
Frankfurt (Hessen)	0.18	1.19	0.08
München (Bayern)	0.17	1.18	0.08
Mannheim (Baden-Württemberg)	0.15	1.16	0.09
Hannover (Niedersachsen)	0.14	1.14	0.08
Bremen	0.11	1.12	0.09
Bremen/non-metropolitan	0.10	1.11	0.11
Baden-Württemberg/non-metropolitan	0.09	1.10	0.04
Nordrhein-Westfalen/non-metropolitan	0.08	1.08	0.04
Ruhr (Nordrhein-Westfalen)	0.07	1.07	0.04
Nürnberg (Bayern)	0.06	1.07	0.09
Berlin/non-metropolitan	0.05	1.06	0.13
Saarland/non-metropolitan	0.04	1.04	0.07
Berlin (Brandenburg)	0.03	1.03	0.07
Bayern/non-metropolitan	0.01	1.01	0.04
Köln (Nordrhein-Westfalen)	-0.02	0.98	0.05
Hessen/non-metropolitan	-0.02	0.98	0.04
Rheinland-Pfalz/non-metropolitan	-0.05	0.95	0.05
Dresden (Sachsen)	-0.06	0.94	0.09
Brandenburg/non-metropolitan	-0.08	0.92	0.07
Hamburg	-0.08	0.92	0.07
Thüringen/non-metropolitan	-0.09	0.91	0.07
Sachsen-Anhalt/non-metropolitan	-0.09	0.91	0.06
Niedersachsen/non-metropolitan	-0.10	0.90	0.04
Leipzig (Sachsen)	-0.13	0.88	0.08
Sachsen/non-metropolitan	-0.15	0.86	0.06
Schleswig-Holstein/non-metropolitan	-0.19	0.83	0.06
Hamburg/non-metropolitan	-0.21	0.81	0.10
Mecklenburg-Vorpommern/non-metropolitan	-0.25	0.78	0.08
Variance of the random-effect variable	2.1%		

While the results confirm employer-related expectations, it is worth speculating on the possible explanations for the unexpected North-South difference. First, it may be a distortion caused by the skewed distribution of the sales force of the data provider compared to the rest of the market. This possibility is however, less likely, given the size of the data compared to the rest of the market, and given the remarks of the data

provider. Second, this phenomenon might be related to the characteristics of the metal- and electric industry. While the South of Germany is rather oriented towards car manufacturing with often large corporations and integrated supply chains, this industry in North does not really have such a decisive, representative profile (Sternberg and Litzenberger, 2004).

Third, the phenomenon may be related to the geographically varying relationship between employers and the financial industry, which depends on the availability and proximity of information. For example, cities with employers enrolling earlier (Stuttgart, München and Frankfurt), and the proportion of employees working in the insurance industry has been the highest in Germany, according to the geographical data obtained from the Federal Labour Office (*Bundesagentur für Arbeit, BfA*). However, the BfA data attributes a high proportion of insurance-employees in Köln and Hamburg as well, where this study could not identify employers' tendency to enrol in the first years. Moreover, this piece of BfA data does not capture auxiliary services such as the accounting or the consulting business, which may as well catalyse the diffusion process. In summary, the correct explanation to the phenomenon observed here may be a result of several factors, and remains subject to further research.

4.5 Employees' Adoptions

According to the data, the temporal distribution of individuals adopting the pension products follows the pattern described by Börsch-Supan et.al. (2008: 300). The chart of the number of enrolments over the years forms the letter 'M': the year 2003 delivered more enrolees than 2002, which then dropped to its minimum in 2005. The years after 2006 produced another growth in the number of new enrolees, reaching another

maximum in 2007. In 2008, the number of new enrolees dropped, reaching a local minimum in 2009.

Similarly to the case of employers, the spatial distribution of enrolees followed the employment structure in the metal- and electric industry closely (Gesamtmetall, 2010: 4), with Nordrhein-Westfalen, Bayern and Baden-Württemberg as the Länder with the most enrolees (Table 4.5). The share of employees residing in metropolitan areas was 22 percent in the observation period, about five percent lower than it was the case with employers. However, no serious implication can be drawn about employer-size by the comparison of these figures, since one employer headquartered in a certain place may have several business sites in the country. It merely suggests that M+E employers seated in the cities may be smaller than their non-metropolitan counterparts.

Table 4.5. Relative share of employees across the Bundesländer at the end of 2009 (100%=Germany total)

	Share of employees within the data of the pension provider	Gesamtmetall (all M+E employees)
Sachsen	3%	7%
Sachsen-Anhalt	2%	3%
Berlin	2%	2%
Thüringen	2%	4%
Brandenburg	1%	2%
Mecklenburg-Vorpommern	1%	1%
Eastern part of Germany total	11%	19%
Nordrhein-Westfalen	29%	23%
Baden-Württemberg	21%	21%
Bayern	12%	14%
Niedersachsen	10%	6%
Hessen	7%	6%
Rheinland-Pfalz	4%	4%
Schleswig-Holstein	3%	2%
Hamburg	2%	1%
Saarland	1%	1%
Bremen	1%	1%
Western part of Germany	89%	81%
Germany total	100%	100%

Source: data of the pension provider, Gesamtmetall (2010)

The spatiotemporal patterns of employee-enrolments are partly similar to the employers' (Table 4.6): the share of enrolees in 2002 and 2003 compared to the number of enrolees between 2002 and 2009 has been higher in the metropolitan areas than in their surroundings with the exception of Frankfurt, the Ruhr-area and Bremen. In contrast to the employers however, the East-West division is less clear. Leipzig and Dresden (from Sachsen in the East) rank relatively high, whereby Köln and Mannheim quite low.

The effect of gender is observable by looking at the descriptive statistics (Table 4.7). While men and women enrolled at the same date on average in the West, women in the East enrolled almost four months earlier than men in the East did. This observation holds true both for women living in metropolitan and in non-metropolitan areas, supporting the expectations of Hypothesis 4.4.

Table 4.6. Proportion of employees joining before the end of 2003

Bundesland	Metropolitan cities	Metropolitan	Non-metropolitan	Difference
Bayern (BY)	München	37%	24%	14%
	Nürnberg	22%		-2%
Sachsen (SN)	Leipzig	29%	19%	10%
	Dresden	30%		11%
Brandenburg (BB)	Berlin (formally not part of Brandenburg)	27%	20%	8%
Hamburg (HH)	Hamburg	27%	23%	4%
Baden-Württemberg (BW)	Stuttgart	29%	27%	1%
	Mannheim	20%		-7%
Niedersachsen (NI)	Hannover	30%	30%	0%
Hessen (HE)	Frankfurt	27%	28%	-1%
Nordrhein-Westfalen (NW)	Ruhr-area	23%	25%	-2%
	Köln	18%		-7%
Bremen (HB)	Bremen	34%	38%	-4%
Mecklenburg-Vorpommern (MV)	n.a.	37%	13%	
Rheinland-Pfalz (RP)	n.a.		23%	
Schleswig-Holstein (SH)	n.a.		21%	
Saarland (SL)	n.a.		19%	
Sachsen-Anhalt (ST)	n.a.		21%	
Thüringen (TH)	n.a.		29%	

Note: calculated as a percentage of employees joining between 2002 and the end of 2009

Descriptive statistics provide reinforcement to Hypothesis 4.5 too, stating that the employers' adoption date affects employee decisions (Table 4.8). Employers are divided into two categories: employers joining between 2002 and 2005, called early employers, and employers joining between 2006 and 2009, referred as late employers. Clearly, late employers did not have employees joining before 2006. However, early employers may have had employees joining both before 2006 and after 2006. Therefore, descriptive statistics investigates whether there is a difference between the joining date of employees working for early and late employers. In order to ensure comparability, only employees joining after 2006 are considered (see Table 4.8 for an easier interpretation). For employees joining after 2006, the joining date of the employer seems to matter: employees of early employers joined on average in March 2007, four months earlier than employees of late employers. These averages are different at the significance level of one percent. Although this is to be expected given the size of the database, the difference in timing is quite large (here, the reference period is four years long, from the beginning of 2006 till the end of 2009).

Table 4.7. Average date of enrolment according to gender and geographical location

	East		West	
	Metropolitan	Non-metropolitan	Metropolitan	Non-metropolitan
Male	2005.41	2005.94	2005.63	2005.60
Female	2005.24	2005.60	2005.62	2005.69

The age-distribution of the enrolees describes another aspect of the difference between employees of early- and late-adopter employers (Table 4.8). After 2006, early adopter employers enrolled employees on average half year younger than late employers did. This might be partly because early adopter employers may be larger companies with a constant flow of new hires, recruiting young individuals entering the labour market.

Since the age difference is not huge, but significant at one percent, it cannot be said that only new hires would be joining at early employers. These employers also have older plan participants joining after 2006.

Table 4.8. Employees' average enrolment date and age

		Employee joining date	
		2002-2005	2006-2009
		Average enrolment date of employees	
Employer joining date	2002-2005	2003.3	2007.3
	2006-2009	n.a.	2007.6
		Average age of employees at the end of 2009	
	2002-2005	46.3	39.6
	2006-2009	n.a.	40.0

Four Cox-type proportional hazard-models are created (Formula 4.2). The models explain enrolment hazard $h_i(t)$ for the enrollee i in time t with the following covariates summarized in the matrix X : gender, age at the end of 2009, a binary variable whether the plan is exclusively employer financed (value 1) or a plan which includes employee contributions (value of 0). This latter variable is important, since a purely employer-financed plan requires less individual sacrifice; the probability of adoption may be higher.

$$h_i(t) = h_0(t)e^{\beta X + Zb} \quad (\text{Formula 4.2})$$

Regions are controlled for by allocating random-effect intercepts to them in the random-effect design matrix Z . Model 4.2 is the base-model, containing the variables described above and random-effect intercepts only. Model 4.3 considers employees joining between 2002 and (the end of) 2005, while Model 4.4 looks at employees joining between 2006 and 2009 (with adjusted definition for observation time). Furthermore,

Model 4.4 contains a dummy-variable that controls whether the employee's employer is an early-adopter (joined before 2006) or late-adopter (in or after 2006). Finally, Model 4.5 differs from the base model in having gender as a random-effect variable (Table 4.9).

Table 4.9. Results of the employee-level Cox-regression (Formula 4.2)

	Model 4.2	Model 4.3	Model 4.4	Model 4.5	
Short model description	Enrolments bw. 2002 and 2009	Enrolments bw. 2002 and 2005	Enrolments from 2006 till 2009, dummy for employer	Enrolments bw. 2002 and 2009, gender as random-effect variable	
p	0	0	0	0	
	Exponential values of (and in brackets the standard errors of) the coefficient				
Age in 2009	1.03***	1.01***	1.01***	1.03***	
Gender (male=1, female=0)	1.04***	1.05***	1.03***	1.03*	
Financing	0.66***	0.85***	1.07***	0.66***	
Employer (early-adopter=0, late adopter=1)	n.a.	n.a.	0.81***	n.a.	
	Random-effect intercept (standard errors in brackets)				Random-effect: gender
München (Bayern)	1.26 (0.03)	1.16 (0.03)	1.06 (0.04)	1.25 (0.04)	1.01 (0.04)
Bremen/non-metropolitan	1.24 (0.03)	0.99 (0.03)	0.94 (0.04)	1.16 (0.04)	1.08 (0.03)
Dresden (Sachsen) (E)	1.18 (0.03)	1.08 (0.03)	1.17 (0.04)	1.26 (0.04)	0.91 (0.03)
Bremen	1.15 (0.03)	1.11 (0.03)	1.05 (0.04)	1.09 (0.04)	1.07 (0.04)
Niedersachsen/non-metropolitan	1.12 (0.02)	1.07 (0.02)	1.07 (0.03)	1.06 (0.03)	1.07 (0.02)
Hannover (Niedersachsen)	1.10 (0.03)	1.04 (0.03)	1.11 (0.04)	1.05 (0.04)	1.06 (0.04)
Leipzig (Sachsen) (E)	1.06 (0.03)	1.03 (0.03)	1.17 (0.04)	1.07 (0.04)	0.98 (0.04)
Stuttgart (Baden-Württemberg)	1.05 (0.02)	1.15 (0.02)	0.98 (0.03)	0.98 (0.03)	1.09 (0.02)
Thüringen/non-metropolitan (E)	1.05 (0.03)	1.02 (0.02)	1.04 (0.03)	1.07 (0.03)	0.97 (0.03)
Hessen/non-metropolitan	1.05 (0.02)	0.98 (0.02)	1.01 (0.03)	1.04 (0.03)	1.01 (0.02)
Hamburg	1.03 (0.03)	0.99 (0.03)	1.06 (0.04)	1.00 (0.04)	1.03 (0.03)
Frankfurt (Hessen)	1.03 (0.03)	1.07 (0.04)	0.98 (0.04)	1.02 (0.04)	1.01 (0.04)
Sachsen-Anhalt/non-metropolitan (E)	1.01 (0.03)	0.84 (0.02)	1.04 (0.03)	1.06 (0.03)	0.93 (0.03)
Baden-Württemberg/non-metropolitan	1.01 (0.02)	1.14 (0.02)	0.97 (0.03)	0.97 (0.02)	1.04 (0.01)
Bayern/non-metropolitan	1.00 (0.02)	1.05 (0.02)	1.05 (0.03)	1.02 (0.02)	0.98 (0.01)

Table 4.9 continued	Random-effect intercept (standard errors in brackets)				Random-effect: gender
Nordrhein-Westfalen/non-metropolitan	1.00 (0.02)	1.02 (0.02)	0.96 (0.03)	0.97 (0.02)	1.03 (0.01)
Berlin (Brandenburg) (E)	0.99 (0.03)	1.04 (0.02)	0.92 (0.03)	1.07 (0.03)	0.90 (0.03)
Ruhr (Nordrhein-Westfalen)	0.98 (0.02)	0.93 (0.02)	1.00 (0.03)	0.96 (0.02)	1.02 (0.02)
Nürnberg (Bayern)	0.97 (0.03)	0.94 (0.03)	1.08 (0.04)	1.03 (0.04)	0.92 (0.03)
Schleswig-Holsten/non-metropolitan	0.96 (0.03)	0.90 (0.02)	1.21 (0.03)	0.96 (0.03)	1.00 (0.02)
Köln (Nordrhein-Westfalen)	0.95 (0.02)	0.82 (0.02)	1.04 (0.03)	0.98 (0.03)	0.97 (0.02)
Sachsen/non-metropolitan (E)	0.95 (0.03)	1.02 (0.03)	1.16 (0.03)	1.04 (0.03)	0.88 (0.03)
Hamburg/non-metropolitan	0.93 (0.03)	0.87 (0.03)	0.92 (0.04)	0.92 (0.04)	1.00 (0.04)
Rheinland-Pfalz/non-metropolitan	0.91 (0.02)	1.09 (0.02)	0.91 (0.03)	0.86 (0.03)	1.06 (0.02)
Mecklenburg-Vorpommern/non-metropolitan (E)	0.86 (0.03)	0.77 (0.03)	1.15 (0.03)	0.84 (0.04)	1.03 (0.03)
Saarland/non-metropolitan	0.86 (0.03)	0.87 (0.02)	0.87 (0.03)	0.88 (0.03)	0.97 (0.03)
Brandenburg/non-metropolitan (E)	0.85 (0.03)	0.97 (0.02)	0.72 (0.03)	0.89 (0.03)	0.93 (0.02)
Mannheim (Baden-Württemberg)	0.58 (0.03)	1.03 (0.03)	0.53 (0.03)	0.60 (0.04)	0.96 (0.03)

*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent

Note: no significance level is calculated for the random-effects, in line with the recommendation of (Baayen, et. al., 2008).

Result-interpretation follows the structure of the hypotheses (Table 4.1). Model 4.2 confirms the assumption set out in Hypothesis 4.3: employees living in metropolitan areas enrolled earlier than (or at least, at similar times as) employees living outside such regions with the exceptions of Bremen and the Ruhr-area. This means that the hypothesis on the metropolitan-effect is valid for more regions than in the case of employers. Model 4.2 delivers further recognitions: women enrolled on average later than men, which contradicts the expectations. Model 4.5, checking the effect of gender over the regions, shows the strength of a geographical regression, and confirms that the contradiction originates from the distortion caused by a geographically insensitive model (Fotheringham, 1997). Indeed, the random-effect gender variable of Model 4.5

varies systematically over the geographies. Women in the West enrolled later than men, but it was the other way around in the East. The fixed effect gender-variable with a value greater than one, is significant at 10 percent only. Since the random-effects tend to have relatively small standard errors, they are significantly different from one. No North-South-gap can be recognised, but the East-West difference is apparent. Overall, gender coefficients (the product of the gender-related fixed effect and the random-effect coefficient of a certain region) confirm Hypothesis 4.4: the difference in enrolment-timing between men and women is smaller in the East than it is in the West.

Further, the probability of enrolment increased with age. Furthermore, the share of purely employer-financed plans increased in the latter years only (after the collective agreement of 2006). The comparison of Model 4.3 and 4.4 confirms Hypothesis 4.5, saying that the employers' enrolment date matters in employee decisions. First, the dummy-variable standing for the employers' enrolment date has a significant value of 0.81, decisively smaller than one (see Model 4.4). This means that employees working for employers where a pension product had been adopted and established, enrolled significantly earlier than employees of companies joining only after 2006.

One could argue that this is an obvious result, since employees of early-employers could join without having to wait for administration at employer level. This technical argumentation is not straightforward. The finding says that early employers with some employees already engaged in occupational plans delivered further employees after 2006, but still did not run out of new entrants in the observation period. A metaphor illustrates the significance of this recognition: the financial sector rather starts with harvesting a partly harvested cherry tree than climbing an unknown and untouched tree,

full of fruits. A partly harvested tree may run out of new fruits earlier than the untouched trees does, this however, cannot be observed in the data. Existing knowledge of and access to an employer seems to be a stronger motivator than the promise of an unpenetrated employer. Whether the difference in timing between the employees of early-adopter employers and of late adopters is a result of the geographically varying impact of the collective agreement, or alternatively, a result of existing ties with a pension provider, remains to be seen.

Second, the comparison of Model 4.3 and 4.4 shows that purely employer-financed plans were more likely to occur around the year of 2006: financing-covariate is smaller than one in Model 4.3, implying late purely employer-financed adoptions in the period of 2002-2005, and greater than one in Model 4.4, meaning early adoptions in the case of employer-financed plans in the period of 2006-2009. Indeed, the share of employer-financed plans dropped in 2008 and 2009, compared to 2006 and 2007.

Without explicitly discussing the geographical rankings of Model 4.3 and 4.4, the following observations can be made. Model 4.3 delivered similar results as Model 4.2, showing earlier enrolments in metropolitan and Western areas, compared to Eastern regions. Model 4.4 turned this ranking around, with Eastern metropolitan centres enrolling first, followed by Western financial centres and Eastern non-metropolitan regions. These results not only reinforce the importance of the year 2006, but also show that there are further differences among the regions, causing different (and significant) rankings within the periods of 2002-2005 and 2006-2009.

4.6 Implications and Conclusions

The objective of this research has been to identify spatial and temporal differences in employers' and employees' adoption decisions related to occupational pensions. The study has explicitly investigated employer-level diffusion, employee-level adoption process, and established a link between the two processes by looking at the data of a multi-employer occupational pension provider, containing information of 12 500 employers and 286 thousand employees.

Employer-level modelling has identified that employers located in metropolitan areas enrol earlier than their non-metropolitan counterparts, and that Western and Southern companies adopted the new occupational pensions earlier than Eastern and Northern corporations. Employee-level investigation identified similar differences in the timing of adoptions according to the metropolitan/non-metropolitan and the East-West dimensions: employees living in metropolitan areas and in the West enrolled earlier. Moreover, an explicit relationship between employers' timing and employees' behaviour has been observed. Employees joining between 2006 and 2009, and working for early-adopter employers (joining between 2002 and 2005), adopted the product earlier (within the period of 2006-2009), than employees of late joining employers (between 2006 and 2009). Finally, the modelling delivered evidence on regionally varying impact of gender: on average, men adopted earlier than women. This difference, the gender gap, was smaller in the East than it was in the West.

The results obtained from the modelling have implications for the financial sector, for policymakers and for the researcher community. First, starting from the most practical finding, this study contributed to the understanding of diffusion of a financial

innovation. Metropolitan areas seem to be the first to adopt new products, despite the relatively low share of employers and employees situated in those areas. Non-metropolitan and rural employers, accounting for more than three-quarters of all employers and more than two-thirds of all employees, were reached by the adoption later. The identification of such a difference may be crucial in finding alternative distribution strategies for financial corporations in the struggle for market share, and contains important experience for future innovations. The recognised patterns hold true despite the presence of information about the pension reform and the new products in the mass media and the internet.

The second important implication discussed here is proposed for the attention of social policymakers, emphasizing the remarkable spatio-temporal effects of the year of 2006. This was the year of the new collective agreement prescribing mandatory employer contributions for all employees. Although this analysis cannot confirm causality between the collective agreement and enrolment patterns, it has been shown that employers which already had an established relationship with the financial sector delivered enrolees on average earlier. By contrast, employers so far unapproached by financial providers enrolled employees in occupational savings plans significantly later on average. This may simply be a result of differences in size, meaning that early-employers are larger with more employees. Regardless of its cause, this pattern can be interpreted as one important shortcoming of a market-based voluntary pension system.

The occupational pension environment does not provide equal opportunities to the employees of employers enrolling at different points of time. In other words, employers' cooperation and willingness to provide pensions seem to be a strong catalyst

in the distribution, with or without a collective agreement. Therefore, this research should be continued by identifying employers' motivations to adopt new occupational pension products. It would also be important to find the extent employers can support, block or delay employees' enrolment. For instance, one way to overcome the negative consequences of the market-based distribution is to introduce automatic enrolment mechanism with the option to opt-out, so that employees automatically start saving for the retirement from their own income. It deserves further attention whether employers would support or oppose this move.

Third, this study contributes to the discussion about the role of geography in the transformation of the German welfare state. The pension reform has assigned the distribution of occupational pensions to the financial market, and its forces do not appear over geographies unanimously. Its impact rather forms a cascade: it changes the major metropolises first, followed by their surroundings. Its forces reach the less developed cities later, followed by the rural areas at the last stage.

Returning to the recommendation of Strauss (2008), the next step of this analysis is to engage with local context and to identify the exact causes for the identified patterns. Indeed, the hypotheses of this paper were constructed using arguments found in the literature. However, the purely quantitative study cannot establish a cause-result relationship. The temporal differences in adoption decisions may originate all from the role of information, local bias or the role of proximity to metropolitan areas. Nevertheless, there clearly seem to be different factors in play in case of the North-South gap, which probably stems from the industrial structure. It could be therefore interesting to look at whether the diffusion process is catalysed by other means than

assumed. Pursuing this research further could contribute to the literature of economic geography.

5 Geography of Savings in the German Occupational Pension System

5.1 Introduction

Most people are aware that pursuing sports and saving for the retirement are things they should do if they want to lead a long, healthy life in good living conditions. But as distant as running a marathon lies from taking a walk in the park, they can also save a fortune or just a little to improve the level of their expected pensions. Clearly, determining the ‘optimal’ savings amount is a complex mathematical challenge (Carroll, 1997), just like finding the right trail once the trainers are on. Therefore most individuals use algorithms or heuristics to reach economic decisions that fit their individual taste (Kahneman and Tversky, 1979). Since these heuristics, habits or intuitions are of contextual nature, inseparable from the surrounding environment (Clark, 2010), the perspective of an economic geographer is an adequate approach to investigate how the environment affects individuals in their pension savings decisions.

Germany, with its heterogeneous geography, is a good case for the study of the interactions between context and the individuals’ financial decisions. Although Germany has never been one integrated economic or cultural block in the history (Wolf, 2009), it is surprising that individuals’ daily decisions still differ according to their language dialect or cultural identity (Falck et. al., 2010). The regional behavioural differences are further amplified by economic disparities (Frick and Goebel, 2008). However, as the example of the UK shows, geography is a significant factor in explaining the variations in individuals’ risk-related financial decisions, even if similar socio-economic backgrounds are given (Clark and Knox-Hayes, 2007). Once

geographical patterns in savings differences are identified for Germany, the findings can contribute to a wider debate in economic geography about the importance of context and its implications in other disciplines, such as finance or risk management.

The 2001 pension reform lends further significance to the study of pension savings in Germany. As a result of the reform, the average public pension levels went from seventy percent of pre-retirement income to around fifty-five percent in 2001, and to around forty percent in 2004 (Börsch-Supan and Wilke, 2006: 22; 29). As a result, old-age poverty is hardly avoidable without additional private savings. Therefore, the reform also changed the supplementary pension system: some of the voluntary occupational (and private) pension products became eligible for savings subsidies. However, as a result of the long-drawn political discourses and compromises preceding the reform (Chapter 3), not only the enrolment-decision is voluntary in these savings plans (Chapter 4), but also is everyone free to determine the yearly savings amount. In short, the reform was a milestone on the road towards the individualisation of old-age finances (Schmähl, 2003). By identifying geographical patterns in savings decisions, the spatially differentiated effect of individualisation can be confirmed.

Accordingly, this paper investigates how geography affects individuals' decisions about the yearly savings in the case of subsidized occupational pension schemes (pensions eligible for salary sacrifice with the help of direct insurances, pension funds and Pensionskassen). The following research questions are formulated. First, do the 'usual' drivers of retirement decisions apply in Germany (Börsch-Supan et. al., 2008; Clark et. al., 2009), such as age and gender, among others? Second, given the heterogeneous environment of Germany, do the relationships between savings amount and socio-

economic variables vary systematically over the geographies? This study, by focusing on the savings amounts of pension plan enrollees, complements the research shown in Chapter 4 on timing of enrolment decisions.

This empirical paper is unique contribution to the literature of economic geography and pension economics for exploring intrinsic differences in human savings behaviour (Fotheringham,1997), and relating it to possible contexts and explanations. It not only confirms an East-West, North-South, and a metropolitan/non-metropolitan pension savings-gap, but also finds a systematic difference in the gender-gaps between these regions. The findings are based on the data of a leading German occupational pension provider in the metal- and electric (M+E) industry, comprising the 286 thousand pension contracts of over 12 500 employers, containing the two-digit home postal code of each employee. The significance of using the M+E industry as a reference is highlighted by the fact that this industry provided roughly half of all German exports and approximately ten percent of all private sector employees in 2008 (Gesamtmetall, 2010:4; Destatis, 2009:73 and 644). Furthermore, it covers a broad observation period, by looking at savings decisions made between 2002, the year when the new occupational products were first available; and 2009, the second year of the financial crisis. The analysis also confirms a gradual shift towards pension plans with lower yearly contributions.

The paper is structured as follows. The next section summarizes the findings of the literature related to pension savings, it argues why a geographical investigation can provide additional recognitions, and formulates hypotheses on pension savings accordingly. The third part introduces the applied methodology, describes the data,

while the fourth presents a set of mixed-modelling analyses to test the hypotheses. The fifth section concludes.

5.2 Pensions and Geography

This section, in line with the broad research questions formulated above, first collects the experience of studies related to retirement savings, in order to conceptualise a ‘global’ model that explains the yearly savings amounts in a voluntary pension savings scheme with individual characteristics. This model is called global, as opposed to a model that accounts for local peculiarities (Fotheringham, 1997). This is then followed by a reasoning why the global model would not apply universally over all geographies, and then the paper sets up expectations about the patterns in regional variability.

5.2.1 A Global Model on Retirement Savings

The assumption of the German pension reform of 2001 was that individuals recognize the salience of old age provision (Schmähl, 2003) and can effectively use their resources for sophisticated decisions (Clark et. al., 2009). In many cases however, people procrastinate enrolment or save less than a mathematically ‘optimal’ savings amount (O’Donoghue and Rabin, 1999). Although default savings options are considered as effective means to lead individuals to higher savings (Beshears et. al., 2009), the supplementary pensions created by the pension reform of 2001 do not have pre-defined default contribution rates or amounts. At the time of their enrolment, plan participants have to determine their annual savings. Up to a certain amount, yearly savings are subsidised. Individuals can save less than this amount and receive lower subsidies; or save more and receive subsidies up until a certain limit (Börsch-Supan and Wilke,

2006). Furthermore, there is no mandatory employer contribution prescribed by the pension reform. Such a high degree of individual freedom makes the investigation of savings decisions a relevant research area.

Researchers mostly agree about the nature of the major relationships between human traits and voluntary retirement savings decisions. For example, if enrolment is voluntary, the very young usually do not get involved in saving for the retirement at all. If they do, their savings are likely to be insufficient to meet the expected standards of living in the retirement. Some theories either attribute this to individual myopia (Laibson, 1998), other explanations talk about deliberate financial planning. For example, individuals accumulate assets according to their own asset-hierarchies, preferring certain asset types first and moving on to other ones later. The young may prefer accumulating liquid savings or the purchase of a real estate first, before investing in pension assets (Barasinska et. al., 2008).

The reduction of the public pensions has been phased in gradually; therefore plan participants belonging to older birth cohorts can expect reasonably higher public pensions. This means that older people's salary replacement from the public system remained closer to the original pension-levels before the reform, while the younger cohorts face the more serious reductions. The young need more additional savings in absolute and in relative terms than their more experienced counterparts do (Börsch-Supan and Wilke, 2006). Despite this, Börsch-Supan et. al. (2008) showed that the young save less than older individuals, even after controlling for income, real estate purchase plans and other savings reasons in the case of the private (Riester-) pensions introduced in 2001. Further empirical evidence confirms that the young in Germany do

not recognise the salience of pension planning and additional savings (Hurrelmann and Karch, 2010). Therefore, Hypothesis 5.1 tests these the finding on the data: age is expected to matter in the case of occupational salary sacrifice schemes in a similar way as in private (Riester-) schemes: older individuals save more than younger ones do.

Similarly to age, gender may be a factor when it comes to retirement savings decisions. Differences in risk attitudes are fundamental, men are more risk tolerant than women (Dohmen et. al., 2005). Given females' longer expected life-span and often less working years, women earning the same amounts as men were found to save more in absolute terms in the USA for 401(k) retirement plans (Huberman et. al., 2007). The empirical results found by Clark et. al. (2009) state the opposite: women often plan on household-level and rely on the spouse's income entitlement. This, in turn, may be a result of lower salary and interrupted work history. It is therefore difficult to formulate expectations for this paper based on these two specific examples. Human decisions observed by empirical research are always embedded in a particular environment or context (Simon, 1956). Nevertheless, gender is expected to make a difference in retirement savings decisions (Hypothesis 5.2).

Finally, the financing of the occupational pension plans is a well-studied part of behavioural finance and pension economics (Thaler and Benartzi, 2004, Huberman et. al., 2007, Beshears et. al., 2009). 'Employer-matching' mechanisms encourage people to contribute to a savings account more than they would do without. In Germany, there are two basic ways of financing. Employer-financed plans have been traditionally offered for the last hundred years, whereby most decisions regarding the pension were at the employers' discretion (Wiedemann, 1991). The pension reform of 2001

introduced new types of occupational pensions, called salary sacrifice pension schemes (*Entgeltumwandlung*). From 2002 onwards, employers have to provide a salary sacrifice pension scheme, if employees demand so (Börsch-Supan and Wilke, 2006). Some employers mix the two pension types: they permit or even require employees to contribute themselves in order to fulfil the eligibility criteria for employer-financing, resulting in a savings plan with mixed financing. This means that employees can contribute to a pension plan in the absence and in the presence of employer contributions.

This was slightly altered by several collective agreements, including the metal- and electric industry (M+E) in 2006, which prescribed minimal mandatory employer contributions after each employee covered by the agreements. From 2006 onwards, according to the M+E collective agreement, an annual €319.08 employer contribution has to be paid to an occupational pension account after each full-time employee. Employees are encouraged to ‘top-up’ the employer savings by their own savings, employer contributions hardly require matching from the employee-side (BDA, 2007). For this reason, plans with employee contributions assume a higher mental involvement than purely employer-financed plans, which are accepted with a simple signature. Accordingly, Hypothesis 5.3 assumes that plans without employee contribution are plans with lower annual savings.

Besides age, gender and financing, there are number of variables affecting individual savings behaviour. Although disposable income, family status, number of children or educational level are admittedly important factors (Börsch-Supan et. al., 2008), any reasoning without them can be valid because of the following argumentation. Any

model will contain errors in the absence of a ‘fully-fledged theory of cognition, a well-specified notion of context, and a theory of their interaction amendable to experimental analysis’ (Clark, 2010). The creation of a perfect model is therefore hardly possible. As a result, variables will be missing from the model. However, since missing but relevant variables may create a recognisable spatial pattern in the data if their spatial distribution is uneven (Fotheringham, 1997), the application of a spatial research technique may accommodate models with missing variables. Moreover, spatial patterns may be results of intrinsic differences in human behaviour too. Therefore, all results should be interpreted in a critical way. If the analysis is done in a careful manner, valid implications can be drawn about the geography of pension savings even in the absence of a perfect model.

5.2.2 Regional Variability in the Model of Retirement Savings

The invocation of geography helps to explain the role of ‘environment’ in pension savings decisions, thus, it helps to comprehend local relationships better. However, before talking about the reasons for variations in local relationships, or equivalently, systematic geographical patterns in the relationships, its technical appearance should be clarified. Technically, geographically varying relationships mean that the goodness of a global model varies over space, or, that the model shows a certain degree of spatial nonstationarity. This may be caused by missing variables, model misspecification, sampling errors and by ‘intrinsic differences in human behaviour’ (Fotheringham, 1997). While some or all of them may be of academic interest, missing variables and differences in human behaviour have the broadest implications in the case of this paper. Both of them are of importance, since the difference between the two is often a question of definition.

Geographical variations in relationships, interpreted now as differences in human behaviour and missing variables that could explain behaviour, are defined here as differences in the *context* of the decision making (Strauss, 2009). With this definition, context and locality become interdependent. Furthermore, by approaching the relationship between locality and context from the viewpoint of an empirical research, the relationship is only recognisable and systematic if the right locality-definition is selected. However, any definition of locality that follows the available data-structure is by no means empirically founded (Mason 1995: 225). For this reason, some human geographers even argue against linking locality to the concept of scale, which latter is defined as '*nested hierarchy of differentially sized and bounded spaces*' (Marston et. al., 2005). This proposal was compared by Hoefle (2006) to Kahn's idea of eliminating the concept 'culture' from anthropological studies (Kahn, 1989).

Regardless of the source for a locality-definition, an investigation approach with critical sensitivity serves as a useful instrument in arriving at the right context and the right interpretation of the findings (Schwanen and Kwan, 2009). Such an approach recognises that geography is not just a black-box that captures a part of the noise between the model and actual individual saving behaviour. It is indeed more than a technical proxy: locality creates a certain kind of context by the means of proximity. In technical terms, geography serves as a mediating variable between context and the global model, but proximity creates social, cultural, economic and other contextual ties. For instance, remarkable savings differences are expected between the former East and West-Germany. The context of these differences is mostly the result of different historical developments of the post-World War era. A different context is defined by another scale: recent studies have been emphasizing heterogeneity within the Eastern and

Western regions: Kronthaler (2005) delivers evidence on that some Eastern regions with strong economic capability made significant progress. In this last case, context is created by lower-level proximity definition, implied by the social and economic capabilities of universities and research institutes discussed by Kronthaler (2005).

Based on the argumentation above, further hypotheses are created between the global model on pension savings, and its relevant context. Indeed, there has been a difference between the East and the West wage-structures that may affect savings decisions. After the re-unification, Eastern wages swiftly caught up from fifty percent in 1991 to around eighty percent of the Western wage-levels by 1998. Since then, the gap has proven to be persistent (Brück and Peters, 2009). Although similar positions paid similar wages, the structure of occupied jobs has been different, leaning towards the worse-paying jobs in the East (Fuchs-Sündeln and Izem, 2008). This phenomenon was accompanied by the selective migration of high-skilled workers to the West, causing a structural difference between the occupied positions. As a result, the ‘lack of returns to experience’ appeared in the East (Orolowski and Riphahn, 2009). To put it briefly: individuals in the East earn less; and those who earn similar wages (as a result of a collective agreement, for instance), save less since they occupy worse-paying positions. Hypothesis 5.4 summarizes these factors: the East-West geographical location captures a significant difference in savings.

The East-West location may define a cultural context as well, which is related to the role of women in the society. Geographical variations in culture mean that gender-roles have geographical implications (McDowell, 2001). In Germany, women’s career aspirations have been remarkably different in the East than in the West. Not only did the

political system of East-Germany encourage and support full-time female employment before the reunification (Rosenfeld et. al., 2004), but also women continue rejecting the male breadwinner model and the dependence on their husbands in the East, as opposed to the West. This observation remains true for wives of high earner men (Matysiak and Steinmetz, 2008).

The gender-related cultural gap is amplified by differences in the pay-gaps between men and women. The income-difference of men and women is greater in the West than in the East (Trappe and Rosenfeld, 2000). This has partly been a result of low-skilled women's job loss in the East, involuntarily eliminating low-earner females from the workforce (Hunt, 2002). Furthermore, while the gender-gap in the East has been fairly constant across all age-groups, there has been a noticeable 'child-penalty' in Western women's salary. Over time, the gender-gap in East-Germany has narrowed, increasing women's employment income from 74 to 84 percent of male income (Trappe and Rosenfeld, 2000). Accordingly, Hypothesis 5.5 assumes different gender-gaps between the East and the West.

The federal states of Germany, the Bundesländer illustrate scale differences lower than the East-West division. The message on Länder-level may imply a similar context to the previously discussed gender-gap. Today's Bundesländer are administrative boundaries created by the invading forces after the Second World War, which often disregarded existing economic and cultural ties, and the cultural logic behind the female roles may be similar to the East-West gap. Sackmann and Häussermann (1994) classify the Länder according to female labour-participation, and they conceptualise different social contexts explaining it. They state that as a result of the industrialisation process of the

nineteenth century, paid, housework-related employment had been eliminated from the homes. As a result, women had to take up the housework. However, women in the South shared this task with paid employment, while they rather stayed at home entirely in the North. The authors emphasize that this phenomenon is not a consequence of the different occupational structures, such as the regionally varying proportion typical 'female' (service sector) jobs; instead, they underscore the cultural origin of the difference. Therefore, Hypothesis 5.6 will be tested over the Länder: a gender-gap in pension savings is assumed to be narrower in the Northern than in the Southern Länder, since women in the North have less time to accumulate savings than they have in the South.

The Länder-definition may also uncover different contexts. For example, Klagge and Martin (2005) identified that although venture-capital centres follow the Bundesland structure closely, there are sound regional variations in capital availability for small firms on Bundesland-level (Sunley et. al. 2005, Martin et. al. 2005). Obviously, this phenomenon also reflects the relative level of wealth and income in a given Land. The argument of Wójcik (2002) has a similar message about the Länder: intra-Land firm ownership structures still dominate. Whether the Länder are *the building blocks* of the occupational pension market (Wójcik, 2002), meaning significant differences in savings behaviour, depends on how the differences on the German financial markets translate into factors in individual behaviour. This will be tested by Hypothesis 5.7.

Finally, the metropolitan/non-metropolitan locality definition is tested on the pension savings behaviour. It is a commonly cited argument that jobs in a city pay better. However, higher wages in metropolitan areas are often responses to higher costs of

living (Yankow, 2006). Beyond economic arguments, Wirth (1938) described that urban living implies different culture(s) and different behaviour(s) to the rural lifestyle. The plural is intentional: an urban existence makes several cultural practices possible. Otte and Baur (2008) confirmed the existence of ‘urban ways of life’ in German cities with a population greater than half a million, albeit their observation was less sound in the East-German cities. Despite this variety, Brown et. al. (2008) argues that proximity matters in financial behaviour: should some individuals recognise the importance of savings, their behaviour affects others’ decisions. Since in metropolitan areas individuals have more opportunity to meet the messages of financial corporations due to their proximity, a higher share of high-savers is expected. Based on these arguments, Hypothesis 5.8 tests whether metropolitan savings are higher than non-metropolitan savings. The remaining parts use the expression ‘urban’ and ‘metropolitan’ interchangeably, and refer to cities and agglomerations with a population of over 500.000 inhabitants, following the classification of Brinkhoff (2010).

The locality-related arguments provide a refined framework for the global analysis of pension savings decisions (Table 5.1). According to the selected locality-definitions, different contexts affect individuals, and imply different relationships among the variables. Although assumptions can and should be made about the reasons for these contexts, no causal relationship between location and context can be confirmed without further analysis. Speculations about context should be made so that the location-definition can be justified. Nevertheless, until the results are confirmed by local analysis, location has to be treated as an ‘explanatory black box’ (Barnett, 1999). In line with this, the above described hypotheses were constructed according to probable explanations, which are necessary to define the relevant geography. The following

section investigates if the link between the relationship and geography is there, but it will not confirm the link between geography and context. This last step should be subject to further research (Strauss, 2008).

Table 5.1. Research hypotheses

	Global model	East-West	Bundesländer	Urban/non-urban
General effect	n.a.	Eastern savings are lower (Hypothesis 5.4)	Wealthier Länder imply higher savings (Hypothesis 5.7)	Urban employees save more (Hypothesis 5.8)
Age	Savings increase with age (Hypothesis 5.1)	‘Flat’ relationship between age and savings in the East (as opposed to a steep in the West) (not a separate hypothesis)	No explicit hypothesis beyond the East-West gap	
Gender	Gender matters in retirement savings, relationship to be identified (Hypothesis 5.2)	Gender-gap is smaller in the East than in the West (Hypothesis 5.5)	North-South difference in female roles (Hypothesis 5.6)	Narrower gender-gap in the city due to a more liberal culture (not a separate hypothesis)
Financing source	Employer financed plans imply lower savings than mixed or employee-financed plans (Hypothesis 5.3)	Lower employer-financed plans in the East due to differences in productivity (not a separate hypothesis)		

5.3 Data and Methodology

5.3.1 Data

This analysis uses the records of a multi-employer occupational pension provider. The advantage of the unique commercial data-set is its size: it covers records of 12 500 employers and 286 379 employees owning occupational pension plans, working in the metal and electric industry in Germany. Given its sheer size, the data covers app. 15 percent of all employees, and app. 60 percent of all employers active in the M+E industry, providing a comprehensive picture. Since the M+E industry was responsible

for half of all exports of Germany in 2008, and involves approximately ten percent of all employees in the private sector, it has a prime significance to the German economy (Gesamtmetall, 2010:4; Destatis, 2009: 73 and 644).

The data reflects savings decisions from 2002, the first year after the pension reform, to the end of 2009, the depths of the most recent financial crisis. This way, the effect of time on the savings decisions becomes visible. This includes the collective agreement of 2006 that prescribed the mandatory employer contributions, as well as the effect of the financial crisis starting in 2008, and the impact of the shorter working hours (*Kurzarbeit*) introduced in the course of the crisis in 2009.

The file includes records related to salary sacrifice or employer-financed occupational pension savings contracts (the product vehicles of direct insurance, pension funds and Pensionkassen, reformed by the German government in 2001). It includes employees' gender and birth date, as well as the starting date of the pension savings contract. The latter two were used to calculate the individuals' age at the time of enrolment. Actual savings decision is explained with the help of age at enrolment and enrolment year, and cohort-effect is expected to be zero. Furthermore, the data distinguishes between contracts which are exclusively employer financed, and contracts which are employee- or mixed financed. Although this variable does not permit the analysis of the exact employer contributions, it can uncover what savings amounts characterise plans which are exclusively employer financed, and plans where employee financing is present.

The geographical information available is the first two digits of the individuals' home postcode. 95 geographical areas were created by the Deutsche Post, which cover the

whole country (further 5 unused or technical codes). These areas were unanimously linked to a certain Bundesland. Although some postcode areas belong to more Bundesländer, the data of employees living in such areas were evenly divided. Out of the 95 zones, 94 contain more than 500 observations, and 82 more than one thousand, providing reliable basis for the analysis. All the postcode areas were classified whether they cover the whole or large parts of metropolitan areas with an entire population of over 500,000 inhabitants. Two large agglomerations, Mannheim and the Ruhr-area were also coded as metropolitan areas, based on the classification of Brinkhoff (2010). All remaining regions were classified as non-metropolitan regions, even in the case of cities smaller than 0.5 million inhabitants. Population figures were obtained from the Statistisches Bundesamt publicly available *Gemeindeverzeichnis*.

The 95 two digit postcode zones permit a more detailed analysis than the fairly aggregated Länder structure would do. This way, the analysis is able to test the hypotheses referring to the Länder-structure, and to uncover further geographical patterns related to finer scale and locality definitions. Should the investigation identify patterns on this lower scale, new speculations and new context-definitions should be looked for.

5.3.2 Methodology

This research follows the methodology proposed by Kwan and Schwanen (2009), Strauss, (2009) and Zolnik (2009), who apply mixed models to the geographical study of context. Mixed models are accepted means in the critical quantitative study of local relationships between human behaviour and context. Their research demonstrates that geography accounts for significant variations in the data, implying that human

behaviour can be explained with the help of geography, and missing socio-economic characteristics can be substituted by accounting for locality.

Mixed models incorporate more than one-level interactions between the explanatory and the dependent variables. Some explanatory variables have universal effect on the dependent variable, applying for all observations, called fixed effects. These are relationships observed in the general (or global) model: for instance, age has an effect on the savings amounts in case of all observations. Some selected explanatory variables have different effects on the dependent variable depending on the group the observation belongs to, called random effects. To illustrate: age may have a strong impact in the case of observations belonging to the West of the country, while it may have little effect on observations of the Eastern part. More formally, random effects are additional error terms that account for correlations within groups of the data. Mixed-effect regression-modelling with crossed-effects is a generalised version of the multilevel models (R Development Core Team 2009, Bates and Maechler, 2009, Baayen et. al., 2008). Crossed effects mean that the grouping variables are not necessarily hierarchically nested, such as East-Germany includes Berlin, but crossed, such as there is a group for the *Bundesländer* and another group for the enrolment years (Bates, 2010). This allows separate estimates for the Bundesland-effect, and for the effect of the enrolment years (Pinheiro and Bates, 2000).

Multilevel modelling is a stepwise process, starting from a plain, global model, then increasing its complexity gradually by accounting for geography and time. Each time the model is changed, the improvement in the model fit is judged graphically and by statistical tests (chi-square tests on the difference of likelihood-ratios). Should there be

no improvement, the new regression is discarded. If the new model fits significantly better than the old one, the model is kept, and the impact of all explanatory variables is examined (Hox, 1995).

However, there are at least two reasons to be careful with the execution of the stepwise model-improvement algorithm. First, since the sample size is large, with over 286 thousand contracts, statistical tests are likely to show high significance levels even in less meaningful cases. Although some geographers also oppose significance tests, since such tests hide variations in the data, for instance on a more detailed geographical level (Hauer, 2004: 499), fixed-effect significance levels will be shown. Second, the use of the traditional confidence intervals on the random-effects should be avoided anyway while using the technique of mixed models (Baayen, et. al., 2008). Individual significance tests of the random-effects are replaced by the above mentioned stepwise model construction and the likelihood-ratio-tests. Third, model-improvements have to be critically judged, since any change to the model represents a change to the assumed context at the same time. While deciding between two similarly 'good' model-improvements, nonquantitative information has to be incorporated in the model (Schwanen and Kwan, 2009: 288).

5.4 Analysis

5.4.1 Descriptive Statistics

It is remarkable to see that the most common annual savings amount is 1 200€, followed by values such as 1 800€, 600€ or 360€. These may easily be results of present-related decisions, such as *'I can afford putting aside one hundred euros a month'*. The

distribution curve does not follow the normal distribution; therefore a logarithmic transformation will be necessary in the regression-modelling.

The descriptive analysis of the data follows the hypothesis-structure set up in the previous section (Table 5.2). Therefore, it first looks at the mean yearly savings amounts per employee, and its dependence on gender, age and way of financing in the global model. Then, it looks at the interactions between geography and the explanatory variables. The geographical categories follow the locality-definitions discussed above.

Table 5.2. Descriptive statistics, following the logic of the hypotheses

	Global model	East-West	Bundesländer	Urban/non-urban
General effect	Mean yearly savings are 1163€	The average in the West (1184 €) is 215 € higher than in the East (969 €)	Strong regional variations, see Figure 5.1.	
Age	Savings increase with age, best explained with a logarithmic function	No steepness-difference is visible between the slopes of East and West	No steepness-difference is visible between the slopes	No steepness-difference is visible between the slopes
Gender	Men save on average 108€ more than women do	The difference between men and women is 110 € in West and 68 € in East	Gender gap widest in BW (158€), followed by HH, HB and RP; and women save more than men in MV, BB (gap is -5 and -28 resp.)	Average gender-gap: Urban: 94€ Rural: 114€
Financing source	1310€ in the case of plans with employee- or mixed-financing, as opposed to 510€ for employer financing	Employer-financed plans are 39€ higher in the West; employee- or mixed financed plans 211€ higher in the West	The difference bw. employee- or mixed plans and employer fin. plans is highest in HH, NI, lowest in TH, ST	Employer-financed plans are 14€ higher in the city; employee- or mixed financed plans 93€ higher in the city

Note: BB: Brandenburg, BW: Baden-Württemberg, HB: Bremen, HH: Hamburg, RP: Rheinland-Pfalz, MV: Mecklenburg-Vorpommern, NI: Niedersachsen, ST: Sachsen-Anhalt, TH: Thüringen

The table containing the descriptive statistics offers a structured way to see whether there are signs for the expected relationships in the data. The averages following the logic of the global model, in line with Hypothesis 5.1, 5.2 and 5.3: the average savings increase with age; men save on average ten percent more than women, and the average

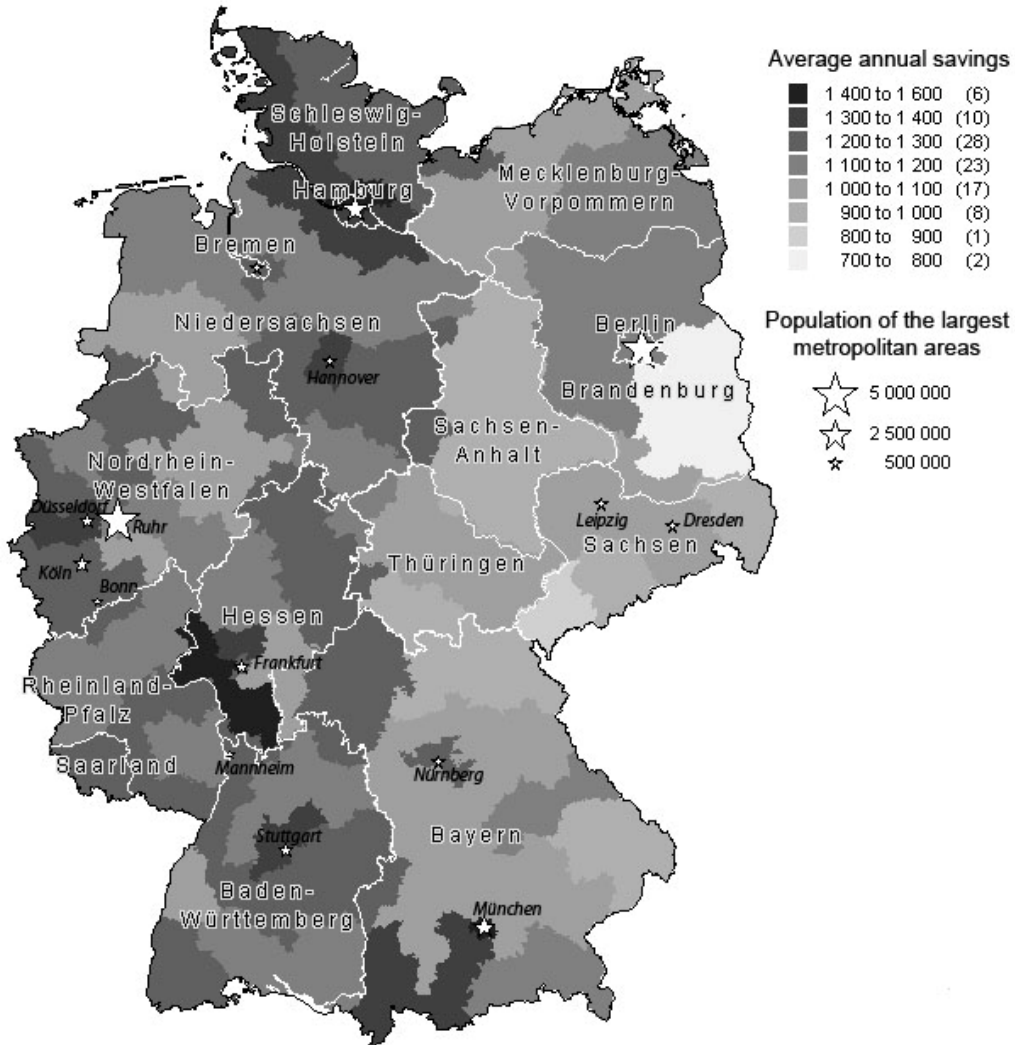
of employee- or mixed financing is remarkably higher than the yearly contribution of employer financed plans. Based on several trials, the age-dependency of savings seems to follow a logarithmic relationship. This relationship explains 92 percent of the variations; therefore, it is a helpful observation for the modelling.

The next step in the analysis is to look at whether geography has an overall effect on savings (Figure 5.1). The map of the average yearly savings per person shows similar but more detailed features, with higher average values than the map of Henne et. al. (2009). The difference of approximately 250 € has several reasons. On one hand, Henne et. al. (2009) extrapolate averages from the German Socio-Economic Panel (GSOEP) data of approximately twenty thousand observations, using regressions and rough income and savings brackets. Their data contains self-reported information of the years of 2005 and 2006. By contrast, the proprietary data used by this paper contains actual savings figures of more than 286 thousand individuals, enrolling between 2002 and 2009, providing a broader picture. This may account for some of the difference between savings averages. On the other hand, GSOEP is not limited to the M+E industry; it is a representative sample of German households. Given the economic significance of the M+E industry discussed previously, it is less surprising that savings are higher there than it is in the data representative for the whole of the German population.

According to the descriptive statistics of this paper, average contributions in the East are remarkably lower than the Western. Within the former East-Germany, the lowest value was found in Brandenburg and the highest in Mecklenburg-Vorpommern. Among the Western Ländern, Bayern has the lowest average, while the high-end is represented by Hamburg and Schleswig-Holstein. Considering whole Germany, the average savings

amount in the metropolitan areas is almost a hundred Euro higher than the average of non-urban areas (for exact values, see Table 5.2).

Figure 5.1. Average yearly savings in €



A map of averages however, does not say whether the regional variations are results of variations in the explanatory variables. Returning to Table 5.2 and the hypothesis structure, we see that the average age in the East is higher, due to migration to the West after the reunification (Burda and Hunt, 2001:21,53-5). In order to control for that, interactions between location and the descriptive statistics are analysed. While it seems that the age-dependency of savings does not change according to the geographical

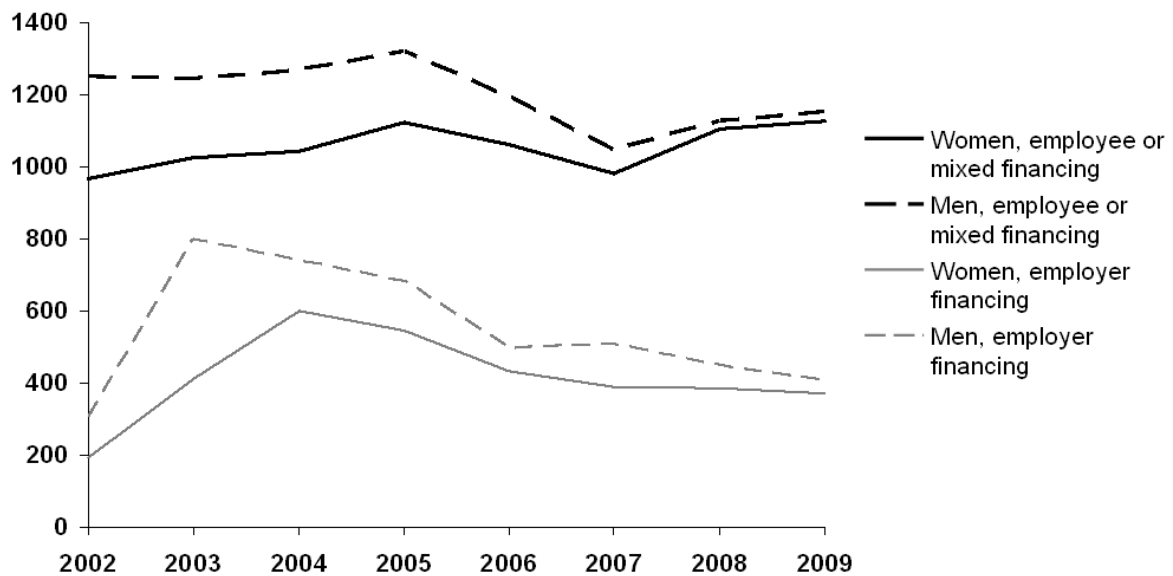
location, it does change between men and women (albeit still not controlling for age and other differences). The overall savings difference between men and women is almost twice as much in West-Germany than in the East. In two Eastern Länder in the Northern part, Brandenburg and Mecklenburg-Vorpommern, women save higher amounts than men do. Furthermore, there is only a slight difference in the gender-gap between metropolitan and non-metropolitan employees.

Employee-financed plans follow the expectations based on the overall income situation of specific regions, ranking Bundesländer with higher income on the top and the less wealthy Eastern-Länder in the bottom. City-dweller employees save more than non-metropolitan inhabitants. Surprisingly, employer-financed plans draw a similar picture. Employers of a few Länder, including Hamburg, Hessen, Baden-Württemberg, offer higher contributions, while others lag behind with plans almost two hundred Euros less, notably Sachsen-Anhalt, Thüringen, Sachsen and Mecklenburg-Vorpommern. In the metropolitan/non-metropolitan comparison, metropolitan employer-financed plans have slightly higher yearly savings than non-metropolitan.

Finally, although the hypotheses do not consider time explicitly, its effect has to be taken into account (Figure 5.2). Savings plans signed during the financial crisis may contain different yearly contributions to plans of earlier years. There are two observable tendencies. Employee- or mixed financed plans had relatively high savings amounts, around twelve hundred Euros before 2005. From the year of 2006, a slight decline has been taking place. The more recent years seem to be characterised by the disappearance of the gender gap in employee-financed pension savings. Similarly to this, the gender gap has been closing in the case of employer-financed plans since the new collective

agreement (2006). Employer-financed plans were most generous in 2003 and 2004, and their yearly savings amounts have been dropping since. The descriptive statistics show no strong alterations in average savings in the year of the new collective agreement (2006) or the financial crisis (2008 and 2009).

Figure 5.2. Average yearly savings of new contracts in € according to gender, source of financing and enrolment year

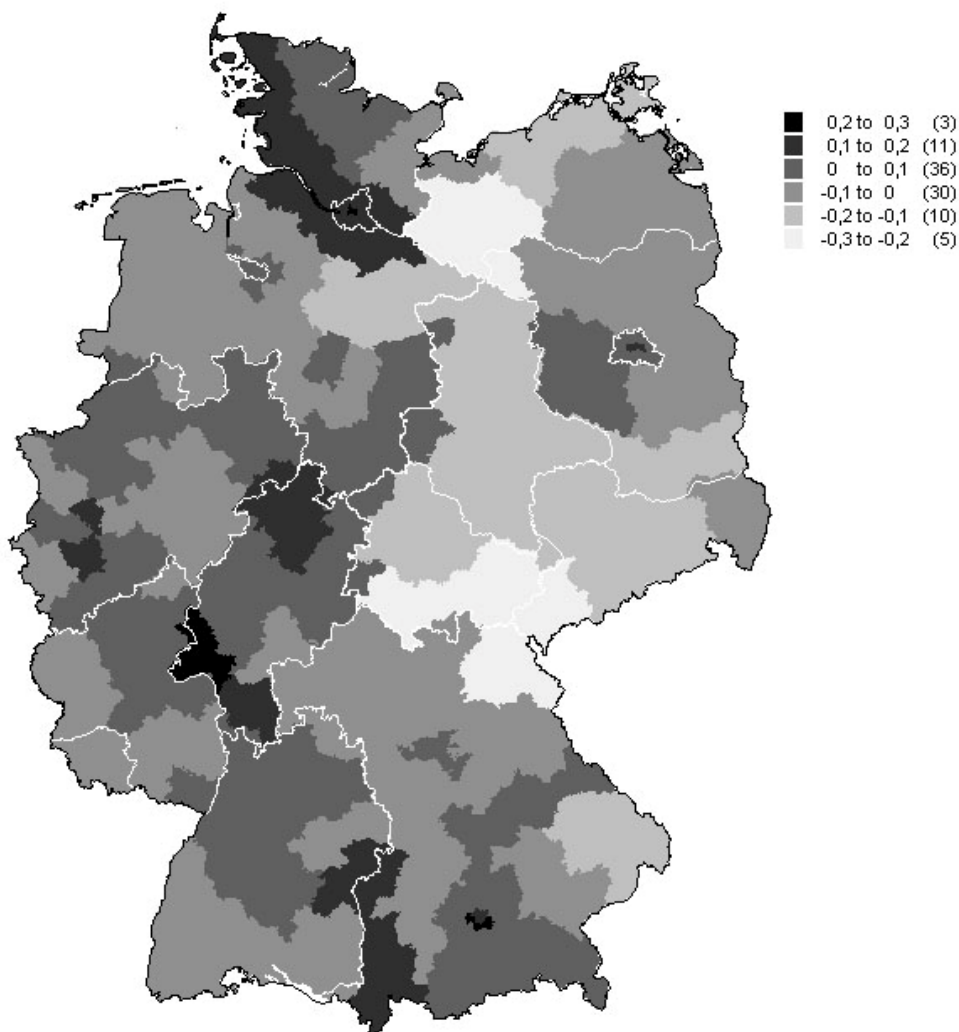


5.4.2 Modelling

Descriptive statistics are not sufficient to isolate the effects of each individual factor. For this reason, mixed-effects regression modelling is applied. The logarithm of the savings amounts is explained, since the transformed values approximate the normal distribution better. First, the global model is used: a simple linear regression explaining the logarithm of savings with gender, (log) age and the financing source (Model 5.0 in Table 5.3). As proposed by Fotheringham et. al. (2000: 164), a map is created, containing average residual values of a given region (average of differences between actual and predicted annual pension savings, Figure 5.3). The map shows that Model 5.0

overestimates average savings in East-Germany, with the exception of a metropolitan area, Berlin, and some of its surrounding regions. In contrast to that, it significantly underestimates savings in Western-Germany, including metropolitan areas (München, Frankfurt and Hamburg). The results of Model 5.0 reinforce the need for the identification of local relationships.

Figure 5.3. Unstandardised residuals of the global model (Model 5.0)



In order to identify local relationships, the algorithm proposed by Hox (1995) is used to create a multilevel-model. It gradually increases the complexity, therefore it is easy to follow. Moreover, the stepwise inclusion of local interactions helps to identify the

model-improvement with the greatest impact. There are five grouping variables available: enrolment years, East-West-division, Länder, postcode areas, and metropolitan/non-metropolitan classification. The choice of the grouping variables in the specific models follows the hypotheses, depending on the assumed context.

The conceptual question of geography and context linkage has significance at the model design too. For instance, should the East-West division include differences in the degree of urbanisation? Or equivalently, it is the nature of Eastern German context that it has less metropolitan areas? Putting these questions in a more formal way: should the model include the East-West level and the metropolitan/non-metropolitan grouping at the same time? When the context is assumed to have different origins, the model should control for each context with a distinct variable. For instance, the economic context of higher income in the metropolitan areas should be isolated from the historical and cultural context of the East-West difference. The final groups used here will therefore be the geographical divisions East-West, Bundesland and metropolitan/non-metropolitan, and the enrolment years (Table 5.3). A final, control model (Model 5.4) is created with the 95 postcode areas as groups, so that a truly exploratory analysis is also prepared, without assuming any context previously.

Table 5.3. Overview of the models

		Model 5.0	Model 5.1	Model 5.2	Model 5.3	Model 5.4
	AIC	571 869	637 592	564 099	561 610	559 874
Fixed effects	(Intercept)	5.10***	6.81***	5.20***	5.22***	5.26***
	log(age)	0.49***	n.a.	0.45***	0.45***	0.45***
	gender (1=male)	0.12***	n.a.	0.12***	0.11***	0.11***
	Source of financing (1=employer financed)	-0.99***	n.a.	-0.90***	-0.99***	-0.99***
Random effects	East West	n.a.	Intercepts	Intercepts	Intercepts	n.a.
	Bundesland	n.a.	Intercepts	Intercepts	Intercepts Gender	n.a.
	Urban-rural	n.a.	Intercepts	Intercepts	Intercepts	n.a.
	Two-digit postal-codes	n.a.	n.a.	n.a.	n.a.	Intercepts Gender
	years	n.a.	Intercepts	Intercepts	Intercepts Source of financing	Intercepts Source of financing

*** significant at 1 percent

According to the algorithm of Hox (1995), the first model (Model 5.1) is a blank, intercept only model, with one fixed-effect intercept for all observations and several random-effect intercepts for the groups (Table 5.4). The second model (Model 5.2) incorporates the fixed-effect covariates (X_k), which are gender, age and source of financing (Formula 5.1). The third regression (Model 5.3) allows the fixed-effect variable(s) to vary across the groups (Y_i and A, B and C). This step checks whether any or more of the variables has a varying effect across the groups, or it affects the savings amounts in the same way across the regions. The fourth step would include interactions between random-effect variables. As it turned out during the analysis, the model could not accommodate any interactions due to correlations between the random effects. Instead, Model 5.4 is prepared with the only geographical groups of the postal codes.

$$\ln(\text{Savings}) = \alpha + \sum_k \beta_k X_k + \sum_{i=2002}^{2009} \gamma_i Y_i + \sum_{\text{East-West}} \delta A_j + \sum_{\text{Länder}} \delta B_j + \sum_{\text{Urban/Non-urban}} \delta C_j + \varepsilon$$

(Formula 5.1)

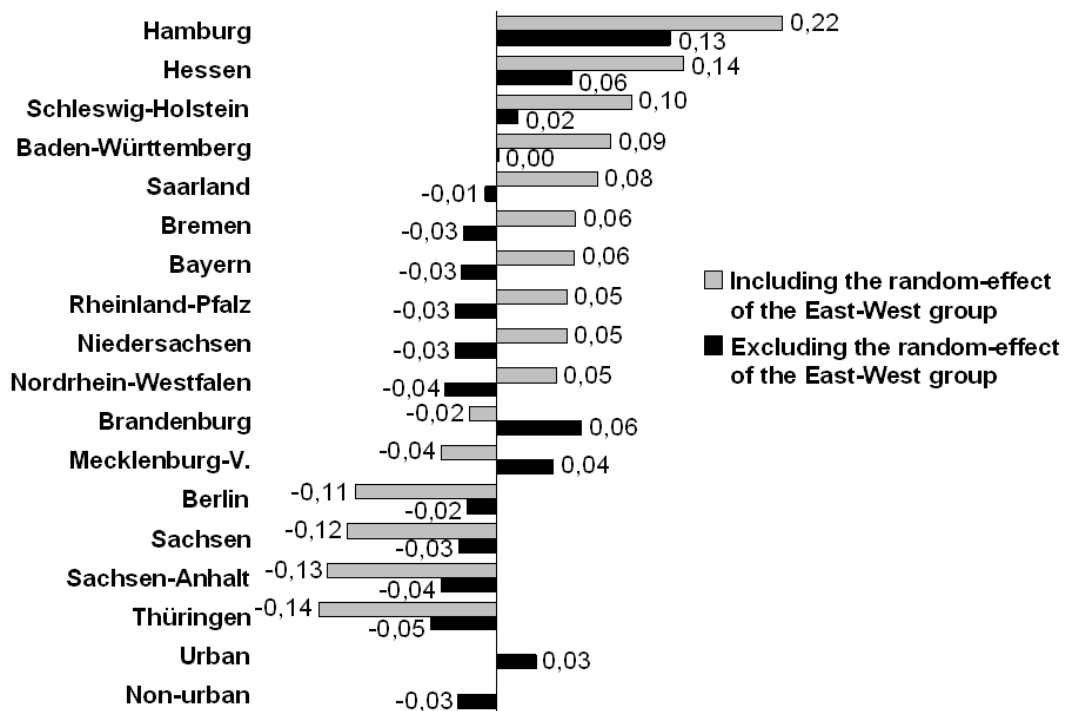
Table 5.4. Random-effect coefficients of the local models

Model 5.1		Model 5.2		Model 5.3		
Group	Intercept	Group	Intercept	Group	Intercept	Random-effect of gender
Hamburg	0.17	Hamburg	0.13	Hamburg	0.14	-0.01
Mecklenburg-Vorpommern	0.14	Brandenburg	0.06	Brandenburg	0.12	-0.07
Schleswig-Holstein	0.10	Hessen	0.06	Mecklenburg-Vorpommern	0.10	-0.06
Hessen	0.08	Mecklenburg-Vorpommern	0.04	Hessen	0.07	-0.01
Saarland	0.06	Schleswig-Holstein	0.02	Schleswig-Holstein	0.02	-0.00
Bremen	-0.01	Baden-Württemberg	0.00	Berlin	-0.01	-0.03
Rheinland-Pfalz	-0.02	Saarland	-0.01	Niedersachsen	-0.01	-0.02
Baden-Württemberg	-0.02	Berlin	-0.02	Nordrhein-Westfalen	-0.02	-0.03
Sachsen-Anhalt	-0.03	Bremen	-0.03	Baden-Württemberg	-0.02	0.03
Thüringen	-0.03	Bayern	-0.03	Bremen	-0.04	0.01
Niedersachsen	-0.05	Sachsen	-0.03	Sachsen-Anhalt	-0.05	0.01
Nordrhein-Westfalen	-0.06	Rheinland-Pfalz	-0.03	Saarland	-0.05	0.05
Brandenburg	-0.06	Niedersachsen	-0.03	Sachsen	-0.05	0.04
Sachsen	-0.07	Nordrhein-Westfalen	-0.04	Bayern	-0.06	0.03
Berlin	-0.11	Sachsen-Anhalt	-0.04	Rheinland-Pfalz	-0.07	0.04
Bayern	-0.12	Thüringen	-0.05	Thüringen	-0.07	0.04
Group	Intercept	Group	Intercept	Group	Intercept	Random-effect
Non-urban	-0.05	Non-urban	-0.03	Non-urban	-0.03	n.a.
Urban	0.05	Urban	0.03	Urban	0.03	n.a.
Group	Intercept	Group	Intercept	Group	Intercept	Random-effect
East	-0.10	East	-0.09	East	-0.09	n.a.
West	0.10	West	0.09	West	0.09	n.a.
Group	Intercept	Group	Intercept	Group	Intercept	Random-effect of financing
2002	0.19	2002	0.04	2002	0.07	-0.69
2003	0.25	2003	0.11	2003	0.11	0.02
2004	0.24	2004	0.11	2004	0.10	0.18
2005	0.22	2005	0.11	2005	0.11	0.05
2006	-0.03	2006	-0.01	2006	-0.02	0.11
2007	-0.30	2007	-0.12	2007	-0.17	0.23
2008	-0.26	2008	-0.09	2008	-0.08	0.08
2009	-0.30	2009	-0.15	2009	-0.12	0.01

The results confirm the Hypotheses 5.1, 5.2 and 5.3 related to the global model, but also identify a global effect for age, gender and financing over the local models. The effect of the geographical regions follows the expectations (Figure 5.4). Savings in the Eastern Länder are predicted to be the lowest (Hypothesis 5.4), and metropolitan regions imply slightly higher savings than non-metropolitan areas (Hypothesis 5.8), according to the random intercepts of Model (2). By controlling for the East-West gap and for the Länder separately, the rankings within the Eastern and within the Western part of the country become more apparent. The Northern Länder imply higher savings both in the East (Mecklenburg-Vorpommern and Berlin) and in the West (Hamburg and Schleswig-Holstein, and Hessen, in the mid-West of the country) confirming Hypothesis 5.7.

The advantage of mixed-models is the easy identification of interactions between geography and individual explanatory variables, so that Hypothesis 5.5 and 5.6 can also be verified. However, as in the descriptive statistics, age did not improve the model-fit as a random-effect variable over any of the groups. It has a meaningful, significant fixed effect on the yearly savings amount from Model 5.2 onwards. Sticking with age as fixed-effect only, its coefficient hardly changed from Model 5.2 to Model 5.4. This means that the relationship between age and savings is quite robust: the savings-amount increases with age; and the models could not show that its relationship would vary across Germany or over the enrolees of each year. The regional intercepts already account for the variations; there is no structural difference in the relationship between age and pension savings. Therefore, we cannot confirm that older or younger enrolees of the occupational savings plan would behave differently according to the location within Germany.

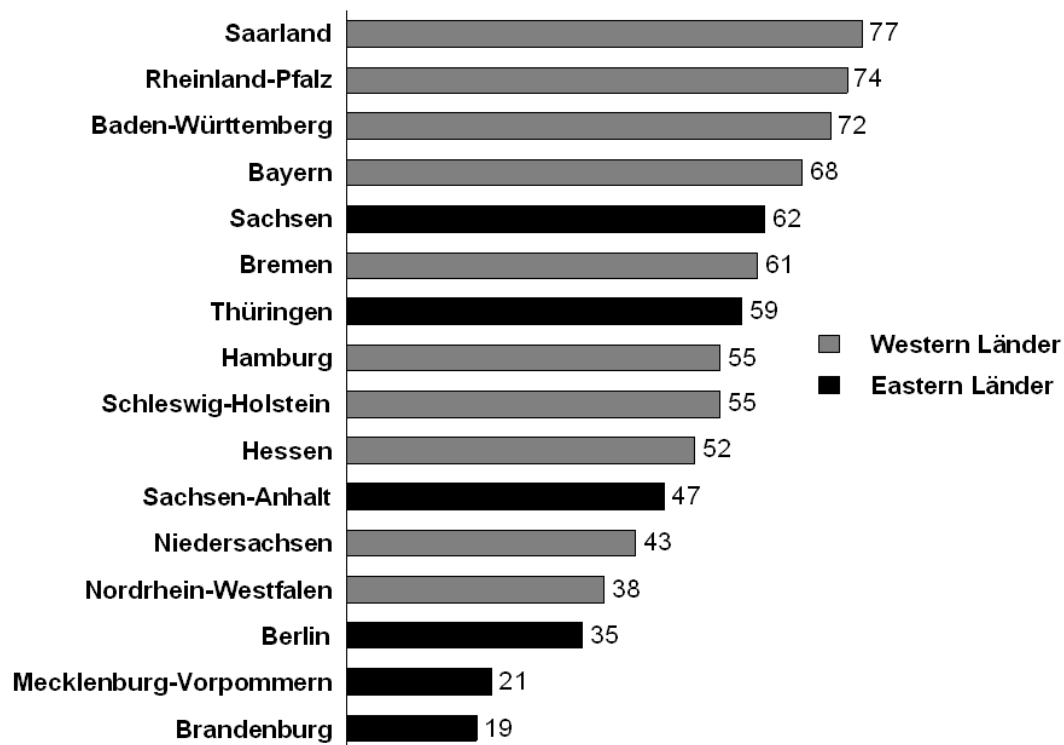
Figure 5.4. Predicted effect of the Länder and the urban/non-urban address on the logarithm of savings (Model 5.2)



Random-effect variables that significantly improved the model fit were gender and the effect of financing. The systematic model building indicated that the impact of gender typically varies among the *Bundesländer* (Model 5.3). As assumed by Hypothesis 5.5 and 5.6, being female as opposed to male implies different savings amounts across Germany, but instead of the East-West division (Hypothesis 5.5), a North-South Länder-difference dominates (Hypothesis 5.6). The predicted difference in savings amounts draws the attention to a North-South gap within Germany: Saarland, Rheinland-Pfalz, Sachsen, Thüringen, Baden-Württemberg and Bayern show large, but overall similar differences between male and female savings, while Brandenburg, Mecklenburg-Vorpommern, and surprisingly, Nordrhein-Westfalen have minor gender-gaps (Figure 5.5). The model did not improve significantly by including gender as a random-effect variable over the metropolitan/non-metropolitan locations. These findings reinforce the expectations on the geographically varying gap between men and

women, possibly caused by the context of different female roles in the society. East-Germany is not as homogeneous as expected, and the gender-gap in financing did not show temporal effects, as opposed to the descriptive statistics.

Figure 5.5. Predicted yearly savings difference between men and women (Model 5.3)

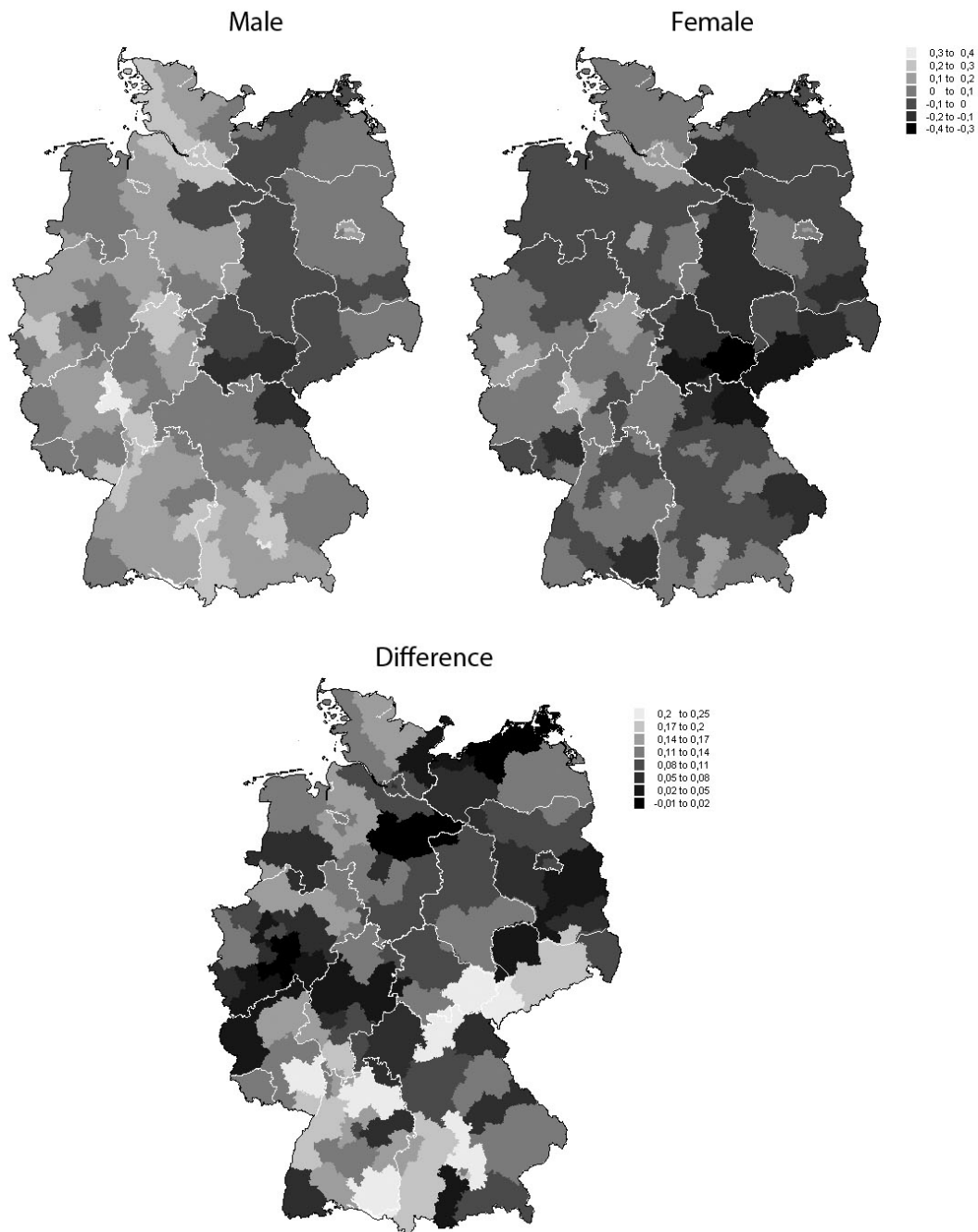


Note: calculated using a 39-years old employee enrolling in 2005 with an employee-financed plan and living in urban location

Model 5.4 replaces the geographical groups (East-West, Länder and metropolitan/non-metropolitan) with the postcode areas. The model uses similar gradual complexity increase of Hox (1995) as in the previous case. At the end, gender turned out as the only random-effect variable that contributes to the model. The map of the results gives an impression about the geography of gender-gaps in pension savings (Figure 5.6). There are higher pension savings in some major metropolitan areas compared to their surroundings, including München, Nürnberg, Frankfurt, Hamburg and Berlin, but not for all of them. This means these regions have a so far undefined context. Furthermore,

the North-South difference in the gender gap draws a less unanimous picture, the trend is clearly visible.

Figure 5.6. Predicted effect of gender on the logarithm of the savings



Note: The upper maps contain the sum of the gender fixed-effects, random-effect intercepts and random-effect of gender; the 'Difference' map with *different scales* contains the male less the female random effects.

As the detailed maps show, there is the dark patch covering parts of Thüringen, West-Sachsen and North-East Bayern (Oberfranken), both for men and women. This area is characterised by low savings which cannot be explained with the help of the variables in the regression. Furthermore, although men have the lowest savings in these regions, the gap between men and women is particularly broad here. This means that the detailed map talks about a so far unexpected context. Further literature research about this area reveals that this region shows low level of economic development in economic terms within Germany, both in its Eastern and Western area. Its main industries, textile, glass and china manufacturing, have been experiencing a structural crisis since reunification and since the appearance of competition from developing countries (Breitenfelder, 2007).

Temporal effects show that the employer-financed plans of 2002 were the least generous with very low savings amounts, indicating the employers' cautious first moves in the new pension system (see random-effects in Table 5.4). When the pension market took off, employers provided higher contributions. These contributions again slightly decreased over the years: new, probably small and medium companies joined the scheme, which were unwilling or unable to provide generous contributions to their employees. The period-effects are therefore likely to be employer-composition effects. Large and SME-companies' inability to pay the generous wages and additional labour costs (of course, with many exceptions) is a well documented phenomenon in the literature (Silvia and Schroeder 2007), which may be the relevant context for this phenomenon.

Similarly to the employer-financed plans, random-effect intercepts over the years in Model 5.3, standing for employee- and mixed financed plans, tend to decrease slightly over the years, reaching negative values from 2006 onwards. There may be several explanations to this. First, the year of 2005 was characterised by simplifications to the private and occupational pension system, including simpler taxation rules, and a new law providing insurance companies with a swifter access to distribution revenues. Their additional interest may have moved them towards selling products to individuals less keen on old-age savings. Second, the omnipotent coverage of the new collective agreement in 2006 gave many individuals a chance to meet an agent of the pension provider. Individuals willing to save for the retirement often fail to take action (Clark et al., 2009). The visit of an insurance agent may have catalysed this process. Third, the financial crisis of 2008-2009 forced many employees into shorter working hours, and it must have diverted intentions from retirement to precautionary savings.

5.5 Implications and Conclusions

This research illustrated the application of geography in explaining savings decisions in the case of German occupational pension plans. The topic, investigation of retirement saving decisions, gained relevance after the pension reform of 2001, which decreased the level pensions provided by the public system. Since the choice of enrolment in a savings scheme, as well as the supplementary saving amount are subject to voluntary individual decisions, it is important to identify individual drivers and contextual relationships behind it. As a result of the methodological approach, recognitions delivered by this study may be divided in three distinct categories: old age savings in Germany, human decision making and the importance of context in geographical investigations.

First, the paper has findings about supplementary retirement savings in Germany. As it has been shown, the voluntary character of the occupational pension market offers a great degree of freedom for the individual. As a result, savings differences predicted by the literature have been confirmed for Germany too. Yearly savings amounts are systematically related to age, gender and way of financing. This has a wide range of implications. One of them is related to individuals saving too little, as for instance most young do. Since most contracts do not contain automatic savings increases over time, individuals signing savings contracts with low savings amounts will have to modify their contracts later in order to close their individual pension gap. Most contract modifications and new contracts imply additional distribution costs, which are at best ‘unnecessary’, and should be avoided with the help of better product design, distribution or political intervention. Moreover, it is to be investigated to what extent individuals with low savings realize that they need to put aside more. Research should be done to see whether the false feeling of contract ownership provides the misleading feeling of old age security.

This paper contributes recognitions about spatial differences in savings amounts. The centrally introduced pension reform induces spatially varying responses from the German employees. The observed patterns confirm that the effect of an aging population and the problems with the public pension system threatening the whole country, have different impact according to the individuals’ context, which in turn follow a systematic pattern in space. As long as lower average savings of certain geographical areas move together with lower cost of living in the retirement, as for instance it is the case in non-urban areas, geographical savings differences are not harmful *per se*. However, it is less likely the case that the savings decisions would

reflect considerations executed upon purchasing power expectations. It is more likely that geographically varying savings decisions will result in geographically varying living standards in retirement. Similarly, wide local gender-gaps will translate into wide gender-specific pension gaps.

Second, the paper contributed to the understanding of human decisions. Patterns found in the data highlight the fact that financial decisions are influenced by cultural and social factors, as the regionally varying example of the gender gap shows. It seems that some or the majority of the social and cultural factors are local, since areas closer to each other tend to share characteristics. Studies not accounting for geography could incorporate variables treating individual decisions as independent from each other are most likely to construct imperfect models of financial decision making. Identified global relationships between the variables, such as the gender and region, or metropolitan-non/metropolitan differences will be distorted and will not account for regional variations.

Obviously, geographical scales will never describe the social nature of human behaviour perfectly, since it is always a result of individual situations. Regional groups used in this paper admittedly hide huge differences. There are however, similarities in decisions across the geographies, and the multilevel-regression technique is one adequate approach to their localisation. This paper has found a few examples for that: there is a significant difference in savings between former East- and West-Germany, as well as between individuals living in metropolitan and non-metropolitan areas.

Third, geographical patterns represent a reason to think about decision contexts and possible explanations. The contribution of this paper is to highlight the additional information provided by geography, and to encourage researchers to engage with it. Applying quantitative geography with critical sensitivity in modelling human behaviour may bring the researcher closer to the actual context of the individual decisions, besides carrying recognitions about spatial processes. However, geography is not the context itself: additional information is required to find out why decisions made close to each other share patterns. Moreover, there are non-local cultural and social ties, and there are shared patterns in human decisions not following geographical locations. For instance, employees of distant metropolitan areas seem to share some of the decision patterns. Since data-sets following administrative boundaries will not be able to account for such connections, it should be explicitly investigated by further research projects.

6 The German Model of Risk Distribution in Supplementary Occupational Pensions

6.1 Introduction

The surging expenditures of public pension systems represent enormous challenges to the governments of ageing societies (Barr, 2006). Attempts to tackle such problems over the last two decades included the privatisation of pension provision and the transfer of responsibility for old age finances from the public to the individual (Gruber and Wise, 2007, Taylor-Gooby, 2004 and Börsch-Supan et. al., 2005). These moves were partly results of the retreat of the state from pension provision (Clark, 2000) and the rise of private welfare markets (Bode, 2007a). In other words, retirement decisions were individualised (Vickerstaff and Cox, 2001), including the selection of savings vehicles and its risk-return combinations. These processes certainly demonstrate a great variety over geographies (Dixon and Sorsa, 2009) with country-specific institutions offering pension products in a collectivist masque (Dixon, 2009); the inherent characteristics of such plans remain individualistic. ‘Self-made’ pensions are on the rise (Bode, 2007b), and carry serious consequences. Since guaranteed pension benefits are a ‘hollow ideal’ (Clark, 2003), individuals have to reach decision over pension finances under the conditions of risk and uncertainty (Kahneman and Tversky, 1979, Clark, 2009).

International examples show a great variety of risk individualisation. In the UK, the National Employment Savings Trust (NEST), previously known as Personal Accounts Delivery Authority (PADA), was created in the course of a pension reform to provide occupational pensions at low cost for low- and moderate earners who have less understanding of financial matters. This non-profit organisation offers employee-

financed, defined contribution pensions on a voluntary basis. Most participants make no decision and receive therefore the 'default' fund option. However, there are a range of funds on offer for active plan participants. Some of them promise a clear risk-return relationship in financial terms, while others offer alternative interpretations of risk (e.g. ethical funds investing in companies that meet non-financial, value-based criteria, or 'Sharia' funds that comply with the requirements of Islamic finance). The investment risk is always borne by the employee (PADA, 2009). Another good example is Sweden, where the so-called ITP occupational pension scheme was reformed in 2007. The reform introduced an exclusively employer financed defined contribution scheme, where half of the pension savings has to be invested in traditional pension insurance. The investment of the other half can be determined by the employee. This system does not guarantee the ultimate level of pensions either.

Germany is a special case in terms of pension risk individualisation. The pension reforms of 2001 (so-called Riester-reform, named after the Minister of Labour, Walter Riester) and of 2004 dramatically reduced the generous public pensions; from seventy percent of average lifetime earnings to approximately forty. To offset the decrease, it introduced voluntary occupational and private funded schemes with state subsidies (Schmähl, 2003). As a result, after a transition period, around two fifth of retirement income has to originate from supplementary pensions, if individuals want to reach similar living standards in the retirement as it was the case before the reforms (Börsch-Supan and Wilke, 2006). Given that there is no legally prescribed automatic mechanism for individuals to enrol, and that there are no default savings or default investment options, research on this field is essential.

Since the reform of 2001, both private and occupational pensions have spread dynamically, with approximately nine million subsidized occupational pension policies at the beginning of 2008 (Alterssicherungsbericht, 2008). Unfortunately, results show that enrolment is imperfect, and the new schemes exclude vulnerable parts of the society (Börsch-Supan et. al., 2008). It has been highlighted that the new schemes merely restructure existing household savings (Corneo et. al., 2009). Since it was also shown that the financial crisis eliminated between three and eight percent of private retirement savings (Börsch-Supan et. al., 2009), investigating the structure and distribution of risk embedded in German occupational pension schemes complements the understanding of the pension reform.

Accordingly, the aim of this paper is to investigate the extent and distribution of risk in the case of the new occupational pension products reformed by the reform of 2001 in Germany. More specifically, the paper discusses the following research questions:

- What is the scope of risk of the new occupational pension vehicles?
- What determines risk distribution between the employer and its employees?
- Which relationships can be identified regarding risk-related decisions empirically?

The paper summarizes the development of risk distribution in occupational pension provision over the twentieth century, and arrives at the last major pension reform of 2001. Since the reform, employers and employees have to reach two major risk-related decisions when enrolling in occupational pensions. The first choice is the selection of the pension vehicle (direct insurance, Pensionskasse, or pension fund), which

determines the institutional setup and investment policies related to the pension savings. Although the product characteristics differ to some extent, they contain similarly robust insurance elements.

The second choice is on the nature of employee benefits, between (German) defined benefit (DB) and (German) defined contribution (DC). It is adequate to emphasize the ‘German’ character of these products, since they significantly differ from their Anglo-Saxon counterparts. Both German DB and German DC provide insurance-based investments. Moreover, employees receive an *ex ante* guaranteed positive return in the case of the insurance-based German DB pension, and a minimum return of zero in the case of the German DC plans. Despite the insurance element, the paper finds that employees’ choice is limited by their risk averse employers, shown with the help of a comprehensive, proprietary database of a German occupational pension provider with over 276 thousand employee contracts. Since the starting dates of these contracts vary in time from 2002 to the end of 2009, it is also shown that the financial crisis hardly affected these choices.

This paper is structured as follows. Employee-employer risk sharing is presented in the historic perspective in section two. Further, the paper analyses the nature of risk among the institutions involved in occupational pension provision and the employee in section three. The last two parts of the paper investigate actual decisions under risk empirically. The discussion of occupational pensions over the last century, the size of the database, the uniqueness of the timeframe, and the special setup of the German pension system make this paper a distinctive contribution to the literature of the German pension reform, pension individualisation and decision-making under risk and uncertainty.

6.2 Occupational Pensions and the Riester Reform

In the middle ages, communities of the mining industry and several guilds used the institution of occupational pensions. These were the first formal organisations providing support for old age, well ahead of Bismarck's public pension system. Community members organised early versions of pensions for themselves, based on the idea of mutual help, and without a commercial goal. The late nineteenth century with the advent of the industrialisation, the appearance of large conglomerates, and the resulting employee-employer class-conflict delivered sweeping changes to the nature of occupational pensions. The idea of mutual help provision was replaced by the employers' aspiration to preserve peace at the workplace. The employer decided whether to provide occupational pensions or not, and determined its amount. The law treated these occupational pensions as gifts from employer with no further obligations and with no ties to the employee's salary. This meant in practice that the employer could withdraw an existing pension promise. Employees received pensions usually only after a very long employment that ended with retirement. A job change mostly resulted in the loss of eligibility (Wiedemann 1991).

This legal background defined a high-risk environment for the employee, including the loss of the entire retirement income. This system was in place over the first part of the twentieth century until 1974, except for the Nazi-era. The Occupational Pensions Act of 1974 limited the employer's freedom in pension provision, following a verdict of the German Constitutional Court of 1972. The Act contained two major elements: it defined specific circumstances when the employer was not permitted to withdraw its promise²⁶,

²⁶ The employer was not permitted to withdraw its promise after 10 years of uninterrupted employment and a minimum employee age of 35.

and the employer had to guarantee the level of benefits. The law therefore shifted a significant part of the risk from the employee to the employer (BetrAVG, 1974).

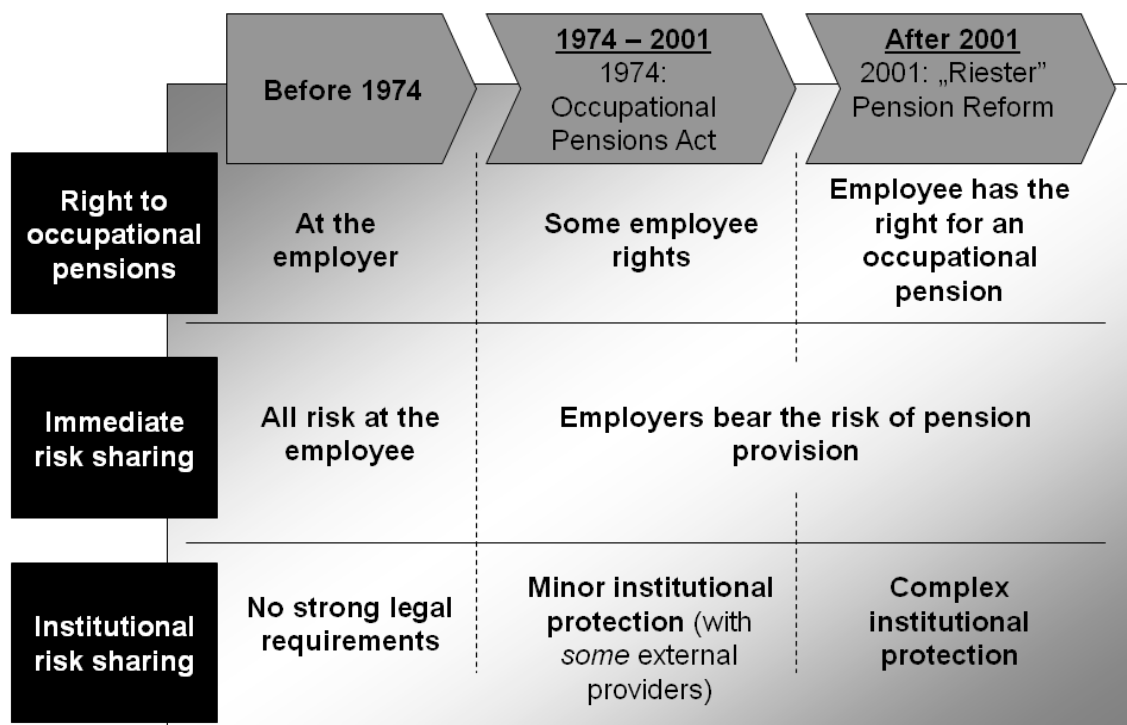
Meanwhile, the generous public pay-as-you-go pension system of 1957 started building up a significant financial deficit in the 1990s. The German society was ageing rapidly, and the proportion of working people paying the retirees' pensions was decreasing. After several parametric changes, the German government enacted a major cut in public pensions in 2001 (the so-called Riester-reform) to tackle this problem, followed by a further reduction in 2004. The reforms decreased the level of public pensions from seventy to forty percent of average lifetime earnings, and introduced funded voluntary occupational and private pensions with state subsidies²⁷. Among others, employees acquired a comprehensive set of rights in relation to occupational pensions, including the right to transfer a part of their gross salaries into (pension) savings accounts. These pensions are no longer supplements but substitutes for the public pensions (Schmähl 2003).

The decrease of the public system and the enhancement of funded pensions shifted retirement risks from the state to the employees and employers. Since enrolment in the supplementary system became voluntary (and the decrease of the public pensions applied to everyone), the individual runs the 'risk of recognition' (whether he or she plans the retirement deliberately, see Clark.et. al., 2009). In addition, financial investments necessarily contain risk that has to be distributed between the employer and

²⁷ Two types of subsidies were created. The first is the direct saving subsidy which is paid by the respective authority to the pension savings account. The employee has to pay a minimum amount of own contributions from his or her net wage in order to become eligible for direct subsidies. These consist of a flat benefit and additional benefits after each child. The second type of subsidy is tax savings: contributions to the pension savings account are paid directly from the employee's gross earnings which mean a tax-advantage (retirement benefits are, however, subject to income tax). The pension authority automatically applies the more beneficial subsidy (for the employee) (Schmähl, 2003).

the employee. Since the value of the occupational pensions must be guaranteed by the employer since 1974 (BetrAVG, 1974), their risk situation worsened in 2001 by the introduction of employee-financed occupational plans²⁸. In order to offset that, the pension reform set out that employers outsource the management of pension assets to specialized external providers. These providers underlie a complex institutional protective and supervisory system (detailed in the next section).

Figure 6.1. The legal environment of occupational pensions



Sources: Wiedemann (1991), BetrAVG (1974), BetrAVG (2001), VAG (2004)

Figure 6.1 provides a summary of employers’ risk situation related to occupational pensions discussed so far. It shows that the decisions related to occupational pensions were initially at the employers’ discretion. This significantly changed over time: employees received occupational pension guarantee and a vesting period in 1974; and

²⁸ From 2001 onwards, employer-financed plans are still not immediately vested: 5 years of uninterrupted employment and the fulfilment of age-related rules are required, as opposed to the 10-years period before 2001. As opposed to that, employee-financed occupational plans are immediately vested. Plans with mixed financing are split proportionally.

they were granted a set of further rights by the pension reform of 2001, including unconditional eligibility to salary sacrifice schemes. This process was accompanied by a shift of investment risk from the employee to the employer in 1974. From that year on, employers had to guarantee the nominal value of their pension promises. To offset employers' worsening decision and risk situation, the reforms gradually built institutional support and created a set of rules related professional risk management. First, the reform of 1974 established PSV aG (*Pensions-Sicherungs-Verein*, Mutual Pension Insurance Corporation), an insurer to protect employees' pension rights against employer's insolvency. Following that, the reform of 2001 created occupational pension products with an insurance element, underlying comprehensive financial regulatory and supervisory system. These institutions and regulations are discussed in detail by the next section.

6.3 Risk Dimensions: Scope and Sharing

The reform of 2001 created two main risk-related dimensions. The first dimension is the selection of the pension product (or vehicle). Since each pension product is attributed to specific institutional setups and to investment policies, its choice defines the scope of possible returns. This also sets out the range of eligible pension providers which may vary in legal form, history and financial power. The second risk-related dimension determines the distribution of realized returns (and risks) between the stakeholders of the pension provision. This, in effect, means the decision between German defined benefit (DB) and German defined contribution (German DC) schemes. There is no 'default' option for the enrolees; therefore each of the two dimensions represents a real choice. Although both choices are assigned to the employer, it often offers more than one product type to its employees and almost always leaves the second decision up to

them. This section discusses the two risk dimensions in detail in order to describe the gravity and impact of these decisions.

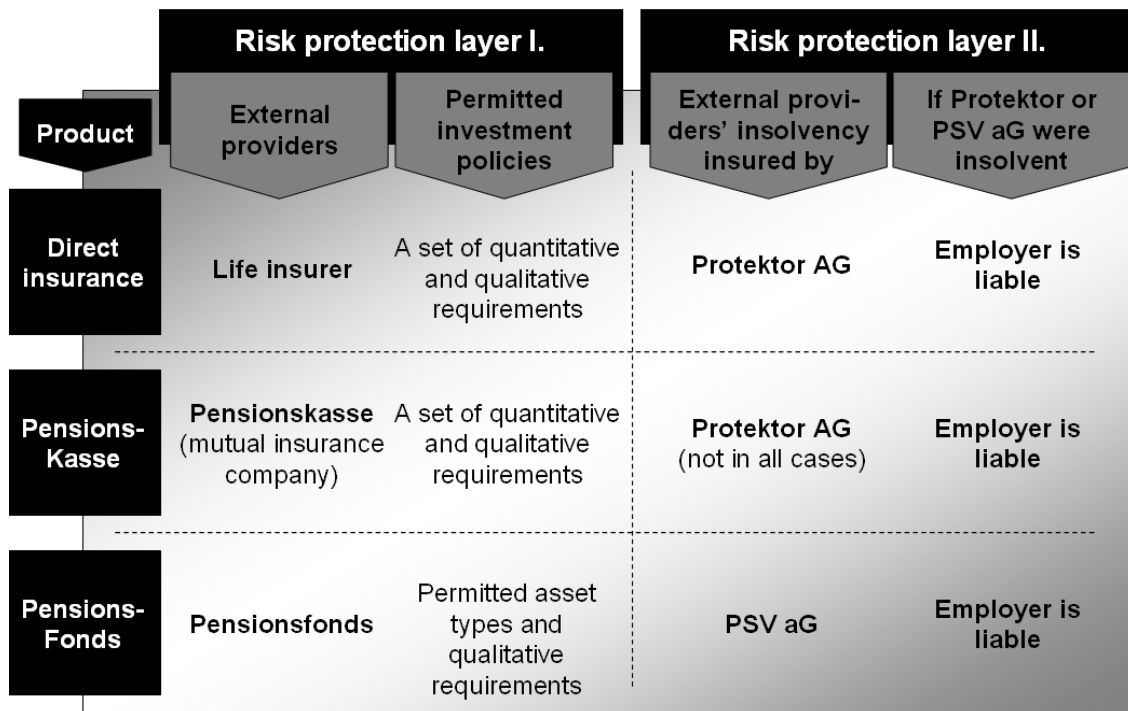
6.3.1 Risk Dimension I: Scope

Since the subsidized occupational pension products must be provided by specialist finance companies, most employers outsource the pension provision. These specialist companies will be referred to as ‘external providers’, even in cases when they are owned by the employer. Product choice determines the legal form of the external provider, a set of risk-related regulations and the institutional risk-sharing background. Therefore, understanding the institutional background is necessary to provide a comprehensive risk assessment. All three products are regulated by insurance laws (VAG and VVG), which define two sets of risk-related rules, called as risk protection layers (Figure 6.2). These layers are the permitted investment policies and a system of re-insurance. Compliance is supervised by the Insurance Supervisory Authority. In the followings, the products are briefly explained (the rows of Figure 6.2), followed by a discussion on the risk protection layers (the columns of Figure 6.2).

Three types of funded occupational pension products, often referred to as ‘pension vehicles’ by experts, were (re-)designed by the pension reform: Direktversicherung, referred as direct insurance, Pensionskasse, and Pensionsfonds, referred as pension fund. The first pension vehicle, direct insurance, is a life insurance taken by the employer, whereby the employee is the beneficiary. Its external provider has to be a life insurance company. This product type carries the lowest administrative burden and is therefore often favoured by small employers. The second pension vehicle, Pensionskasse, is a traditional pension type. Its external provider is often a mutual

insurance company with the sole aim to provide pensions to its beneficiaries. Pension funds, the third product type, were newcomers in Germany in 2002. Its creators' intention was to imitate the Anglo-Saxon pension funds returns with a higher degree of security.

Figure 6.2. Risk protection in the reformed occupational pensions



Source: own compilation based on interviews and literature (see text)

The Insurance Supervisory Act (VAG, 2004) defines the first risk protection layer, the permitted investment policies. The law satisfies the requirements of Solvency II, the EU directive for insurance activities, including all quantitative, qualitative and transparency requirements. Quantitative requirements apply to the guarantee-capital, the part of the investment that delivers the guaranteed returns of the pension promise. For direct insurances and Pensionskassen, these requirements consist of a list of permitted asset types, limits on asset-mixing and constraints on the expected variance of returns, as well as limits to the investments' (geographical) locations. Pension funds do not have such

limitations, but certain asset types are excluded from the group of permitted investments. Certain aspects of these policies are regularly revised by the *circulars* of the Supervisory Authority. Because of the conservative investment approach of the Authority, German pension investors avoided the direct involvement in the sub-prime securities before the crisis beginning in 2008. As a result, German pension investments lost around five percent of their value in 2008, less than their counterparts did in most of the OECD countries (Antolín and Stewart, 2009: 17).

Qualitative rules prescribe external providers certain reporting and controlling processes. These comprise regular, in some questions, weekly reporting on asset-liability-management (ALM) and liquidity management; as well as regular stress-tests with four different scenarios. These reports must be taken into consideration in the short- and long-term decisions; and the Supervisory Authority must receive a part of the reporting and the outcome of major decisions. The Authority has the right to intervene in the pension provider's business. Transparency and reporting requirements to the public apply too (VAG, 2004).

The second risk protection layer defines the system of re-insurance. There is a comprehensive system of protective measures to ensure that pension policies managed by external providers do not fail. First, each pension product belongs to a certain type of external provider. By default, the external provider is liable for the pension provision. Should the external provider be unable to meet its liabilities, its policies are overtaken by a respective re-insurer (Protektor AG or PSVaG). In the unlikely event of the re-insurer's failure, the employer has to provide the pensions.

External providers' pension liabilities are insured by one of the two following institutions, Protektor AG and the PSV aG. Initially, Protektor AG was a voluntary institution set up by German life insurers for the protection of their policyholders' interests. It protects policyholders against the consequences of a life insurer becoming insolvent. This means that external providers of direct insurances had first a voluntary re-insurance at Protektor AG. In May 2006, re-insurance at Protektor AG became mandatory. Policies of insolvent life insurers are transferred by the order of the Supervisory Authority (BAFin). Some Pensionskassen can be insured at the Protektor AG, but only if they meet certain requirements. This means, some of the Pensionskassen are not necessarily re-insured by any institution. To compensate, un-insured Pensionskassen are subject to a tighter supervision. These Pensionskassen usually belong to large companies with long history and tradition in pension provision.

Pension funds must be insured at PSV aG (*Pensions-Sicherungs-Verein auf Gegenseitigkeit*, Mutual Pension Insurance Corporation). PSV aG specializes in the re-insurance of employers' unfunded, unsubsidized pension promises²⁹, and since 2001, in the re-insurance of pension funds. Since pension funds are considered to carry less risk than unfunded pension promises do, the insurance premium for pension funds is one-fifth of the premium of unfunded products. As a consequence of this rule, pension fund costs are directly affected by the success or failure of unfunded pension provision! These are higher than the costs of Pensionskassen or direct insurances³⁰, and, according to industry experts, have been very volatile since the onset of the financial crisis.

²⁹ These are the employers' pension promises (Direktzusage), and support funds (Unterstützungskasse), not promoted by the pension reform of 2001, and not mentioned by this paper earlier.

³⁰ Direct insurances have to be insured by the PSV aG instead of Protektor AG in very rare cases. Such a case occurs if the employer pledges them.

Moreover, the lack of sophisticated differentiation according to the riskiness of insured policies is considered as debatable (Hundt, 2010).

Finally, besides the two risk protection layers, product choice has another, technical but important consequence. As described above, employees are entitled to salary sacrifice schemes by law. Should the employer not offer any, the relevant legislations state explicitly, employees can demand a direct insurance (BetrAVG (2001) §1a (1)). However, in contrast to Pensionskasse and pension fund, which received the highest level of state subsidy from 2002, direct insurance – quite surprisingly – was not considered eligible for such. *Direct insurance has been subsidized to the same extent as Pensionskassen and Pensionsfonds from the beginning of 2005 only.* In the period from the beginning of 2002 until the end of 2004, all employees working for a company without Pensionskasse or pension fund had the right for a product with limited state subsidies³¹. This implies two things: first, that employer support had been a necessity for employees to achieve higher state subsidies. Second, this rule probably strongly affected the popularity of direct insurance. Despite the product's administrative simplicity, employees probably preferred the fully subsidized products as opposed to the partly subsidized direct insurance.

6.3.2 Risk Dimension II: Sharing

Product choice defines the scope of the risk, but does not provide details on how investment returns and losses are split between the employee and other stakeholders. The law (BetrAVG, 2001) defines two options for this, and - unless the employer

³¹ Contributions to direct insurance were taxed at a flat rate of 20%, which is a smaller than the tax-free treatment of the other two pension vehicles.

imposes limitations - the choice between them is usually made by the employee. The first option is referred to as the (contributions oriented) defined benefit (German DB) (*beitragsorientierte Leistungszusage*). This option guarantees a positive, non-zero return on contributions. The maximum permitted return is defined by the Supervisory Authority; the external provider may offer that or any lower positive return. Due to the low capital market interest rates, the Authority has revised the permitted maximum over time. As a result, pension savings contracts signed by employees in 2002 offered a return of 3.25 percent, while the ones signed in 2008 offered 2.25 percent only.

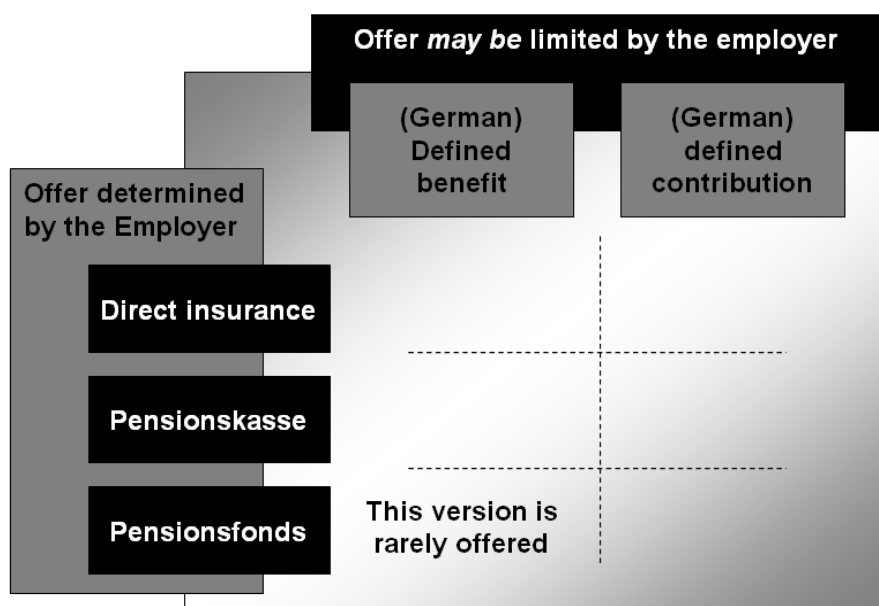
The second possible option for risk sharing is called the ‘defined contribution with guaranteed minimal benefits’ (German DC) (*Beitragszusage mit Mindestleistung*). Here, the nominal value of the contributions³² must be guaranteed at the beginning of the retirement. As a result, the main difference between DB and DC in Germany is not identical to that between traditional DB and traditional DC. In the traditional case, the difference is whether the employee or the employer bears the pension investments’ losses or gains. Moreover, traditional DB pension schemes are famous for the extent of their underfunding (Langley, 2004). In Germany, both DB and DC products have funding ratios above hundred percent. Moreover, the returns of a German DC plan are always non-negative, as opposed to the possible losses of the traditional DC plans. In short: the only difference between German DB and German DC is the division of capital gains (Beckstette and Zwiesler 2004). The employee receives all gains in case of a German DC, while he or she receives a guaranteed return in case of a German DB. To put it differently, the employee can ‘buy’ a bet on capital gains by selecting a German DC plan at the (opportunity-) cost of the German DB plan’s guaranteed rate of return.

³² More specifically, the value of accrued pension contributions and subsidies less the cost of biometrical risk insurance (including survivors’ and disability insurance).

The financial impact of this decision is a lot smaller than it would be in the case of a traditional DB-DC choice. The system thus offers an option of individualised returns (German DC), but not risks.

To summarize this section, the two choices, the product choice (direct insurance, Pensionskasse and pension fund) and the choice between German DB and German DC, are distributed between the employer and the employee (Figure 6.3). The first decision, product choice, is made by the employer. In many cases, it offers more than one type of products, and leaves the final product selection up to its employees. Accordingly, the employer may offer one, two or three types of products to its employees. The second decision, between German DB and German DC, may be constrained by the employer. Based on interviews with experts, however, it is mostly the employee who makes the final decision.

Figure 6.3. Distribution of decisions between the stakeholders



Source: own analysis

As an addition to the previously mentioned relationships, there is an interaction between product types and DB-DC choice. Since pension funds allow the most liberal investment policies and may realize the highest returns, there is little point in running a DB pension fund. Pension funds on the market are therefore almost exclusively German DC types; there is hardly any DB-type pension fund on the market. To summarize: pension fund is the most ‘risky’ product both for the employee, since employees may lose returns on their investments, and for the employer, since its insurance costs may change in a volatile manner. This product is followed by Pensionskasse and direct insurance respectively, albeit the difference between the last two is minor both for employers and employees. Moreover, the administration burden on the employer is smaller in the case of direct insurance. Finally, the fact that direct insurance became eligible for the subsidies in 2005 only has to be underscored. On the German DB-DC dimension the employer is not really affected, therefore the difference between the two is only felt by the employee.

6.4 Data, Hypotheses and Methodology

6.4.1 Data

This analysis relies on a unique proprietary dataset provided by an important German occupational pension distributor. The main profile of this company is to provide tax- and Riemer-subsidized occupational pensions in several dominant industries of the German economy, with an estimated market share of ten percent at the end of 2009. The data stretch from the beginning of 2002 till the end of 2009. This period comprises remarkably different financial circumstances, including the recovery from the dotcom bubble of 2001, the buoyant times on the global stock markets between 2003 and 2006, and the financial crisis of 2008-2009. This offers a unique opportunity to look at the

determinants of the two risk-related decisions (of Figure 6.3) and its change over time. Moreover, since the data captures actual choice outcomes at the very moment of the decision making, it offers a unique opportunity to see actual choices as opposed to self-reported preferences.

The dataset reflects the two stages of the sales process. The first stage is to sell the product to the employer, as it has the right to select the external pension provider. The data covers 12 634 employers; all joined the pension scheme during the period between 2002 and 2009. There is information about the year of employer enrolment and the selected pension product(s) (direct insurance, Pensionskasse and pension fund). When there is more than one option offered to the employee, these are all considered³³. The analysis is conducted on all active employers as opposed to the new employers joining the scheme in a given year. In a more formal way, the stock of active employers is used instead of the flow of new employers. The reason for this is that many employers recorded by the data constantly enrolled new employees over the years.

The second step of the sales process is selling the pension product to the employee. 276 123 anonymous individual contracts are analysed in this paper, starting a pension savings plan in the same period as the employer contracts. The data captures the underwritten pension product and the employees' enrolment date. There is information on the source of financing (if it is employer sponsored only, or there is employee financing, mixed financing is involved in the latter), the savings amount, gender and date of birth. Furthermore, the choice of German DB or German DC is also included. Each individual contract is linked to a particular employer.

³³ The date of offering the additional product type(s) is also available; accordingly, if a 'one-product' employer selects another product, it becomes a 'two-product' employer.

6.4.2 Hypotheses and Methodology

Following the logic of the sales process, hypotheses are formulated on the employers first, followed by hypotheses on the employees. The literature provides some ideas on the employers. Employer-characteristics, industry and size determine whether occupational pensions are on offer at all (Dummann, 2008). Moreover, particularly small- and medium sized companies prefer to keep the volume of pension-related tasks as low as possible, including decisions and administration (Berner, 2008: 411). It is therefore an interesting question whether there is a relationship between employer size and the number of pension products on offer. However, since the data used by this paper does not contain the total number of employees at an employer, a proxy will be used for employer size: the total number of employee contracts at an employer. Therefore, Hypothesis 6.1 is formulated: the higher number of employee contracts belong to an employer, the higher number of pension products are on offer.

Second, since product *offer* is determined by the employer, and product *choice* by the employee, ‘offer’ is expected to reflect the employers’ risk attitude, and ‘choice’ the employees’. Returning to the previous argument of Berner (2008: 411) stating that employers want to limit the burden of the pension issue, it is assumed that the more risky pension fund, with volatile and changing insurance costs, is less often offered than the other two products. Moreover, since direct insurance had not been subsidized between 2002 and 2004, it is argued that its share started to grow after 2005 only (Hypothesis 6.2 with two statements on pension offer).

Finally, the last employer-related hypothesis is on the employers’ choice on DB-DC. As Clark and Monk (2007) argue in the case of UK and US employers, there has been a gradual shift from DB to DC. Moreover, Berner (2008: 407) also mentions the

‘development in the direction of defined contributions’. However, as it has been shown in the previous section, German DB and DC products do not carry the characteristics of their Anglo-Saxon counterparts, and the choice between them carries decisively less significance. As a result, this paper expects that employers do not limit the uptake of DB or DC products (Hypothesis 6.3).

On individual level, both the general literature on risk aversion and specific analyses on Germany propose that age, gender and the amount of savings correlate with risk attitude and therefore product choice. Employees approaching retirement and women are less willing to take risks, regardless whether its reasons have behavioural roots (Clark et. al, 2009) or an explanation of a risk-optimisation in a life-cycle (Laibson 1998, Dohmen et. al, 2005). Moreover, as Barasinska et. al. (2008) argue that risk aversion and household asset diversification may correlate. They state that worse-off individuals tend to accumulate assets in liquid asset classes, regardless of risk attitude. By contrast, those who can afford to invest in several asset classes, diversify according to their risk attitude. Based on this theory, it can be formulated that those who can afford saving higher amounts with the help of one single illiquid asset class are assumed to be risk seekers. To summarize: older employees are expected to be more risk averse (Hypothesis 6.4), women are expected to avoid risk more than men (Hypothesis 6.5), and higher savings amounts are assumed to correlate with riskier choices (Hypothesis 6.6). (The expressions ‘safe’ and ‘risky’ follow the terminology described in the summary of the previous section, meaning that they both apply to the product dimension and to the DB-DC dimension.)

Finally, the observable behaviour in case of employee- or mixed-financed occupational pension plans is expected to be different from the solely employer-financed plans. Employees otherwise not enrolling in a pension scheme may receive ‘free’ employer financed plans. Such plans may consequently be treated differently from pensions where the employee actively pays from his or her salary into the savings account. Therefore, without formulating an explicit hypothesis, employer sponsored plans are expected to be different from employee (or mixed) financed plans in terms of risk appetite.

The remaining part of the paper tests these hypotheses in two sections, first over the product dimension, then over the DB-DC choice. Both sections start with a descriptive review of the data and continue with a regression analysis. The methods of binomial and multinomial regression analyses are applied, since the paper analyses discrete outcomes of certain decisions with numerical variables such as age or savings amount, and with categorical variables such as gender or source of financing. The values this paper shows at the explanatory variables are the odds ratios, meaning the odds of an outcome compared to another outcome if the explanatory variable changes *ceteris paribus*. Categorical variables were recoded as dummies: odds ratios represent the odds of an outcome compared to the base case in case the categorical variable changes from its base alternative (coded as zero) to the other alternative (coded as ones). The odds ratios are centred on the value one, meaning that a value greater than one expresses an increase of odds of outcome in case the explanatory variable increases compared to the baseline alternative. A value of one corresponds to an explanatory variable which does not affect the dependent variable; and a negative value means a decrease in the odds of the alternative outcome respectively. The variables age at enrolment and annual savings amount were standardised in order to adjust their different scaling and make their odds

ratios comparable. Dummy variables were not standardised as this would make their interpretation meaningless. Furthermore, since the data contains a great number of observations, odds ratios are expected to show high levels significance. These must be interpreted carefully.

6.5 Analysis of Risk Dimension I: Scope of the Risk

6.5.1 Employers' Choice

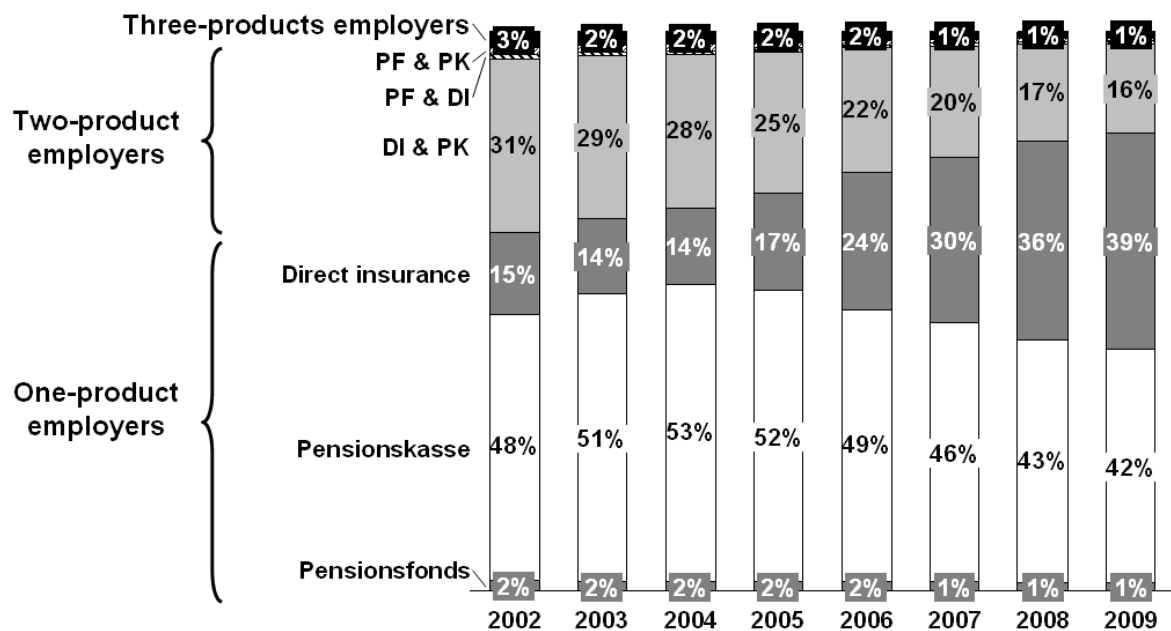
The data provides information on over twelve thousand employers, including large corporations with several thousand employee contracts as well as employers with few individual contracts. The comparison of employers according to the number of products offered (Table 6.1) confirms Hypothesis 6.1: on average, one-product employers have 14 contracts; two-product employers 57 and three product employers 149. The confidence intervals for these averages do not overlap in the case of one-product and three-product employers. Moreover, the median number of employee-contracts at an employer also emphasizes this difference. Therefore, Hypothesis 6.1 can be confirmed: the more products an employer offers, the higher number of individual contracts it has on average. Since companies are unlikely to deliver significantly more individual contracts than the total number of employees, companies with high number of contracts are large companies. As a consequence, once the analysis controls the product offer, it implicitly controls the number of individual contracts and for the size of the employer. By contrast, size does not imply the product offer, since an employer with only one contract at a pension provider may be served by other pension providers too.

Table 6.1. Distribution of employers and individual employee contract numbers

Product(s) offered by the employer	Relative share of employers	Average number of individual contracts	Upper limit of average 99% confidence	Lower limit of average 99% confidence	Median of individual contracts
Pensionskasse	41.6%	17	20	15	2
Direct insurance	38.9%	9	11	8	2
Pension fund	1.4%	17	36	-2	1
Pensionskasse and direct insurance	16.0%	57	65	49	20
Pensionskasse and pension fund	0.6%	52	78	26	16
Pension fund and direct insurance	0.5%	75	137	13	13
All three products	1.1%	149	201	96	53

The distribution of employers according to the number of products offered changed between 2002 and 2009 (Figure 6.4). Only three percent of them offered all three products in 2002, and this figure dropped to one percent by 2009. Approximately 33 percent of the employers offered two products to its employees, which figure decreased to 17 percent in 2009. The majority of employers were ‘one-product’ employers: they represented two-thirds of the total in 2002 and increased gradually to 82% in 2009. All these mean that three-product employers were more likely to enrol in the early years of the period. Employers joining later increasingly opt for one product only. Looking at the number of employees at the employers: 50 percent of the individual contracts were signed by employees of one-product employers in 2002, and this figure remained stable over time. Three-product employers yielded between six and eleven percent of all individual policies. This confirms Hypothesis 6.1 again, and implies that large companies enrolled earlier, followed by small and medium sized enterprises later.

Figure 6.4. Employers according to the number and type of products on offer



Note: the figure contains cumulative figures. Once an employer joins, it stays in the data in the remaining years. However, employers may change category if they alter the structure of their offer.

One-product employers show a very different picture from two-product employers in terms of product types on offer. 74 percent of one-product employers offered Pensionskasse in 2002, while 23 percent had direct insurance. Over time, Pensionskasse remained the dominant product with 51 percent in 2009, but the share of direct insurance grew gradually to 47 percent. Pension fund was available to three percent of all one-product employers, and this figure remained stable over the period. Two-product employers' dominating offer was the combination of direct insurance and Pensionskasse with around 93 percent of all two-product companies from 2002 to 2009. The other two combinations, pension fund with either direct insurance or Pensionskasse reached seven per cent during the period. This means that pension fund is available only at a fraction of all employers, dropping from 7 percent in 2002 to four percent in 2009!

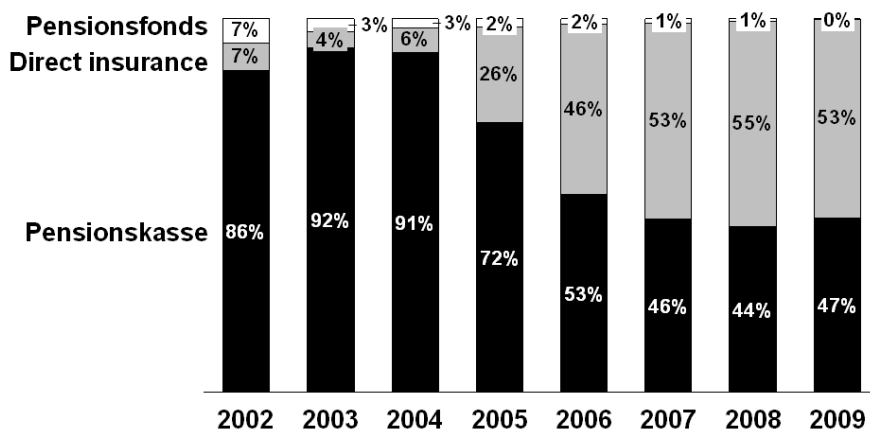
Moreover, Figure 6.4 depicts a significant growth in employers with direct insurance. A great part of this growth came from one-product employers, confirming the expectation

that small companies are more likely to choose this product. These statements altogether confirm Hypothesis 6.2, saying that Pensionsfonds is avoided by most of the employers, and that direct insurance started to dominate after 2005 only.

6.5.2 Employees' Product Choice

The number of employees enrolling follows an approximately uniform distribution over the period of 2002-2009. On employee level, the most common product of one-product employers was Pensionskasse in the first years, and it was gradually crowded out by direct insurance from 2005 onwards (Figure 6.5). Pension fund was the least popular product, with a relative frequency of around one per cent. One-product employers and their employees will be used as the reference group to the groups of employees at two- and three-product employers to see if there is a difference between 'perfect-choice', 'partial-choice' and 'no-choice' employee groups.

Figure 6.5. Employee contracts at employers with one product on offer

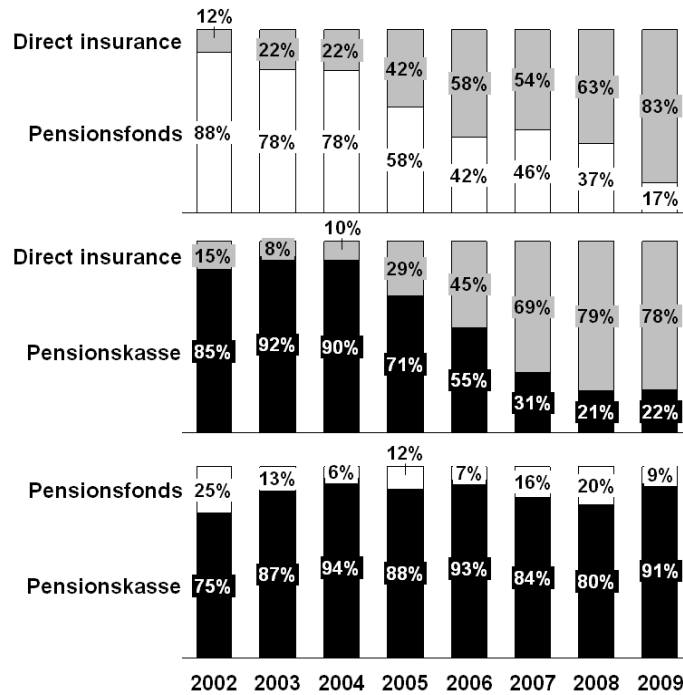


Note: figure contains non-cumulative values. Each column contains the new employee contracts of a given year

Employees of two-product companies may enjoy some level of freedom in product choice (Figure 6.6). The paper distinguishes between the employees according to the

products available. Thus, there are three separate two-product groups: Pensionskasse and direct insurance (PK&DI), Pensionskasse and pension fund (PK&PF), and finally direct insurance and pension fund (DI&PF).

Figure 6.6. Employee contracts at employers with two products on offer



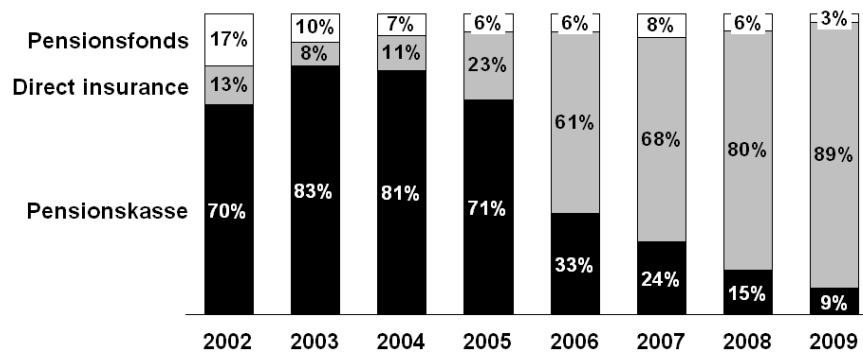
Note: figure contains non-cumulative values. Each column contains the new employee contracts of a given year

The dominant product was Pensionskasse in 2002, regardless of the second product type. Pensionskasse was often referred to as the ‘the royal option for occupational pensions’ (“Königsweg der bAV”). This picture dramatically changed over time: in the case of PK&DI employers, direct insurance took the lead (and acquired the title of the ‘royal option’). Pension fund was more common among the employees of two-product employers than it was in the case of one-product employers. Surprisingly, when pension fund was offered with direct insurance, it reached around eighty per cent in popularity until 2005. Even after the change in the tax treatment of direct insurance in 2005, pension fund preserved an astonishing share of around 40 percent. Pension fund’s

combination with Pensionskasse (PK&PF group) delivered a share of around twenty percent to the pension fund, albeit with deviations of around ten percentage points over time.

Employees may have perfect choice at employers that offer all three products (Figure 6.7). Surprisingly again, pension fund was more popular product in this category than in the whole data, implying that individuals do choose pension fund when they can. Its share started from seventeen percent of all new contracts, and dropped to six percent in 2008 and three in 2009. As expected, direct insurance crowded out Pensionskasse gradually, growing from thirteen percent in 2002 to 89 percent by 2009.

Figure 6.7. Employee contracts at employers with three products on offer



Note: figure contains non-cumulative values. Each column contains the new employee contracts of a given year

6.6 Product Choice: Regression Analysis

Five separate regressions were prepared on each of the employee groups. These include three binary logistic regressions on the PF&PK, DI&PK and DI&PF groups and two multinomial logistic regressions on the employees of ‘three-product’ employers and another on the ‘one-product’ (reference) group. Although the regressions are not directly comparable, the findings show remarkable differences among the regression fits, as well as among the strengths of association (measures of pseudo-R², Tables 6.2

and 6.3). Employee groups smaller in terms of number of individual contracts tend to deliver worse fits. These also comprise small number of employers (PF&PK and DI&PF contain 70 and 60 employers respectively), albeit with relatively high contract numbers per employer. The small number of employers may cause an ‘employer-bias’ which may falsify the results of a regression. The other three groups deliver better regression results: the DI&PK group, the ‘one-product’ group and the ‘three product’ group contain sufficiently great number of employers to rectify employer bias and thus all deliver a pseudo R² over 30 percent.

Table 6.2. Results of the binomial logistic regression on the product choice

	Group ‘PF&PK’	Group ‘DI&PK’	Group ‘DI&PF’
N	3,611	107,441	4,372
Measures of association: Nagelkerke R Square	11 %	43 %	28 %
	Odds ratio (exp(B))		
Baseline choice:	pension fund	direct insurance	Direct insurance
Odds of choosing:	<i>Pensionskasse</i>	<i>Pensionskasse</i>	Pension fund
Gender (reference: female)	0.6***	1.1***	1.3***
Age at enrolment (standardised value)	1.6***	1.0**	0.6***
Yearly savings amount (standardised value)	0.9**	1.1***	1.0
Employer sponsored (=1, employee or mixed financing = 0)	1.6***	0.7***	2.4***
Year of 2002 (baseline)			
Year of 2003	2.3***	1.9***	0.5***
Year of 2004	5.5***	1.5***	0.4***
Year of 2005	2.4***	0.4***	0.2***
Year of 2006	4.0***	0.2***	0.1***
Year of 2007	1.7***	0.1***	0.1***
Year of 2008	1.5**	0.1***	0.0***
Year of 2009	4.8***	0.1***	0.0***
Constant	4.5***	5.3***	7.7***

***Significant at 1%, ** Significant at 5%, * Significant at 10%

Since gender, age and savings amount hardly affect the decision between direct insurance and Pensionskasse (‘one-product’, the ‘three-product’ and the ‘PK&DI’ groups), we interpret this as no or little perceived difference in their risk content. On the

other hand, these groups show strong time effects, with a clear shift in preference over the years. This shift coincides with the tax-treatment change of direct insurance: odds of choosing direct insurance increased gradually compared to 2002. This effect is spread over the years, and it reached its full strength in 2007 only. That is to say, the reaction to legislative changes was not a sudden move from 2005, it was delayed in time. The 'three-product' group changed swifter than the 'one product' group, meaning that employees changed immediately after the new legislation where they had the 'perfect choice' situation, but they had to wait their employer's reaction in cases where the employer did not have direct insurance on offer.

The determinants of pension fund choice deliver interesting results. Gender is always a decisive and significant variable, being male increases the chance of pension fund choice, confirming Hypothesis 6.5. Moreover, both the savings amount and age have strong impacts (with the exception of the PF&PK group for savings amount). The younger an employee is, or the higher is the amount an employee is willing to contribute to the pension plan, the more likely he or she will choose pension fund. This is in line with Hypothesis 6.4. stating the relationship between age and risk attitude, and with Hypothesis 6.6, that high-savers are more likely to be risk seekers. Furthermore, employer sponsored plans are less likely to be pension funds.

Table 6.3. Results of the multinomial logistic regression on product choice

	Group of 'one-product' employees	Group of 'three product' employees
N	135,745	21,211
Measures of association: Nagelkerke R Square	32%	44%
Odds ratio (exp(B))		
Baseline: choice of <i>Pensionskasse</i>		
Odds of choosing direct insurance compared to <i>Pensionskasse</i>		
Gender (female = 0, male = 1)	0.96**	1.1*
Age at enrolment (standardised values)	1.1***	1.0
Savings amount (standardised values)	1.4***	1.0
Employer sponsored (=1, employee or mixed financing = 0)	1.9***	0.5***
Year of 2002 (baseline)		
Year of 2003	0.6***	0.5***
Year of 2004	0.9***	0.8***
Year of 2005	4.2***	1.8***
Year of 2006	10.5***	9.9***
Year of 2007	13.8***	17.5***
Year of 2008	14.9***	32.7***
Year of 2009	14.2***	62.2***
Odds of choosing pension fund compared to direct insurance		
Gender (female = 0, male = 1)	1.5***	1.4***
Age at enrolment (standardised values)	0.9**	0.6***
Savings amount (standardised values)	0.8***	1.2***
Employer sponsored (=1, employee or mixed financing = 0)	0.04***	0.2***
Year of 2002 (baseline)		
Year of 2003	0.5***	0.4***
Year of 2004	0.4***	0.4***
Year of 2005	0.4***	0.3***
Year of 2006	0.4***	0.7***
Year of 2007	0.4***	1.4***
Year of 2008	0.2***	1.5***
Year of 2009	0.1***	1.2

***Significant at 1%

** Significant at 5%

* Significant at 10%

The odds ratios of the time dummy variables, which are to be compared to the year 2002, show a mixed picture over all groups. Pension fund choice had the highest probability in the year of 2002 in all groups over the years. This dropped significantly in the following years, to be followed by a slight comeback in 2007 and 2008, and a drop

in 2009, in the case of the ‘three-product’ group and the PF&PK group. It remained low at the DI&PF and the ‘one-product’ groups. Here, pension fund lost on popularity from 2003 onwards, not from the taxation-change of 2005.

The outcome of the regressions ‘one-product’ and ‘three-product’ groups on pension fund choice is surprising in many respects. Almost all odds ratios have the same direction (meaning a value greater or smaller than one) and similar strength. This means that the employees ‘one-product’ groups share characteristics with the ‘three-product’, probably perfect choice group. There may be several explanations to this. First, employees of the ‘one-product’ group may be ex-employees of ‘three-product’ employers. In this case, they had the perfect choice at the time of the enrolment and then they changed jobs and brought their pension contracts with them. The ‘one-product’ group usually has employers of a smaller number of individual contracts – fifty percent are either one- or two-contract companies – which affirms this argument. There may be a second possible explanation. Employers’ choice may be directly determined by the employees’ wish in case of small employers. Here, the employee may have the freedom and the power to persuade his or her employer to choose a specific product.

Time variables incorporate an important message of the regressions. The high odds of choosing pension funds in 2002 mean there was a group of individuals who enrolled immediately after the pension reform, and were willing to invest in the newly introduced pension fund savings vehicle. These individuals were after the possibly higher returns of pension funds, and therefore expressed a preference for the individualisation of returns. Although employees enrolling in the following years were less likely to prefer pension funds, particularly during the years of the financial crisis,

the reason for its low popularity is rather the limited offer than the employees' risk-avoidance. This means that employers cause the seemingly high risk aversion by not offering pension funds.

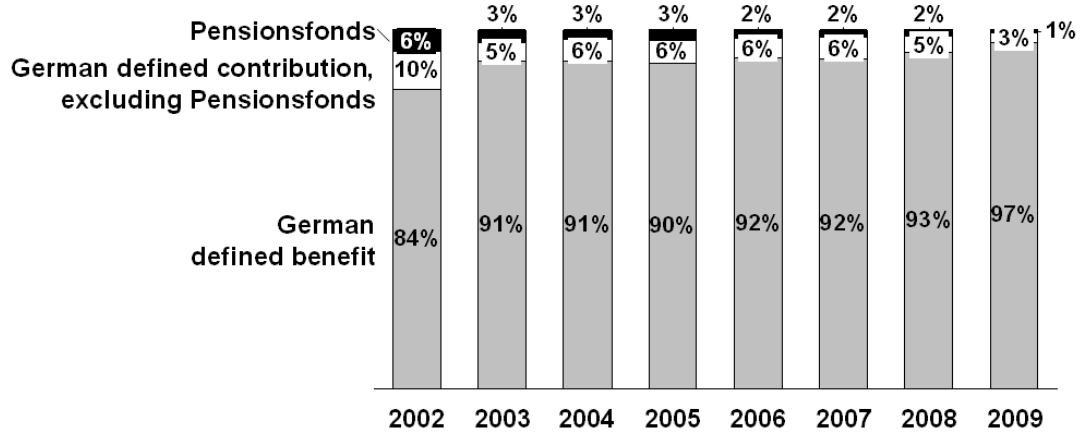
6.7 Analysis of Risk Dimension II: Risk Sharing

6.7.1 Choice Distribution

The second risk dimension is about the distribution of risks and returns between the employer and the employee. The choice between German defined benefit and the German defined contribution has interactions with the product choice: while pension funds are exclusively German DC, pension funds represented lower than one-third of all German DC plans in the dataset (31 percent). The aim of this section is therefore to investigate to what extent the variables explaining the product choice can account for the decision between DB and German DC. Similarly to the previous section, the DB-DC-related employer hypothesis (Hypothesis 6.3), and the employee-related hypotheses (6.4-6.6) are tested.

The frequency of German DC products shows a decrease over time (Figure 6.8). While 16 percent of all products were German DC in 2002 (including Pensionsfonds, which are always German DC), this figure dropped to eight percent in 2003. In 2008, the ratio dropped to seven, and in 2009 to four percent. This altogether means that German DC plans have been reasonably unpopular from 2003 onwards, which was strengthened by the financial crisis. This means that Hypothesis 6.3, saying that the choice of German DB products is not limited by the employers is confirmed.

Figure 6.8. Distribution of German defined benefit and German defined contribution plans



Note: Direct insurance and Pensionskasse can be both German DB and German DC. Pensionfonds are always German defined contributions.

Employer-sponsored plans have rarely been German DC (around one percent), and this figure increased only slightly, to four percent in 2008, and dropped again in 2009. Policies with employee contributions moved in the other direction: the initial popularity of German DC products (17 percent) dropped to four percent. The proportion of German DC out of the total for each age-group shows a steady decline, meaning that the young are more willing to choose German DC plans than the older plan-participants. Furthermore, as the simple data distribution shows, men are more willing to select German DC than DB. Men were more risk-tolerant up until 2007, when they lost their willingness to invest in German DC. The difference between the two genders narrowed to one percent in 2008-2009.

6.7.2 Determinants of Risk Distribution

One logistic regression is prepared on the employee data, excluding the cases where employees have no choice between German DB and German DC. This means in other words the exclusion of employees working at ‘one-product’ employers offering pension funds, since all pension funds are German DC. Furthermore, the analysis refrains from

taking the actual product choice (from the previous section) into consideration, since this would control for the individual's risk attitude to some extent. Nevertheless, the product *offer* (groups of employees according to the type of products offered) is controlled for in form of simple dummy variables. This has one advantage: comparison of the effects is directly possible. The price for this is the assumption of constant effects on the dependent variable: product groups do not allow changes in the coefficients of other independent variables.

Furthermore, the decision between German DB and German DC is explained by the same variables as earlier: gender, age, savings amount, source of sponsoring and the year dummies. Age and savings amount were standardised again, so that their odds ratios are not affected by their scale and are comparable. The regression is significant and so are the odds ratios (Table 6.4). In contrast to this, the measure of association is low (14.3 percent). The directions of the odds ratios are nevertheless encouraging. They reinforce the expectations that the male and the young are more risk-prone (Hypothesis 6.4 and 6.5); and highlight the peculiarity of the year 2002. It is interesting again that higher savings amount can be associated with the riskier type (confirming Hypothesis 6.6), and that it is the employer sponsored plans that are less likely to be defined contribution plans. Furthermore, the effects of the employee groups confirm the importance of the environment created by the product offers.

Table 6.4. Logistic regression explaining choice between German DB and German DC

	All employees in the data
N	269,440 ³⁴
Measures of association: Nagelkerke R Square	14.3%
Baseline choice	Defined benefit
Odds of choosing	German defined contribution
Gender (female = 0, male = 1)	1.4***
Age at enrolment (standardised values)	0.7***
Savings amount (standardised values)	1.1***
Employer sponsored (=1, employee or mixed financing = 0)	0.5***
Year of 2002 (baseline)	
Year of 2003	0.5***
Year of 2004	0.4***
Year of 2005	0.5***
Year of 2006	0.4***
Year of 2007	0.5***
Year of 2008	0.3***
Year of 2009	0.1***
PK&PF&DI (baseline)	
'One-product' group	0.4***
DI&PF	6.5***
PK&DI	0.3***
PK&PF	1.8***

Note: Pension funds were removed from this model.

The explanatory variables bear fundamental importance in relation to the risk attitude in both risk-related dimensions. Nevertheless, two remarks have to be kept in mind when interpreting the results. Firstly, although the German DB-German DC is more often an employee than an employer decision (61 percent of the employers have employees with both German DB and German DC plans), the analysis did not control for employer characteristics and management decisions explicitly. Second, the sales process defines an order for the two risk-related decisions. This means that the German DB-German DC choice is reached *after* the product choice. From the employee's point of view, individuals have the opportunity to refine the first risk-related decision by the second. The result of the refinement is a diverse decision making process.

³⁴ Pensionsfonds excluded.

6.8 Implications and Conclusions

The purpose of this paper has been to understand the development of occupational pensions and the extent of risk individualisation as a consequence of the German pension reform of 2001. Furthermore, its aim has been to see the actual determinants of the individuals' preference structures in relation to the financial risks of occupational pensions. This has been done in order to make a contribution to the literature of risk, behavioural finance, and to the general literature of decision making under risk and uncertainty. The paradigm shift in the German pension provision of 2001 that introduced new, funded pillars to supplement old age pension offered a unique opportunity to investigate this matter in a country that once had a strong public and a reasonable, employer-centric occupational pension system.

Employers' role and risk exposure in occupational pensions have been experiencing profound changes in the last fifty years in Germany. Occupational pensions had been at the employers' discretion since the post-war years. Corporations could offer, alter or withdraw pension promises until 1974. This was altered in 1974, when employees' rights to occupational pensions were strengthened. From that year onwards, employers had to guarantee the value of their pension promises. In 2001, employer-financed occupational pensions were complemented with employees' ability to save from their own wages. Since employers still have to guarantee the value of occupational pensions, strong risk-protection mechanisms were developed to offset the worsening of the employers' risk position.

Today, German occupational pensions share the peculiarity of guaranteed non-negative rate of return for the employee. This is achieved with the help of external, tightly

regulated pension provider companies, reinforced with re-insurance. Therefore, both the employers' and employees' decision-making take place in a relatively safe environment. These occupational pensions are by definition insurance products, vehicles for collective risk sharing. The difference between the products is in fact the difference between risk communities defined by the pension provider, the re-insurer and the employer. Moreover, the decision between German defined benefit and German defined contribution products has less importance than in Anglo-Saxon countries. In Germany, it only affects the division of returns, instead of the division of losses between the stakeholders. In general, pension provision takes place in a safe, low-risk environment.

The analysis found that the risk involved in the decisions about the two dimensions of the funded German occupational pensions (risk scope and risk distribution) are made on similar fundamentals but are perceived by the participants to a different extent. Based on the analysis, it is likely that large companies have a different attitude to pension-related risks than small employers. Large companies seem to have enrolled in the first years after the pension reform, and have been more likely to offer a wide range of occupational products to their employees. They seem to be using occupational pensions to make non-wage employee benefits more attractive on the labour market. Although this statement is likely to be true; it is however, yet to be confirmed by further research. By contrast, small and medium sized employers often avoid risk linked to occupational pensions, and often avoid offering more than one occupational product. It seems that they are rather interested in having a simple solution in terms of occupational pensions with possibly little administrative burden.

On employee level, choices are strongly affected by variables which traditionally correlate with risk attitude (gender, age, savings amount). However, employees are willing to choose riskier products if employers' decision permits. It seems that the share of pension funds would be higher if employers would offer them. Moreover, the analysis identified two outlier individual-groups. One of them is the group of people who were the first to join in 2002, working at large employers, willing to invest high amounts in pension products and willing to choose individualised returns in exchange for a higher extent of investment risk. The second outlier-group of employees comprises individuals with no employee contribution: risk is hardly tolerated in the case of purely employer-financed plans. It is to be investigated further why this is the case, and if this phenomenon is a result of employee or of employer decision.

As it turns out, product choice reflects the employees' the risk attitude to a certain extent, but it is rather influenced by the employer's decision. The contrast between pension funds low popularity and the higher popularity of the German DC products shows that individuals do not reject riskier products. It seems, employers are more risk-averse than employees, even in the German, low-risk pension environment. It is subject to further investigations which employers consider the limited risk-option as a responsible choice for their own and their employees' financial safety; and which employers limit the possibilities as a consequence of other, so far unidentified factors. In any case, the current paper has shown that collective risk sharing is the preferred alternative, and participants are hardly ready to take risks. The retreat of the German state from pension provision is replaced by private insurance, and not by risk individualisation.

7 Conclusion

7.1 Introduction

The objective of this thesis has been to describe the German pension reform and its consequences from the viewpoint of an economic geographer. More specifically, two research questions were formulated at the beginning of this book: how political actors, corporations and individuals have been adapting their pension decision-making under the pressure of the ageing German society; and what the local explanations are for geographically varying political, corporate and individual decision-making related to occupational pensions. The answers to these questions are not straightforward. Therefore, research questions of four distinct papers and an expert-based survey were dedicated to shed light on its different aspects. Accordingly, the mission of this chapter is to distil the essence from these chapters into a single piece of script.

Three sections follow. The next section is a brief restatement of the evidence yielded by the research papers, which answer the specific research questions formulated in the introduction. This section also contains implications for the German policy-makers. The third section develops answers to the general research questions, and summarizes the contribution to literature in economic geography. Finally, the last section formulates hypotheses based on the thesis, which are worth to be taken into consideration when planning the further research projects.

7.2 Specific Research Questions and Policy Recommendations

7.2.1 Specific Research Question 1

What has been the role of trade unions and employer associations in transforming the German pension system?

Social partners have been significant players in determining the structure of the German pension system. The strength and nature of their impact during the reform has been determined by the degree of their internal agreements in issues related to the pension system. In the 1990s, this agreement failed on two levels: trade unions and employer associations could not agree on their common interests; and trade unions of different industries and employer associations of different industries were internally divided. This has meant that their response to the SPD/green coalition government's proposal in the summer of 1999 – replacing the cut of public pension benefits with the help of a mandatory supplementary system organized by the social partners – did not trigger a consistent response.

The chemical industry acted in line with the government's proposal, and introduced pension provision to all of their members. By contrast, the metal- and electric industry was fiercely against it. Their protests had two effects. First, they were reinforced by the government's opposition and the 'public uproar', consequently they were sufficiently strong to block the introduction of a mandatory supplementary system, and force the government to replace it with a voluntary one. Second, since social partners did not support the government, they did not gain exclusivity in the provision of supplementary pensions either. Ironically, despite the failed cooperation, social partners' attained a few privileges in the provision of the supplementary pension vehicles on a voluntary market. Most importantly, they can set standards in the market with the help of collective

bargaining: prescribe employer contributions and take part in the market competition with their jointly governed non-profit pension providers. This means in other words that social partners have both non-market instruments at their disposal to reduce social risks, and they can compete on the market as participants too. As a result, neither traditional market players nor social partners can afford not to have a sharp-eyed view on developments related to retirement income.

7.2.2 Specific Research Question 2

What are the spatial and temporal patterns of the new pension product adoptions?

The answer to this second research question counts as a measure of success for the supplementary (occupational) pension market by identifying the social groups and geographical locations participating. The paper decomposes the adoption process, and looks at the geography of employer-level and then employee-level adoptions. The study found a clear metropolitan/non-metropolitan, a South-North, and a weaker West-East gap in employers' timing. These tendencies may be results of several local forces in play. First, metropolitan companies are usually situated *closer* to the financial industry. The paper argues – with the help of literature – that metropolitan companies usually adopt financial innovations earlier than their non-metropolitan counterparts, even after controlling for size and for industry affiliation. Second, the North-South difference may be a result of industrial characteristics. For instance, integrated automotive clusters are more common in Germany's Southern regions, showing that supply chains and industrial clusters can catalyse the spread of financial innovations than isolated companies. However, this general argument has to be handled with care: actor motivations are probably different in the case car manufacturers of foreign origins and

foreign origin, such as Ford and General Motors, than in the case of companies with German origin such as VW, Daimler-Benz or BMW. For instance, they have remarkably different sourcing strategies (Kädtler and Sperling, 2002), which may imply different attitude towards financial sourcing too. Third, the rather North-East/South-West gap in the timing of employer enrolments highlights the fact again that employer-level decisions deserve further investigation and require local explanations. One thing is clear: the expectation about a unanimous East-West difference was not fulfilled.

Less surprisingly, the geography of employees' enrolments followed a similar pattern as their employers. There was a substantial difference however: the collective agreement of 2006 prescribing employer contributions to the pension savings accounts of all employees triggered a wave of new enrolments. This provided pension savings to individuals probably not saving for the retirement – mainly young employees. However, employees of employers already offering pension products received the employer-financed products significantly earlier, which shows that employers early enrolment in occupational pensions plays a pivotal role in delivering pension products to their employees. Moreover, there has been substantial geographical difference according to employees' gender: on average, women from the East enrolled four month earlier than Eastern men did, while there has not been significant difference in the West (even after controlling for age). This means that the transformation of the German pension system did not uniformly reach everyone: geographical forces alter the flow of financialization.

7.2.3 Specific Research Question 3

How do relationships between savings decisions and individual traits vary over geographies?

Enrolment is a necessary but insufficient condition for replacing public pensions in the retirement, since employees are free to determine the annual amount of retirement savings. As a result, mapping the geography of pension savings complements the previous investigation related to enrolment, and tells local stories about decision contexts. Chapter 5 found patterns predicted by the economic literature: the young save less than older employees, men put aside more than women do; employees saving from their own salaries tend to save more annually than employees do with purely employer-financed plans. However, these general (or global, as referred to in Chapter 5) observations show geographical variations, as expected by the economic geographic literature. For instance, savings are on average higher in metropolitan areas than outside them; and women in the East save on average similar amounts annually as men do, even after controlling for age.

These findings alter the view on the landscape of retirement savings found by the chapter about enrolments. It seems that pension decision making varies according to the nature of the decision, since enrolment and savings are affected by different factors. In some cases, the geographical factors influencing the two decisions augment each other, as for instance it is the case with women in the East: they tend to enrol earlier and save more than women in the West. In other cases however, the different local explanations of enrolment and saving decisions level out: employees in the North-West enrolled in the observation period on average later, but save the highest amounts in German comparison. This has the consequence that isolated investigations of annual savings

amounts or enrolment decisions may leave important aspects of retirement savings undiscovered.

7.2.4 Specific Research Question 4

What is the extent of risk individualisation in the German occupational pensions?

Although individuals are free to take up an occupational pension plan at any time, and they can save as little as they wish, the extent of financial risk their pension vehicles carry is relatively low. Two risk-related choices have to be made: one about the pension vehicle and another about the division of financial returns between the employee and the pension provider. The first choice, about pension vehicle, carries no downside risks for the employees: the external providers of all three occupational vehicles, direct insurances, Pensionskassen and pension funds, guarantee at least the nominal value of accrued annual savings and subsidies. This is enforced with the help of conservative investment policies and a chain of re-insurances, whereby the difference from the employees' point of view is minor. Should the external provider and its re-insurer fail, the employer is the pension-financier of last resort. In exchange, the employer may determine the type and the number of pension vehicle(s) the employee is eligible for. Employees consequently may have one, two or three vehicles at their disposal for saving. The investigation shows that employers limit employees' access to the slightly more risky pension funds, most probably because pension funds' re-insurance costs are high and volatile. The main driver for the volatility seems to be pension funds' unsophisticated re-insurance mechanism (Hundt, 2010).

The second risk-related choice is about the investments' financial returns. Two options are possible to divide them between the employer's external provider and the employee: employee may accept a low but guaranteed positive return (and the rest is kept by the external provider), or he or she can have an uncertain but non-negative return (and the provider receives the management fee only). Employers hardly seem to intervene in this decision, confirming that their involvement in the first main decision, about pension vehicle, is not a result of general risk-aversion, but rather originates from their short-term aversion of uncontrolled costs. The decision environment for employees carries very low risk.

7.2.5 Policy Recommendations Based on Specific Findings

As it has been shown, social partners' involvement in the pension reform and in the provision of supplementary occupational pensions has to be judged based on experience from the pension market. The experience of the first few years show that their measures – enrolling individuals, engaging employers in pension financing and competing with profit-oriented pension providers directly – seem to be effective in reducing certain parts of market failures and social risks. The investigations imply that a bolder involvement from their side and efficient lobbying at the respective political bodies could reduce these problems further, while preserving the core of a market-based system. However, the thesis has shown that social risks still do arise. For instance, small employers seem to be little interested in offering occupational pensions; and employees of certain socio-economic groups, such as the young, may postpone enrolment decisions or save low amounts (Hurrelmann and Karch, 2010). Two proposals are discussed here explicitly to combat these challenges: automatic enrolment with the possibility of opting-out; and automatism in determining individual savings-rates for the employees.

First, according to a possible scenario to introduce an automatic enrolment mechanism with the possibility to opt-out, all employers would offer occupational pensions on a mandatory basis. The system remains in its core voluntary: individuals joining an employer would be enrolled automatically unless they explicitly reject it or exploit all state subsidies with the help of another pension plan already. The possible advantages of this measure are obvious: it would reduce differences in the timing of adoption, eliminate procrastination-effects and offer an explicit decision-situation for all employees about pensions (Choi et. al., 2004). Moreover, it would re-draw the geography of adoptions: the 'local bias' of the financial industry would be reduced, since employers would have a contact to the financial sector automatically. It would possibly not eliminate all of the local bias, since employees still remain exposed to local decision-contexts about enrolment, which may be influenced by the distance to the financial industry.

Introducing automatic enrolment also has its hurdles. Since employers underwrite the final value of pensions (they are legally liable for pension provision), an employee-financed automatic enrolment would increase their risk exposure. As the Appendix of this thesis shows, employers are mostly concerned about this: the subordinated guarantee they need to provide is one of the main reasons for their opposition. This argument is particularly interesting in the light of policy developments in the US and the UK (Clark and Urwin, 2010, NEST, 2010), where pension plans with auto-enrolment are increasingly the norm rather than an exception. Obviously, such Anglo-Saxon plans are almost exclusively defined contribution plans, without return guarantees to their beneficiaries. This is a major difference compared to the German case. Unless the German pension system is adjusted, auto-enrolment would leave the

burden of subordinated guarantee and administration upon the employers without offsetting it. Should political will introduce automatic enrolment *and* offset employers' worsening risk-situation, it would still not be a revolutionary development. Rather, it would be a part of the gradual transformation shown by Chapter 6 (recall Figure 6.1).

Automatic enrolment would have another implication for the employer-employee relationship in Germany. It would eliminate the human resources nature of occupational pensions, and replace the local employee-employer relation with a centrally introduced state-citizen relation. Based on the survey in the Appendix, occupational pensions are currently seen as tools employers use to reward loyal and competent employees. Auto-enrolment would alter this, since it would reduce the value of employer-sponsored plans in the first instance: everyone would be enrolled. Admittedly, sponsoring pension plans would remain at the employer's disposal, however, this would have less significance than sponsoring *and* enrolling employees. Therefore, auto-enrolment would eliminate the significance of local employer-decisions in the issue of occupational pensions, and replace it with governmental decisions.

The second proposed measure is about introducing automatism in setting the level of annual contributions. This consists of two parts: offering a default savings rate to the employees at the moment of enrolment, and adjusting yearly contributions in line with individuals' wages. First, default savings rates could eliminate mini-pension plans with tiny annual savings. One could argue that saving little is better than saving nothing, the way the system works today. Still, a default savings rate as a percentage of earnings from which the employee would be able to deviate could frame the decision-problem, and direct individuals towards higher annual contributions. Default savings rates have

been implemented in auto enrolment environment at several employers in the US, and resulted in significantly higher participation and savings (Madrian and Shea, 2001) It has been shown that default savings rates without auto enrolment can increase overall savings too (Beshears et. al., 2009).

In Germany, once someone has made his or her savings decision, annual savings usually remain unchanged. In fact, the majority of the pension contracts contain a fixed annual nominal savings value, and only a fraction of the plans adjusts annual contributions dynamically. Moreover, most of today's plans with 'dynamical' adjustments are dynamic in a limited way: they follow a previously agreed, fixed yearly increase determined in percentages (Bankenverband, 2010). This is rather strange, since volatile changes in price- and wage-inflation are possible in the long run. Therefore, annual contributions to a pension plan should follow individuals' wages (Thaler and Benartzi, 2004). Obviously, this would cause a problem for the government, since state subsidies would increase along with pension savings. However, as long as the government cares about replacement rates in retirement, it is important to link annual savings with wages directly.

7.3 General Research Questions and the Contribution to Literature

Having shown the specific answers to the German pension system, this section discusses the contribution to the general literature, following the logic of the general research questions.

7.3.1 General Research Question 1

What is the relevance of agreements between governments and social partners on welfare state institutions?

Chapter 3 has studied how the theory of social pacts can be applied to the study of pension structures and their transformation. The example of the German social partners has shown that the theory provides a good analytical framework, but it has to be complemented with other literature (Starke, 2006), and has to be adjusted in terms of timeframe and focus. Although the ‘social pact’ in its classical sense failed in 1999, social partners could attain minor concessions. When these concessions are judged in the light of experience provided by the supplementary pension market since the pension reform, social partners can be considered as successful, and the ‘failed’ adjective of the social pact loses its relevance. This means on a higher level of abstraction that the context of their attainments has altered: the low-growth German economy switched into rapid expansion, and the effects of demographic ageing became obvious. As a result, social partners’ financial ability to embrace ageing-related issues increased as the relevance of these issues grew. Therefore, their ‘minor’ attainments turned into important privileges. This observation has the implication for the literature of social pacts that they are good concepts for short-term analysis of interests, but should be followed-up in time when studying long term implications. Judging the outcome of a pension reform requires long-term perspective.

The application of the social pact theory with an extended time-focus could shed light on how sensitive pension systems are to minor changes in interest-constellations. It has therefore fulfilled its role and made its contribution to this thesis, and explained the roots of the voluntary supplementary pension system. However, the literature of social

pacts had to be complemented with general literature on pension systems, which helped to analyse the exact interest-situation of the stakeholders. It probably requires further political literature to understand why the mandatory-voluntary dimension became the most debated feature in the pension reform and not something else. Political debates may pick different issues, which stakeholders may consider important. Interdisciplinary approach remains a promising field for further research.

7.3.2 General Research Question 2

What is the role of geography in transmitting financial innovations?

This research question moves from political level to the level of corporations and individuals, and explains the reasons for their ‘local’ behaviour. It is however not only interesting because of the relevance the voluntary-mandatory debate gained in the German political discourse, but may also help to understand better the developments on retail financial issues such as the over-proportional spatial concentration of mortgages in certain US states, or the success of microfinance initiatives in certain developing countries. As this research has shown, geography, more specifically, the location of the customer is a significant factor in determining the timing of an adoption. It is probable that timing is partly a result of existing local relationships between intermediaries and customers, which accelerate the access to and the adoption of new products. Since metropolitan areas are geographical concentrations of individuals and organisations, they offer higher number of possibilities for interactions. This may also be the case with industrial clusters and supply chains organised around one large system-integrator company (large enterprises in a given supply chain in the possession of key resources).

Although it is tempting to link the topic of product adoptions with the role of context in financial decisions, Chapter 4 has shown the relationship between adoptions and the role of geography is special. It is true that contextual factors, discussed in Chapter 5 and in the next sub-section, play a significant role in decisions, including the adoption of financial innovations. However, the example of adoptions is a great example to show that local context and local explanations are not caused by random factors. Quite the contrary: context is socially and geographically constructed, therefore factors such as the distance-dependency of human relationships may create systematic contextual patterns.

7.3.3 General Research Question 3

What is the role of context in financial decision making?

Geographical context can be defined as the local circumstances of decision-making. Its technical appearance, whether it is created by ‘missing variables’ of a formal model or ‘intrinsic behavioural differences’ (Fotheringham, 1997), does not really matter. This means that context includes both individual-level circumstances which vary from geography to geography (for instance, regionally varying average income levels), and phenomena generated by the social nature of human existence (for example, religion), which also correlates with geography. These categories, individual variables and social behaviour, seem to be two extremes of a continuous spectrum. To take an example, income seems to be an individual-level variable. However, consumption and thus financial decisions are socially influenced, eliminating a part of the variable’s individual

nature³⁵. This research has pinpointed that the variable gender behaves like that: women in the East make on average different financial decisions from women in the West, possibly due to the different social contexts they live in. Therefore, relationships explaining savings decisions are context and location-dependent.

Another contribution about context is made by this part of the thesis: that the definition of context follows the definition of locality and is therefore scale-dependent. ‘Local’ behaviour can thus be defined in a given region, city or even block of flats. However, applying context makes sense only if two groups of observations are compared to each other or to some kind of reference point. Therefore, the right scale has to be selected based on the purpose, aim and scope of the research, and the nature of phenomena under investigation. There may be research projects where simple concepts are necessary, for instance when the economic convergence of the new German Länder is to be judged. However, as the answer provided to the previous research question has shown, grouping together the economically different Eastern regions may lead to incorrect conclusions (as a spatial version of the Simpson-paradox, see Simpson, 1951). A sufficiently sophisticated scale-definition can reflect spatial tendencies and the continuous nature of space.

³⁵ This argumentation may be true the other way around too: tacit behavioural practices are part of the locally generated context, but some individuals may be more susceptible to the uptake of tacit practices than others.

7.3.4 General Research Question 4

How did the structure and role of occupational pensions transform in the German society over the last century?

The first three general research questions discussed the reasons for political, corporate and employee-level behaviour. In a certain sense, this last question recaps this actor-triangle and locates it in the long-term history of occupational pensions. This question therefore completes the investigation about pension reform and the transition of the German welfare state.

The growing social importance of occupational pensions over the last century was not accompanied by employer's diminishing role in pension provision. Quite the contrary: in exchange for the drop in employers' autonomy in relation to occupational pensions, institutional risk-sharing support has gradually been expanded, while their liability for pensions has not been eliminated. In a certain sense, this reflects how much the process of financialisation depends on existing past institutional practices and shared values: German employers still represent an important role in society, but existing risk-sharing practices have been reinterpreted (Hall and Thelen, 2009) or reconfigured (Dixon and Sorsa, 2009) to new circumstances. Some parts of this transition were organised by the market, as the example of voluntary re-insurance has shown; but the majority of the change was initiated by policy-makers.

The way employers treat occupational pensions raises a certain degree of doubt whether they actually use it as a strategic tool by their human resources policies, and whether they will be able to continue doing so in the future. It seems that currently most small- and medium corporations do not treat occupational pensions as attractive non-wage

benefits, therefore they do the minimum: provide only one, simple pension vehicle (direct insurance) to their employees. They only seem to execute a social duty prescribed by the government. Large corporations on the other hand, seem to prepare a wide pension offer to their employees, taking into consideration their different needs and several alternatives. Identifying the reasons for this difference seems to be fertile ground for further research, and possibly explore how economies of scale related to occupational pensions appear in Germany.

7.4 Directions for Further Research

This thesis has explored aspects of the German pension reform, using the approach of an economic geographer. However, by answering the research questions, it inspired the author to propose directions for further research. The possible extensions for this thesis follow the political-corporate-individual framework proposed by the introduction and the literature review. To start with the political level, the thesis has investigated the effect of the German social partnership on the occupational pension market, and has explicitly addressed some of its limits. One of their main challenges lies in the constant adjustment of their measures to the continuously changing social contexts (as formulated by Dixon, 2009). It therefore deserves further investigation how the governance of social partnership has been changing in the course of the financialisation process, including the increased need to take changing contexts into consideration.

More specifically, this proposed research question can be related to the rising importance of their Tariffonds. Tariffonds now require that their trustees feel comfortable with making financial decisions on a regular basis. Admittedly, the institutional setup of the German Tariffonds should be interpreted in a multidimensional

manner (Dixon and Sorsa, 2009), but it is the ‘logic of finance’ they have to work with on a daily basis. However, investment decisions can be made according to several norms and guidelines, as the behaviour of ‘activist investor’ of the US California Public Employees’ Retirement System (Hebb and Wójcik, 2005) differs from the variety of other investment practices. Therefore, it should be explored further along which lines German pension plans can make investment decisions, what limitations their current governance practice carries, and what kind of investor behaviour this results in. The answers to these questions can then be compared to issues seen in other countries. The convergence/divergence debate is not over.

Moving on to the employers, this research can be expanded by looking at employers’ attitude towards occupational pensions in more detail. As it has been argued above, there seems to be a difference in employers’ attitude towards occupational pensions according to their size. This provides inspiration to look at the literature describing the economies of scale in pension management. In case of pension funds, higher number of participants leads to lower operating costs per participant (Bikker and De Dreu, 2009). The evidence shown in the thesis and this last observation directs attention towards the following research question: how German employers’ formal occupational pension policy and actual execution depend on the number employees. Obviously, this research should not be limited to size as an exclusive factor explaining institutional forms. Solid foundations for this research can be distilled from relational explanations, emphasizing the local embeddedness of corporate decisions (Yeung, 2003, Bathelt and Glückler, 2003).

Moreover, beyond relationships, the institutional form of German employers' pension provision is expected to show similarities with Anglo-Saxon corporations in terms of past legacies (Clark and Wrigley, 1995) and present implicit contracts (Monk, 2008). Unsubsidized direct pension promises (*Direktzusage*) and support funds (*Unterstützungskasse*) are such past legacies. These vehicles are different in many ways from the ones discussed by this thesis in terms of risk management, funding ratios and corporate and personal taxation. They are still very significant in Germany: there were 4.6 million employees with such plans at the beginning of 2008. It is even more interesting that the number of such plans grew from the end of 2001 to the end of 2007 by 19 percent (Alterssicherungsbericht 2008: 132)! This phenomenon may be explained with the employers' accounting practices which 'optimize' asset positions, debt-to-equity ratios and further indicators. Moreover, these pension vehicles can be used for the benefit of high-earner employees close to retirement to save taxes (Stadler and Lobe, 2010), they may therefore be the preferred choice of high-level management. This means that past legacies and corporate coalitions have a central role at employers' decisions about occupational pensions, which is worth exploring in detail.

There are various possibilities to extend this research on individual level. The thesis has investigated a narrow share of individual financial decision making related to occupational pensions. However, there is a wide range of financial decisions. Knowing that individual pension-related behaviour shows spatial patterns, and that 'rationality' should always be interpreted in its respective context (Strauss, 2008), it looks possible that each financial decision has its own context. For instance, although a high share of Americans has some kind of retirement account or plan (79 percent), half of the population does not have a 'rainy day fund'. Moreover, many of the people with or

without pension savings often make un-informed financial decisions when spending money, and often rely on disadvantageous borrowing methods, such as cash withdrawal using credit cards or taking costly consumer credits (Lusardi, 2010). This shows that paternalistic measures related to retirement can be effective, but leaves other fields of individual finances aside. A common element related financial decisions is financial literacy, which has a high prevalence in certain socio-economic groups and geographies (Leyshon et. al., 1998). Therefore, it is a promising field to explore the financial capability of German individuals in a structured way, including the interaction-structure among the factors of financial literacy, the possession and usage of savings and loans, and personal contexts. It has already been shown that individuals with the lowest levels of financial literacy seem to save with the help of the private Riester-schemes rather than with the help of any other pension vehicle for the retirement, if they save (Bucher-Koenen, 2009). The methodological challenge of this exercise is to identify local circumstances in case of each decision: consumption, retirement and other savings.

Despite the number of possible extensions this thesis, it has hopefully provided satisfactory contribution to the convergence/divergence debate, to the literature of occupational pensions and of human behaviour. However, if its only achievement would be that readers pay more attention to geography, it was worth the effort.

8 Appendix: German Occupational Pensions – Results of an Expert-based Survey of Respondent Opinions

This survey, the content of the Appendix, has been authored by Csaba Burger, Gordon L. Clark, and Dorothee Franzen, Jörg Heldmann and Heribert Karch. The first author of this report is the author of the thesis; however, this appendix is a mere reproduction of the original report, and it does not represent a central part of this thesis. The purpose of the reproduction is to highlight and illustrate the arguments brought forward by the thesis without addressing theoretical considerations, and as such, should not be considered during the assessment process.

8.1 Introduction

A significant effect of increasing life-expectancy and falling fertility-rates has been the shrinking numbers of the working population compared to people in retirement. As a result, the sustainability of the generous welfare systems of several countries in Continental Europe has become a very contentious issue (see De Deken et al. 2006). Changes and reforms to these systems have been implemented, including, in many cases, cuts in the publicly provided, pay-as-you-go pensions of coming retirement generations (Clark 2003). Given the discounting of expected public pensions, additional complementary sources of retirement income have been sought (especially for future generations).

Several countries have enhanced their funded occupational pension systems as one way of supplementing public pension benefits. Sweden, as an example amongst many, reformed its occupational framework in 2007, introducing employer-financed defined contribution (DC) schemes with mandatory employee enrolment (the system was introduced in 1999). While occupational pensions are typically thought of as an option

or as a panacea on the Continent, recognition of their shortcomings as experienced by Anglo-American countries is widely recognised. Conventional defined benefit (DB) occupational schemes are now believed to be serious threats to the financial viability of major UK and US companies (Clark and Monk 2007a). Occupational DC pensions, which transfer the financial risks to the individual, have also been criticised for their low participation rates and one-size-fits-all solutions (Clark and Urwin 2010).

Public pension retrenchments underscore another aspect of occupational pensions (apparent in *both* the DB and DC environments). On one hand, the nature and value of occupational pensions have been issues decided by employers, which have used such pensions as instruments for managing human resources (HR). Occupational pension promises and payments have been provided in the past to distinguish the employer in the labour market, and to reward selected employees.

On the other hand, occupational pensions have filled a gap in public pension provision, in some countries being identified as a 'social duty' (as in Germany; see Wiedemann 1991). It remains to be seen if the recent discounting of the public pension levels and the retreat of the state from pension provisioning changes the balance between employer-discretion and employer duty. Most welfare reforms have encouraged employers to provide access to occupational pensions in order to complement public pensions. The legal details of doing so have varied across Europe: by the introduction of mandatory enrolment in occupational pensions as in Sweden, and by the employees' entitlement to salary sacrifice pension schemes as in Germany.

This paper assesses expert opinion as to the relationship between employers and occupational pensions in Germany. It is a preliminary assessment, being the basis of a larger research project conducted among German employers and employees. This current report is based on experts' responses to the main issues related to the status and execution of occupational pension provision. The study is a result of cooperation between MetallRente, a multi-employer pension fund of the metal- and electrical industry in Germany, and the University of Oxford. It has been prepared with the collaboration of the *Arbeitsgemeinschaft für betriebliche Altersversorgung* (aba), the German Association for the Occupational Pensions, which kindly permitted implementation of the survey during its conference in May 2010.

8.2 Survey Design

Conducting an expert-based survey has several advantages. Experts at the German aba-conference possess detailed knowledge and have oversight of the German occupational pensions industry. By surveying their attitudes, we can identify where there is agreement and strong disagreement.

Such surveys have proven to be useful in earlier studies conducted in the US (Clark and Monk 2008) and in Japan (Monk 2009). Altogether 122 completed questionnaires were collected at, or after, the aba-conference. Being a limited number of responses, our analysis is not intended to provide a fully representative understanding of stakeholders' views as regards the provision of occupational pension provision. Rather, the results are indicative about beliefs and the areas for future research. There remain, of course, possible differences between opinions or beliefs and actions. In this research we were

not able to make an explicit link between beliefs and actions. That would require a larger research project.

In the survey, we were able to distinguish respondents according to their principal occupation. Respondents from the survey were divided into four main categories: 47 consultants (39 percent), 33 employer-representatives (27 percent), 20 experts from insurance companies (16 percent) and 22 individuals not fitting any of the previous categories (18 percent). This last group of respondents comprised the following individuals: 5 actuaries without further specification; 5 individuals belonging to the investment-industry, 2 Pensionskasse-representatives, 5 unspecified and one person from each of the following categories: trade union, employer association, pension fund, academic, and IT-expert.

In sum, 43 questions were asked of individual attitudes or opinions about statements which were related to occupational pensions (see the Appendix I). Our respondents had to specify their level of agreement or disagreement on a scale of 5 options, distributing responses between strongly agree and strongly disagree (Likert 1932).

The advantage of using a 5-scale measure is that it provides scope for decisive, strong opinions (strongly agree as opposed to agree), while preserving the option to neither agree or disagree. In order to support the interpretation of the results, in certain places the 5 answer-options were simplified into three categories (agree-disagree-neither agree nor disagree). In related research on risk-taking and pension saving behaviour, we have shown that this 5-point scale is an effective way of discriminating between respondents'

opinions even if there may be occasions when expressed opinions may collapse to just 3 possible options (see Clark et al. 2010).

This paper was conceived according to the structure of the survey, past research, and our statistical analysis. As a result, this paper is slightly different from the organisation of the original questionnaire.

Two main sections follow. The first section clarifies the expected roles and responsibilities of companies in occupational pensions. Enrolment mechanisms are discussed in this section, recognising the importance of this issue in Germany (Leinert 2004, Ruprecht 2004, Berner 2008) and elsewhere (AGI 2009, AARP 2010). The second section considers the implementation of occupational pension policy in the context of Germany's economic, legislative and regulatory environment.

8.3 Employer Pension Policy

The German corporation has been seen as serving the interests of both capital and labour, going beyond the cash-flow based employer-worker relationship described by Ippolito (1985) important for the UK and the US. In Germany, the dual nature of the corporation's mission has translated into occupational pension policy over the last hundred years.

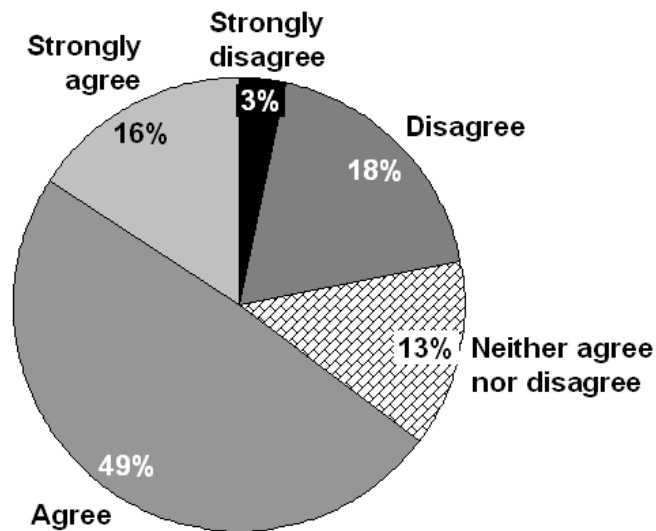
The idea of social care (*Fürsorge*) and earned but deferred income (*Dienstbezug*) have been represented in labour court rulings about employer financed occupational pensions over the past century (Wiedemann 1991). At the same time, the pension reform of 2001 has been characterised as the retreat of the state from pension provision and the

individualisation of old-age finances (Schmähl 2003). Employers are required by law to provide salary sacrifice pension schemes, if employees demand such a benefit (Börsch-Supan and Wilke 2006). Whereas employers may have provided occupational pensions as part of their human resource management strategies, in some cases employers have been *obliged* to fulfil a social duty by offering salary sacrifice pension schemes. This change has not only limited the employers' autonomy, but has also imposed an additional risk burden on them (see Chapter 6).

Occupational pensions are an element of employer compensation policy. Before asking respondents about whether pensions are instruments for employer human resource management, we asked questions about the role of compensation policy. We found that 65 percent of the surveyed respondents agreed or strongly agreed with the statement that one of the roles of compensation policy is to support corporate strategy. A further 22 percent disagreed or strongly disagreed with this statement, while 13 percent remained undecided about this issue (Figure 8.1).

The statement whether the strategic goal of compensation policy is improvement of employers' appeal in the labour market was viewed in a similar manner (68 percent agreed or strongly agreed). More decisively, corporate compensation policy was believed to be about the fulfilment of collective agreements (85 percent agreed or strongly agreed) and the retention of qualified employees (77 percent agreed or strongly agreed respectively). We read the numbers in the sense that a broad majority of employers shares the 'classic' view on pensions as a mean to improve labour market attractiveness.

Figure 8.1. Opinions on ‘The role of the compensation policy is to support corporate strategy’



Our respondents indicated that occupational pensions are a very important instrument of compensation policy (88 percent agreed or strongly agreed). Accordingly, opinions were similar to the responses about the general compensation policy: respondents indicated that occupational pensions are designed to improve labour market attractiveness (77 percent) and to retain qualified employees (80 percent agreed or strongly agreed).

Ageing society and occupational pensions. Furthermore, there was almost total agreement about the importance of having good occupational pension provision with the advent of ageing societies - 98 percent of the respondents either agreed or strongly agreed with the statement as most respondents believed that public pensions and occupational pensions together will provide a sufficient old-age income. In a consistent manner, 95 percent of our respondents agreed or strongly agreed that ‘it is important that more employees take up the occupational pension offer’.

Disagreement about employers' responsibility for employees' retirement income.

Given the importance of occupational pensions, 77 percent of respondents and 81 percent of employers considered it to be the employers' social duty to provide such benefits to employees. However, most respondents were convinced that salary-sacrifice pension schemes, as opposed to employer sponsored pension schemes, are offered only because employers are legally required to do so (69 percent), notwithstanding the fact that there may be a multitude of reasons for offering deferred compensation schemes. We suggest that many respondents see employers as a partial replacement for public pension policy, rewarding loyal and productive employees with occupational pensions in a manner consistent with human resource management. There is, however, dispute over the extent of employers' responsibility relative to employees' responsibility.

Our survey identified three models of responsibility-sharing, considering the relationship between individuals' responsibility for old-age income and employers' social duty (Table 8.1). (1) Old-age income is entirely an individual responsibility; (2) the employee and his or her employer share the responsibility; and (3) employers (and possibly other institutions) exonerate the individual from responsibility.

A minority, 13 percent of respondents, belonged to the first group. They did not believe that it was the employers' social duty to provide pensions and agreed that individuals have to take care of their old-age income on their own.

By contrast, the second group comprised the majority of respondents – 58 percent. They believed that while it is the individual's responsibility to take care of his or her retirement income, the employer should offer occupational pensions as part of their

social duty. About 18 percent of respondents belonged to the third group: they believed that it was the employers' social responsibility to provide pensions and would not impose any responsibility on individuals! By their account, old-age income is not an individual responsibility: employers have the social duty of taking care of the issue (with other institutions). A further 9 percent of respondents were undecided about one or both of the issues and 2 percent believed that old-age income is neither the employees nor employers responsibility.

Table 8.1. Opinion on pensions as social duty or as individual responsibility

		Everyone is responsible for his or her old-age finances individually		
		Disagree	n.a.	Agree
Providing pensions is the social duty of the employer	Disagree	2%	3%	13%
	n.a.	0%	0%	5%
	Agree	18%	1%	58%

Participation and enrolment. In contrast to the respondents' almost unanimous opinion that *'it is important that more employees take up the occupational pension offer'* (95 percent agreed or strongly agreed), there was significant dispute if about whether the strategic goal of German employers to maximise employee-participation in occupational pensions. While 44 percent of the respondents agreed or strongly agreed, 40 percent disagreed or strongly disagreed!

Respondents' views were sought about the statement *An automatic enrolment mechanism would make employers more engaged in occupational pension provision.* We were able to identify two groups of respondents in relation to their answers to this statement.

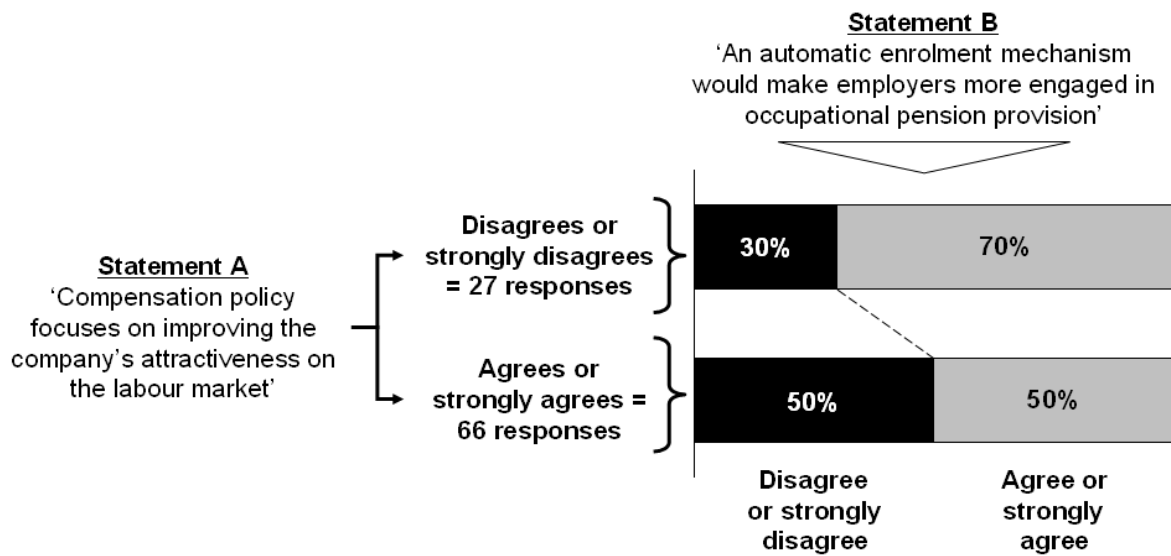
The first group contained those respondents who agreed that compensation policy should focus on ‘improving companies’ attractiveness in the labour market’, and that ‘the strategic goal of compensation policy is to support corporate strategy’: these respondents were more likely to disagree with the statement favouring automatic enrolment. The authors prefer to describe this group as ‘market oriented’ respondents.

By contrast, the second group of respondents was more likely to agree with the statement about automatic enrolment, and was also likely to reject the two statements above (employer attractiveness on the labour market and the strategic goal of compensation policy). This relationship was tested using a multinomial regression analysis, explaining the answer provided to the statement about automatic enrolment as dependent variable, using the statements about labour-market attractiveness and the strategic goal of compensation policy as explanatory variables. Although the regression was found significant at one percent, goodness-of-fit measures remained relatively low (with a McFadden pseudo-R-square of 10 percent).

The issue of automatic enrolment deserves closer scrutiny, given the relatively unconvincing strength of the regression described above. The statement ‘*compensation policy focuses on improving the company’s attractiveness on the labour market*’ (Statement A in Figure 8.2) illustrates the strength of the relationship. Altogether 100 respondents provided answers to Statement A. There were 66 respondents who agreed or strongly agreed with the statement. Of these 66 respondents 50 percent also agreed or strongly agreed with the statement *Automatic enrolment mechanism would make employers more engaged in occupational pension provision* (Statement B).

By contrast, 27 respondents disagreed or strongly disagreed with Statement A. Here, 70 percent of the 27 respondents agreed or strongly agreed with Statement B, on automatic enrolment. Although the difference between the 70 percent and 50 percent is meaningful, it is hardly decisive.

Figure 8.2. Relationship between compensation policy and automatic enrolment



Responses on automatic enrolment did not significantly vary according to the group or profession to which the respondents belonged. There are employers, insurers, consultants and experts in other positions in both camps, for and against automatic enrolment. Understanding stakeholders' motivations related to automatic enrolment deserves further investigation.

8.4 Implementation of Pension Policy

Insurance costs are an issue for employers. We also asked respondents' opinion about the hurdles to pension provisioning. According to Law of Occupational Pensions (BetrVAG, 2001), employers are required to bear the risk of pension provisioning. This

means that if the (external) pension provider and its (re-)insurer fail to provide the agreed pension, the employer must step in and do so (see Chapter 6). This rule also applies in the case of salary-sacrifice pensions, suggesting that the employer must provide an additional guarantee on employees' own savings.

Of the answers received, 65 percent of respondents agreed or strongly agreed with the statement that *employers' subordinated guarantee is a problem in pension provisioning*. Not surprisingly, employers were the most concerned about the issue: 76 percent of the employer-respondents agreed or strongly agreed with this statement compared to 63 percent of insurers. Furthermore, responses tended to move together with concerns related to the (mandatory) insurance costs that employers must pay to the Pension Insurance Fund, the PSV aG (Table 8.2).

We also found that 73 percent of the employer-respondents agreed or strongly agreed that the cost of the mandatory insurance is a barrier to pension provision, as opposed to 60 percent of the insurers. Insurance costs are not the only items which concerned respondents. The impact of pensions on corporate balance sheets was considered a problem by 45 percent of the respondents.

Table 8.2. Opinion on employers' subordinated guarantee and PSV aG

		I see the employers' subordinated guarantee as a problem in occupational pension provision		
		Disagree	n.a.	Agree
I see the cost of insurance paid to the Pension Insurance Fund (PSV aG) as a problem in occupational pension provision	Disagree	19%	0%	10%
	n.a.	3%	3%	7%
	Agree	9%	1%	48%

Another risk deemed to be of concern for pension provision was longevity risk: overall, 71 percent of respondents agreed or strongly that it was a significant risk to pension provisioning. Surprisingly, perhaps, while 93 percent of the employer-respondents agreed only 50 percent of the insurers did so.

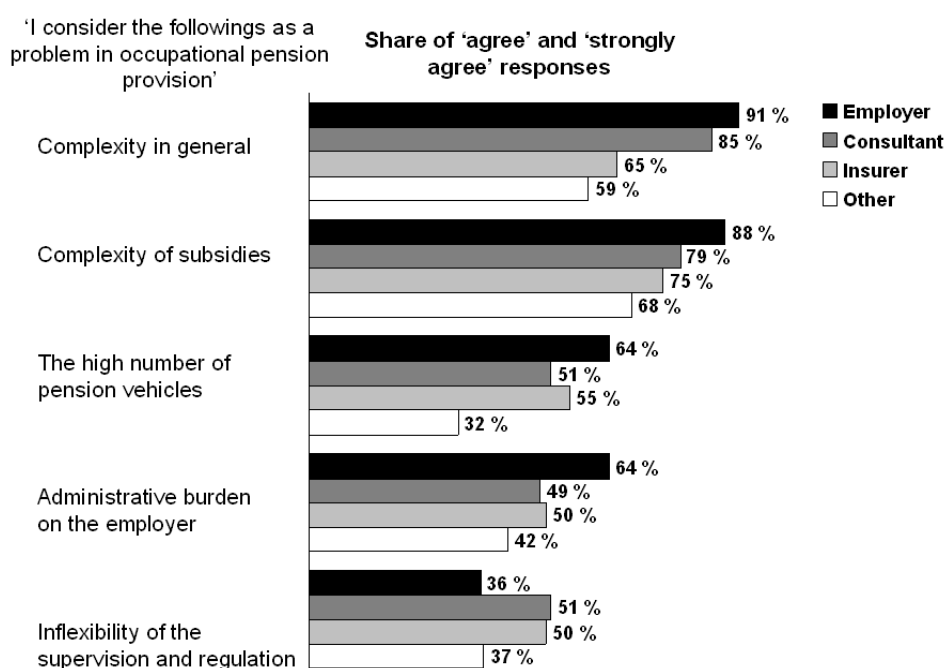
Financial performance of pension investments. In Anglo-Saxon countries, employers are very concerned about the possible effects of investment performance on the vitality of their sponsored pension plans (Clark and Monk 2007a, 2007b). In this survey, though, any resistance by employers for pension provision is less apparent in relation to the performance of capital markets: just 29 percent of respondents saw low returns as a problem for pension provision. A more significant but minority opinion was noted for stock market volatility: approximately 35 percent of respondents were concerned about this issue in relation to pension provision. These two results suggest that the main barriers related to employers underwriting occupational pensions are located elsewhere³⁶ (according to the majority of our respondents).

³⁶ In the survey, no distinction has been made which occupational pension vehicles are offered by the employers. By some measures, subordinated guarantee, costs of insolvency insurance and longevity risk provide more reason for concern in the case of direct promise- and balance sheet vehicles.

Complexity and regulatory environment. One of the barriers to pension provision identified by our respondents was the complexity of the pension system. This was recognised as an issue affecting the provision of occupational pensions by 81 percent of our respondents. Our attempt to identify which parts of the system were considered complex ‘too’ indicated that subsidy-complexity was an important hurdle (by 79 percent), while the number of pension vehicles was identified as an issue by 52 percent of our respondents.

Although responses to these questions move together to a large extent, the responses can be linked to the respondent groups (Figure 8.3). Employers agreed most often that complexity is a problem in the provision of occupational pensions, followed by consultants, insurers, and by members of other job-categories, in decreasing order. The only exception was on the inflexibility of supervision and regulation, where the order of the occupational groups was the other way around: it was considered as a problem by only 36 percent of the employers and by 50 percent of the insurers. Respondents who agreed or strongly agreed with the statement that the inflexibility of supervision and regulation was a problem, tended to agree or strongly agree that low returns and stock market volatility are a problem in the pension of occupational pensions.

Figure 8.3. Problems seen in occupational pension provision



8.5 Respondent Affiliation and Opinions

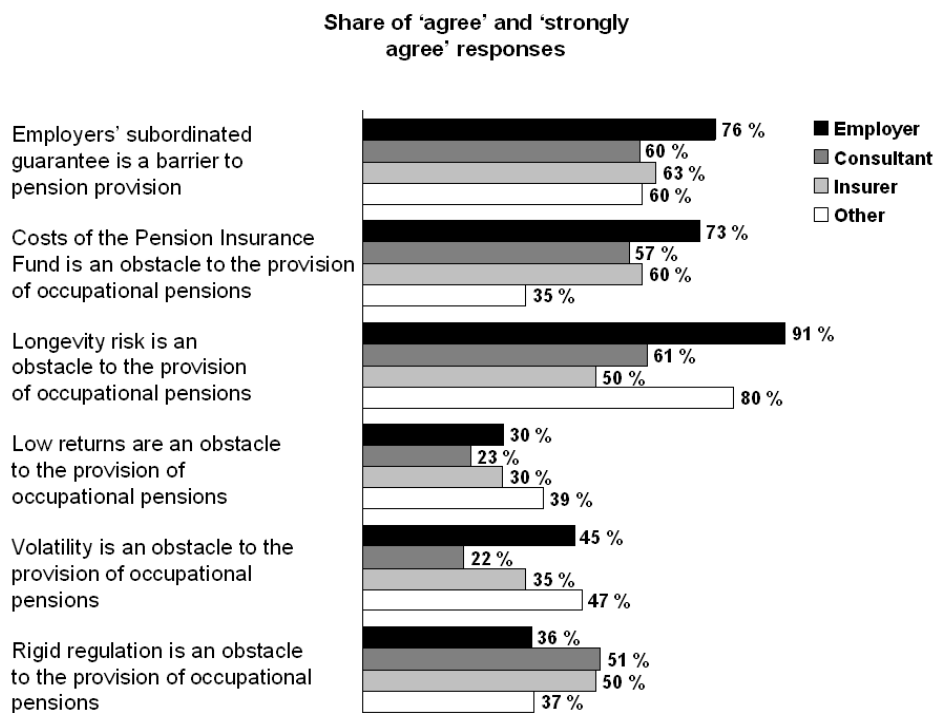
It was expected that our respondents' opinions would reflect the particular situations and problems of their affiliation group or professional associations. As noted above, the employers' position on risk illustrates this case.

Elsewhere we show that many employers are discouraged from offering *Pensionsfonds* because of the risks they must assume, or, it also may be a result of the high costs or the high volatility of insurance payable to the Pension Insurance Fund (PSV aG). However, employers that provide *Pensionsfonds* have realised, nonetheless, that this pension saving vehicle is quite popular amongst their employees (Chapter 6). Other research suggests that employer-sponsored *Pensionkassen* are subject to the burden of rigid regulation, and are prevented from realising sufficiently high returns on the invested assets (Franzen 2010: 33-34).

Accordingly, the questionnaire was designed to test whether attitudes to these risks indeed match the respondents' affiliation or groups, or whether there was a wider risk-perception amongst the stakeholders. The authors expected significant differences between employers and insurers. Consultants' opinions were expected to be situated closer to employers, reflecting their clients', while the results of the 'other' category were expected to be different albeit unknown.

Respondents' opinions vary by their affiliation. The results were in line with our expectations (see Figure 8.4). There were three statements that concerned employers the most: the employers' subordinated guarantee, the insurance costs payable to the Pension Insurance Fund and the longevity risk. Responses from other respondent groups agreed or strongly agreed with the 'obstacle' nature of these two issues for the provision of occupational pensions but to a lesser extent.

Figure 8.4. Respondents' affiliation and selected statements



There was a surprising difference in the respondents' opinions about longevity-risk. It was found that 91 percent of the employers agreed or strongly agreed that it is an obstacle to pension provision. By contrast, 63 percent for the remaining three groups agreed or strongly agreed that this is an obstacle to pension provision. Insurers were more relaxed about to this problem: 50 percent of the insurers believed that it would be an inhibitor. Pension regulation was seen as an obstacle by the 50 percent of insurers whereas only 36 percent of the employers believed regulation to be an obstacle.

8.6 Implications and Conclusions

This report has analysed the views of German experts on occupational pension policy design and its implementation in the current economic and regulatory environment. The basis for the study were the responses to a questionnaire circulated at the abaconference in May 2010, Bonn (Appendix I). The results highlight existing agreements and disagreements about the role of occupational pensions in employer compensation policy, and emphasize the need for a mutual understanding of the interests of employers, insurers, and other stakeholders.

Our respondents noted the dual character of occupational pensions. Pensions are instruments of corporate compensation policy, just as they are treated as employee entitlements provided by the employer on a social basis. Given the dual nature of occupational pensions, many respondents found it legitimate to offer pension-benefits according to their effects on employee-productivity and company loyalty in exchange for the costs and risks borne by the employer.

There was significant disagreement amongst our respondents over the responsibility employers should assume in promoting employee retirement welfare. The majority of our respondents believed that the employer should assume some but not all the responsibility for long-term saving. Most of respondents considered it legitimate to offer salary-sacrifice pension schemes, and to use employer-financed pension schemes to differentiate among preferred employees.

Despite the clear-cut financing options, the issue of automatic enrolment was subject to considerable disagreement. The disputed advantages and disadvantages of employee automatic enrolment in offered occupational pensions is an obvious candidate for future research. This issue is also subject to considerable debate and analysis in other countries (see Clark and Urwin 2010). For Germany, differences between respondents on this issue deserve to be more closely scrutinised.

Given the intersection between corporate competitiveness and old-age finances, there is an urgent need to identify ways of providing supplementary pensions to all employees, regardless of their status (whether they are covered by collective agreements). At this point, there appears to be basic disagreement between stakeholders over the role that employers should play in resolving problems of coverage and benefit value.

8.7 Appendix I: The Original Questionnaire with English

Translation

1. German employers' goal with compensation policy is to:

Die Vergütungspolitik deutscher Unternehmen verfolgt als strategische Ziele:

Possible answers:	
<ul style="list-style-type: none"> • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree 	<ul style="list-style-type: none"> • <i>Stimme voll und ganz zu</i> • <i>Stimme eher zu</i> • <i>Weiß nicht</i> • <i>Stimme eher nicht zu</i> • <i>Stimme gar nicht zu</i>
Statements:	
<ul style="list-style-type: none"> • Support of general corporate strategy • Reduce of labour cost • Incentify the workforce • Comply with collective agreements • Attract talent • Retain key employees 	<ul style="list-style-type: none"> • <i>Unterstützung der generellen Unternehmensstrategie</i> • <i>Senkung der Arbeitskosten</i> • <i>Motivation der Beschäftigten</i> • <i>Erfüllung der Tarifverträge</i> • <i>Stärkung der Attraktivität auf dem Arbeitsmarkt</i> • <i>Bindung qualifizierter Mitarbeiter</i>

2. I agree with the following statements:

Folgenden Aussagen stimme ich zu / stimme ich nicht zu:

Possible answers:	
<ul style="list-style-type: none"> • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree 	<ul style="list-style-type: none"> • <i>Stimme voll und ganz zu</i> • <i>Stimme eher zu</i> • <i>Weiß nicht</i> • <i>Stimme eher nicht zu</i> • <i>Stimme gar nicht zu</i>
Statements:	
<ul style="list-style-type: none"> • Occupational pension plans are an important HR tool • The provision of occupational pensions is the employers' social duty • Loyalty is to be rewarded • Occupational pensions are expensive • Occupational pensions are important prerequisites for the employees • Companies offer salary sacrifice plans because they are obliged to do so • It is important that the number of employees enrolling increases 	<ul style="list-style-type: none"> • <i>Betriebliche Altersversorgung ist ein wichtiges Instrument der Personalpolitik</i> • <i>BAV ist Ausdruck der sozialen Verpflichtung des Unternehmens ihren Mitarbeitern gegenüber</i> • <i>Loyalität und Betriebstreue soll man belohnen</i> • <i>BAV ist ein beträchtlicher Kostenfaktor für die Unternehmen</i> • <i>Die Betriebsrente ist für die Mitarbeiter eine wichtige Entgeltkomponente</i> • <i>Unternehmen haben ein Angebot zur Entgeltumwandlung, weil sie dazu verpflichtet sind</i> • <i>Es ist wichtig, dass mehr Mitarbeiter an den BAV-Angeboten teilnehmen</i>

3. Strategic goal of company pension policy is to:

Unternehmen verfolgen folgende Ziele mit der Ausgestaltung ihrer betrieblichen Altersversorgung:

<p>Possible answers:</p> <ul style="list-style-type: none"> • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree 	<ul style="list-style-type: none"> • <i>Stimme voll und ganz zu</i> • <i>Stimme eher zu</i> • <i>Weiß nicht</i> • <i>Stimme eher nicht zu</i> • <i>Stimme gar nicht zu</i>
<p>Statements:</p> <ul style="list-style-type: none"> • Comply with legal rules and collective agreements • Attract talent • Retain key employees • Reduce the cost of fluctuation • Facilitate early retirement • Maximise participation in pension offer • Improve relations with works council 	<ul style="list-style-type: none"> • <i>Einhaltung gesetzlicher und tarifvertraglicher Anforderungen</i> • <i>Stärkung der Attraktivität auf dem Arbeitsmarkt</i> • <i>Bindung qualifizierter Mitarbeiter</i> • <i>Senkung der Fluktuationskosten</i> • <i>Erleichterung von Frühpensionierungen</i> • <i>Teilnahme aller Mitarbeiter am bAV-Angebot</i> • <i>Verbesserung der Beziehungen zum Betriebsrat</i>

4. I agree with the following statements:

Folgenden Aussagen stimme ich zu / stimme ich nicht zu:

<p>Possible answers:</p> <ul style="list-style-type: none"> • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree 	<ul style="list-style-type: none"> • <i>Stimme voll und ganz zu</i> • <i>Stimme eher zu</i> • <i>Weiß nicht</i> • <i>Stimme eher nicht zu</i> • <i>Stimme gar nicht zu</i>
<p>Statements:</p> <ul style="list-style-type: none"> • The importance of good company pensions will rise in ageing society • Due international competition, companies need to reduce the costs of occupational pensions • Occupational and public pensions together will provide sufficient income in the retirement • The employer is responsible for informing employees on occupational pensions • Every individual is individually responsible for saving for the retirement • The employers' task is to offer good occupational pension products 	<ul style="list-style-type: none"> • <i>Der Stellenwert guter bAV wird in der alternden Gesellschaft steigen</i> • <i>Angesichts des internationalen Wettbewerbs müssen Unternehmen die bAV-Kosten senken</i> • <i>Mit der Betriebsrente zusätzlich zur gesetzlichen Rente werden die Mitarbeiter eine gute Altersversorgung haben</i> • <i>Es ist Aufgabe des Unternehmens, die Mitarbeiter über bAV zu informieren</i> • <i>Jede/r ist individuell verantwortlich für ihre/seine Altersversorgung</i> • <i>Die Rolle des Unternehmens in der bAV besteht darin, den Mitarbeitern gute bAV-Produkte für Entgeltumwandlung anzubieten</i>

5. Regarding occupational pensions, I am especially concerned with:

Probleme bei der bAV sehe ich vor allem in folgenden Bereichen:

<p>Possible answers:</p> <ul style="list-style-type: none"> • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree 	<ul style="list-style-type: none"> • <i>Stimme voll und ganz zu</i> • <i>Stimme eher zu</i> • <i>Weiß nicht</i> • <i>Stimme eher nicht zu</i> • <i>Stimme gar nicht zu</i>
<p>Statements:</p> <ul style="list-style-type: none"> • Employers' subordinated guarantee • Cost of pension insurance (PSV aG) • Longevity risk • Low yields • Low employee-interest • Implications for the balance sheet • High stock market volatility • Complexity of occupational pensions • Multitude of pension vehicles • Complexity of taxation • Inflexible regulation • Administrative burdens 	<ul style="list-style-type: none"> • <i>Nachschusspflicht/Haftung des Arbeitgebers</i> • <i>Kosten des Pensionssicherungsvereins</i> • <i>Langlebigkeitsrisiko</i> • <i>Niedrige Renditen der bAV-Produkte</i> • <i>Geringes Interesse der Mitarbeiter</i> • <i>Auswirkungen der bAV auf die Bilanz</i> • <i>Volatilität der Aktienmärkte</i> • <i>Komplexität der bAV generell</i> • <i>Vielzahl der Durchführungswege</i> • <i>Komplexität der steuerlichen Förderung</i> • <i>unflexible Aufsicht und Regulierung</i> • <i>Verwaltungsaufwand</i>

6. More companies would offer company pension plans if:

Unternehmen würden in stärkerem Ausmaß bAV anbieten, wenn:

<p>Possible answers:</p> <ul style="list-style-type: none"> • Strongly agree • Agree • Neither agree nor disagree • Disagree • Strongly disagree 	<ul style="list-style-type: none"> • <i>Stimme voll und ganz zu</i> • <i>Stimme eher zu</i> • <i>Weiß nicht</i> • <i>Stimme eher nicht zu</i> • <i>Stimme gar nicht zu</i>
<p>Statements:</p> <ul style="list-style-type: none"> • the administrative burdens were lower • there were one single tax subsidy • the employer were not subject to subordinated guarantee • employees would be enrolled automatically • employees were more interested in pensions • employers would not need experts to deal with occupational pensions 	<ul style="list-style-type: none"> • <i>Der Verwaltungsaufwand geringer wäre</i> • <i>Es einen einheitlichen steuerlichen Förderbetrag pro Arbeitnehmer gäbe</i> • <i>Der Arbeitgeber von jeglicher Haftung für bAV freigestellt wäre</i> • <i>Automatisch alle Mitarbeiter teilnehmen</i> • <i>Mitarbeiter stärker an bAV interessiert wären</i> • <i>Unternehmen weniger Fachwissen vorhalten müssten</i>

9 References

- AARP (2010) *Employer Views on Enrolling New and Existing Employees*. AARP Research and Strategic Analysis, Washington.
- Akerlof, G., Shiller, R. (2009) *Animal Spirits*. Princeton University Press.
- AGI (2009) 'Defining the Direction of Defined Contribution in Europe: Results of an Expert Survey'. *Allianz Global Investors International Pensions Papers*, 4/2009.
- Agnew, J. (2003) 'Contemporary Political Geography: intellectual heterodoxy and its dilemmas'. *Political Geography*, 22, 603-606.
- Albert, M. (1992) *Kapitalismus contra Kapitalismus*. Frankfurt am Main, Campus.
- Albuquerque, P., Bronnenberg, B. J., Corbett, C. J., (2007) 'A Spatiotemporal Analysis of the Global Diffusion of ISO9000 and ISO14000 Certification'. *Management Science*, Vol. 53, No. 3, March 2007, pp. 451-468.
- Allaway, A. W., Black, W. C., Richard M. D., Mason, J. B. (1994) 'Evolution of a Retail Market Area: An Event-History Model of Spatial Diffusion' *Economic Geography*, Vol. 70, No. 1 (Jan., 1994), pp. 23-40.
- Allaway, A. W., Berkowitz, D., D'Souza, G. (2003) 'Spatial diffusion of a new loyalty program through a retail market' *Journal of Retailing*, 79 (2003) 137-151
- Alterssicherungsbericht (2008) Ergänzender Bericht der Bundesregierung zum Rentenversicherungsbericht 2008 gemäß § 154 Abs. 2 SGB VI. Bundesministerium für Arbeit und Soziales.
- Annesley, C. (2006) 'Ver.di and trade union revitalisation in Germany'. *Industrial Relations Journal* 37:2, 164-179
- Anselin, L. (1995) 'Local Indicators of Spatial Association-LISA'. *Geographical Analysis*, Vol. 27., No. 2. pp. 93-115.
- Antolín, P. and Stewart, F. (2009) Private Pensions and Policy Responses to the Financial and Economic Crisis. *OECD Working Papers on Insurance and Private Pensions*, No. 36.
- Antolín, P. and Whitehouse E. R. (2009) 'Filling the Pension Gap: Coverage and Value of Voluntary Retirement Savings', *OECD Social, Employment and Migration Working Papers*, No. 69
- Artus, I. (2005) 'Betriebe ohne Betriebsrat: Gelände jenseits des Tarifsystems?' *WSI Mitteilungen* 7/2005
- Arza, C. and Kohli, M. (2008) *Pension Reform in Europe – Politics, Policies and Outcomes*. Routledge, Abingdon.
- AVIVA (2010) *Europe's Pension Gap*. Available at <http://www.aviva.com/europe-pensions-gap/>, Accessed on 28th October 2010.
- Baayen, R.H., Davidson, D.J., Bates, D.M. (2008) 'Mixed-effects modelling with crossed random effects for subjects and items'. *Journal of Memory and Language*, Vol. 59: 4, pp 390-412, Special Issue: Emerging Data Analysis.

- Baker, A., Logue, D., E., Rader, J. S. (2004) *Managing Pension and Retirement Plans, A Guide for Employers, Administrators, and Other Fiduciaries*. Oxford University Press.
- Bankenverband (2010) *Risiko Altersarmut: Daten, Fakten, Argumente*. Bundesverband Deutscher Banken, Berlin.
- Barabási, A.L., Jeong, H., Néda, Z., Ravasz, E., Schubert, A., Vicsek, T. (2002) 'Evolution of the social network of scientific collaborations'. *Physica A* 311 (2002) 590 – 614
- Barasinska, N., Schäfer, D., Stephan, A. (2008) Financial Risk Aversion and Household Asset Diversification. *SOEP Papers on Multidisciplinary Panel Data Research*, Berlin, July 2008.
- Barnett C. (1999) 'Deconstructing context: Exposing Derrida'. *Transactions of the Institute of British Geographers* Volume 24 (3) pp. 277–93.
- Barr, N. (2006) 'Pensions: Overview of the Issues'. *Oxford Review of Economic Policy*, Vol. 22, No. 1.
- Barr, N. and Diamond P. (2008) *Reforming Pensions, Principles and Policy Choices*. Oxford University Press, Oxford.
- Bartke, S. and Schwarze, R. (2008) 'Risk-Averse by Nation or by Religion? Some Insights on the Determinants of Individual Risk Attitudes'. *SOEP Papers on Multidisciplinary Panel Data Research* Nr. 131.
- Bass, F. M. (1969) 'A New Product Growth for Model Consumer Durables', *Management Science*, Vol. 15. No. 5.
- Bates D., Maechler, M. (2009) 'lme4: Linear mixed-effects models using Eigen and Eigen. *R package version 0.999375-32*. Available at: <http://CRAN.R-project.org/package=lme4>
- Bates, D. (2010) 'Linear mixed model implementation in lme4'. University of Wisconsin, Madison, August 2010.
- Bathelt, H., Glückler, J. (2003) 'Toward a relational economic geography'. *Journal of Economic Geography*, 3, pp. 117-144
- BDA (2007) *Entgeltumwandlung für betriebliche Altersvorsorge: Beitragsfreiheit erhalten, Doppelbelastung verhindern!* Bundesvereinigung der Deutschen Arbeitgeberverbände Abt. Soziale Sicherung. Berlin.
- Bebchuk L. A., Roe, M., J. (1999) 'A Theory of Path Dependence in Corporate Ownership and Governance'. *Stanford Law Review*, Vol. 52, No. 1 (Nov., 1999), pp. 127-170.
- Beck, U. (1992) 'From Industrial Society to the Risk Society: Questions of Survival, Social Structure and Ecological Enlightenment'. *Theory, Culture & Society*; 9; 97
- Beckstette A. und Zwiesler H. J. (2004): Die Abgrenzung beitragsbezogener Pensionspläne aus Sicht des Asset-Liability-Managements. *Preprint Series*. Fakultät für Mathematik und Wirtschaftswissenschaften, Universität Ulm.
- Belfrage, C. (2008) 'Towards 'universal financialisation' in Sweden?' *Contemporary Politics*, 14: 3, 277 — 296

- Belfrage, C., Ryner, M. (2009) 'Renegotiating the Swedish Social Democratic Settlement: From Pension Fund Socialism to Neoliberalization' *Politics and Society*, 37, 257.
- Berndt, C. (2000) 'The rescaling of labour regulation in Germany: from national and regional corporatism to intrafirm welfare?' *Environment and Planning A*, 2000, volume 32, pages 1569-1592
- Berner, F. (2008) 'Die Vermarktlichung und Individualisierung der betrieblichen Altersversorgung'. *Zeitschrift für Sozialreform*, 4, 391-417.
- Bernheim, D. B., Rangel, A. (2009) 'Beyond Revealed Preference: Choice-Theoretic Foundations for Behavioral Welfare Economics'. *The Quarterly Journal of Economics*, February, 2009. pp. 51-104.
- Beshears, J., Choi, J., J., Laibson, D., Madrian B. (2008) 'How are preferences revealed?'. *Journal of Public Economics* 92 (2008) 1787–1794.
- Beshears, J., Choi, J., J., Laibson, D., Madrian B. (2009) 'The Importance of Default Options For Retirement Savings outcomes: Evidence from the United States'. In: Brown, J. R., Liebman, J. B., Wise, D. A. (2009) *Social Security in a Changing Environment*. The University of Chicago Press.
- BetrAVG (1974) 'Gesetz zur Verbesserung der betrieblichen Altersversorgung, Betriebsrentengesetz vom 19. Dezember 1974' *BGBI.* I S. 3610.
- BetrAVG (2001) 'Gesetz zur Verbesserung der betrieblichen Altersversorgung'. Last modification: *BGBI.* I S. 2940, 2947 Available at www.juris.de, accessed on 10. December 2009.
- BfA (2009) 'Arbeitslose, Arbeitslosenquoten, Gemeldete Stellen von Bundesagentur für Arbeit' Statistisches Bundesamt, Wiesbaden 2009, accessed on 10. January 2010, available at <https://www-genesis.destatis.de>.
- Bikker, J., A., De Dreu, J. (2009) 'Operating costs of pension funds: the impact of scale, governance, and plan design'. *Journal of Pension Economics & Finance*, 8 (1), pp. 63–89.
- Bild (1999) 'Zwangsrente Riester- was haben die Bürger der Regierung angetan, dass sie so mit den Bürgern umspringt'. *Bild* 17 June 1999
- Bispinck, R. (2002) *Tarifpolitischer Jahresbericht 2001: Moderate Lohnabschlüsse plus „Altersvorsorge“*. Wirtschafts- und Sozialwissenschaftliches Institut in der Hans-Böckler-Stiftung
- Bispinck, R. (2004) 'Kontrollierte Dezentralisierung der Tarifpolitik – Eine schwierige Balance'. *WSI Mitteilungen* 5/2004
- Bispinck, R. (2007) 'Löhne, Tarifverhandlungen und Tarifsystem in Deutschland 1995-2005'. *WSI Diskussionspapier*, Nr. 150. Wirtschafts- und Sozialwissenschaftliches Institut in der *Hans-Böckler-Stiftung*, Düsseldorf
- Bispinck, R. (2007) *Tarifpolitischer Jahresbericht 2006*. Wirtschafts- und Sozialwissenschaftliches Institut in der Hans-Böckler-Stiftung
- Bispinck, R., Schulten, T. (2005) 'Deutschland vor dem tarifpolitischen Systemwechsel?' *WSI Mitteilungen* 8/2005

- Blotevogel, H. H. (1998) 'The Rhine-Ruhr metropolitan region: Reality and discourse'. *European Planning Studies*, 6: 4, 395 – 410.
- Blotevogel, H. H. (2006) 'Metropolregion Rhein-Ruhr'. *Geographische Rundschau* 58 (1), pp. 28-36.
- Blum U., Dudley, L. (2001) 'Religion and economic growth: was Weber right?'. *Journal of Evolutionary Economics*, 11: 207-230.
- Blume, L., Döring, T. (2009) 'Unterschiede regionaler Wirtschaftskraft – welchen Einfluss hat die Landespolitik?' *Jahrbuch für Regionalwissenschaft* (2009) 29: 105–120
- Bode, I (2007a): *The Culture of Welfare Markets. The International Recasting of Pension and Care Systems*. New York and London, Routledge.
- Bode, I (2007b): From the Citizen's Wage to Self-Made Pensions?: The Changing Culture of Old Age Provision in Canada and Germany. *Current Sociology*, 55, 696-717.
- Bonoli, G. (2003) 'Two Worlds of Pension Reform in Western Europe'. *Comparative Politics*, Vol. 35, No. 4, pp. 399-416
- Bonoli, G. (2006) 'New social risks and the politics of post-industrial social policies'. In: Bonoli, G., Armingeon, K. (2006) *The Politics of Post-Industrial Welfare States: Adapting post-war social policies to new social risks*. Routledge, Abingdon, pp. 3-26.
- Börsch-Supan, A. (2000) 'Incentive effects of social security on labor force participation: evidence in Germany and across Europe'. *Journal of Public Economics* 78, pp. 25–49
- Börsch-Supan, A. (2001) 'Comments on Rethinking the Pension Reform: Ten Myths about Social Security Systems'. In: Holzmann, R., Stiglitz, J. (2001) *New Ideas About Old Age Security. Toward Sustainable Pension Systems in the 21st Century*. The International Bank for Reconstruction and Development, Washington D.C.
- Börsch-Supan, A. (2004a) 'Global Aging: Issues, Answers, More Questions'. *Michigan Retirement Research Center Research Paper* No. WP 2004-084. Available at SSRN: <http://ssrn.com/abstract=1092924>.
- Börsch-Supan, A. (2004b) 'Mind the Gap: The effectiveness of Incentives to Boost Retirement Saving in Europe'. *OECD Economic Studies*, No. 39, 2004/2
- Börsch-Supan, A., Wilke, C.B. (2004) 'The German Public Pension System: How it Was, How it Will Be'. *NBER Working Paper* No. 10525. Available at SSRN: <http://ssrn.com/abstract=552888>
- Börsch-Supan, A., Wilke, C.B. (2006) 'Reforming the German Public Pension System'. Paper Prepared for the AEA Meetings, Boston, January 6, 2006.
- Börsch-Supan, A., Gasche, M., Ziegelmeyer, M. (2009) Auswirkungen der Finanzkrise auf die private Altersvorsorge. *Mannheim Research Institute for Research of Aging*, 193-2009.
- Börsch-Supan, A., Köke, J.F., Winter, J.K. (2005): Pension reform, savings behaviour, and capital market performance. *Journal of Pension Economics & Finance*, 4, 87–107.

- Börsch-Supan, A., Reil-Held, A. and Schunk, D. (2006) 'Das Sparverhalten deutscher Haushalte: erste Erfahrungen mit der Riester-Rente'. *Mannheim Research Institute for the Economics of Aging* 114-2006.
- Börsch-Supan, A., Reil-Held, A. and Schunk, D. (2008) 'Savings incentives, old-age provision and displacement effects: evidence from the recent German pension reform'. *Journal of Pension Economics & Finance*, 7, 295-319.
- Botos, K. (2006) 'Public Economics and International Competitiveness'. *Iustum, Aequum Salutare*, 2006/1-2. 13-21.
- Boyer, R. (2000) 'Is a Finance-led growth regime a viable alternative to Fordism? A preliminary analysis'. *Economy and Society*, 29: 1, 111 — 145.
- Brakman, S., Garretsen, H., Schramm, M. (2004) 'The Spatial Distribution of Wages: Estimating the Helpman-Hanson Model for Germany'. *Journal of Regional Science*, Vol. 44, No. 3. pp. 437-466.
- Breitenfelder, M. (2007) 'Der Arbeitsmarkt in Oberfranken: Geographische und wirtschaftsstrukturelle Herausforderungen sowie regionale Differenzierung'. *Standort – Zeitschrift für Angewandte Geographie* (2007) 31:126–129.
- Brenner, T. (2006) 'Identification of Local Industrial Clusters in Germany'. *Regional Studies*, Vol. 40.9, pp. 991–1004.
- Brinkhoff, T. (2010) *City Population*. <http://www.citypopulation.de> containing agglomerations (accessed on the 25th May 2010).
- Brown, J. R., Ivković, Z., Smith, P. A., Weisbrenner, S. (2008) 'Neighbors Matter: Causal Community Effects and Stock Market Participation' *The Journal of Finance*, Vol. LXIII, No. 3.
- Brück, T., Peters, H. (2009) '20 Years of German Unification: Evidence on Income Convergence and Heterogeneity'. *Forschungsinstitut zur Zukunft der Arbeit*, Discussion Paper No. 4454.
- Brunow, S. and Hirte, G. (2008) 'The age pattern of human capital and regional productivity: A spatial econometric study on German regions'. *Papers in Regional Science*, Volume 88 Number 4 November 2009.
- Bucher and Schloemer (2004) 'Die Erwerbspersonen in den Regionen der BRD zwischen 1990 und 2020' *Informationen zur Raumentwicklung*, Heft 3/4.2004.
- Bucher-Koenen, T. (2009) 'Financial Literacy and Private Old-Age Provision in Germany: Evidence from SAVE 2008'. *Mannheim Research Institute for the Economics of Aging Working Paper*, Nr. 192-2009
- Buchholz, G., J., Coustasse, A., Silva P., Hilsenrath P. (2008) 'The Chilean Pension System at 25 Years: The Evolution of a Revolution'. *Journal of Economic Issues*, Vol. 42., No. 3. pp. 633-647.
- Bundesbank (2002) 'Funded old-age provision and the financial markets', *Deutsche Bundesbank Monthly Report*, July 2002.
- Burda M., C., Hunt, J. (2001) 'From Reunification to Economic Integration: Productivity and the Labor Market in Eastern Germany'. *Brookings Papers on Economic Activity*, Vol. 2001, No. 2 (2001), pp. 1-71

- Burda M.C. (2008) 'What kind of shock was it? Regional integration and structural change in Germany after unification' SFB 649 Discussion Paper 2006-087.
- BZ (2000) 'DGB-Chef strikt gegen Zwangsrente - Pläne der Bundesregierung angeblich vom Tisch'. *Berliner Zeitung*, 11 March 2000.
- Campbell, J. L. (2004). *Institutional change and globalization*. Princeton University Press.
- Cantoni, D. (2009) 'The Economic Effects of the Protestant Reformation: Testing the Weber Hypothesis in the German Lands'. Job Market Paper, available at http://www.people.fas.harvard.edu/~cantoni/cantoni_jmp_2_7_1.pdf, accessed: 26. April 2010.
- Carroll, D.C., (1997) 'Buffer-stock saving and the life cycle/permanent income hypothesis'. *The Quarterly Journal of Economics*, Vol CXII, Issue 1.
- Catalán, M., Guajardo, J., Hoffmaister, A. W. (2010) 'Coping with Spain's aging: retirement rules and incentives'. *Journal of Pension Economics and Finance*, 9: 549-581.
- Chemie (2006) 'Gemeinsames Positionspapier der Chemie-Sozialpartner „Tarifliche Altersvorsorge fördern“' Wiesbaden/Hannover, 2006. Available at [http://www.chemie-altersvorsorge.de/altersvorsorge/web.nsf/gfx/F75F817F949C4F16C125742000379501/\\$file/sozialpartner.pdf](http://www.chemie-altersvorsorge.de/altersvorsorge/web.nsf/gfx/F75F817F949C4F16C125742000379501/$file/sozialpartner.pdf), downloaded on the 4th February 2010.
- Choi, J., J., Laibson, D., Madrian B., C., Metrick, A. (2002) 'Defined Contribution Pensions: Plan Rules, Participant Choices, and the Path of Least Resistance'. *Tax Policy and the Economy*, Vol. 16 (2002), pp. 67-113.
- Choi, J., J., Laibson, D., Madrian B., C., Metrick, A. (2004) 'For Better or for Worse: Default Effects and 401(k) Savings Behavior'. In: Wise, D. A. (2004) *Perspectives on the economics of aging*. The University of Chicago Press.
- Choi, J., J., Laibson, D., Madrian B., C. (2005) 'Are Empowerment and Education Enough? Underdiversification in 401(k) Plans'. *Brookings Papers on Economic Activity*, Vol. 2005, No. 2 (2005), pp. 151-198.
- Clark, G. L. (2000) *Pension Fund Capitalism*. Oxford University Press.
- Clark, G. L. (2003a) 'Pension security in the global economy: markets and national institutions in the 21st century'. *Environment and Planning A* 35, pp. 1339 – 1356
- Clark, G. L. (2003b) 'Pension systems: a comparative perspective'. In: Clark, G. L. and Whiteside N. (eds) (2003) *Pension Security in the 21st Century redrawing the public-private debate*. Oxford University Press
- Clark, G. L. (2005) 'Money flows like mercury: The geography of global finance. . *Geografiska Annaler*, 87 B (2): 99–112.
- Clark, G. L. (2010) 'Human nature, context, and framing: understanding financial decision-making and pension savings'. *Geografiska Annaler B*, 93.
- Clark G. L., Knox-Hayes J. (2007) 'Mapping UK pension benefits and the intended purchase of annuities in the aftermath of the 1990s stock-market bubble' *Transactions of the Institute of British Geographers*, Volume 32, Issue 4 539–555

- Clark G. L., O'Connor K. (1997) 'The informational content of financial products and the spatial structure of the global finance industry'. In Cox K. R. (Eds) *Spaces of Globalisation: Reasserting the Power of the Local*, pp. 89–114. Guilford, New York.
- Clark, G. L., Monk, A. H. B. (2007a) 'The 'crisis' in defined benefit corporate pension liabilities. Part I: scope of the problem'. *Pensions: An International Journal*, Vol. 12, 1, 43–54
- Clark, G. L., Monk, A. H. B. (2007b) 'The 'crisis' in defined benefit corporate pension liabilities Part II: Current solutions and future prospects'. *Pensions: An International Journal*, Vol. 12, 1, 68–81.
- Clark, G. L., Monk, A. H. B. (2008) 'Conceptualizing the Defined Benefit Pension Promise Implications From a Survey of Expert Opinion'. *Benefits Quarterly*, First Quarter 2008.
- Clark, G. L., Urwin, R. (2010) 'DC Best-Practice Pension Fund Design and Governance' Available at ssrn.com.
- Clark, G. L., Whiteside, N. (eds) (2003) *Pension Security in the 21st Century: redrawing the public-private debate*. Oxford University Press.
- Clark, G. L., Wójcik, D. (2005) 'Path dependence and financial markets: the economic geography of the German model, 1997-2003'. *Environment and Planning A* 2005, vol. 37. pp. 1769-1791.
- Clark, G. L., Wójcik, D. (2007) *The Geography of Finance. Corporate Governance in the Global Marketplace*. Oxford University Press, Oxford.
- Clark, G. L., Wrigley, N. (1995) 'Sunk Costs: A Framework for Economic Geography'. *Transactions of the Institute of British Geographers*, New Series, Vol. 20, No. 2 (1995), pp. 204-223.
- Clark G. L., Knox-Hayes J., Strauss K. (2009a) 'Financial sophistication, salience, and the scale of deliberation in UK retirement planning'. *Environment and Planning A*, 41(10) 2496 – 2515
- Clark, G. L., Almond, S., Strauss, K. (2010) 'The Home, Pension Savings, and Risk Aversion: Intentions of Defined Contribution Pension Scheme Participants in a London-based Investment Bank at the Peak of the Bubble' Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1588749
- Clark, G. L., Dixon, A. D., Monk, A., H., B. (2009b) *Managing Financial Risks. From Global to Local*. Oxford University Press.
- Coase, R. H. (1937) 'The Nature of the Firm'. *Economica*, New Series, Vol. 4, No. 16 (Nov., 1937), pp. 386-405.
- Corneo, G., Keese, M., Schröder, C. (2009) 'The Riester Scheme and Private Savings: An Empirical Analysis based on the German SOEP'. *Schmollers Jahrbuch* 129 (2009), 321 – 332 Duncker & Humblot, Berlin
- Cox, C., R. (1979) *Location and Public Problems: A Political Geography of the Contemporary World*. Maaroufa Press, Chicago.
- Cox, D. R. (1972) 'Regression Models and Life Tables (with Discussion)'. *Journal of the Royal Statistical Society*, Series B 34:187—220

- Crotty, J. (2008) 'If Financial Market Competition is Intense, Why are Financial Firm Profits so High? Reflections on the Current 'Golden Age' of Finance'. *Competition and Change*, Vol. 12, No. 2, pp. 167–183.
- Cutler, T. and Waine, B. (2010) 'New development: The UK coalition government and the future of public sector pensions'. *Public Money & Management*, 30: 5, 317 — 320
- Cyert, R. M., March, J. G. (1963) *A Behavioral Theory of the Firm*. Prentice-Hall Inc., New Jersey.
- Dathe D., and Hilpert M. (2002) 'Urbane Arbeitsmärkte im demographischen Wandel: das Beispiel Berlin'. In: Huber A., Kistler, E., Papies, U. (eds) (2002) *Arbeitslosigkeit Älterer und Arbeitsmarktpolitik im Angesicht des demographischen Wandels*. Stuttgart.
- De Deken, J. J., Ponds, E and van Riel, B. (2006) 'Social Solidarity'. In: Clark, G. L., Munnell, A. H. and Orszag, J. M. (eds) (2006) *The Oxford Handbook of Pensions and Retirement Income*. Oxford University Press.
- Deeke, A. (2005) 'Kurzarbeit als Instrument betrieblicher Flexibilität'. Institut für Arbeitsmarkt- und Berufsforschung, Forschungsbericht Nr. 12/2005.
- Destatis (2009) *Statistisches Jahrbuch 2009*. Statistisches Bundesamt, Wiesbaden.
- Destatis (2010) *Regionales*. Statistisches Bundesamt, accessed on the 1st July 2010. Address: <http://ims.destatis.de/indikatoren/Default.aspx>
- Deutscher Bundestag (2001) 'Plenarprotokoll 14/168 – Sternographischer Bericht, 168. Sitzung'. Berlin, Freitag den 11. Mai 2001.
- DGB (2009) 'Mitglieder in den DGB-Gewerkschaften', available at <http://www.dgb.de/dgb/mitgliederzahlen/mitglieder.htm>, accessed on the 14. August 2009.
- Diamond, P., Köszegi B. (2002) 'Quasi-hyperbolic discounting and retirement'. *Journal of Public Economics* 87, pp. 1839–1872
- Disney, R. and Johnson, P. (eds) (2001) *Pension Systems and Retirement Incomes across OECD Countries*. Edward Elgar, Cheltenham.
- Dixon, A. D. (2008) 'The Rise of Pension Fund Capitalism in Europe: An Unseen Revolution?'. *New Political Economy*, 13: 3, 249 – 270.
- Dixon, A. D. (2009) 'Finding the Collective in an Era of Pension Individualization'. *Soziale Welt*, 60
- Dixon, A. D., Monk, A. H. B. (2009) 'The power of finance: accounting harmonization's effect on pension provision'. *Journal of Economic Geography*, 9 (2009) pp. 619–639
- Dixon, A. D., Sorsa, V-P. (2009) 'Institutional Change and the Financialisation of Pensions in Europe'. *Competition & Change*, Vol. 13, No. 4, December 2009 347–367
- Djankov S., Hart, O., McLiesh C., Shleifer, A. (2010) 'Debt enforcement around the world'. *Journal of Political Economy*, 116(6): 1105-1149.
- Djankov S., McLiesh C., Shleifer, A. (2007) 'Private Credit in 129 Countries'. *Journal of Financial Economics* 84 (2007) pp. 299–329.

- Dobson, J. E., Fischer, P. F (2007) 'The Panopticon's changing geography'. *Geographical Review*, Vol. 97, Issue 3, pages 307–323, July 2007
- Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., Wagner, G. (2005) Individual Risk Attitudes: New Evidence from a Large, Representative, Experimentally-Validated Survey. *DIW Berlin*, Discussion Papers 511
- Dore, R. (2002) *Stock Market Capitalism: Welfare Capitalism. Japan and Germany versus the Anglo-Saxons*. Oxford University Press.
- Drucker, P. (1976) *The Unseen Revolution: How Pension Fund Socialism Came to America*. Harper & Row, New York.
- Duflo, E. and Saez, E. (2002) 'Participation and investment decisions in a retirement plan: the influence of colleagues' choices'. *Journal of Public Economics* 85 (2002), 121–148.
- Duflo, E. and Saez, E. (2003) 'The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment'. *Quarterly Journal of Economics*, Vol. 118, No. 3, Pages 815-842.
- Dumann, K. (2008): What determines supply and demand for occupational pensions in Germany? *Journal of Pension Economics & Finance*. 7, 131–156
- Dymski, G. A. (2009a) 'Financial Governance in the Neo-liberal Era'. In: Clark, G., L., Dixon, A. D., Monk, A., H., B. (2009) *Managing Financial Risks. From Global to Local*. Oxford University Press.
- Dymski, G. A. (2009b) 'The global financial customer and the spatiality of exclusion after the 'end of geography''. *Cambridge Journal of Regions, Economy and Society*, 2009, 2, 267–285.
- Ebbinghaus, B. (2001) 'When Labour and Capital Collude. The Varieties of Welfare Capitalism and Early Retirement in Europe, Japan and the USA'. In: Ebbinghaus, B és Manow, P. (2001) *Comparing Welfare Capitalism*. Routledge, London.
- Ebbinghaus, B. (2006) *Reforming Early Retirement in Europe, Japan and the USA*. Oxford University Press, Oxford.
- Ebbinghaus, B. and Hassel, A. (1999) 'Striking Deals: Concertation in the Reform of Continental European Welfare States'. *Journal of European Public Policy*. Volume 7, Issue 1 March 2000, pp. 44 - 62
- Ehrentraut, O., Raffelhüschen, B. (2008) 'Demografischer Wandel und Betriebsrenten – Zur Berücksichtigung der längeren Lebenserwartung bei der Anpassung von Direktzusagen'. Universität Freiburg, Forschungszentrum für Generationsverträge, Discussion Papers No. 25.
- Eiro (1999) 'New developments within national Alliance for Jobs' *European Industry Relations Observatory* On-line, <https://eurofound.europa.eu/eiro/1999/07/feature/de9907219f.htm>, accessed on the 29th May 2009
- Elsinga M., De Decker, P., Teller, N., Toussaint J., (eds.) (2007) Home ownership beyond asset and security. Perceptions of housing related security and insecurity in eight European countries. *Housing and Urban Policy Studies*, 32.
- Engelen, E. (2008) 'The Case for Financialization'. *Competition and Change*, Vol. 12, No. 2, pp. 111–119.

- Esping-Andersen, G (1990) *Three Worlds of Welfare Capitalism*. Cambridge: Polity Press & Princeton: Princeton University Press.
- Esping-Andersen, G (1996) 'Welfare States without Work: The Impasse of Labour Shedding and Familialism in Continental European Social Policy'. In: Esping-Andersen, G. (ed.) (1990) *Welfare States in Transition. National Adaptations in Global Economies*. London: Sage.
- Esping-Andersen, G. (eds) (1996) *Welfare States in Transition. National Adaptations in Global Economies*. Sage, London.
- European Commission (2010) 'Interim EPC-SPC Joint Report on Pensions'. ARES save number (2010) 221924 –REV.
- Fachinger, U. (2008) 'Das Ende der Diskriminierung in der Altersvorsorge? Anmerkungen zu den Wirkungen des Paradigmenwechsels aus lebenslaufbezogenen Geschlechterperspektive' *Zeitschrift für Gerontologie und Geriatrie*, 41:360–373 (2008)
- Fajertag, G., Pochet P. (eds.) (1997) *Social Pacts in Europe*. Brussels: ETUI.
- Falck, O., Heblich, S., Lameli, A., Suedekum, J. (2010) 'Dialects, Cultural Identity, and Economic Exchange' *IZA Discussion Paper No. 4743*.
- Ferge, Zs. (2001) 'European Integration and the Reform of Social Security in the Accession Countries'. *European Journal of Social Quality*, Volume 3, Numbers 1-2, pp. 9-25.
- FFR (2010) 'The FRR, its resources and eligible plans'. Available at <http://www.fondsdereserve.fr>, accessed on the 30th September 2010.
- Fotheringham, S.A. (1997) 'Trends in quantitative methods I: stressing the local'. *Progress in Human Geography* 21 (1): 88–96.
- Fotheringham, S.A. (1998) 'Geographically Weighted Regression: A Natural Evolution of the Expansion Method for Spatial Data Analysis'. *Environment and Planning A*, 30: 1905-27.
- Fotheringham, S.A., Brundson, C., Charlton, M. (2000) *Quantitative Geography – Perspectives on Spatial Data Analysis*. Sage, London.
- Fox, J. (2002) 'Cox Proportional-Hazards Regression for Survival Data. Appendix to an R and S-plus companion to applied regression'. Sage Publications, California.
- Franzen, D. (2010), 'Managing Investment Risk in Defined Benefit Pension Funds', *OECD Working Papers on Insurance and Private Pensions*, No. 38, OECD Publishing.
- Frege, C.M. and Kelly J. (2003) 'Union Revitalisation Strategies in Comparative Perspective'. *European Journal of International Relations*, Vol. 9. Nr. 1. pp. 7-24.
- French, S. (2000) 'The impact of unification on German industrial relations'. *German Politics*, 9:2, pp 195 — 216
- Frericks, P., Maier, R., de Graaf, W. (2009) 'Toward a neoliberal Europe?: Pension Reform and Transformed Citizenship'. *Administration & Society*, 2009; 41; 135.
- Frick, R. J., Goebel, J. (2008) 'Regional Income Stratification in Unified Germany Using a Gini Decomposition Approach' *Regional Studies*, Vol. 42.4, pp. 555–577, May 2008

- Froud, J., Haslam, C., Johal S., Williams K. (2000) 'Restructuring for shareholder value and its implications for labour'. *Cambridge Journal of Economics*, 24, pp. 771-797.
- Froud, J., Johal S., Williams K. (2002) 'Financialisation and the coupon pool'. *Capital & Class*, 2002 26: 119.
- Fuch-Sündeln, N., Izem, R. (2008) 'Explaining the Low Labor Productivity in East Germany – A Spatial Analysis' *Kiel Arbeitspapiere*, 2007.
- Fultz, E. and Ruck, M. (2001) 'Pension reform in Central and Eastern Europe: Emerging issues and patterns'. *International Labour Review*, Vol. 140, No. 1.
- Furnham, A (1984) 'The Protestant Work Ethic: A review of the psychological literature'. *European Journal of Social Psychology*, Vol. 14, 87-104 (1984)
- Gatzweiler, H-P., Milbert, A. (2003) 'Regionale Einkommensunterschiede in Deutschland' *Informationen zur Raumentwicklung*, Heft 3/4.2003
- Gertler, M. S. (1996) Worlds Apart: The Changing Market Geography of the German Machinery Industry. *Small Business Economics* 8: 87-106, 1996.
- Gertler, M. S. (2003) Tacit knowledge, and the economic geography of context, or The undefinable tacitness of being (there). *Journal of Economic Geography*, 3 (2003) pp. 75-99.
- GesamtMetall (2009) *Zahlenheft 2009*. Gesamtmetall, Berlin.
- GesamtMetall (2010) *Zahlenheft 2010*. Gesamtmetall, Berlin.
- Getis, A., Ord, J. K. (1996) 'Local spatial statistics: an overview'. In: Longley, P., Batty, M. (eds) (1997) *Spatial Analysis: Modelling in a GIS Environment*. Wiley
- Ginn, J. (2003), *Gender, Pensions and the Lifecourse: How Pensions Need to Adapt to Changing Family Forms*. Bristol: The Policy Press.
- Glückler, J. (2007) 'Geography of Reputation: The City as the Locus of Business Opportunity'. *Regional Studies*, 41: 7, 949 – 961.
- Granovetter, M. (1985) 'Economic Action and Social Structure: The Problem of Embeddedness'. *The American Journal of Sociology*, Vol. 91, No. 3 (Nov., 1985), pp. 481-510.
- Green, S., Paterson, E. (2005) *Governance in Contemporary Germany: The Semisovereign State Revisited*. Cambridge University Press.
- Green-Pedersen, C. and Lindbom, A. (2006) 'Politics within paths: trajectories of Danish and Swedish earnings-related pensions' *Journal of European Social Policy*, Vol 16(3): 245–258
- Gruber, J., Wise, D. (1998) 'Social Security and Retirement: An International Comparison'. *The American Economic Review*, Vol. 88, No. 2
- Gruber, J., Wise, D.A. (eds) (2007): *Social Security Programs and Retirement around the World: Fiscal Implications of Reform*. The University of Chicago Press.
- Gumbrell-McCormick, R. and Hyman, R. (2006) 'Embedded collectivism? Workplace representation in France and Germany'. *Industrial Relations Journal* 37:5, 473–491
- Haipeter, T. (2009) 'Kontrollierte Dezentralisierung? Abweichende Betriebsvereinbarungen in der Metall- und Elektroindustrie'. *Industrielle Beziehungen*, 16(3): 232-253

- Hall, P. A., Thelen, K. (2009) 'Institutional change in varieties of capitalism'. *Socio-Economic Review* (2009) 7, 7–34.
- Hall, P. A., Soskice, D. (2001) (edited by) *Varieties of Capitalism. The Institutional Foundations of Comparative Advantage*. Oxford University Press.
- Hamann, K., Kelly, J. (2007) 'Party Politics and the Reemergence of Social Pacts in Western Europe'. *Comparative Political Studies*, 40: 971-994.
- Hassel, A. (2003) 'The Politics of Social Pacts'. *British Journal of Industrial Relations*, 41:4 pp. 707–726
- Hassel, A. (2009) 'Policies and Politics in Social Pacts in Europe'. *European Journal of Industrial Relations*; 15; pp 7-26.
- Hauer, E. (2004) 'The harm done by tests of significance'. *Accident Analysis and Prevention* 36 (3): 495–500.
- Hägerstrand, T. (1965) 'Aspects of the spatial structure of social communication and the diffusion of information'. *Regional Science Association: Papers*, XVI, Cracow Congress, 1965.
- Hebb, T., Wójcik, D. (2005) 'Global standards and emerging markets: the institutional-investment value chain and the CalPERS investment strategy'. *Environment and Planning A* 2005, volume 37, pages 1955 – 1974.
- Heimpel, T (2003) 'Die Riesterrente – eine Analyse der Programmentwicklung und Implementation des Altersvermögensgesetzes'. Universität Konstanz, Magisterarbeit.
- Helms, L (2003) 'Is there Life after Kohl? The CDU Crisis the future of party democracy in Germany'. *Government and Opposition*. 35/4, pp. 419 – 438
- Henne, T., Raffelhüschen, B., Schoder, J (2009) 'Statistischer Anhang zur FZG-Studie Vorsorgeatlas Deutschland - Status und Potenziale der Altersvorsorge'. Studie im Auftrag der Union Investment Gruppe. *Forschungszentrum Generationsverträge*, Albert-Ludwigs-Universität-Freiburg.
- Hering, M (2001) 'The New Approach to Welfare State Reform in German Social Democracy'. Paper prepared for presentation at the workshop 'Third Ways in Europe', European Consortium for Political Research Joint Sessions, Grenoble, April 6-11, 2001
- Historisches Lexikon Bayerns (2010) 'Gutehoffnungshütte (GHH)'. Available at http://www.historisches-lexikon-bayerns.de/artikel/artikel_44888, accessed on the 20th October 2010.
- Hoefle, S. W. (2006) 'Eliminating scale and killing the goose that laid the golden egg?' *Transactions of the Institute of British Geographers*, Volume 31 pp. 238–243.
- Hoff, K. and Stiglitz, J. E. (2004) 'After the Big Bang? Obstacles to the Emergence of the Rule of Law in Post-Communist Societies'. *The American Economic Review*, Vol. 94, No. 3, pp. 753-763
- Holzmann, R. (2000) 'The World Bank approach to pension reform'. *International Social Security Review*, Vol. 53, No. 1.

- Holzmann, R., Stiglitz, J. (2001) *New Ideas About Old Age Security. Toward Sustainable Pension Systems in the 21st Century*. The International Bank for Reconstruction and Development, Washington D.C.
- Horn & Partners (2010) 'Geschichte der betrieblichen Altersversorgung'. Available at <http://www.horn-partner.com/links-infos-geschichte-der-bav.html>, accessed on the 20th October 2010.
- Howell, C. (2003) 'Review: Varieties of Capitalism: And Then There Was One?'. *Comparative Politics*, Vol. 36, No. 1 (Oct., 2003), pp. 103-124.
- Howells, J. (2000) 'Knowledge, innovation and location'. In: Bryson, J. R., Daniels, P. W., Henry, N., Pollard, J. (eds) (2000) *Knowledge, Space, Economy*. London: Routledge, 50-62.
- Howells, J. (2006) 'Intermediation and the role of intermediaries in innovation', *Research Policy* 35 (2006) 715–728.
- Hox, J. J. (1995) *Applied multilevel analysis*. Amsterdam: TT-Publikaties.
- Huberman, G. (2001) 'Familiarity Breeds Investment'. *The Review of Financial Studies*, Vol. 14, No. 3 (Autumn, 2001), pp. 659-680
- Huberman, G., Iyengar, S., Jiang, W. (2007) 'Defined contribution pension plans: Determinants of participation and Contribution Rates'. *Journal of Financial Services Research* (2007) 31:1–32
- Hundt, D. (2010) 'Alterssicherung 2010 – Herausforderungen und Perspektiven für die deutsche Wirtschaft'. *Handelsblatt-Tagung „Betriebliche Altersversorgung“*, Berlin, 22. März 2010.
- Hunt, J. (2002) 'The Transition in East Germany: When Is a Ten-Point Fall in the Gender Wage Gap Bad News?' *Journal of Labor Economics*, Vol. 20, No. 1 (Jan., 2002), pp. 148-169
- Hurrelmann, K. and Karch, H. (2010) *Jugend, Vorsorge, Finanzen – Herausforderung oder Überforderung?* Campus Verlag, Frankfurt am Main.
- Hyde, M. Dixon, J., Drover, G. (2003) 'Welfare retrenchment or collective responsibility? The privatisation of public pensions in Western Europe'. *Social Policy and Society*, 2:3, 189-197.
- Hyde, M. Dixon, J., Drover, G. (2004) 'Western European Pension Privatisation: A Response to Jay Ginn'. *Social Policy and Society*, 3:2, 135-141
- IMF (2009) 'Fiscal Implications of the Global Economic and Financial Crisis'. *IMF Staff Position Note SPN/09/13*, June 9.
- Ippolito, R. A. (1985) 'The Labor Contract and True Economic Pension Liabilities'. *American Economic Review*, 75: 1031-43.
- James, P (2000) The 1998 German Federal Election. *Politics* (2000) 20(1) pp. 33-38.
- Joebges, H., Schmalzbauer, A., Zwiener, R. (2009) 'Der Preis für den Exportweltmeister Deutschland: Reallohnrückgang und geringes Wirtschaftswachstum'. *Institut für Makroökonomie und Konjunkturforschung, Studies*, 4/2009.

- Kädtler, J., Sperling, H. J. (2002) 'After globalisation and financialisation: Logics of bargaining in the German automotive industry'. *Competition and Change*, 6: 2, 149 – 168.
- Kahn, J. S. (1989) 'Culture: demise and resurrection?', *Critique of Anthropology* 9 pp. 5–25
- Kahneman, D. (2003) 'Maps of Bounded Rationality: Psychology for Behavioral Economics'. *The American Economic Review*, Vol. 93, No. 5 (Dec., 2003), pp. 1449-1475.
- Kahneman, D., Tversky A. (1979) 'Prospect Theory: An Analysis of Decision under Risk'. *Econometrica*, Vol. 47, No. 2 (Mar., 1979), pp. 263-291.
- Katzenstein, P (1987) *Politics and Policy in West Germany: The Growth of a Semisovereign State*. Philadelphia, Temple University Press
- Kistler, E. and Hilpert, M. (2001) 'Auswirkungen des demographischen Wandels auf Arbeit und Arbeitslosigkeit' *Aus Politik und Zeitgeschichte* B 3 - 4/2001
- Klagge B., Martin R. (2005) 'Decentralized versus centralized financial systems: is there a case for local capital markets?' *Journal of Economic Geography* 5 (2005) pp. 387–421
- Klikauer T. (2004) 'Trade union shopfloor representation in Germany'. *Industrial Relations Journal* 35:1
- Kosfeld, R., Eckey, H.-F., Dreger, C. (2006) 'Regional Productivity and Income Convergence in the Unified Germany, 1990-2000'. *Regional Studies*, Vol. 40.7, pp. 755–767.
- Kőszegi, B., Rabin, M. (2008) 'Choices, situations, and happiness'. *Journal of Public Economics* 92 (2008) 1821–1832.
- Krippner, G. R. (2005) 'The financialization of the American economy'. *Socio-Economic Review*, 3, 173-208.
- Kronstein, H. (1952) 'Collective Bargaining in Germany: Before 1933 and after 1945'. *The American Journal of Comparative Law*, Vol. 1, No. 3 (Summer, 1952), pp. 199-214.
- Kronthaler F. (2005) 'Economic Capability of East German Regions: Results of a Cluster Analysis' *Regional Studies*, Vol. 39.6, pp. 739–750, August 2005
- Krugman P.R.. (1991) *Geography and Trade*. Cambridge MA, London, MIT Press
- Kühberger, A. (1998) 'The Influence of Framing on Risky Decisions: A Meta-analysis'. *Organizational Behavior and Human Decision Processes*, Vol. 75, No. 1, July, pp. 23-55., 1998.
- Kuhn, T. (1970). *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- Kwan, M.-P., and Schwanen, T. (eds.) (2009) 'Critical Quantitative Geographies'. *Environment and Planning, A*, 41(2).
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. (2008) 'The Economic Consequences of Legal Origins'. *Journal of Economic Literature* 2008, 46:2, 285–332.

- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny R. W. (1998) 'Law and Finance'. *The Journal of Political Economy*, Vol. 106, No. 6, pp. 1113-1155.
- LaBorde Witt, J. (1994) 'The gendered division of labor in parental caregiving: biology or socialisation?' *Journal of Women and Ageing*, Vol. 6, pp. 65-89
- Laibson, D. (1997) 'Golden eggs and hyperbolic discounting'. *Quarterly Journal of Economics* 112(2):443-77.
- Laibson, D. (1998) 'Life-cycle consumption and hyperbolic discount functions'. *European Economic Review* 42, pp. 861-871
- Lang, K., Kuhlmann, R. (1996) "Bündnis für Arbeit" – Reformperspektive für Vollbeschäftigung und Sozialstaat. In *Gewerkschaftliche Monatshefte* 3/1996
- Langley, P. (2004) 'In the Eye of the Perfect Storm: The Final Salary Pension Crisis and Financialisation of Anglo-American Capitalism'. *New Political Economy*, Vol. 9., No. 4. December 2004.
- Langley, P. (2008) 'Financialization and the Consumer Credit Boom'. *Competition and Change*, Vol. 12, No. 2, pp. 133–147.
- Leinert, J. (2004) 'Automatische Entgeltumwandlung: Hohe Teilnahmequoten ohne Zwang'. *Wirtschaftsdienst*. 84. Jg. pp. 98-104.
- pages 625 – 645
- Leyshon, A., Thrift, N. (1995) 'Geographies of Financial Exclusion: Financial Abandonment in Britain and the United States'. *Transactions of the Institute of British Geographers*, New Series, Vol. 20, No. 3 (1995), pp. 312-341.
- Leyshon, A., Thrift, N., Pratt, J. (1998) 'Reading financial services: texts, consumers, and financial literacy'. *Environment and Planning D, Society and Space*, 1998, Vol. 16. pp. 29-55.
- Leyshon, A., Burton, D., Kights, D., Alferoff, C., Signoretta, P. (2004) 'Towards an ecology of retail financial services: understanding the persistence of door-to-door credit and insurance providers'. *Environment and Planning A* 2004, volume 36,
- Likert, R. (1932) 'A Technique for the Measurement of Attitudes'. *Archives of Psychology*, 140: 1–55.
- Loughran, T. (2007) 'Geographic dissemination of information'. *Journal of Corporate Finance*, 13 (2007) 675–694.
- Loughran, T. and Schultz P. (2005) 'Liquidity: Urban versus rural firms'. *Journal of Financial Economics*, 78 (2005) 341–374.
- Lusardi, A. (2010) 'Americans' Financial Capacity'. *Report Prepared for the Financial Crisis Inquiry Commission*, February 26, 2010.
- M+E (2006) 'Tarifvertrag über altersvorsorgewirksame Leistungen' zwischen Gesamtmetall und IG Metall. Available at http://metallrente.de/content/pdf/versorgungswerk/tarifvertrag/TV_AVWL_mit_TV_VL_26052006.pdf, downloaded on the 17. August 2009.
- MacGregor, S. (1999) 'Welfare, Neo-Liberalism and New Paternalism: Three Ways for Social Policy in Late Capitalist Societies'. *Capital and Class*, 1999 23: 91.

- Madrian, B., C., Shea, D., F. (2001) The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior. *The Quarterly Journal of Economics*, Vol. 116, No. 4 (Nov., 2001), pp. 1149-1187
- Mahajan, V., Muller, E., Bass, F. M. (1990) 'New Product Diffusion Models in Marketing: A Review and Directions for Research' *The Journal of Marketing*, Vol. 54, No. 1 (Jan., 1990), pp. 1-26.
- Mai R., Rolof, J., Micheel, F. (2007) *Regionale Alterung in Deutschland über besonderer Berücksichtigung der Binnenwanderungen*. Bundesinstitut der Bevölkerungsforschung, Wiesbaden.
- March, J. G. (1962) 'The Business Firm as a Political Coalition'. *The Journal of Politics*, Vol. 24, Issue 4, pp. 662-678.
- Marston, S. A., Jones, J. P., III, Woodward, K. (2005) 'Human geography without scale'. *Transactions of the Institute of British Geographers*, Volume 30, pp 416-432.
- Martin, R. (2003) Geography Financialized. In: Aronowitz, S., Gautney, H. (eds.) (2003) *Implicating empire: globalization and resistance in the 21st century world order*. Basic Books, pp. 211-228
- Martin R., Berndt, C., Klagge, B., Sunley, P. (2005) 'Spatial proximity effects and regional equity gaps in the venture capital market: evidence from Germany and the United Kingdom' *Environment and Planning A* 2005, volume 37, pages 1207 – 1231.
- Martin R., Sunley, P., Turner, D. (2002) 'Taking risks in regions: the geographical anatomy of Europe's emerging venture capital market'. *Journal of Economic Geography* 2 (2002) pp. 121-150.
- Martin, R., Rafferty, M., Bryan, D. (2008) 'Financialization, Risk and Labour'. *Competition and Change*, Vol. 12, No. 2, June 2008 120–132.
- Martin, J. P. and Whitehouse, E. (2008) 'Reforming Retirement-Income Systems: Lessons from the Recent Experiences of OECD Countries'. *Institute for the Study of Labor (IZA) Discussion Paper* No. 3521
- Mason, C. M., Harrison, R., T. (2002) 'The Geography of Venture Capital Investments in the UK'. *Transactions of the Institute of British Geographers*, New Series, Vol. 27, No. 4 (2002), pp. 427-451.
- Mason, W. (1995) 'Comment'. *Journal of Educational and Behavioral Statistics* 20 (2): 221–27.
- Matysiak, A. and Steinmetz, S. (2008) 'Finding Their Way? Female Employment Patterns in West Germany, East Germany, and Poland'. *European Sociological Review*, Vol. 24. Nr. 3. pp. 331-345.
- McDowell, L. (1997) *Capital Culture: Gender at Work in the City*. Blackwell, Oxford, UK
- McDowell, L. (1998) 'Elites in the City of London: some methodological considerations' *Environment and Planning A* 1998, volume 30, pp. 2133-2146.
- McDowell, L. (2001) 'Father and Ford Revisited: Gender, Class and Employment Change in the New Millennium'. *Transactions of the Institute of British Geographers*, Vol. 26, No. 4, pp. 448-464

- Mesa-Lago, C. (2002) 'Myth and Reality of Pension Reform: The Latin American Evidence'. *World Development* Vol. 30, No. 8, pp. 1309–1321.
- Mitchell, O. S., Utkus, S. P. (2004) *Pension Design and Structure, New Lessons from Behavioral Finance*. Oxford University Press.
- Monk, A. H. B. (2008) 'The Knot of Contracts: The Corporate Geography of Legacy Costs'. *Economic Geography*, Apr 2008; 84; 2.
- Monk, A. H. B. (2009) 'The Financial Thesis: Reconceptualizing Globalisation's Effect on Firms and Institutions' *Competition and Change*, Volume 13, Number 1, March 2009 , pp. 51-74(24)
- Munnell, A. H. (2006) 'Employer-sponsored plans: the shift from defined benefit to defined contribution'. In: Clark, G. L., Munnell A. H. and Orszag J. M. (eds) (2006) *The Oxford Handbook of Pensions and Retirement Income*. Oxford University Press.
- Natali D. and Rhodes M. (2004) 'Trade-offs and Veto Players: Reforming Pensions in France and Italy'. *French Politics*, Volume 2, Number 1, April 2004 , pp. 1-23.
- NEST (2010) 'Getting ready for workplace pension reform'. *National Employment Savings Trust*, London.
- O'Brien, R. M., Hudson, K., Stockard, J. (2008) 'A Mixed Model Estimation of Age, Period and Cohort Effects'. *Sociological Methods Research*, 2008; 36; 402.
- O'Donoghue, T, Rabin, M. (1999) 'Doing It Now or Later'. *The American Economic Review*, Vol. 89, No. 1. (Mar., 1999), pp. 103-124.
- OECD (2007) Social Expenditure Database. <http://masetto.sourceoecd.org/>, accessed on the 17. August 2009.
- OECD (2009) *Pensions at a Glance 2009. Retirement-income systems in OECD countries*. OECD, 2009.
- Orenstein, M. A. (2008) 'Out-liberalizing the EU: pension privatization in Central and Eastern Europe'. *Journal of European Public Policy*, 15:6, 899–917.
- Orlowski, R. and Riphahn, R. T. (2009) 'The East German Wage Structure after Transition'. *Economics of Transition*, Vol. 17, Issue 4, pp. 629-659.
- Ormrod, R. K. (1990) 'Local Context and Innovation Diffusion in a Well-Connected World', *Economic Geography*, Vol. 66, No. 2 (Apr., 1990), pp. 109-122.
- Otte, G., Baur, N. (2008) 'Urbanism as a Way of Life? Räumliche Variationen der Lebensführung in Deutschland'. *Zeitschrift für Soziologie*, Jg. 37, Heft 2, April 2008, S. 93–116
- PADA (2009) Building Personal Accounts: Designing an Investment Approach. A discussion paper to support consultation. *PADA Investment Consultation Team*, London.
- PADA (2010) *Annual Report and Accounts*. Personal Accounts Delivery Authority, On behalf of the Controller of Her Majesty's Stationery, London.
- Palier, B. (2003) 'Facing the Pension Crisis in France'. In: Clark, G.L. and Whiteside N. (eds) (2003) *Pension Security in the 21st Century: redrawing the public-private debate*. Oxford University Press.

- Perotti, E., Swienbacher, A. (2009) 'The Political Origin of Pension Funding'. *Journal of Financial Intermediation* 18 pp. 384–404.
- Pierson, P (1994) *Dismantling the Welfare State? Reagan, Thatcher, and the Politics of Retrenchment*. Cambridge University Press.
- Pierson, P. (1996) 'The New Politics of the Welfare State' *World Politics*, Vol. 48, No. 2, pp. 143-179.
- Pinheiro, J.C., Bates, D.M. (2000) *Mixed-Effects Models in S and S-PLUS*. Springer-Verlag New York Inc.
- PNP (1998) 'Volle Rente ab 60 Jahren - Wie sich - Schröder die Finanzierung vorstellt' in *Passauer Neue Presse*, 9 November 1998
- PNP (1999) 'Wie „Rente mit 60“ funktioniert'. In: *Passauer Neue Presse*, 14 January, 1999.
- Polányi, M. (1966) *The Tacit Dimension*. The University of Chicago Press.
- Porter, M. E. (1998) 'Clusters and the new economics of competition'. *Harvard Business Review*, November-December, pp. 77-90.
- Pred, A. (1967) *Behavior and location*. *Lund Studies in Geography*, Series B, no. 27.
- Pred, A. R. (1973) 'The growth and development of systems of cities in advanced economies'. in Pred, A. R. and Törnqvist, G. E. (1973) *Systems of Cities and Information Flows*. Lund Studies in Geography, Ser. B. Human Geography No. 38.
- Purple Book (2009) *DB Pension Universe Risk Profile*. The Pensions Regulator.
- Queisser, M., Whitehouse, E., Whiteford, P. (2007) 'The public–private pension mix in OECD countries'. *Industrial Relations Journal* 38:6, 542–568.
- R Development Core Team (2009) 'R: A language and environment for statistical computing'. *R Foundation for Statistical Computing*, Vienna, Austria. Available at: <http://www.R-project.org>
- Raffelhüsch, B. und Ehrentraut, O. (2007) 'Vorsorgementalität der Deutschen - Die Verlagerung der sozialen Verantwortung in der Altersvorsorge' Studie im Auftrag der neuen Leben Lebensversicherung AG. *Forschungszentrum Generationsverträge*, Albert-Ludwigs-Universität-Freiburg.
- Reinheckel, A., Franke, K., Weise, W., Robra, B.P. (1998) 'Effect of re-unification on fertility behaviour in East Germany: A review of the evidence' *Reproductive Health Matters*, 6/11 pp. 122-128.
- Rentenversicherungsbericht (2008) *Bericht der Bundesregierung über die gesetzliche Rentenversicherung, insbesondere über die Entwicklung der Einnahmen und Ausgaben, der Nachhaltigkeitsrücklage sowie des jeweils erforderlichen Beitragssatzes in den künftigen 15 Kalenderjahren gemäß § 154 SGB VI*. Bundesministerium für Arbeit und Soziales
- Rhodes, M. (2000) 'The Political Economy of Social Pacts: 'Competitive Corporatism' and European Welfare Reform'. In: Pierson, P. (2000) *The New Politics of the Welfare State*. Oxford University Press, pp. 165-194
- Richter, S (2001) *Ideen, Interessen und Institutionen. Bestimmungsfaktoren des rentenpolitischen Entscheidungsprozesses*. Deutsches Institut für Altersvorsorge, Köln.

- Riester, W. (2004) *Mut zur Wirklichkeit*. Droste Verlag, Düsseldorf.
- Riester, W. (2009) Interview prepared with Mr. Riester on the 19th May 2009 in Berlin. The written form of the interview is available from the author in German language.
- Rodríguez-Pose, A. and Zademach, H-M. (2003) 'Rising Metropoli: The Geography of Mergers and Acquisitions in Germany'. *Urban Studies*, Vol. 40, No. 10, 1895–1923.
- Rodrik, D (2006) 'Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's Economic Growth in the 1990s: Learning from a Decade of Reform'. *Journal of Economic Literature*. Vol. 44, pp. 973–987.
- Rosenfeld, R. A., Trappe, H., Gornick, J. C. (2004) 'Gender and Work in Germany: Before and After Reunification' *Annual Review of Sociology*, 2004. 30:103–24.
- Rowlingson, K. (2002) 'Private Pension Planning: The Rhetoric of Responsibility: The Reality of Insecurity' *Journal of Social Policy*, 31, 4, 623–642
- Ruprecht, W. (2004) 'Automatische Entgeltumwandlung in der betrieblichen Altersvorsorge – eine Replik'. *Wirtschaftsdienst*, Vol. 10, pp. 651-656.
- Sackmann, R., Häussermann H (1994) 'Do regions matter? Regional differences in female labour-market participation in Germany' *Environment and Planning A*, 1994 26 1377 – 1396
- Sarfati H. (2006) 'Social dialogue: A potential "highroad" to policies addressing ageing in the EU and member States'. *International Social Security Review*, Vol. 59, 1/2006
- Scheubel, B., Schunk, D., Winter, J. (2009) 'Don't Raise the Retirement Age! An Experiment on Opposition to Pension Reforms and East-West Differences in Germany'. *CESIFO Working Paper No. 2752*
- Schludi, M. (2005). *The Reform of Bismarckian Pension Systems: A Comparison of Pension Politics in Austria, France, Germany, Italy and Sweden*. Amsterdam: Amsterdam University Press.
- Schmähl W. (2003) 'Private Pensions as Partial Substitute for Public Pensions in Germany'. In: Clark, G.L. and Whiteside (eds) (2003) *Pension Security in the 21st Century*. Oxford University Press, New York.
- Schmähl, W. (2007a) 'Die Einführung der dynamischen Rente 1957. Gründe, Ziele und Maßnahmen – Versuch einer Bilanz'. *ZeS Arbeitspapier 3/2007*.
- Schmähl, W. (2007b) 'Soziale Sicherung im Lebenslauf – Finanzielle Aspekte in längerfristiger Perspektive am Beispiel der Alterssicherung in Deutschland'. *ZeS-Arbeitspapier 9/2007*
- Schmähl, W., (2007c) 'Entgeltumwandlung und die Finanzen der Sozialversicherung – ein Problemaufriss'. *Zentrum für Sozialpolitik - Arbeitspapier Nr. 7/2007*. Universität Bremen
- Schroeder, W. (2003) 'Das deutsche Modell industrieller Beziehungen: Die Polity der Tarifpolitik. In: Einkommens- und Vermögensverteilung in Deutschland'. Edited by Andersen, U. Wochenschau Verlag, Schwalbach.
- Schwanen, T., Kwan, M-P (2009) 'Quantitative Revolution 2: The Critical (Re)Turn'. *The Professional Geographer*, 61: 3, 283 — 291

- Sen, A. (1991) 'Welfare, Preference and Freedom'. *Journal of Econometrics*, 50 (1991) 15-29.
- Sen, A. (1994) 'The Formulation of Rational Choice'. *The American Economic Review*, Vol. 84, No. 2.
- Shleifer, A., Vishny R. W. (1997) 'A Survey of Corporate Governance'. *The Journal of Finance*, Vol. 52, No. 2 (Jun., 1997), pp. 737-783.
- Silvia, S.J., Schroeder, W. (2007) 'Why are German Employers Associations Declining? Arguments and Evidence'. *Comparative Political Studies* 2007; 40; 1433
- Simon, H. (1955) 'A Behavioral Model of Rational Choice'. *The Quarterly Journal of Economics*, Vol. 69, No. 1 (Feb., 1955), pp. 99-118.
- Simon, H. A. (1956) 'Rational choice and the structure of the environment'. *Psychology Review* 63: 129-38.
- Simpson, E., H. (1951) 'The Interpretation of Interaction in Contingency Tables'. *Journal of the Royal Statistical Society*, Ser. B, 13, pp. 238 – 241.
- Snower, D. J., Merkl, C. (2006) 'The Caring Hand that Cripples: The East German Labor Market after Reunification'. *The American Economic Review*, 96: 2, 375-382.
- SoKaBau (2010) 'Service+Vorsorge für die Bauwirtschaft'. Available at http://www.soka-bau.de/soka_bau/soka-bau/soka-bau_unternehmen/#geschichte, accessed on 15th October 2010.
- Sorenson, O. (2003) 'Social networks and industrial geography'. *Journal of Evolutionary Economics*, (2003) 13: 513–527.
- Soros, G. (1987) *The Alchemy of Finance*. John Wiley and Sons, Inc. New Jersey.
- Sorsa, V-P., Roumpakis, A. (2010) 'Nordic welfare financiers made global portfolio investors: Institutional change in pension fund governance in Sweden and Finland'. *Oxford University Working Papers in Employment, Work and Finance*, WPG-10-01. Electronic copy available at: <http://ssrn.com/abstract=1533376>
- Stadler, C., Lobe, S. (2010) 'Voluntary Pension Funding in Germany and the Effect of International Accounting'. Available at: <http://ssrn.com/abstract=1075222>.
- Starke, P (2006) 'The Politics of Welfare Retrenchment: A Literature Review'. *Social Policy and Administration*, Vol. 40, No. 1, February 2006. pp. 104–120
- Statistisches Jahrbuch (2009) *Statistisches Jahrbuch 2009: Für die Bundesrepublik Deutschland*. Statistisches Bundesamt, Wiesbaden.
- Sternberg, R., Litzengerger T. (2004) 'Regional Clusters in Germany—their Geography and their Relevance for Entrepreneurial Activities'. *European Planning Studies*, Vol. 12, M. 6, September 20.
- Strauss, K. (2008) 'Re-engaging with rationality in economic geography: behavioural approaches and the importance of context decision-making'. *Journal of Economic Geography* 8 (2008) pp. 137-156
- Strauss, K. (2009) 'Cognition, context, and multimethod approaches to economic decision making'. *Environment and Planning A* 2009, volume 41, pp. 302-317

- Streeck W. (2003) 'No longer the Century of Corporatism. Das Ende des "Bündnisses für Arbeit"'. *MIPfG Working Paper* 03/4, Mai 2003.
- Streeck, W., Hassel, A. (2003) 'The crumbling pillars of social partnership'. *West European Politics*, 26:4,101 — 124
- Streeck, W., Rehter, B (2005) 'Institutionen im Wandel: Hat die Tarifautonomie eine Zukunft?' In: *Tarifpolitik im Umbruch*. Köln: Deutscher Institutsverlag.
- Streeck, W., Thelen, K. (eds) (2009) *Beyond Continuity: Institutional Change in Advanced Political Economies*. Oxford University Press.
- Streeck, W., Trampusch C. (2005) 'Economic Reform and the Political Economy of the German Welfare State'. *German Politics*, Vol.14, No.2 (June 2005), pp.174–195
- StZ (1999) 'Riesters Rentenpläne fraglich' *Stuttgarter Zeitung*, 18 June 1999
- Suedekum, J., Wolf, K., Blien, U. (2009) 'Cultural diversity and local labour markets' *Forschungsinstitut zur Zukunft der Arbeit*, Discussion Paper No. 4619
- Sunley, P., Klagge, B., Berndt, C., Martin, R. (2005) 'Venture capital programmes in the UK and Germany: In what sense regional policies?' *Regional Studies*, 39: 2, 255 — 273.
- Taylor, P., J. (1982) 'A Materialist Framework for Political Geography'. *Transactions of the Institute of British Geographers*, Vol. 7, No. 1, pp. 15-34
- Taylor-Gooby, P. (1999) 'Markets and Motives – Trust and Egoism in Welfare Markets'. *Journal of Social Policy*, 28, 1, 97–114
- Taylor-Gooby, P. (ed.) (2004) *New Risks, New Welfare: The Transformation of the European Welfare State*. Oxford University Press
- Thaler, R. H., Sunstein, C. R. (2003) 'Libertarian Paternalism'. *The American Economic Review*, Vol. 93, No. 2. pp. 175-179.
- Thaler, R.H., Benartzi, S. (2004) 'Save more tomorrow: Using behavioural economics to increase employee savings'. *Journal of Political Economy*, 2004, vol. 112, no. 1, pt. 2
- The Economist (2009a) 'A slow-burning fuse – A special report on ageing populations' *The Economist*, June 27th, 2009.
- The Economist (2009b) *Pocket World in Figures: 2010 Edition*. Profile Books Limited, London.
- The Economist (2010a) 'Calling time on progress' *The Economist*, July 15th 2010.
- The Economist (2010b) 'Old-age tension'. *The Economist*, Oct 16th, 2010.
- The World Bank (1994) *Averting the old age crisis. Policies to Protect the Old and Promote Growth*. Oxford University Press.
- Theelen, K. A. (1991) *Union of Parts – Labor Politics in Postwar Germany*. Cornell University Press.
- Therneau, T., Clinic, M. (2009) 'A Short Introduction to coxme'. Reference manual to the R package coxme. Available at: <http://cran.r-project.org/web/packages/coxme/>, accessed on the 07. February 2010.
- Thompson, L. (1998) *Growing Older and Wiser - The Economics of Public Pensions*. The Urban Institute Press, Washington.

- Thrift, N. (1996) *Spatial formations*. Sage, London.
- TNS Infratest (2008) *Situation und Entwicklung der betrieblichen Altersversorgung in Privatwirtschaft und öffentlichem Dienst 2001 – 2007*. Untersuchung im Auftrag des Bundesministeriums für Arbeit und Soziales, München.
- TNS Infratest Sozialforschung (2007) *Aba-Statistikreihe 2008* http://www.aba-online.de/seiten/betriebsrente/daten_fakten/2_Verbreitung_bav/A_Infratest_und_Ifo/2Ab-Infratest2006-Durchfuehrungswege_Maenner_Frauen-Maerz2008_SD_.pdf, accessed on January 26, 2009.
- Trampusch, C. (2006) 'Sequenzorientierte Policy-Analyse. Warum die Rentenreform von Walter Riester nicht an Reformblockaden scheiterte'. *Berliner Journal für Soziologie* 16(1), 55-76
- Trappe, H., Rosenfeld R. A. (2000) 'How do children matter? A comparison of gender earnings inequality for young adults in the former East Germany and the former West Germany'. *Journal of Marriage and Family*, 62:489–507
- TV AVWL (2006) 'Tarifvertrag über altersvorsorgewirksame Leistungen' zwischen Gesamtmetall und IG Metall. Available at http://metallrente.de/content/pdf/versorgungswerk/tarifvertrag/TV_AVWL_mit_TV_VL_26052006.pdf, downloaded on the 17. August 2009.
- Tversky, A., Simonson, I. (1993) 'Context-Dependent Preferences'. *Management Science*, Vol. 39, No. 10 (Oct., 1993), pp. 1179-1189.
- TZ (1999a) 'Zwickel, die Wiederholungsmaschine'. *Die Tageszeitung*, 1 October 1999
- TZ (1999b) 'Eichel will Riesters „Zwangssrente“'. *Die Tageszeitung*, 13 September 1999
- UN World Population Prospects (2008) <http://esa.un.org/unpp/index.asp?panel=2>, accessed on the 14th August 2009.
- Unger, B. (2010) 'Older and wiser – A special report on Germany' *The Economist*, Vol. 394 Issue 8673.
- VAG (2004) 'Gesetz über die Beaufsichtigung der Versicherungsunternehmen'. Zuletzt geändert durch Gesetz vom 21. Dezember 2004 (BGBl. I S. 3610). Available at <http://www.versicherungsgesetze.de/versicherungsaufsichtsgesetz/>, accessed on 10. May 2010.
- van Riel, B., Hemerijck, A., Visser, J. (2003) 'Is there a Dutch Way to Pension Reform?' In: Clark, G.L. and Whiteside (eds) (2003) *Pension Security in the 21st Century: redrawing the public-private debate*. Oxford University Press.
- Vickerstaff, S and Cox, J (2005) Retirement and risk: the individualisation of retirement experiences? *The Sociological Review*, 2005, 77-95
- von Hippel, E (1994) "'Sticky Information" and the Locus of Problem Solving: Implications for Innovation' *Management Science*, Vol. 40, No. 4 (Apr., 1994), pp. 429-439.
- VVG (2007) 'Versicherungsvertragsgesetz'. Zuletzt geändert durch Gesetz vom 14.04.2010 (BGBl. I S. 410). Available at <http://dejure.org/gesetze/VVG>, accessed on 10. May 2010.

- Walker, R. (1989) 'A Requiem for Corporate Geography: New Directions in Industrial Organization, the Production of Place and the Uneven Development'. *Geografiska Annaler. Series B, Human Geography*, Vol. 71, No. 1.
- Weber, M. (1904/05) 'Die protestantische Ethik und der „Geist“ des Kapitalismus'. *Archiv für Sozialwissenschaft und Sozialpolitik* 20: 1-54 and 21: 1-110. Reprinted in: *Gesammelte Aufsätze zur Religionssoziologie*, 1920: 17-206.
- Weber, M. (1904/05) 'Die protestantische Ethik und der „Geist“ des Kapitalismus'. *Archiv für Sozialwissenschaft und Sozialpolitik* 20: 1-54 and 21: 1-110. Reprinted in: *Gesammelte Aufsätze zur Religionssoziologie*, 1920: 17-206.
- Wiedemann, G (1991) Die arbeitsrechtliche Entwicklung der betrieblichen Altersversorgung in Deutschland 1920-1974. *Archiv für Sozialgeschichte*, 31, 157-178.
- Williams, K. (2000) 'From shareholder value to present-day capitalism'. *Economy and Society*, 29: 1, 1 — 12
- Williamson, J. (1990) 'What Washington Means by Policy Reform'. In: Williamson, J. (ed) (1990) *Latin American Adjustment: How Much Has Happened?* Institute for International Economics.
- Wirth, L. (1938) 'Urbanism as a Way of Life'. *American Journal of Sociology* 44: 1–24.
- Wójcik, D. (2002) 'The Länder are the Building Blocks of the German Capital Market'. *Regional Studies*, Vol. 36.8, pp. 877–895.
- Wójcik, D. (2003) 'Change in the German model of corporate governance: evidence from blockholdings 1997-2001'. *Environment and Planning A*, 2003, vol. 35, pages 1431-1458.
- Wójcik, D. (2005) 'Path dependence and financial markets: the economic geography of the German model, 1997-2003' *Environment and Planning A*, 2005, vol. 37, pages 1769-1791.
- Wójcik, D. (2006) 'Convergence in corporate governance: evidence from Europe and the challenge for economic geography'. *Journal of Economic Geography* 6 (2006) pp. 639–660.
- Wójcik, D. (2009) 'Financial centre bias in primary equity markets'. *Cambridge Journal of Regions, Economy and Society* 2009, 2, 193–209.
- Wójcik, D., Burger, Cs. (2010) 'Listing BRICs: Stock Issuers from Brazil, Russia, India, and China in New York, London, and Luxembourg'. *Economic Geography*, Vol. 86 No. 3 2010.
- Wolf, N. (2009) 'Was Germany ever United? Evidence from Intra- and International Trade, 1885-1933'. *Journal of Economic History*, Vol. 69, No. 3.
- Wood, S. (2001) 'Business, Government, and Patterns of Labor Market Policy in Britain and the Federal Republic of Germany'. In: Hall, P.A. and Soskice, D. (2001) (edited by) *Varieties of Capitalism. The Institutional Foundations of Comparative Advantage*. Oxford University Press. pp. 247-274.
- Woods, C. (forthcoming, 2011) 'Funding Climate Change: How pension fund fiduciary duty masks trustee inertia & short-termism', in Jim Hawley, Shyam Kamath & Andrew T Williams (eds) (forthcoming, 2011) *Corporate Governance Failures: The*

Role of Institutional Investors in the Global Financial Crisis. University of Pennsylvania Press: Philadelphia.

World Bank (1994) *Averting the Old Age Crisis*. Oxford University Press

World Bank Social Protection Project Database (2009), <http://ddp-ext.worldbank.org/ext/CSIDB/> accessed on the 14th August 2009.

Yankow, J. J. (2006) 'Why do cities pay more? An empirical examination of some competing theories of the urban wage premium'. *Journal of Urban Economics* 60 (2006) 139–161.

Yeung, H. W. (2003) 'Practicing New Economic Geographies: A Methodological Examination'. *Annals of the Association of American Geographers*, Vol. 93, No. 2, pp. 442-462.

Zingales, L. (2000) 'In Search of New Foundations'. *The Journal of Finance*, Vol. 55, No. 4.

Zolnik, E. (2009) 'Promoting dialogue across the qualitative - quantitative divide in human geography: A biographical-multilevel approach to human - environment interactions' *The Professional Geographer* 61.

Zumbansen, P (2007) 'Varieties of Capitalism and the Learning Firm: Corporate Governance and Labour in the Context of Contemporary Developments in European and German Company Law'. *European Business Organization Law Review*, 8 : 467-496

10 Confirmations on Paper Submissions and Co-Authorship

10.1 Environment and Planning C

Válasz Válasz mindenkinek Továbbítás Áthelyezés Törlés Bezárás

Submission to Environment and Planning C
Csaba Burger

Küldve: 2010. november 15. 14:01
Címzett: pion1001@googlemail.com
Mellékletek: [Social partners' role in t~1.doc \(258 KB\)](#) [Megnyitás weblapként]

Dear Mr. Mager,

I am writing regarding my research paper 'The role of social partners in transforming the German pension system', which I would like to submit to Environment and Planning C. I have attached the paper, and would be grateful to you for your help in the revision process.

The paper contains my name and contact information on the first page only.

Many thanks for your help and kind regards,
Csaba Burger

Mr. Csaba Burger
D.Phil. candidate
University of Oxford, School of Geography
Mobile: +44.78.26.12.11.67

10.2 Environment and Planning A

ENVIRONMENT AND PLANNING A

Managing Editor and Editor Handling Submission

Professor Nigel Thrift

Please correspond via

Editorial Manager Mrs Ros Whitehead

19 Dunstarn Lane, Leeds, LS16 8EN, UK

Tel 0113 230 0991/0113 267 8868 (+44 113)

Fax 0113 230 1851 (+44 113)

Email ros@roswpion.demon.co.uk

Reference Number 43/521

Date Acknowledged 7 November 2010

Dear Ms Burger

Thank you for your manuscript submitted for possible publication in this journal. I will contact you again when referees' reports have been received.

Our conditions of publication are as follows:

- (a) that your paper reports unpublished work;
 - (b) that your paper is not being submitted to any other journal or publication;
 - (c) that you are fully authorised to submit this material for publication;
- that, if accepted, it will not be republished elsewhere without the consent of the publishers.

Please let me know immediately if any of these assumptions are incorrect.

Yours sincerely

Nigel Thrift

Title Local bias and adoption patterns of occupational pensions in Germany

Date manuscript received 7 November 2010

Email csaba.burger@ouce.ox.ac.uk

Ms Csaba Burger

Centre for Work, Employment and Finance

Oxford University Centre for the Environment

South Parks Road

OXFORD

OX1 3QY

10.3 Regional Studies

From: regional.studies@fm.ru.nl (regional.studies@fm.ru.nl)
To: csaba.burger@ouce.ox.ac.uk; csababurger@yahoo.com;
Date: Sat, 6 November, 2010 19:04:00
Cc:
Subject: Regional Studies - Manuscript ID CRES-2010-0364

06-Nov-2010

Dear Mr. Burger:

Your manuscript entitled "Geography of Savings in the German Occupational Pension System" has been successfully submitted online and is presently being given full consideration for publication in Regional Studies.

Your manuscript ID is CRES-2010-0364.

Please quote the above manuscript ID in all future correspondence or when making an enquiry to the editorial office. If there are any changes to your contact details, please log in to Manuscript Central at <http://mc.manuscriptcentral.com/cres> and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Centre after logging in to <http://mc.manuscriptcentral.com/cres>.

The journal to which you have submitted to is participating in the PEER project. This project, which is supported by the European Union EC eContentplus programme (http://ec.europa.eu/information_society/activities/eccontentplus/index_en.htm) aims to monitor the effects of systematic self-archiving (author deposit in repositories) over time. If your submission is accepted, your accepted manuscript may be archived by Taylor & Francis on your behalf, as part of this project. The project will develop models to illustrate how traditional publishing systems may coexist with self-archiving. For further information please visit the PEER project website at <http://www.peerproject.eu>.

Thank you for submitting your manuscript to Regional Studies.

Yours sincerely,
Regional Studies Editorial Office

10.4 The Journal of Risk

From: Cox, Paul (P.R.Cox@exeter.ac.uk)
To: csaba.burger@ouce.ox.ac.uk;
Date: Fri, 5 November, 2010 9:27:33
Cc: gordon.clark@geog.ox.ac.uk;
Subject: Publication in the Journal of Risk

Dear Csaba,

Thank you for your revised manuscript. I am pleased to inform you that your manuscript has been accepted for publication in the Journal of Risk. It will be published in Spring 2011 within a special issue devoted to risk sharing within pensions schemes. Congratulations on your success.

Thank you also for contributing to reviews of other papers and to the conference.

I will now forward your paper to the journal publishers, who may contact you regarding permission to publish.

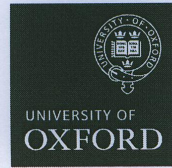
With best wishes,

Dr Paul Cox
Special Issue Editor
The Journal of Risk

10.5 Confirmation on Co-Authorship

Gordon L Clark FBA DSc

Halford Mackinder Professor of Geography
University of Oxford, Oxford, UK OX1 3QY
Sir Louis Matheson Distinguished Visiting Professor
Monash University, Caulfield VIC 3145, Australia
+44-1865-285197; +447717741738



Professor Linda McDowell
Director of Graduate Studies
Oxford University School of Geography and the Environment
University of Oxford
South Parks Road
OX1 3QY
United Kingdom

15th November 2010

Dear Linda,

Subject: Work done on the paper 'The German model of risk distribution in supplementary occupational pensions' by Mr. Csaba Burger DPhil candidate

Hereby I certify in that the majority of work done in researching and writing the paper 'The German model of risk distribution in supplementary occupational pensions' represents the work of Mr. Csaba Burger. Therefore, I approve to use it as a part of Csaba's DPhil thesis.

Sincerely yours,

A handwritten signature in blue ink, appearing to be 'Gordon L Clark', with a horizontal line underneath it.

Tel: +44 (0)1865 285197 Fax: +44 (0)1865 275885 Email:
gordon.clark@ouce.ox.ac.uk