

IZA DP No. 2721

## Recruitment and Job Applications of Older Jobseekers from the Establishments' Perspective

Lutz Bellmann  
Martin Brüssig

April 2007

# Recruitment and Job Applications of Older Jobseekers from the Establishments' Perspective

**Lutz Bellmann**

*IAB Nuremberg, University of Hannover  
and IZA*

**Martin Brussig**

*IAQ, University of Duisburg-Essen*

Discussion Paper No. 2721  
April 2007

IZA

P.O. Box 7240  
53072 Bonn  
Germany

Phone: +49-228-3894-0  
Fax: +49-228-3894-180  
E-mail: [iza@iza.org](mailto:iza@iza.org)

Any opinions expressed here are those of the author(s) and not those of the institute. Research disseminated by IZA may include views on policy, but the institute itself takes no institutional policy positions.

The Institute for the Study of Labor (IZA) in Bonn is a local and virtual international research center and a place of communication between science, politics and business. IZA is an independent nonprofit company supported by Deutsche Post World Net. The center is associated with the University of Bonn and offers a stimulating research environment through its research networks, research support, and visitors and doctoral programs. IZA engages in (i) original and internationally competitive research in all fields of labor economics, (ii) development of policy concepts, and (iii) dissemination of research results and concepts to the interested public.

IZA Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

## **ABSTRACT**

### **Recruitment and Job Applications of Older Jobseekers from the Establishments' Perspective<sup>\*</sup>**

In the demographic change, a prolongation of individual employment and thus of beginning a new employment in later stages of the work life is of growing importance. On the base of microeconomic data (establishment panel of the IAB), this paper analyses firms' characteristics correlating with their recruitment behaviour towards the elderly (age 50 and more). Special consideration is given to the labour supply, which is here observed as the existence of an application from job seekers of age 50 and more, and which is a condition for recruiting of older employees. The results show that about 75% of the firms did not have an application of older job seekers. Of the remaining firms, which reported to have applications from older job seekers, about half of the firms recruited older job seekers, and the other half did not so. However, there are remarkable differences between firms which received applications from older job seekers and firms which are willing to recruit older job candidates. Possible explanations point to the search behaviour of job seekers as well as to the signalling of firms on the labour market towards the elderly.

JEL Classification: J14, J22, J23, J63

Keywords: economics for the elderly, labour supply, labour demand, vacancies

Corresponding author:

Lutz Bellmann  
Institut für Arbeitsmarkt- und Berufsforschung (IAB)  
Regensburger Str. 104  
90478 Nürnberg  
Germany  
E-mail: [lutz.bellmann@iab.de](mailto:lutz.bellmann@iab.de)

---

<sup>\*</sup> An earlier version of this paper was presented at the IZA colloquium, whose organisers and participants we would like to thank here. We also thank Matthias Knuth for helpful comments. The IAB establishment panel is partially financed through the European Social Fund.

## 1 Introduction

The gainful employment of older persons in Germany – the raising of which is one of the prominent goals of employment policy – has increased in the last few years (Büttner 2005a, b; Knuth/Brussig 2006; Bellmann/Gewiese/Leber 2006). However, from an international perspective, the employment rate of older persons, and, moreover, the development thereof, has so far remained unsatisfactory (Funk 2006). Typical indicators are – in addition to the employment rate – the age upon retirement, unemployment of older persons, as well as ending of unemployment due to re-employment. These indicators are tightly interlinked: Under the German main institutional conditions, long-term unemployment is a condition for one of the different forms to receive a pension from the age of 60 onwards.<sup>1</sup> Furthermore, persons of 58 years or older are permitted to draw unemployment benefit (ALG I, and from 1.1.2005 also unemployment assistance, unemployment benefit ALG II) without having to endeavour to end their unemployment under the condition that they enter a deduction-free pension at the earliest possible moment (§ 428 SGB III; [Social Security Code]). However, the risk of long-term unemployment does not set in only at the age of 58, but rather increases monotonically across all age groups. The chances of re-employment, which decrease with age, also contribute to the fact that long-term unemployment is particularly pronounced among older people. In the previous research, processes of recruitment of older persons have only rarely been examined on the micro level. However, relevant indications can be found in numerous studies as to the causes of the low employment rates of older persons, which begin to decrease long before the standard retirement age has been reached. These can be categorised in terms of supply and demand, with the institutional framework being of considerable importance for both (Ebbinghaus 2002; Funk 2004; Eichhorst 2006). For instance, on the one hand, in view of alternative income possibilities (unemployment benefit etc., drawing of pensions), reserved supply behaviour on the part of employees has been repeatedly pointed out (Schmidt 1995; Schmidt/Riphahn 1997; Eichhorst/Thode/Winter 2004; Rabe 2004), and on the other hand, in view of age-specific regulations, which are of little transparency for the companies (Pfarr et al. 2005; Brussig/Knuth/Schweer 2006; RWI/ISG 2005), scepticism in recruiting older persons is cited from the demand perspective (Eichhorst 2006). A further complex is the labour market policy strategy of state and social partners to reduce unemployment precisely by excluding older persons from the labour market (Trampusch 2005).

Although the institutionally determined restriction of supply does play a role, in order to understand the declining employment rates of older persons with advancing age, this restriction is unable to explain the high unemployment and in particular the long-term unemployment of older persons (Koller/Bach/Brixy 2003; Büttner/Knuth/Wojtkowski 2005). A considerable proportion of those who have withdrawn from the labour market through pre-retirement and early retirement are not counted as unemployed.<sup>2</sup> Rather, for an unknown, although certainly considerable, amount of older persons affected, this long-term unemployment should be interpreted as a difficulty in finding new employ-

---

<sup>1</sup> This applies in particular for persons who do not have the opportunity to draw other old-age pensions prior to reaching the standard retirement age of 65 years. The old-age pension due to unemployment spoken of in the text was, for males who were not severely disabled and not employed in partial retirement, the only possibility to draw an old-age pension at the age of 60 (up to 31.12.2005; since this time, the age for an earliest possible pension entry due to unemployment has risen to 63 years until 2009).

<sup>2</sup> In the case of drawing benefits under less restrictive requirements (§ 428 SGB III, see above), those affected even receive unemployment benefit but are not counted as unemployed.

ment in spite of their job search. This is also indicated by suspected age discrimination in companies' recruitment behaviour, although such suspicions are difficult to substantiate (Brussig 2005; Rust/Lange/Pfannkuche 2006).<sup>3</sup>

It is therefore necessary – and the objective of this paper – to consider, beyond the incentives of labour market institutions, the much lesser known micro level of age-specific company recruitment behaviour. Due to the institutionally determined restriction in terms of supply from older persons, the strength of which is not known even though it doubtlessly exists, it is useful to consider the behaviour of companies and jobseekers in combination with each other. However, it is difficult to simultaneously depict the application behaviour of jobseekers and the recruitment behaviour of companies in one research design. We therefore suggest drawing on the presence of an application from an older jobseeker as information. Accordingly, the factors upon which the presence of an application from an older person depends as well as the factors determining the recruitment of an older person will be examined. Although this does not provide any knowledge regarding the applicant and his or her<sup>4</sup> jobseeking behaviour, the company recruitment behaviour towards older persons can be better explained if, in the interpretation, the applicant situation on the micro-level can be included at least in a rudimentary manner.

The next section presents theoretical considerations on how the presence of applications and the recruitment likelihood can be related to one another (section 2). Following this, the database used will be introduced (section 3). The empirical analyses in Section (4) begin with descriptive findings on the company recruitment behaviour towards older applicants, on the presence of an application as well as on companies' self-reports regarding reasons for rejecting older applicants (sections 4.1 and 4.2). In the following section 4.3, the coinciding of the work supply of older applicants and the demand for them will be examined on the micro-level. As a result, it is apparent that the labour supply and the labour demand are clearly far off the mark in coinciding with each other. Possible reasons for this are discussed in Section 4.4. Finally, the analysis will be summarised and conclusions will be drawn (section 5).

## **2 Theoretical considerations: What determines job attractiveness to applicants and recruitment likelihood?**

Company recruitment behaviour and individual jobseeking behaviour are influenced not only by the macro-institutions that regulate the labour market, but also by the exchange relationships between the labour market parties on the micro-level and the resulting expectations of one's own behaviour and that of the other party. In the following, based on very fundamental economic considerations, two alternative explanations for age-discriminatory recruitment behaviour will be introduced, each of which also has consequences for the supply behaviour of jobseekers. The concern is firstly with arguments from efficiency wage theory, in which the relationship between pay and productivity is emphasised, and secondly with arguments that do not broach the individual productivity but rather focus on individual features ("signals") that should allow conclusions about the quality of work capacity.

<sup>3</sup> In a comparison of eight EU countries, German employees judged that "age does not play a role" particularly rarely (11%, surpassed only by Italy (9%); EU average 20%). Of the participating countries, Germans also assessed the most frequently that "people over 40 have trouble finding a job" (52%; EU average 40%), see <http://www.stepstone.de/ueberuns/default.cfm?link=over40> (20.08.2006).

<sup>4</sup> For ease of understanding, we will only use the male form from this point onwards.

The starting point is the shirking theory (Lazear 1981), in which the earnings profile, which has risen with experience on the job and tenure in the company (and consequently with age) is interpreted as the payback of “bond”, which should ensure the motivation of younger employees in the ongoing production process. An important implication of this approach consists in the fact that for younger employees, the productivity is higher than their wages, while for older employees the opposite is true. This results in an incentive for companies to lay off older employees and recruit younger ones. Even if wage increases are strictly fixed on the company level (i.e. are tied to tenure in the company and not to age), an incentive emerges for the company to recruit younger applicants because for older applicants, due to a shorter remaining working life, the income profile would have to increase more steeply than for the younger applicants. Due to internal markets, larger companies have better possibilities for corresponding long-term employment relations. In addition, a larger organisation can set higher productivity standards and compensate their staff for the associated stress (cf. Oi/Idson 1999, Gerlach/Schmidt 1989). Furthermore, through high wages, they avoid voluntary exits of qualified employees. The consequent payment of above-average salaries and wages is attractive for employees who have higher formal qualifications and a high level of motivation.

When older workers are laid off – and under the “shirking conditions” companies have an incentive to do so – they differ from younger unemployed persons in terms of their higher unemployment benefit claims due to their higher previous income. This results in a higher reservation wage rate.<sup>5</sup> However, this also means that for older employees, the job offers in small and medium-sized enterprises are comparatively less attractive, as the pay in SMEs is lower than in large companies. According to the assumption, older jobseekers target their applications at enterprises or companies that satisfy their pay expectations. In the shirking model, however, their chances of being recruited in such companies are poor, as the higher pay with greater age results from the payback of bonds deposited in earlier years (and as such from belonging to a company) and not from the greater age per se.

However, these considerations are based on the assumption – and this represents a fundamental limitation of the shirking theory – that the individual productivity can be determined simply and reliably and that the tenure is long enough (and is at the discretion of the company and cannot, for instance, be forcedly ended through exogenous shocks or limited by protection against dismissal) to be built up with the incentive structure associated with the shirking.

An alternative theoretical model that also leads to alternative hypotheses on the behaviour of jobseekers and enterprises assumes the concept of statistical discrimination (Akerlof 1970) as it is brought to bear in signalling and screening models of the labour market (Spence 1973). The basic assumption is that applicants are judged by enterprises based on easily recognisable characteristics. Based on group membership, a corresponding productivity will be assumed, regardless of whether this assumption applies in the individual case or not. Individual productivity is difficult to measure, and as a result, enterprises behave stereotypically towards persons with certain characteristics. The gender segregation on the labour market, for instance, could be interpreted on this basis (cf. Sesselmeier/Blauermel 1998, 69-73; Hübler 2003).

---

<sup>5</sup> Added to this is the fact that to maintain the incentive structure under shirking conditions, the older employees can only be laid off on a consensual basis, which can be achieved through compensation or solutions similar to pre-retirement. This, in turn, increases the reservation wages for the re-entry into employment.

Due, among other things, to the risk of absences, but also owing to the fact that qualification phases lie further in the past, older persons are attributed with a lower productivity. In accordance with the model, they are therefore only offered jobs with a lower productivity. Through corresponding successes in applications for jobs with a lower productivity (and pay) and failures in applications for other jobs, older jobseekers gain information about the existing chance structures. As a consequence, older applicants part with their original expectations, and as a result, a balance in expectations occurs in which applications from older persons are located where their chances of recruitment are high. The expected application success from the supply side and the expected productivity (or rather assumption of productivity) from the demand side correspond to one another. In this case, a high correlation between job attractiveness to applicants and recruitment likelihood could then be observed.

This behaviour can be expected in particular when the search for employment ensues from a position of unemployment, and through the level and the claim conditions of unemployment insurance, high reservation wages do not exist or cannot be maintained. Widespread pay decreases upon the return to the workforce following unemployment (Dietz et al. 2006) are at least an indication that, independently of whether reservation wages that are too high and inflexible constitute a hurdle for the re-entry into employment (Christensen 2005), the “successful” returns to work ensued under the relinquishment of previous pay standards.

However, constellations are also possible in which although expectations determine the behaviour of the jobseekers and recruitment companies, no balance in expectations arises. Firstly, this is the case when applicants do not completely recognise the problem of statistical discrimination due to unclear information or hope to elude it in their own individual case. Therefore, they apply not only to companies where they – linked with a decline – see themselves as having good chances of being recruited, but also to companies whether they assume that there are attractive working conditions. The strategy behind this is to select the best available offer. In this case, a decoupling of recruitment likelihood and attractiveness to applicants would be observable: The recruitment likelihood would differ strongly between companies, but the attractiveness to applicants would not, as some companies receive applications due to suspected better recruitment chances and others due to suspected more attractive working conditions. Alternatively, it is conceivable that older jobseekers apply selectively for jobs and do not orient themselves towards the existing chances but rather towards the suspected working conditions with the “desired employer”.<sup>6</sup> In the case of full employment or a labour shortage, this would be a rational strategy when persons apply from an existing employment for reasons of self-improvement.

Based on these considerations, information is therefore required that can be used to determine on the one hand the recruitment likelihood and on the other hand the attractiveness of jobs to applicants. The former comprises firstly the type and scope of the personnel requirements as well as indications of whether there is positive or negative discrimination of older persons in the recruitment procedure. For the latter, information on wages, on representation of interests and personnel development as well as working conditions and job requirements need to be included. It would be helpful, moreover, to be aware of the expectations of the jobseekers as well as the motive behind the job

---

<sup>6</sup> In this constellation, the expectations guide the actions only for the jobseekers. Whether the companies orient themselves to the expected (assumed) or actual productivity is irrelevant here.

search or the employment status from which the search ensues (employed or unemployed).

### 3 Database: The IAB establishment panel 2004

The basis of the following empirical analyses is the IAB establishment panel. The IAB establishment panel is a representative survey carried out among all companies in Germany that have at least one employee liable to social security and has been carried out on a yearly basis since 1993 in the West German states and since 1995 in the East German states (cf. Bellmann 1997, 2002). Apart from one-person companies, all company sizes in all sectors of industry are included.

The IAB establishment panel poses, on the one hand, yearly recurring questions, for instance on personnel structure and personnel movement, turnover and investments. In addition, each year, questions on changing themes are addressed. Aspects of the demographic change have repeatedly played a role, resulting in questions on the age structure of personnel (2000; 2002) and on the recruitment of older persons (2004). The programme of questions posed each year includes the number of new appointments in the previous six months<sup>7</sup> and the supply of unfilled positions. In the 12th wave (10th wave for establishments from the former East German states) (2004), it was also asked whether the most recent recruitment was a person aged 50 years or over. Furthermore, it was recorded whether there was (at least) one application from an older person for the most recent job vacancy.<sup>8</sup>

## 4 Empirical analyses

### 4.1 Applications and recruitments of older persons: Descriptive results

A quarter of all companies conducted (at least) one recruitment in the first six months of 2004 (24.3%<sup>9</sup>). In three quarters of companies that had recruited new employees, there were no applications from older persons (74.6%), and in 13.7% there were applications from older persons, but no older person was recruited. In the remaining 11.7% of companies, recruitments of older persons took place following job applications (cf. figure 4.1). In view of the fact that in 2004, the proportion of the labour force aged over 50 years of the population of unemployed persons lay at almost 25%, this value should be seen as relatively low.

---

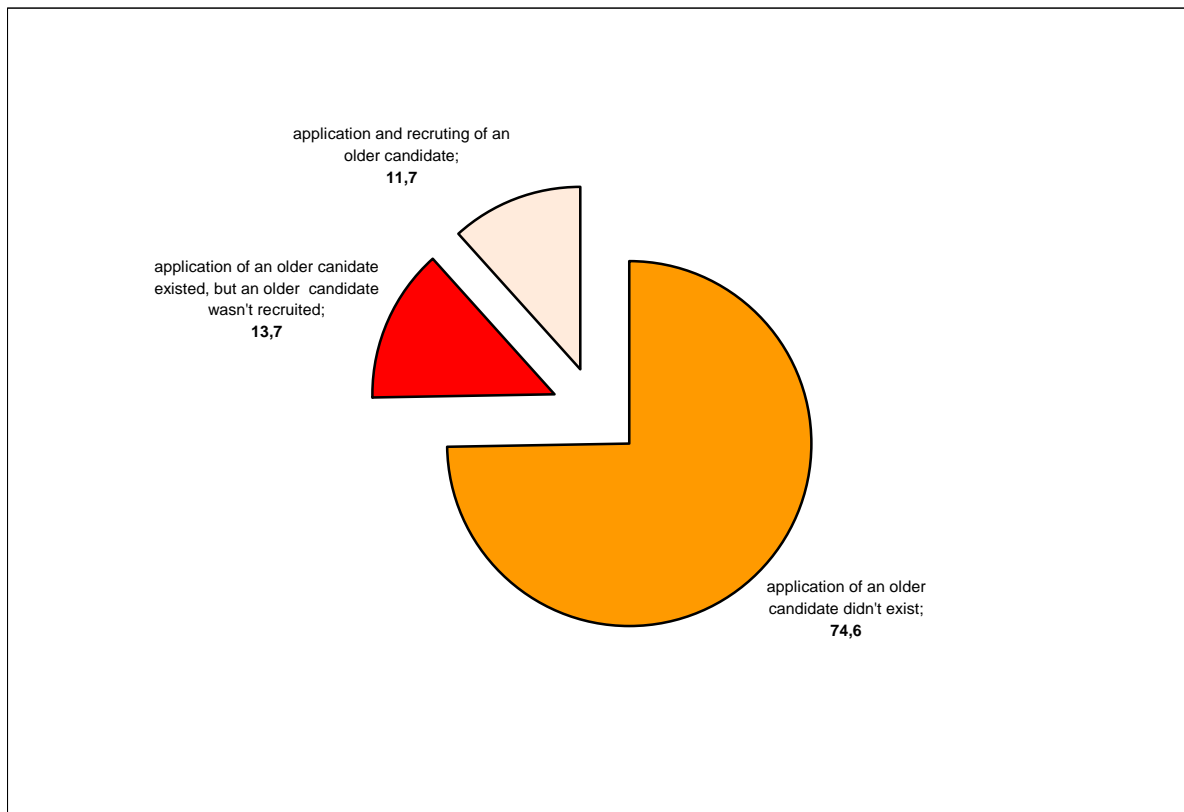
<sup>7</sup> The point of reference for the IAB establishment panel is the 30.06 of each year, meaning that the previous six months refer to the current calendar year.

<sup>8</sup> The question of the presence of an application from older persons presupposes the question of the recruitment of an older person, i.e. all companies surveyed who recruited an older person indicated that there was also an application. If one interprets “application” not only as a written application preferably as a reaction to an advertisement, but rather much more broadly as an individual labour supply, then this series of questions also appears appropriate. If the question of the recruitment of an older person had been posed first, followed by that of the presence of an application, then the question of an application would have been interpreted more narrowly as the presence of a written application, which would have resulted in only a distorted measurement of supply behaviour.

<sup>9</sup> In 13.7% of all companies, or 56.4% of all companies with new recruitments, there was exactly one recruitment



**Figure 4.1: Job applications and recruitments of older persons, first six months of 2004**



Source: IAB establishment panel, projections, own calculations

Specific analyses relating to company size of the companies that indicated having no applications from older persons show that the concern is particularly often with small and medium-sized companies. However, there were also no applications from older persons in more than half of companies with 1000 or more employees (cf. table 4. 1).

**Table 4.1: Proportion of companies without applications from older persons, in percentage**

Company size	No applications from older persons
1 to 9 employees	82.1
10 to 49 employees	71.2
50 to 249 employees	59.3
250 to 499 employees	51.4
500 to 999 employees	47.8
1,000 and more employees	56.1
<b>Total</b>	<b>74.4</b>

Source: IAB establishment panel 2004, projections, own calculations

The 75% of companies that indicated having no applications from older persons were further asked whether they had advertised the job with an age restriction. It was shown that almost two thirds of companies (63%) had advertised the job without an age restriction and one third (33%) had filled the post without a job advertisement. By contrast, only a small proportion of companies (4%) had placed an age-restricted advertisement

(cf. also Bellmann/Leber 2005). Companies justify the age-restricted advertisements above all through the specific activities of the vacancy to be filled, which they state are only suitable for younger persons. In contrast, less importance was given to answers such as “older employees do not fit in with the age structure of the company”, “due to concrete earlier experience, we are reluctant to recruit persons over 50”, and “we envisage problems with recruiting older persons, even without our own concrete experiences” (cf. table 4.2) Age-restricted job vacancies are particularly widespread in the area of banking and insurance (12.6%).

**Table 4.2: Reasons for age-restricted job advertisements, in percentage of companies with age-restricted job advertisements**

The activities of this job are only suitable for younger persons	54.8
Older employees do not fit in with the company's age structure	25.7
General problems with recruiting older persons, even without concrete experiences	11.5
Older persons are recruited reluctantly due to concrete experiences	8.0

*Source: IAB establishment panel 2004, projections, own calculations*

Furthermore, the question was addressed of where companies see problems in the recruitment of older persons. This question was only presented to those companies that had rejected older job applicants or had advertised a job with an age restriction because they had general reservations in recruiting older persons or had had concrete poor experiences with older persons. Here, too, the concern was with a relatively small number of companies (1.0% of the sample). It is apparent that the often-discussed causes “too high wages”, “limited ability to make redundant”, and “no long-term perspective” (which in turn hinder the necessary investments in further training) are not main obstacles; even the “high rate of absences/losses due to illness” were only cited by approximately one in eight companies (cf. table 4.3).

**Table 4.3: General problems with recruiting older persons; in percentage of companies with reservations in recruiting older persons**

Too high wages	19.7
High rate of absences or losses caused by illness	12.5
Limited ability to make redundant	12.5
Low flexibility and versatility	28.6
No long-term perspective	16.3
Limited resilience	52.8

*Source: : IAB establishment panel 2004, projections, own calculations*

11.7% of companies that recruited at least one person in the first six months of 2004 recruited a person aged 50 or older for the most recent recruitment (see above). In terms of all newly recruited persons, in East Germany, almost double the amount of older persons was recruited compared with West Germany (13.5% vs. 7.3%). Here, too, similar to the presence of applications, there are clear differences between companies of different sizes. However, while in the former West German states the proportion of older persons of all newly recruited persons decreases with increasing company size, in the former East German states – with the exception of the highest size category – it increases with increasing company size (cf. table 4.4, columns 2-4). Columns 5-7 of table 4.4 show the distribution of newly recruited older persons across companies according to size category. The majority of recruitments of older employees occurs in companies

with up to 250 employees. In the former West German states, 85% of recruitments of older persons are accounted for by this size category, and in the former East German states, this figure lies at 81%, making it slightly disproportionately high compared to recruitments as a whole (cf. Bellmann/Stegmaier 2006b).

**Table 4.4: Proportions of older persons among new recruitments according to company size 2005, in %**

Size (No. employees)	Proportions of older persons among new recruitments according to company size			Distribution of newly recruited older persons across companies of different sizes		
	All	Former West	Former East	All	Former West	Former East
1	2	3	4	5	6	7
<b>1 ... 9</b>	10.8	10.9	10.2	25.4	29.6	16.7
<b>10 ... 49</b>	9.0	7.7	13.9	31.4	31.2	31.6
<b>50 ... 249</b>	8.1	6.3	14.0	27.1	24.2	33.0
<b>250 ... 499</b>	7.8	5.7	16.3	7.2	6.2	9.3
<b>500 ... 999</b>	8.7	6.4	17.2	5.9	5.0	7.7
<b>1,000 +</b>	3.3	3.0	6.7	3.0	3.7	1.6
<b>All</b>	8.5	7.3	13.3	100.0	100.0	100.0

*Source: IAB establishment panel 2005, Bellmann/Stegmaier 2007b*

In addition, there are differences between sectors: Recruitments of older persons occurred particularly often in the sectors of agriculture and forestry, public administration as well as organisations with no commercial character. However, the recruitment volume of these sectors is low; together, they cover only 13.6% of all new recruitments. Only in transport/telecommunications as well as (in West Germany) the consumer goods producing industry do older persons also have above-average chances in recruitment-intensive sectors (cf. Bellmann/Stegmaier 2006a based on the IAB establishment panel 2005).

Although the proportion of older persons among newly recruited persons is lower in large companies than in small and medium-sized companies, the small and medium-sized companies are more likely to receive no applications from older persons than the larger companies. Added to this are differences in the recruitment behaviour between companies in the former West German states and those in the former East German states as well as differences between different sectors.

#### **4.2 The coinciding of supply and demand for older jobseekers on the company level: Results of regression analyses**

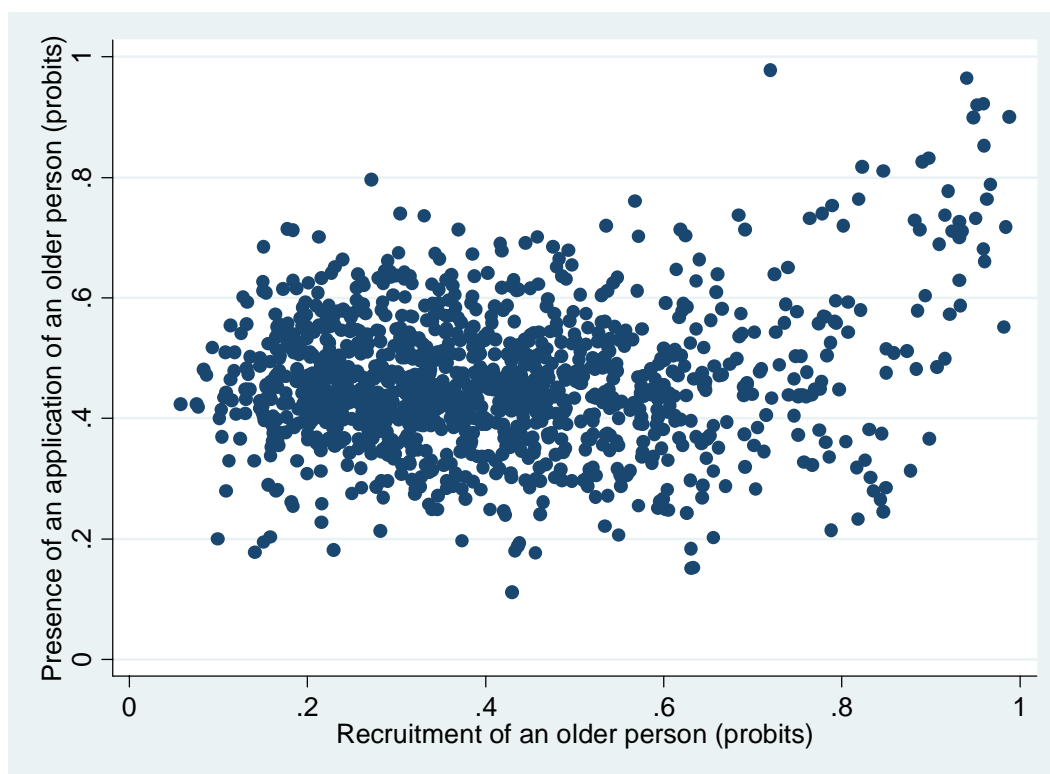
In this section, it is examined which company features are associated with the presence of an application from older persons and the fact of the recruitment of an older applicant. In this way, it is possible to determine the likelihood that a company has an application and the likelihood that the company undertakes a corresponding recruitment. Through a comparison of both probabilities, it can be discerned whether “receptive” companies also receive applications and whether those companies that receive no applications from older persons also offer barely any chances for such applicants.

In order to determine the factors upon which the presence of an application and the recruitment of an older person depend (cf. Bellmann/Gewiese/Leber 2006b), two groups of variables were included (cf. appendix, Table 6.1 (Columns 2 and 3)). The first group contains variables that depict influences on the frequency of recruitments. This is linked to the hypothesis that companies that recruit particularly often, will, *ceteris paribus*, more often recruit older applicants than companies that undertake comparatively little

recruitment. These include first of all the company size, the employment dynamics (expected employment development in the next 12 months) and the fluctuation. Also added was the assessment of the interview partner (Human resource manager etc.) of whether the fluctuation represents a problem of personnel policy. Collective wage agreement, the existence of works councils as well as payments exceeding the collectively agreed wage have the effect of stabilising employment relations; these features were also included in the estimation.

These features were entered into a probit estimation, with which, for each company, the probabilities were calculated of whether an application from older applicants was present and whether an older applicant was recruited. These two estimated probabilities correlate only weakly with one another ( $r = 0.25$ ). Figure 4.2 visualises how little the presence of an application is related to the recruitment chances of older applicants on the company level.

**Figure 4.2:** Estimated probabilities (probits) for the presence of an application from older persons and the recruitment chances of older persons



Source: IAB establishment panel 2004, own calculations

In terms of the initial question – of whether the two thirds of companies who received no applications from older persons offer any recruitment potential for older persons – figure 4.2 shows that this is absolutely the case: Not only that there are many companies where the likelihood of receiving an application from an older person is low even though the recruitment chance is greater than 50% (bottom-right area of the illustration); there are more companies still that are highly likely to receive applications from older

persons even though the recruitment chances are poor (top-left area of figure 4.2).<sup>10</sup> This structure of the labour market is inefficient for companies, as some receive applications that they are highly unlikely even to consider and others like applications from persons who would be interesting candidates. However, it is also inefficient for applicants, as they are placing applications without being sufficiently informed about the opportunity structures.

What can the differences in the estimated probabilities of receiving an application from older persons and recruiting such persons be attributed to, and what conclusions can be drawn from these differences regarding the search behaviour of companies and older jobseekers? To answer these questions, the results of the regression analyses are discussed, with which for each company the probability was estimated of receiving an application from older persons and recruiting older persons. These regression analyses were undertaken with the variables already discussed (for the results, see Table 4.5).

---

<sup>10</sup> The broad distribution of estimated probabilities of recruiting an older applicant indicates that companies indeed differ in terms of the recruitment chances for older applicants, and the clearly smaller distribution of the estimated probabilities for the presence of an application from older persons indicates that company features – at least insofar as they were tested here – barely influence the presence of an application from older persons.

**Table 4.5: Results of the logistic regressions**

	Model 1 <sup>a</sup> Chance of recruitment	Model 2 <sup>b</sup> Pre- sence of an application
1	2	3
Size (Number of employees), log.	.040 (.074)	.231*** (.048)
Proportion of workers (skilled / unskilled)	.004** (.002)	.002 (.001)
Age of company	-.140 (.231)	-.019 (.144)
Future employment development: growing	.082 (.147)	.171* (.100)
Future employment development: shrinking	-.083 (.104)	.055 (.065)
Future employment development: unknown	.663*** (.150)	-.016 (.094)
<i>Ref: Future development: constant</i>		
Collective wage agreement	-.008 (.114)	-.063 (.073)
Payment exceeding collectively agreed wage	-.096 (.099)	-.069 (.062)
Proportion of older persons on staff	.055 (.041)	.086*** (.026)
Works council: yes (1) / no (0)	.121 (.380)	1.037*** (.229)
Interaction: Works council x Size	-.016 (.079)	-.217*** (.049)
Fluctuation	.002* (.001)	.004*** (.001)
Personnel problem: Difficulty finding specialised staff (Probits)	.213 (.529)	1.064*** (.355)
Personnel problem: Aging of workforce	-.042 (.106)	.068 (.069)
Personnel problem: Due to partial retirement	.167 (.149)	.016 (.098)
Proportion of termination agreements of all leavers	-.005* (.003)	-.001 (.001)
Proportion of retirements of all leavers	-.000 (.002)	.000 (.001)
Partial retirement in the company	-.464*** (.108)	-.119* (.068)
Assessment of capability of older persons below average: yes (1) / nein (0)	-.278*** (.084)	-.011 (.052)
East Germany (1) / West Germany (0)	.312*** (.098)	-.021 (.062)
Settlement structure type	.028 (.017)	-.013 (.011)
6 Branches	Yes	Yes
Constants	-.948** (.377)	-1.834*** (.232)
N	1,149	2,636

<sup>a</sup> OLS, dependent variable: Recruitment of an older applicant at most recent recruitment.

<sup>b</sup> OLS, dependent variable: Older person applied for the most recent recruitment.

Presented are the coefficients (logarithmic probabilities) with standard errors in parentheses, \*\*\*, \*\*, \* indicate significance at the 1%, 5% and 10% level respectively.

Source: IAB establishment panel 2004, own calculations

Older applicants have somewhat better recruitment chances (cf. Table 4.5, Column 2) in companies that are located in the East German states as well as in companies that are unable to assess their future employment development (compared to those that predict

growth or negative growth). With a low significance level, older applicants have somewhat better chances in companies with a higher proportion of older persons on their staff as well as – equally only very weakly significant – in companies with a higher proportion of workers and companies with a high fluctuation. Older applicants have worse chances in companies that have difficulties finding specialised staff on the labour market and in companies that lay off a high proportion of their workers through consensual terminations, including redundancy programmes. Older applicants also only have limited chances in companies in which the appraisal of the capability of older persons is poor, as well as in companies from the building trade. Statistically highly significant is the negative relationship with partial retirement: Companies that practise partial retirement recruit older applicants less often. A series of variables failed to reach significance. These include the company size, the existence of a works council, payment according to collective wage agreement or exceeding the collectively agreed wage and a foreseeable increasing or shrinking employment development. The results show that the type and extent of personnel requirements as well as age selectivity determined by personnel policy are important for the recruitment likelihood of older applicants.

As can be expected from Figure 4.2, there is only a small amount of concurrence between the company characteristics that make the recruitment of an older applicant more likely and those that concern the presence of an application (cf. Table 4.5, Column 3). Only in three features are there similarities: Companies more often receive applications from older persons – and more often hire older applicants – (1) if a high proportion of older persons is employed in the company, (2) if the fluctuation is high and (3) if a high proportion of skilled or unskilled workers are on the staff.<sup>11</sup> Several features that are significantly related to the recruitment chances of older persons, however, are not associated with the presence of a job application from older persons. This concerns the proportion of layoffs attributable to termination agreements (including redundancy programmes) as well as the future employment development. Older persons have better recruitment chances in companies that are not able to assess their employment development for the next 12 months, but these companies do not receive applications from older persons significantly more often. Older applicants have significantly worse recruitment chances in companies in which the capability of older persons is assessed as below average, without this being linked to significantly fewer applications from older persons; the same applies for companies with partial retirement. Other features show, on the other hand, that applications from older persons are particularly frequent in some companies without them having better recruitment chances. This concerns the company size – the probability of applications from older persons increased with company size, but large companies do not recruit older persons more often – and the existence of a works council. Applications from older persons have a significantly higher probability in companies that rate themselves as growing in the future (but they are not recruited more often in such companies), and they lie at an above average rate in companies that indicated difficulties in finding suitable specialised staff as a personnel problem. But these companies also do not recruit older persons with above average probability. On the whole, these results on the presence of an application can be understood as the result of search processes on the part of the applicants that are partly oriented towards the perceived need for personnel and partly towards the new work itself.

<sup>11</sup> In addition, there are several features that are not significant in both models: Age of company, collective wage agreement, pay exceeding collectively agreed wage, personnel problems due to aging of the workforce as well as due to partial retirement, the proportion of those leaving the company attributable to retirement and settlement structure type.

It should also be emphasised that several indicators of significantly worse recruitment chances for older persons do not lead to fewer applications from older persons (partial retirement; worse assessment of age-specific capability); conversely, several features that indicate an additional need for personnel attract more applications from older persons without being linked to increased recruitment chances (foreseeable employment growth; difficulties finding specialised staff).

### **4.3 Discussion: Reasons for the failure to coincide of supply and demand in terms of older jobseekers: Conjectures and further questions**

From the results, it can be inferred that the labour supply of older applicants and the demand for them more or less systematically fail to coincide with one another. How could this result have emerged? Two possible explanations – rather conjectures – can be offered here.

Neubäumer (1995) discussed staffing problems as a problem of company size and pointed out that companies that are less attractive have greater problems filling vacancies. Taking these considerations further, it can be assumed that there are company features that influence the attractiveness of a company precisely for older applicants. A person who has been employed in larger companies or companies with works councils in his previous career history will presumably initially seek his re-entry into employment in these companies. Possibly, this search behaviour will be strengthened through professional networks, the significance of which has been repeatedly described for job searches (Deeke 1991; Grund 2001; Bielski et al. 2003). However, these networks are established in line with the previous employment biography and not complementary to it. They tend to be devalued when the employment biography is devalued through a structural change. In the structural change, it is precisely large companies and those with works councils that are negatively affected. By contrast, the – lesser known – smaller companies and those without works councils are growing in many cases, and the current results also show that older persons do not have worse chances of being recruited in smaller companies or companies without works councils. Nevertheless, applications from older persons are less frequent in these companies. The search behaviour should therefore be discussed and qualified against this background. However, two limitations need to be taken into account: Firstly, several aspects of the application behaviour of older persons appear to be rational (for instance the applications to growing companies, or applications to companies with a high proportion of older persons); it is therefore not the search behaviour in general that possibly throws applicants off the scent. Secondly, due to the fact that these evaluations are based on an establishment survey, the reasons from the part of the applicant for the observed mismatch between the likelihood of an application from an older person and the likelihood that an older applicant was recruited remain particularly speculative.

A second assumption focuses on the signals that companies emit to potential applicants about themselves as employers. Fundamentally, companies try to address the optimal applicants for them. This does not have to occur through age-restricted job advertisements – of which there are only a small number, cf. table 4.3 – but rather can also ensue through companies' self-portrayals as young, dynamic and innovative, as long as it is not emphasised that dynamic and innovative qualities can also be achieved by older employees. If a company sends signals that it is willing to lower its sights from its maximum demands, then it has to fear that the ideal applicant might no longer be available to this company, thus worsening the selection situation. This could be an explana-



tion as to why older applicants have better recruitment chances in companies that are unable to forecast their employment development for the next 12 months: Possibly, these companies are not attractive for (younger) applicants with more chances, meaning that these companies also recruit among those who are generally seen as “second-choice” – i.e. the older persons. A further indication for the ambiguous signals of the company towards external applicants becomes clear from the assessment of capability of older persons: It is plausible that the recruitment chances for older applicants are poor when the capability of older persons in the company is rated negatively. However, it is surprising that this negative evaluation does not affect the presence of applications; apparently, the company does not communicate its poor evaluations and experiences externally. A similar interpretation suggests itself for companies with “difficulties in finding suitable specialised staff”. They are significantly more likely to attract applications from older persons. It would appear that the “right” applicants (i.e. those who are suitable from the company’s point of view) do not feel that these companies are right for them. However, it could also be the case that through their renunciation of older applicants, these companies only manage to increase their problem of finding specialised staff. Ambiguous signals therefore lead not only to applications that have little chance of success, but possibly also to self-inflicted restrictions in solving personnel problems, such as the overcoming of specialised staff shortages in this case.

## **5 Summary, conclusions and future research**

The starting point for the investigation of how the application behaviour of jobseekers is related to the recruitment behaviour of companies was formed by two theoretical hypotheses: The shirking model, from which the importance of an age-specific reservation wage can be derived, and the screening and signalling model, from which due to statistical discrimination, above all a balance of expectation between those on the demand side and those on the supply side of the market can be expected, i.e. applications will occur where the recruitment chances are high and vice versa. The empirical findings show no such balance of expectations. Rather, there is a positive but only weak relationship between job attractiveness to applicants and recruitment likelihood. A series of features are related to above-average applications without being met by the corresponding chances of success (company size, employment growth, existence of a works council, proportion of older persons on the staff, shortage of specialised staff in the company), while conversely, several company characteristics indicate above- or below-average recruitment chances without this corresponding to particularly frequent or particularly rare applications (uncertain employment development, layoffs through consensual dismissal (including redundancy programmes), below-average assessment of the capability of older persons). By contrast, with the above-average probability of applications at larger firms, there are indications that excessive reservation wages influence the search behaviour. If one takes the concept of reservation wages further and relates it in general terms to the desired working conditions, then the above-average frequency of applications in companies with works councils – which is also not met with an above-average probability of recruiting older persons – also points in this direction.

In summary, the balance of expectations does not materialise. Reasons for this are on the one hand the search behaviour of older applicants, which is not only oriented to “employment chances at any cost”, and on the other hand to the unclear signals given off by companies regarding the recruitment likelihood of older applicants; the latter, in turn, possibly emerges from a company’s strategy to remain attractive as a company to the “best applicants”. This diagnosis has implications for labour market policy, but it

requires further investigation that is not possible with the available data. Both of these are briefly addressed below.

In terms of labour market policy, three specific consequences arise:

*Broaden the search spectrum:* Older applicants should be encouraged and put in a position to apply not only to known (large) companies, but also to smaller and lesser known companies, which are great in number. This is a typical task for employment agencies and their employees, who, indeed are there precisely to increase transparency on the labour market. It could also be useful to refer those seeking employment to lesser-known companies with suitable jobs *even if* the employment agency does not currently have any open vacancies there. Employees of the employment agency should, moreover, make clear to applicants not only the networks of the jobseeker as a method for searching for employment, but in addition also assess the value of these networks. If they are tied too tightly to a possibly very stable employment course, then these networks are subject in the structural change to the same devaluation process that might have been responsible for the loss of a job in the first place.

- *Facilitate the lowering of reservation wages:* Excessive and inflexible reservation wages represent a barrier for the uptake of new employment. Labour market policy instruments that reward the “courage to take risks” in accepting a job that is below the individual’s reservation wage therefore appear to be fundamentally useful. In Switzerland, the “intermediate wage” constitutes a corresponding instrument with which positive experiences appear to have been gathered (Bauer et al. 1999; Winkler 2002). The experiences with the instrument of “earnings continuity for older persons” in Germany, which, under certain conditions, offsets wage differences between earlier and current employment, are less encouraging. The instrument is little known and is barely used (Zwick et al. 2005; BMAS 2006), the reasons for which lie partly in the statutory framework, but more strongly still in the implementation by the employment agencies (cf. Brussig et al. 2006).<sup>12</sup>
- *Create publicity for “receptive” companies:* With the exception of a few prominent exemplary companies, many companies do not satisfactorily communicate the contribution that older persons make to the success of the company. Creating the necessary publicity for normal operational handling of an aging working population is not only a task for instruments of labour market policy or employment agencies, but goes beyond this. The goal from the companies’ perspective should be to address older job applicants without fearing that this might lead to them no longer receiving applications from the best (independently of age) applicants; a fear that such prominent and attractive companies as BMW and Brose do not need to have.

A full understanding of the results also requires knowledge about the status (employment or unemployment) from which the applications ensued; there is no information on this in the data used. It can be assumed that the search behaviour and acceptance thresholds of the employment seekers on the one hand, but also the readiness to hire of the companies on the other, differ between unemployed and employed applicants. However, recording the employment status prior to entry in the observed employment in a quanti-

---

<sup>12</sup> A greater flexibility in reservation wages does not necessarily mean that the unemployment insurance has to be weakened, as with the unemployment insurance, jobseekers possess the time to search for an adequate job (cf. Gangl 2003); the adherence to demands is at least useful as long as the chances of re-employment are good. In a labour market without unemployment insurance, a decline in voluntary mobility is rather to be expected.

tative research design could meet with considerable problems in terms of numbers of cases and memory. It would therefore be advisable to use qualitative methods to examine both aspects, namely the search behaviour of persons and that of companies, in detail. In the search behaviour, it should be observed in particular where persons direct their applications and why, as well as what "costs" an application brings about. Behind this is the question of whether the problem of information about suitable companies or the expenditure for an additional application represents the greater hurdle for further applications. This would also extend the previous research on the emergence and effect of reservation wages (Christensen 2005). For a further investigation of the search behaviour of companies, a signal theoretical perspective appears worthwhile. It should be examined how and why companies, to put it pointedly, send particular signals to the labour market – at least they are apparently understood as such by applicants – which result in them cutting themselves off from a part of the spectrum of applicants that they do not actually wish to rule out from the outset.

### *Literature*

- Akerlof, George (1970): The market for "lemons": Quality uncertainty and the market mechanism, in: *The Quarterly Journal of Economics*, 84, 488-500.
- Alda, Holger / Allaart, Piet / Bellmann, Lutz (2005): Churning and institutions. Dutch and German establishments compared with micro-level data. (Discussion Paper Nr. 12/2005) Nürnberg: IAB.
- Bauer, Tobias / Baumann, Beat / Künzi, Kilian (1999): *Evaluation des Zwischenverdienstes in der Schweiz*. Bern: seco.
- Bellmann, Lutz (1997): Das Betriebspanel des IAB, in: R. Hujer / U. Rendtel / G. Wagner (Hrsg.), *Wirtschafts- und sozialwissenschaftliche Panel-Studien: Datenstrukturen und Analyseverfahren* (Allgemeines Statistisches Archiv. Sonderheft Nr. 30), Göttingen: Vandenhoeck und Ruprecht, 169-182.
- Bellmann, Lutz (2002): Das IAB-Betriebspanel. Konzeption und Anwendungsbereiche, in: *Allgemeines Statistisches Archiv*, 86, 2, 177-188.
- Bellmann, Lutz / Gewiese, Thilo / Leber, Ute (2006b): *Ältere Arbeitnehmer/-innen im Betrieb*. Projektbericht an die Hans-Böckler-Stiftung, mimeo.
- Bellmann, Lutz / Gewiese, Tilo / Leber, Ute (2006): Betriebliche Altersstrukturen in Deutschland, in: *WSI-Mitteilungen*, 59, 8, 427-432.
- Bellmann, Lutz / Leber, Ute (2005): Betriebliche Einstellung älterer Arbeitnehmer. Ergebnisse aus dem IAB-Betriebspanel 2004, in: *Arbeit und Beruf*, 56, 6, 169-170.
- Bellmann, Lutz / Stegmaier, Jens (2006a): Einstellungen Älterer in West- und Ostdeutschland, *Arbeit und Beruf*, 57, 12, 315-316.
- Bellmann, Lutz / Stegmaier, Jens (2006b): Betriebliche Einstellungspolitik bei Älteren, *Forum 2*, 60-64.
- Bielenski, Harald / Hartmann, Josef / Mauer, Andreas / Seifert, Hartmut (2002): Übergänge zu einem neuen Arbeitsplatz, in: *WSI-Mitteilungen*, 55, 8, 442-450.
- Brussig, Martin (2005): Die Nachfrageseite des "Arbeitsmarktes": Betriebe und die Beschäftigung Älterer im Lichte des IAB-Betriebspanels 2002. (Altersübergangs-Report, Nr. 2005-02) Gelsenkirchen, Düsseldorf: Inst. Arbeit und Technik, Hans-Böckler-Stiftung.
- Brussig, Martin / Knuth, Matthias (2006): Altersgrenzenpolitik und Arbeitsmarkt: zur Heraufsetzung des gesetzlichen Rentenalters, in: *WSI-Mitteilungen*, 59, 6, 307-313.

- Brussig, Martin / Knuth, Matthias / Schweer, Oliver (2006): Arbeitsmarktpolitik für ältere Arbeitslose: Erfahrungen mit "Entgeltsicherung" und "Beitragsbonus". (IAT-Report, Nr. 2006-02) Gelsenkirchen: Institut Arbeit und Technik.
- Bundesministerium für Arbeit und Soziales, 2006: Die Wirksamkeit moderner Dienstleistungen am Arbeitsmarkt: Bericht 2005 der Bundesregierung zur Wirkung der Umsetzung der Vorschläge der Kommission „Moderne Dienstleistungen am Arbeitsmarkt“ (ohne Grundsicherung für Arbeitsuchende). Berlin.
- Büttner, Renate (2005a): Zunehmende Erwerbsbeteiligung von Älteren: Rentenabschläge führen zu einer höheren Erwerbsbeteiligung im Alter - Teilzeitarbeit und geringfügige Beschäftigung haben zunehmende Bedeutung beim Altersübergang. (Altersübergangs-Report, Nr. 2005-04) Gelsenkirchen, Düsseldorf: Institut Arbeit und Technik, Hans-Böckler-Stiftung.
- Büttner, Renate / Knuth, Matthias / Wojtkowski, Sascha (2005): Die Kluft zwischen Erwerbساustritt und Renteneintritt wird größer: Leistungsbezug "unter erleichterten Voraussetzungen" und Altersteilzeitarbeit spielen beim Altersübergang eine zunehmende Rolle. (Altersübergangs-Report, Nr. 2005-03) Gelsenkirchen, Düsseldorf: Institut Arbeit und Technik, Hans-Böckler-Stiftung.
- Büttner, Renate (2005b): Höhere Erwerbsbeteiligung in Westdeutschland - Mehr Arbeitslosigkeit und Frühverrentung in Ostdeutschland: regionale und sozioökonomische Merkmale strukturieren den Altersübergang. (Altersübergangs-Report, Nr. 2005-05) Gelsenkirchen, Düsseldorf: Institut Arbeit und Technik, Hans-Böckler-Stiftung.
- Christensen, Björn (2005): Die Lohnansprüche deutscher Arbeitsloser – Determinanten und Auswirkungen von Reservationslöhnen. Berlin u.a.: Springer.
- Deeke, Axel (1991). Informelle Beziehungen auf dem Arbeitsmarkt. Marktregulierung und Chancenverteilung durch Arbeitsvermittlung. Frankfurt/M.; New York: Campus.
- Dietz, Martin / Gartner, Hermann / Koch, Susanne/ Walwei, Ulrich (2006): Kombilohn für ältere Arbeitslose: Maßgeschneidert ist besser als von der Stange. (IAB-Kurzbericht Nr. 18/2006): Nürnberg: IAB.
- Ebbinghaus, Bernhard (2002): Exit from Labor: Reforming Early Retirement and Social Partnership in Europe, Japan, and the USA. Habilitationsschrift, Köln.
- Eichhorst, Werner (2006): Beschäftigung Älterer in Deutschland: Der unvollständige Paradigmenwechsel. (IZA Discussion paper No. 1985) Bonn: IZA.
- Eichhorst, Werner / Thode, Eric / Winter, Frank (2004): Benchmarking Deutschland: Arbeitsmarkt und Beschäftigung. Berlin u.a.: Springer.
- Fünfter Bericht zur Lage der älteren Generation in der Bundesrepublik Deutschland (2005): Potenziale des Alters in Wirtschaft und Gesellschaft. Der Beitrag älterer Menschen zum Zusammenhalt der Generationen. Bericht der Sachverständigenkommission. Berlin: Bundesministerium für Familie, Senioren, Frauen und Jugend.
- Funk, Lothar (2004): Mehr Beschäftigung für Ältere: Lehren aus dem Ausland. Köln: Deutscher Instituts-Verlag.
- Funk, Lothar (2006): Mehr Beschäftigung für Ältere in Deutschland: Lehren aus Finnland und Irland, in: Sproß, Cornelia (Hrsg.), Beschäftigungsförderung älterer Arbeitnehmer in Europa, Nürnberg: IAB, 157-187.
- Gangl, Markus (2003): Unemployment dynamics in the United States and West Germany: economic restructuring, institutions and labour market processes. Heidelberg: Physica.

- Gerlach, Knut / Schmidt, Elke M. (1989): Unternehmensgröße und Entlohnung, in: Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, 22, 355-373.
- Granovetter, Mark (1973): The Strength of Weak Ties. In: American Journal for Sociology, 78, 6, 1360-1380.
- Granovetter, Mark (1983): The Strength of Weak Ties: A Network Theory Revisited. In: Sociological Theory, 1, 201-233.
- Grund 2001 Zum Signalcharakter unterschiedlicher Wege der Stellenfindung, in: Die Betriebswirtschaft, 61, 5, 519-529.
- Hübler, Olaf (2003): Geschlechtsspezifische Lohnunterschiede, in: Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, 36, 539-559.
- Koller, Barbara / Bach, Hans-Uwe / Brixy, Udo (2003): Ältere ab 55 Jahren - Erwerbstätigkeit, Arbeitslosigkeit und Leistungen der Bundesanstalt für Arbeit. (IAB-Werkstattbericht Nr. 05/2003) Nürnberg: IAB.
- Lazear, Edward (1981): Agency, Earnings Profiles, Productivity, and Hours Restriction, in: American Economic Review, 71, 606-620.
- Neubäumer, Renate (1995): Schwer besetzbare Arbeitsplätze als ein Betriebsgrößenproblem, in: Frick, B. / Semlinger, K. (Hrsg.), Betriebliche Modernisierung in personeller Erneuerung. Personalentwicklung, Personalaustausch und betriebliche Fluktuation, Berlin: edition sigma, 109-122.
- OECD (2005): Ageing and Employment Policies: Germany. Paris: OECD.
- Oi, Walter Y./ Idson, Todd L. (1999): Firm size and wages, in: Ashenfelter, Orley C./ Card, David (Hrsg.), Handbook of Labor Economics, Vol. 3, Amsterdam: North Holland, 2166-2214.
- Pfarr, Heide / Ullmann, Karen / Bradtke, Marcus / Schneider, Julia / Kimmich, Martin / Bothfeld, Silke (2005): Der Kündigungsschutz zwischen Wahrnehmung und Wirklichkeit. Betriebliche Erfahrungen mit der Beendigung von Arbeitsverhältnissen. München und Mering: Rainer Hampp.
- Rabe, Birgitta (2004): Reform der Arbeitslosenversicherung – Lehren aus internationalen Wirkungsanalysen, in: Sozialer Fortschritt, 53, 7, 178-185.
- Rheinisch-Westfälisches Institut für Wirtschaftsforschung / Institut für Sozialforschung und Gesellschaftspolitik (2005): Evaluation der Umsetzung der Vorschläge der Hartz-Kommission – Arbeitspaket I: Verbesserung der beschäftigungspolitischen Rahmenbedingungen und Makrowirkungen der aktiven Arbeitsmarktpolitik. Bericht 2005. Essen: RWI.
- Riphahn, Regina T. / Schmidt, Peter (1997): Determinanten des Rentenzugangs - Eine Analyse altersspezifischer Verrentungsraten, in: Jahrbuch für Wirtschaftswissenschaften, 48, 1, 133-147.
- Rust, Ursula / Lange, Joachim / Pfannkuche, Henning (2006): Altersdiskriminierung und Beschäftigung. Evangelische Akademie Loccum.
- Schmidt, Peter (1995), Die Wahl des Rentenalters – Theoretische und empirische Analyse des Rentenzugangsverhaltens in West- und Ostdeutschland, Bern u.a.: Peter Lang.
- Sesselmeier, Werner/Blauermel, Gregor (1998): Arbeitsmarkttheorien, 2. Auflage, Heidelberg: Physica.
- Spence, Michael A. (1973): Job-Market-Signaling; in: The Quarterly Journal of Economics, 83, 355-374.
- Trampusch, Christine (2005): Institutional Resettlement. The Case of Early Retirement in Germany, in: Wolfgang Streeck/Kathleen Thelen (Hrsg.), Beyond Continuity:

Institutional Change in Advanced Political Economies. Oxford: Oxford University Press, 203-228.

Winkler, Werner (2002: Aktivierungsinstrument und Niedriglohnsüvention, in: IAB-Materialien 3/2002, 12-13.

Zwick, Thomas u.a. (2005): Evaluation der Maßnahmen zur Umsetzung der Vorschläge der Hartz-Kommission, Arbeitspaket 1: Wirksamkeit der Instrumente, Modul 1d: Eingliederungszuschuss und Entgeltsicherung, Bericht 2005, Mannheim.

## 6 Appendix

**Table 6.1: Results of the probit estimation**

	Staffing problems 1= yes, 0=no
Investments in computing / ICT	.196 *** ( .035)
Investments in production facilities	.123 *** ( .035)
Personnel problem: Need for further education and training	.464 *** ( .041)
Size	.153 *** ( .012)
Personnel requirements: growing	.405 *** ( .045)
Personnel requirements: falling	- .219 *** ( .038)
Personnel requirements: Unknown	- .020 ( .054)
Reference: Personnel requirements: constant	
Payment exceeding collectively agreed wage	- .095 *** ( .032)
Works council yes / no	- .243 *** ( .039)
East/West Germany	- .060 * ( .033)
Settlement structure type	.004 ( .006)
6 Sectors	Yes
Constants	-1.392 *** ( .078)
R2	10,7
N	11,523

Source : IAB establishment panel 2004, own calculations

**Table 6.2: Companies with applications and recruitments of older persons, variables used**

	N	Mean / Min / Max	N	Mean / Min / Max
1	2	3	4	5
Application of an older person available	7121	0.39 /0/1		
Older applicant recruited			2767	.42 /0/1
Size (Number of employees), log.	7121	4.30/0/10.8 1422	2767	4.69 /.69/10.54
Proportion of employees (skilled/ unskilled)	7119	42.6 /0/100	2767	43.87 /0/100
Age of company max. 5 years (n/y)*	7121	0.38 /0/1	2767	.39 /0/1
Future employment development: growing	7113	0.13 /0/1	2763	.17 /0/1
Future employment development: shrinking	7113	0.20 /0/1	2763	.21 /0/1
Future employment development: unknown	7113	0.09 /0/1	2763	.08 /0/1
Future development: constant	7113	0.58 /0/1	2763	<b>0.54 /0/1</b>
Collective wage agreement	7114	0.61 /0/1	2764	.64 /0/1
Payment exceeding collectively agreed wage	3899	0.38 /0/1	1521	.38 /0/1
Proportion of older persons on staff (a)*	4615	3.28 /1/6	1768	3.50 /1/6
Works council: yes (1) / no (0)	7108	0.48 /0/1	2762	.55 /0/1
Interaction: works council x size	7108	2.61 /0/10.81	2762	3.04 /0 10.54
Fluctuation (b)	7073	22.2/0/2602 .82	2753	25.47/0/2602. 82
Personnel problem: Difficulty finding specialised staff	5586	0.22/.01/.7 4	2253	.25/.01/.74
Personnel problem: Over-aging of workforce	7087	0.13 /0/1	2759	.16 /0/ 1
Personnel problem: Due to partial retirement	7087	0.05 /0/1	2759	.06 /0/ 1
Proportion of termination agreements of all leavers	5325	6.66 /0/ 100	2230	6.57 /0/100
Proportion of retirements of all leavers	5326	6.65 /0/ 100	2232	7.03 /0/100
Partial retirement in the company	4205	0.47 /0/1	1685	.51 /0/ 1
Assessment of capabilities of older persons below average: y/n 1/0*	7121	0.24 /0/1	2767	.24 /0/ 1
West Germany (1) / East Germany (2)	7121	1.33 /1/2	2767	1.33 /1/2
Settlement structure type (c)	7121	3.09 /0/9	2767	2.94 /0/9
1 Agriculture and forestry	7121	.02 /0/1	2767	.02 /0/1
2 Industry	7121	.30 /0/1	2767	.32 /0/1
3 Building trade	7121	.08 /0/1	2767	.05 /0/1
4 Trade, transport, telecommunications	7121	.14 /0/1	2767	.32 /0/1
5 Private services	7126	<b>36.7 /0/1</b>	2767	<b>35.5 0/1</b>
6 Organisational or employment purpose / state	7121	.10 /0/1	2767	.12 /0/1

\* These variables are based on the 10<sup>th</sup> wave West Germany (8<sup>th</sup> wave East Germany) (2002)

(a) 6 values: 1: 0%, 2: >0 ... <10%, 3: 10 ... <20%, 4: 20 ... <30%, 5: 30 ... <50%, 6: 50% and more of the employees are at least 50 years old

(b) For the calculation, cf. Alda/Allaart/Bellmann (2005)

(c) 10 values: 1: 500,000 or more residents, core region, 2: 500.000 or more residents, outskirts; 3: 100 Ts ...<500 Ts. Residents, core region; 4: 100 Ts ...<500 Ts. Residents, outskirts; 5: 50 Ts ... <100 Ts. Residents, core area; 6: 50 Ts ... <100 Ts. Residents, outskirts; 7: 20 Ts ... < 50 Ts...<100 Ts. Residents, core region; 6: 50 Ts ... <100 Ts. Residents, outskirts; 7: 20 Ts ... < 50 Ts. Residents; 8: 5 Ts ... < 20 Ts. Residents; 9: 2 Ts ... < 5 Ts. Residents; 10: <2 Ts. Residents

Source: IAB establishment panel 2004, own calculations