Age Discrimination in Hiring Decisions –
A Comparison of Germany and Norway

– Age Discrimination –

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March 2004

Abstract

The workforce in all industrialized countries is aging. To forecast future challenges, it is important to understand the impact of a worker's age on the labor market. In this paper, we analyze whether older workers in Germany and Norway are treated differently in the hiring process. Students and personnel managers from both countries answered a questionnaire regarding the evaluation of three different applicants with varying age specifications and the respective hiring decisions. The investigation clearly shows that in Germany older applicants have a much lower hiring probability. In Norway, age does play a smaller role in hiring decisions.

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1. INTRODUCTION

Age discrimination, which is defined as fewer opportunities of older workers that do not reflect lower productivity (Cain 1986), is one of the most difficult research questions to investigate in labor market research (Johnson and Neumark 1997, OECD 1998). The reason is that it is difficult to establish whether differences between groups in relation to unemployment are a result of discrimination, or of real differences in productivity or labor market ambitions. Such measurement problems have limited the (economic) research on age (gender, ethnic) discrimination.

The problem of age discrimination has received increased attention during the last decade for two reasons: 1. The high costs connected with early retirement and 2. An increased proportion of older persons. Companies, in the process of reorganizing or downsizing their workforce, often encourage older employees to go into early retirement instead of helping them get a new job (Quinn and Burkhauser 1990, Henkens and Tazelaar 1994, Taylor and Walker 1994, Warr, 1994). Without older persons working longer years, the financial problems of the welfare state will become more serious. This has led to a search for ways of motivating older workers for a longer work life. In several countries, policy makers are already trying to create incentives for longer occupational careers. With such ambitions, there is hardly any room for age discrimination in hiring processes. Yet age discrimination in the hiring process was already observed more than 50 years ago by Tuckman and Lorge (1952, p. 149): "In business and industry there are significant restrictions in the hiring, upgrading, and retention of older workers, i.e. men and women 45 of age and over …" Older persons seeking work often find it difficult to get a new job because the employers are worried that the cost connected to hiring and investing in them is higher than the benefit and question their training potential, adaptability, and health. Some argue that age discrimination is due to a decreasing productivity of older workers (Lehr 1997). This is explained with the so-called deficit model (Bäcker 1979, Taylor and Walker 1993). But there is hardly any gerontologic evidence for a decline in productivity and performance of an older individual (e.g., Avolio et al. 1990, Warr, 1994, Salthouse and Maurer 1996). One thing that can be observed is a bigger heterogeneity in the abilities with age (Ilmarinen et al. 1997). A result of the age discrimination of older workers is that these are often overrepresented among the long-term unemployed,

and have longer unemployment spells compared with their younger colleagues (e.g., Laczko and Phillipson 1991, McDonald and Chen 1993, OECD 1998).

In Germany, it has become more difficult to find a new job already from the age of 45 and onwards (Frerichs and Naegele 1998), and Büsch and Königstein (2001) have shown that age discrimination in hiring decisions is rather common. The most-named reasons for the high proportion of long-term unemployed persons among older job seekers in Germany are perceived higher health risks and insufficient skills (Bogai et al. 1994, Naegele 1992). Furthermore, wage costs for older workers generally are considered to be too high because of the seniority principle in many wage systems, and the prospective employment period is seen to be too short. In Norway, the empirical evidence is much more anecdotal in character, and, as in most other countries, research on discrimination has focused on race and gender rather than on age. But, it has been found that age together with ethnic background, and long-term unemployment are the most important barriers for the unemployed in the labor market (Rogstad and Raaum 1997). A recent survey shows that 13% of interviewed managers did not hire an applicant or promoted employees because of their age (Seniorpolitikk 2002).

In this paper, we investigate whether applicants with same qualifications are treated differently in the selection process just on the grounds of age, and address age discrimination in hiring decisions in Germany and Norway. Are there differences in age discrimination between the two countries, and if such differences exist, how can we explain them?

The remainder of the paper is organized as follows: In the next section, we briefly review the relevant literature on age discrimination and position ourselves relative to the various perspectives. Then we describe institutional features of the two countries. This is followed by hypotheses concerning what we expect to find, a description of the sample(s) together with research methods. In the subsequent section, we comment on the results from our empirical analyses. The last section provides a discussion and conclusions.

2. REVIEW OF THE LITERATURE

Economic research on discrimination tries to explain the different treatment of individuals mainly on the grounds of their gender or ethnic background. There are, in principle, two approaches to explaining discrimination. One is the taste-based approach of Becker (1957). According to him, the different treatment results from the dislike of a person who belongs to a certain group. The other approach deals with statistical discrimination. Here Aigner and Cain (1977) distinguish between group discrimination and individual discrimination. Group discrimination occurs whenever the average remuneration of a group is not proportional to its average productivity. Individual discrimination happens as soon as workers with the same true abilities are not receiving the same wage (see Büsch 2000 for further implications).

Consequently, empirical research on discrimination in the labor market has, for the most part, focused on race and gender differentials. In their recent overview of the mainly American literature, Altonji and Blank (1999) and Darity and Mason (1998) conclude that these differentials have been persistent over time, but that the nature and magnitude of the differences have changed.

The empirical literature on age discrimination in the selection process is to a large degree dominated by psychologists. Empirical research has found mixed evidence for the role of applicant age in selection decisions. While some studies found a significant effect of the applicant's age, e.g., Rosen and Jerdee (1976a) and Avolio and Barrett (1987) who show that younger applicants are evaluated more favorably than older applicants, others found little or no effect of age (e.g., Locke-Connor and Walsh 1980, Fusilier and Hitt 1983). There are several themes regarding age discrimination in the empirically oriented literature, and among these are negative stereotypes, employers' attitudes, employers'/interviewers' age, job type/status, and the recruitment process.

Negative stereotyping is usually suggested as a reason for age discrimination (Perry and Bourhis 1998). Stereotypes in the relevant literature are typically defined as "... cognitive structures that consist of associations between attributes or features (e.g., personality traits, overt behaviors) and social categories (e.g., occupations,

age)" (Perry and Bourhis 1998, p. 1673). When an individual is identified as a member of a social category, the attributes associated with this category are applied to this individual (Kalin and Hodgins 1984). Age stereotypes are defined by Rosen and Jerdee (1976a, p. 180) as: "… widely held beliefs regarding the characteristics of persons in various age categories." Typically negative stereotypes of older workers are that they are less motivated, not up to date regarding their occupational skills, have a lower performance capacity, have less potential for development, are more risk averse, more resistant to change, and less creative (e.g., Rosen and Jerdee 1976a, 1976b, 1977, Maloney and Paul 1989, Warr 1994). Age stereotypes depict older persons as being potentially less employable, particularly for highly demanding and challenging positions. Negative stereotypes are used by employers when they have limited information about applicants and project onto individuals certain perceived group characteristics, i.e., they use easily observable characteristics such as age to "statistically discriminate" among workers.

Several studies of employers' attitudes toward older workers in the labor market indicate that older persons seeking work are heavily discriminated by employers (McEvan 1990, Laczko and Phillipson 1991, Taylor and Walker 1991; Walker and Taylor 1993, Itzin and Phillipson 1993). Ginn and Arber (1996) found that 64% of the women and 66% of the men over the age of 40 reported that age was the most important barrier for getting a better job in Great Britain. Lewis and McLaverty (1991) found in a survey among employers that 36% reported age as being a barrier for internal promotion in their organization, and 45% had not had any possibility for development during the last five years. Johnson and Neumark (1997) found that employees who reported age discrimination (self-reported – no promotion, demotion, laid off, not hired, etc. because of age) had a higher probability of leaving their employer and a lower probability of being employed (even if controlled for personal characteristics and other variables) than workers who did not report discrimination.

The age of the person conducting the job interview is also a reason given for not getting a job. Perry et al. (1996), based on their research, argue that those who evaluate older workers are strongly influenced by their attitude toward older persons in job selection processes. A potentially greater number of years in the firm, "paper qualifications," and more adaptability are some of the reasons employers give for their preference for younger workers even though older workers are looked upon as more

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reliable. Many older workers felt that the only jobs that were available for them were part-time work and/or jobs with low wages (Taylor and Walker 1998). This can be exemplified by the study of Chiu and Ngan (1996) and Heywood et al. (1999) both of whom studied older employees' possibilities on the labor market in Hong Kong. Among employers it is common to hire the older persons only reluctantly, and age limits exist for a lot of jobs, especially for women. The suitable age for women is set lower than for men in spite of a higher life expectancy of women compared to men. Finkelstein and Burke (1998) find that the age of the managers have an effect on how they rated hypothetical applicants, and older managers are found to disfavor older workers. According to the authors this finding indicates that older people may actually be more likely than younger to hold economic stereotypes of older workers. On the other hand Slater and Kingsley (1976) found that younger employers reported less advantageous attitudes towards older employees than older employees, and that employers in companies with many elderly had more advantageous attitudes towards this group.

Previous research and theory suggest that jobs have age norms or are age-typed (e.g., young-typed, old-typed, or age-neutral) and that young applicants and employees will be evaluated more favorably for young-typed jobs, whereas old applicants and employees will be evaluated more favorably for old-typed jobs (Gordon and Arvey 1986, Cleveland et al. 1988, Cleveland and Hollman 1991, Cleveland and Landy 1983, 1987, Perry et al. 1996, Perry and Bourhis 1998). The job status has also been found to be of importance, as old candidates are favored for low-status jobs and young candidates for higher-status jobs (Triandis 1963).

Taylor and Walker (1994, see also Loretto et al. 2000) find that age is an important factor in recruitment processes in such a way that several companies have official and unofficial upper age limits. In advertisements of vacancies, age is often seen as a barrier for applying when an age interval is specified. Yet other information in the texts of advertisements can also discriminate older job seekers as specifications of education, demands for qualifications, type of experience, etc. may convey that a younger person suits the job or company better than an older one (McGoldrick and Arrowsmith 1992).

Our study uses the method developed by Büsch and Königstein (2001) and differs from most of the studies cited above in the following aspects: First, in our study we use four different age vectors where age is randomized so that we have 24 different questionnaires and a total of 12 different age specifications for each of the three male applicants. Second, we use a real job advertisement from a German newspaper; the CVs of the three applicants were developed by us together with the personnel manager of the respective company. Third, we use data from a survey of both students and personnel managers. Fourthly, our study is comparative, i.e., we examine whether different institutional arrangements in countries like Germany and Norway produce different results on age discrimination outcomes. To our knowledge, there have been no other comparative studies of age discrimination so far.

3. BACKGROUND INFORMATION OF THE TWO COUNTRIES

The standard retirement age in Norway is 67 years. A person is allowed to continue to work until the age of 70, but then s/he will receive a reduced retirement pension. Pensions will be reduced in proportion to earned income during the time of work. However, some professions and occupations have a lower retirement age, and law fixes some of these. The compulsory retirement age is 70.

As in several other countries, institutional arrangements that were originally made for other purposes, notably unemployment benefits and disability pensions, have been used as pathways to early retirement. Until the early 1990s, the entitlement conditions for a disability pension in Norway were quite liberal, and labor market conditions were a factor in disability assessment. Before the payment of a disability pension, sickness insurance is usually paid for one year, requiring a subsequent period in a rehabilitation program. To qualify for a disability pension, a person must show that his/her ability to earn an income has been permanently reduced by at least 50%.

Older persons are entitled to unemployment insurance for an extended period. Those who become unemployed when they are 64 are entitled to unemployment insurance without a time limit until they reach the standard retirement age of 67. In addition, it is possible to be unemployed 186 weeks prior to the age of 64, leading to the possibility to receive unemployment benefits from the age of 60.5.

There are several retirement pathways with private provisions in Norway, even though they are generally not very common. The most important nonpublic early retirement scheme in Norway is the AFP ("Early Retirement Pension Agreement"). This scheme came into effect as from the 1st of January 1989. It's adoption has increased as the retirement age has been reduced (62 as of March 1998), and as the replacement rate and the knowledge of the scheme have improved. The replacement rate is different for the various types of retirement schemes. This may lead to different economic incentives for the retirement pathway that is used.

As there is no public early retirement system, the above-mentioned schemes have been used extensively by Norwegian companies and employees, especially disability pension and AFP (Dahl and Nesheim 1998).

Our brief description of the German retirement system is focused on West Germany since, due to the transition, many temporary regulations were introduced. For example during the early transition period (1990-1992) in the former GDR, there were extremely high unemployment rates among older persons. Therefore, older persons from the age of 60 years on (later even from 55 years on) were entitled to preretirement benefits, which were approximately equal to the amount of unemployment benefits.

Even though the standard retirement age in Germany is 65, the actual retirement age is lower, i.e., on average around 60 in West Germany. One reason has been, and for a certain age group still is, the possibility to go into early retirement by the pathway of unemployment retirement. Employees were able to leave employment at the age of 58. After receiving unemployment benefit from their former employer and the employment office, they retired formally at the age of 60. The condition was an unemployment spell of at least one year after the age of 58.5. In 1995, the maximum period of drawing unemployment benefit was 32 months for older persons. Before 1987, it was only 12 months, and so employees could leave at the age of 59, according to a rule by the same name, the "59 rule" (Riphahn 1999, p. 630). The Federal Employment Office subsidized employers if a vacancy was filled with an unemployed person (Kiehl and Koller 1999). Nowadays – due to the Social Security Reform of 1992 – only persons born before 1952 are still entitled to receive this kind of retirement pension. This Act was the first serious governmental attempt to reverse

the early retirement trend. Since, in Germany, the social security system was still facing serious financial problems, a law was implemented in 1996 which prescribed a higher retirement age for older workers receiving unemployment benefit. In the same year, a partial retirement for older workers was introduced to give persons an incentive to postpone retirement. Yet this did not stop the trend toward early retirement (Frerichs and Naegele 1998).

Another important pathway to retirement is the disability pension. In 1981, 68% of male workers retired via the pathway of disability pensions (Börsch-Supan 1998). Disability pensions existed until 2001 in two forms: one for occupational and one for general disability. Persons with an occupational disability or a general disability to work received a pension regardless of age if certain minimum conditions (regarding contributions) had been fulfilled. On the 1st of January 2001, a new law came into effect that distinguishes between a complete or partial reduction in one's earning capacity. As a consequence, in 2001 only 15.9% of all pensions for workers in West Germany were due to reduction in earnings capacity (VDR 2003).

Another important background feature for the comparison of the two countries is the unemployment and labor force participation rates of older workers. As one can see in Figure 1, with 1.6%, Norway has one of the lowest unemployment rates in this age group in all OECD countries. However, with 11.2%, Germany (here and in the following referring to the reunited Germany) has almost the highest rate.

Place Figure 1 here.

The labor force participation rate in the same age group is 41.5% in Germany and 68.5% in Norway in 2001 (OECD 2002). In September 2001 39.2% of all older unemployed in Germany were long-term unemployed (two years and longer, Bundesanstalt für Arbeit 2001).

One reason could be that it is very difficult for older persons to find a new job, as Frerichs and Naegele (1998, p. 59) point out: "The phenomenon of unemployment among older workers in Germany is characterized less by the risk of becoming unemployed than by the problem of remaining unemployed and failing to find new

work." This shows that it is important to understand the hiring process of older applicants.

4. HYPOTHESES, DATA, AND METHODS

The description of the situation of older workers shows that in Norway, there are a higher retirement age and a higher participation rate of older workers in the labor market. Thus, concerning the questionnaire study, we propose the following working hypotheses:

1. More jobs will be seen as typically "old" in Norway than in Germany.

The different participation rates of older workers in both countries will lead to different perceptions of which type of job is connected to a certain age of the worker.

2. In contrast to Germany, the expected productivity within age rank (young, middle-aged, old) will conspicuously increase in Norway.

Older workers in Norway have a lower unemployment rate than other age groups (1.6% for the 55-64 age group and 2.6% for the 25-54 age group in 2001). This may lead the participants in Norway to expect the same productivity within age rank. The unemployment rate in Germany in 2001 was 7.5% for the 25-54 age group and 11.2% for the 55-64 age group. Therefore, the evaluation of the expected productivity will differ more in Germany.

3. Less age discrimination regarding the hiring decision will be observed in Norway than in Germany.

The same reasons as under Hypotheses 1 and 2 apply here.

As mentioned previously, we want to identify whether older applicants with the same qualifications are treated differently as compared to younger applicants. The first step is to identify an age-neutral position. A pilot study was used for this purpose. Since there is some evidence that certain jobs or positions have age norms, or are more appropriate for particular ages, it was important to find a suitable method to identify age-neutral positions. By using an age-neutral position, we avoid identifying job discrimination instead of applicant discrimination. One method to identify age-neutral positions was developed by Cleveland and Landy (1987). In their experiment,

managers were asked to complete either a frequency grid questionnaire or a graphic rating scale. We used the same questionnaires in the pilot studies in both countries. The only difference was that participants were not only given different job titles than in the experiment of Cleveland and Landy but also received some background information of the respective position. Students were provided with a short description of real job advertisements of 20 jobs selected from the German newspaper *Frankfurter Allgemeine Zeitung*. We concentrated on white-collar positions that are not physically demanding because there is some evidence in the literature that it is possible that physical strength decreases with age.

In the frequency grid questionnaire, students had to express their subjective assessment regarding the age distribution in each job. They had to indicate how many of one hundred persons they thought were in each age category (<20, 20-29, 30-39, 40-49, 50-59, 60-69, $\geq$ 70). In the other questionnaire, they had to state which of seven age categories (1=young, 2, 3, 4=middle-aged, 5, 6, 7=old) they thought was predominant for the position in question. In both countries we used the same descriptions of jobs and the corresponding companies. We just made some minor adjustments in Norway to allow for a more representative picture. The adjustments concern only the largest companies since Norwegian companies are rather small on average. They have a smaller number of employees and lower annual turnovers (NoK – Norwegian Kroner). According to the results of Cleveland and Landy (1987), we distinguished between typically neutral, young and old positions. A job was defined as a younger person's position if 60% of responses from *both* questionnaires fell in the first three rating categories. A job was characterized as an older person's position if 60% of the responses fell in the last four rating categories. A job was classified as age neutral if less than 60% of the responses of both questionnaires were concentrated either in the first three or the last four response categories.

After having identified a position that was age neutral both in Germany and Norway, we continued with the main study. This consisted of four different tasks: In the introduction, students were asked to assume they were assistants of a personnel manager. The managers were just asked to answer the questionnaire. Then they were given the description of the age-neutral position and the CVs of three hypothetical applicants. The CVs of the three applicants were developed together with the corresponding personnel manager of the respective enterprise in Germany. The first task was to state

for twelve items regarding different types of ability the percentage of importance for filling the position (see Appendix 3 and 4). Second, they had to indicate on a 9-point bipolar rating scale how capable every applicant was with respect to all items. The third task was to mark the adequate wage level for each applicant. Participants were requested to use the wage level as a measure for productivity and take into account the real wage range for this kind of position, which was mentioned in the questionnaire. Last but not least, they had to decide whom of the three applicants they would hire.

In the main study, the manipulated variable was age. Four different age vectors (group I: 27, 34, 41; group II: 31, 38, 45; group III: 35, 42, 49, and group IV: 39, 46, 53) were used. The age gap between the youngest and oldest applicant in each questionnaire was only 14 years. Consequently, the applicant pool itself was characterized by a relatively homogeneous age structure. In total, the main study consisted of 24 different questionnaires since the different ages where assigned in all possible permutations within one age vector to the three different applicants. The respondents, however, did not know that we had 24 different questionnaires leading to 12 age specifications for each applicant. The real purpose of the study was hidden because such knowledge obviously would affect the answers of the respondents, and most likely in a way that would reduce possible age discrimination.

5. EMPIRICAL RESULTS

We ran the pilot study in both countries to make sure that the same position for the main study was seen as age neutral. The first and second questionnaire of the pilot study were filled out in Norway by 28 and 26 students, respectively. In Germany, 26 students filled out the first and 35 the second questionnaire. In total, six positions in Norway and seven in Germany were identified as age neutral (see Appendix 3 and 4). As one can see, overall the evaluation of eight positions differed for Germany and Norway. In six of these eight cases, the answers differ in only one of the two questionnaires. No job associated with young persons in Germany was seen as an old person's job in Norway. Only in two cases (Head of the Technical Customer Service (19) and Head of Division Corporate Accounting (2)) did both questionnaires pro-

duce a different result. The position used in the main study, Project-Engineer in Total Quality Management, was seen as age neutral in both countries.

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If we take a closer look at the answers of the first questionnaire, we see that in Germany only 4 students named the age category over 70 at least once, whereas in Norway 11 students indicated this age category at least once. This indicates that in Norway it is still quite probable to work after the age of 65.

According to questionnaire 1, four positions were evaluated as old in Norway and only two in Germany. According to questionnaire 2, however, three positions in Norway and five in Germany were evaluated as old. Only two positions were evaluated as old (Area Controller as Department Manager (7) and Technical Head of Tools and Devices (1)) in both countries. As a result, our first hypothesis has not been confirmed.

In Norway, 91 students filled out the main questionnaire (35 female, 44 male, and 12 not reported) and in Germany 174 students (87 female, 78 male, and 9 not reported) did so. In April 2002, we mailed the questionnaire using the age-neutral position to 294 Norwegian personnel managers of large industrial companies. These are all companies with 200 or more employees according to "Norges største bedrifter 2001" (Norway's largest companies). Two reminders were sent out, and in total 66 analyzable questionnaires were received. The result was a response rate of 22%. In February and May 2002, we sent a total of 761 questionnaires to companies with more than 200 employees in West Germany. To avoid a bias due to the special situation of older workers in East Germany, we excluded this part of the country. We received only 87 answers even though we contacted most of the companies by telephone to remind them to return the questionnaire. This produced a response rate of only 11%, which is still not unusual for such surveys.

Forty-five male and 21 female managers in Norway and 58 male and 29 female managers in Germany, respectively, filled out the main questionnaire. In Norway, the mean age of respondents was 47, in Germany it was only 40. The difference is significant according to a one-sided Wilcoxon test ($p < 0.001$), and this result is additionally supported by a one-sided Kolmogornov-Smirnov test ($p < 0.001$).

A first result is that for all three age types (young, middle-aged, old) wages did not differ much (see Table 1).

Table 1. Wage in euros

	Young	Middle-aged	Old	Kruskal-Wallis test p-value	One factorial ANOVA p-value
Students					
Norway	42472 (9050)	42101 (3027)	43153 (4364)	< 0.001	0.495
Germany	41698 (2515)	41587 (2433)	41703 (2320)	0.890	0.880
Personnel managers					
Norway	40637 (5300)	43011 (2091)	43254 (2162)	<0.001	0.005
Germany	40756 (2797)	41721 (2655)	42471 (2884)	<0.001	0.001

Note: Numbers in parentheses denote standard deviations.

In Norway, students and personnel managers offered to the oldest applicant a slightly higher wage than to the two younger applicants. This also applied to German personnel managers. One reason for this result could be the predominance of seniority-based wages. German students, however, did not significantly differentiate between the three applicants when setting wages. This may indicate that they chose wages according to expected productivity as it was asked in the questionnaire.

We can calculate a measure for the expected productivity by multiplying the percentage of how important the participants evaluated each of the twelve items by the value they gave each applicant regarding the corresponding item. Expected productivity for all three age types is very similar in both countries. There is no significant pattern as one can see in Table 2.

Table 2. Expected productivity (on a 9-point scale)

	Young applicant	Middle-aged applicant	Old applicant	Kruskal-Wallis test p-value	One factorial ANOVA p-value
Students					
Norway	5.91 (0.94)	5.78 (0.88)	5.93 (0.89)	0.232	0.503
Germany	5.84 (1.11)	5.82 (1.01)	5.78 (0.98)	0.565	0.872
Personnel managers					
Norway	5.53 (0.65)	5.64 (0.83)	5.57 (0.84)	0.922	0.732
Germany	5.59 (1.30)	5.76 (1.43)	5.57 (1.27)	0.704	0.595

Note: Numbers in parentheses denote standard deviations.

A closer look at the individual items (see Appendix 3 and 4) reveals that in Norway younger applicants received a significantly higher evaluation than older ones for only one item by the students (flexibility). German students, however, rated younger applicants significantly higher for two items (ability to learn and flexibility). Additionally, they assessed older applicants more highly in terms of organizational ability. While in Norway personnel managers did not show any significant pattern over all items, German managers evaluated in the same way as German students, i.e., they gave younger applicants a higher score for the items ability to learn and flexibility.

It is interesting to know whether wage rank is connected with the hiring probability. The highest wage for an old person (seniority-based wage) corresponds to a hiring probability of only between 48 and 63% in both countries. But the highest wage for the youngest applicant (junior-based wage) corresponds to a hiring probability of at least 74% (see Table 3).

Table 3. Conditional hiring probability with respect to wage

	Young applicant with the highest wage	Middle-aged applicant with the highest wage	Old applicant with the highest wage	χ^2 Test (2 df) p-value	Trend test (1 df)
Students					
Norway:	86.36	65.38	63.04	0.133	0.069
Germany:	77.27	67.19	54.10	0.022	0.006
Personnel managers					
Norway:	81.82	83.33	54.84	0.047	0.031
Germany:	73.68	76.67	47.62	0.023	0.019

See Armitage (1955) for Trend Test.

For all respondents (both countries), we observe a significant trend that younger applicants with the highest wage within a group of applicants are more likely to be employed than older applicants. There is a difference in behavior regarding the complete set of hiring decisions in the two countries. In Germany, students and personnel managers significantly favor younger applicants in the hiring decisions as the trend test indicates (see Table 4). In Norway, we do not observe any significant trend in the hiring probabilities.

Table 4. Hiring probability

	Young	Middle-aged	Old	χ^2 (2 df) p-value	Trend test (1 df)
Students					
Norway	35.16	27.47	37.36	0.331	0.753
Germany	46.26	29.89	23.85	<0.001	<0.001
Personnel manager					
Norway	28.03	43.18	28.79	0.115	0.926
Germany	39.08	35.63	25.29	0.133	0.054

It seems that, in contrast to respondents in Germany, the participants in Norway are not influenced by negative age stereotypes when making their hiring decisions. Our third working hypothesis assumes less age discrimination concerning the hiring probability in Norway. This hypothesis has not been falsified since we do not observe any age discrimination in Norway. To further analyze age discrimination in the hiring process, we ran several random effects probit regressions on hiring decisions that are reported in Table 5.

Table 5. Random effects probit regression on hiring decisions

Variable	Model 1	Model 2	Model 3
Log likelihood	−533.67	−530.38	−537.89
Estrella pseudo R^2	0.4065	0.4111	0.4005
Akaike information criterion	0.8591	0.8603	0.8850
Constant	−2.736**	−2.3299**	−2.7895**
	(−13.755)	(−8.780)	(−11.613)
Applicant 3	−0.3282**	−0.3383**	−0.3320**
	(−3.170)	(−3.253)	(−3.205)
Rank of expected productivity	0.5685**	0.5712**	0.5761**
	(9.302)	(9.303)	(9.464)
Wage rank	0.9302**	0.9359**	0.8916**
	(13.512)	(13.399)	(13.145)
Age rank	−0.3997**	−0.6152**	
	(−6.950)	(−5.734)	
Age group 0 * Age rank			−0.2959**
			(−3.366)
Age group 1 * Age rank			−0.2731**
			(−3.046)
Age group 2 * Age rank			−0.3701**
			(−3.435)
Age group 3 * Age rank			−0.3848**
			(−2.670)
Age group 4 * Age rank			−0.3983*
			(−2.405)
Norway		−0.4159	−0.3689
		(−1.743)	(−1.850)
Norway * Age rank		0.2213*	
		(1.984)	
Norway * Age group 0 * Age rank			0.2175
			(1.929)
Norway * Age group 1 * Age rank			0.1767
			(1.445)
Norway * Age group 2 * Age rank			0.2076
			(1.412)
Norway * Age group 3 * Age rank			0.2491
			(1.503)
Norway * Age group 4 * Age rank			0.2020
			(0.987)
Student		−0.4026	0.1172
		(−1.661)	(0.564)
Student * Age rank		0.1974	−0.1305
		(1.726)	(−1.454)

Note: Figures in parentheses denote t-values. One (two) star(s) indicate(s) significance at the 5% (1%) level, respectively.

For the regressions, we used the complete data set of all 418 questionnaires comprising German and Norwegian students and personnel managers.

The first model already reveals that there is indeed age discrimination in our questionnaire data: The coefficient of the variable Age rank (coded 1, 2, 3 for youngest, middle-aged, oldest applicant) is significantly negative, indicating that older applicants have a lower probability of being hired. Furthermore, the subjective expected productivity (see Table 2) has a significant positive influence on the hiring probability, i.e., the higher the subjectively perceived productivity of an applicant; the higher is the hiring probability. The same is true for wage that was supposed to be also a measure for expected productivity. Since we observed that applicant 3 – with everything else remaining constant – is hired significantly less often, indicating that his vita is perceived as being inferior to that of the two other applicants, we also included an appropriate dummy variable to account for this (see Büsch and Königstein 2001).

In model 2, we add a variable denoting a country and student interaction with Age rank to assess differences between Germany and Norway and between students and personnel managers. In general, we observe the same results as before but, strikingly, age discrimination is significantly less pronounced in Norway. This is indicated by the significantly negative coefficient of the variable Age rank and the significantly positive coefficient of the interaction effect between Norway and Age rank. Here Norway is a dummy that equals 1 if the respondent is Norwegian. The total effect of Age rank in the Norwegian subsample is still negative, but the size in absolute terms is smaller than in the German subsample. There seems to be no significant difference between the student subsample and the personnel manager subsample. This is indicated by the nonsignificant coefficient of the interaction effect between Student and Age rank, whereby Student is a dummy equaling 1 if the participant is a student.

Finally, in model 3 we examine the influence of the participants' age group on discriminatory behavior. We introduce five age groups. The first group of participants is aged 24 years and younger, the second is aged 25-34 years, the third is aged 35-44 years, the fourth is aged 45-54 years, and the fifth is aged 55 years and older. Twenty-seven observations (24 students and 3 managers) had to be excluded since the respondents did not state their age. This explains the smaller likelihood and lower pseudo R-square of model 3. All age groups show discriminatory behavior as indicated by significantly negative coefficients. However, the coefficients do, not significantly differ from each other. The increasing variance may be due to the decreasing

number of observations within each stratum and not necessarily to an increase in the heterogeneity in behavior. Again, there are significantly positive coefficients regarding the interaction effects of Norway, Age group, and Age rank. These coefficients, however, do not significantly deviate from zero so that the total effect of Age rank in the Norwegian subsample within each Age group does also not significantly deviate from zero. Consequently, only the German participants on average exhibited age-discriminatory behavior, whereas the Norwegian participants, regardless of their age, on average did not show any significantly discriminatory behavior. Finally, we also observe that students do not behave significantly different from personnel managers in the same age group as is indicated by the coefficient of the interaction effect between Student and Age rank, which does not significantly deviate from zero.

To illustrate the different age-discriminatory behavior, we finally compute the hiring probability of an applicant perceived as being the most productive according to expected productivity and wage, using model 2. According to this, in Germany the youngest applicant is hired with a probability of 94.25%, the second oldest applicant with a probability of 83.17%, and the oldest applicant with a probability 63.52%. The analogous hiring probabilities in Norway are 91.64%, 83.83%, and 72.36%, respectively.

6. CONCLUSION AND DISCUSSION

The aim of our study was to identify the role of age in the labor market. We expected that more job positions would be seen as typically old in Norway than in Germany. Only two job positions in both countries, however, were seen as typically old. Hence it seems that a higher participation rate of older workers in Norway did not influence the perception of the job position.

We assumed a different evaluation of the expected productivity within age rank between the two countries. But in both countries students and managers made a very similar evaluation of young, middle-aged and old applicants. Our second hypothesis has not been falsified.

Regarding our third hypothesis, we observe age discrimination in hiring decisions for older applicants in Germany and Norway. However, respondents in Norway show a

behavior that is significantly less discriminatory. Therefore, we suspect that different norms, or stereotypes, in the two countries may be the cause for our results. Anyhow, we can conclude that in Germany older workers are discriminated in the hiring process.

Further research should expand the study by including female workers or employees as well as male blue-collar workers. Especially in case of Norway, it could be worthwhile to find out whether the picture changes if age discrimination for a blue-collar instead of a white-collar position is investigated. For these kinds of jobs, we observe an obviously decreasing average productivity with advancing age. In such cases, discrimination of older applicants with the same qualifications would be rational.

Finally, the study shows that age discrimination in the hiring process exists in Germany. To meet the demographic challenges, it is therefore necessary to reduce age discrimination. For this purpose, personnel managers should be provided with more information about the true abilities of older workers. But it could also be that personnel managers simply want to avoid employing older workers - regardless of their abilities. This would be the explanation according to Becker. The reason for a "dislike" of an older person in Germany could be that, in contrast to Norway, an employee's age in Germany seems to be closely connected with hierarchical principles. However, the task for German society is to change the behavior of those engaged in hiring processes in terms of a more favorable treatment of older persons to face the problems in the labor market caused by demographic changes.

Appendix 1. Pilot Study Norway

Job/Position	Questionnaire A		Type	Questionnaire B		Type	Result
Age Category	C 1-3	C 4-7		C 1-3	C 4-7		Type
BUYER							
Head of Purchasing Division (10)	46	54	neutral	77	23	young	AMBIGOUS
Technology Purchaser (12)	46	54	neutral	58	42	neutral	NEUTRAL
Purchaser of Books, Music and Video (3)	80	20	young	100	0	young	YOUNG
PRODUCTION PLANNER							
Business-Planning Officer (13)	**56**	**44**	**neutral**	**77**	**23**	**young**	**AMBIGOUS**
SUPERVISOR OF CUSTOMER SERVICE							
Department Manager, Customer Service-OTC (4)	43	57	neutral	60	40	young	AMBIGOUS
Head of Customer Service Technology (19)	**39**	**61**	**old**	**60**	**40**	**young**	**AMBIGOUS**
Head of Customer Service (14)	60	40	young	64	36	young	YOUNG
REGIONAL SALES MANAGER							
Regional Sales Consultant (16)	**49**	**51**	**neutral**	**52**	**48**	**neutral**	**NEUTRAL**
Sales Manager (18)	**56**	**44**	**neutral**	**76**	**24**	**young**	**AMBIGOUS**
SALES ENGINEER							
Sales Engineer Product Range Hydraulic Technology (17)	48	52	neutral	50	50	neutral	NEUTRAL
Sales Engineer Electrical Engineering (5)	52	48	neutral	62	38	young	AMBIGOUS
Sales/Project Engineer (20)	**45**	**55**	**neutral**	**40**	**60**	**old**	**AMBIGOUS**
DIRECTOR OF ACCOUNTING							
Area Controller as Department Manager (7)	38	62	old	31	69	old	OLD
Head of Cost Accounting and Controlling (8)	39	61	old	46	54	neutral	AMBIGOUS
DIRECTOR OF R&D							
Head of Development Control Shaft Handling (9)	**47**	**53**	**neutral**	**85**	**15**	**young**	**AMBIGOUS**
Manager of Technology, Tools and Equipment (1)	38	62	old	28	72	old	OLD
ACCOUNTANT							
M.B.A. emphasis Accounting and Controlling (11)	**55**	**45**	**neutral**	**77**	**23**	**young**	**AMBIGOUS**
Head of Division Corporate Accounting (2)	**43**	**57**	**neutral**	**50**	**50**	**neutral**	**NEUTRAL**
PROJECT ENGINEER							
Project Engineer Total-Quality-Management (6)	45	55	neutral	54	46	neutral	NEUTRAL
Manufacturing Process Engineer (15)	46	54	neutral	52	48	neutral	NEUTRAL

Note: The figure in parenthesis indicates the order in which we presented the positions to the students.
The job evaluations in bold type indicate a difference between Norway and Germany.

Appendix 2. Pilot Study Germany

Job/Position	Questionnaire A		Type	Questionnaire B		Type	Result
Age Category	C 1-3	C 4-7		C 1-3	C 4-7		Type
BUYER							
Head of Purchasing Division (10)	58.97	41.03	neutral	74.29	25.71	young	AMBIGOUS
Technology Purchaser (12)	43.78	56.22	neutral	57.14	42.86	neutral	NEUTRAL
Purchaser of Books, Music and Video (3)	84.57	15.43	young	94.29	57.14	young	YOUNG
PRODUCTION PLANNER							
Business-Planning Officer (13)	**67.29**	**32.71**	**young**	**88.57**	**11.43**	**young**	**YOUNG**
SUPERVISOR OF CUSTOMER SERVICE							
Department Manager, Customer Service-OTC (4)	40.60	59.40	neutral	31.43	68.57	old	AMBIGOUS
Head of Customer Service Technology (19)	**55.54**	**44.46**	**neutral**	**45.71**	**54.29**	**neutral**	**NEUTRAL**
Head of Customer Service (14)	64.17	35.83	young	85.71	14.29	young	YOUNG
REGIONAL SALES MANAGER							
Regional Sales Consultant (16)	**56.47**	**43.53**	**neutral**	**40.00**	**60.00**	**old**	**AMBIGOUS**
Sales Manager (18)	**69.87**	**30.13**	**young**	**97.14**	**28.57**	**young**	**YOUNG**
SALES ENGINEER							
Sales Engineer Product Range Hydraulic Technology (17)	49.95	50.05	neutral	51.43	48.57	neutral	NEUTRAL
Sales Engineer Electrical Engineering (5)	56.85	43.15	neutral	62.86	37.14	young	AMBIGOUS
Sales/Project Engineer (20)	**47.41**	**52.59**	**neutral**	**42.86**	**57.14**	**neutral**	**NEUTRAL**
DIRECTOR OF ACCOUNTING							
Area Controller as Department Manager (7)	36.96	63.04	old	20.00	80.00	old	OLD
Head of Cost Accounting and Controlling (8)	49.89	50.11	neutral	31.43	68.57	old	AMBIGOUS
DIRECTOR OF R&D							
Head of Development Control Shaft Handling (9)	**48.93**	**51.07**	**neutral**	**42.86**	**57.14**	**neutral**	**NEUTRAL**
Manager of Technology, Tools and Equipment (1)	38.83	61.17	old	8.57	91.43	old	OLD
ACCOUNTANT							
M.B.A. emphasis Accounting and Controlling (11)	**69.15**	**30.85**	**young**	**82.86**	**17.14**	**young**	**YOUNG**
Head of Division Corporate Accounting (2)	**61.15**	**38.85**	**young**	**68.57**	**31.43**	**young**	**YOUNG**
PROJECT ENGINEER							
Project Engineer Total-Quality-Management (6)	52.31	47.69	neutral	51.43	48.57	neutral	NEUTRAL
Manufacturing Process Engineer (15)	53.53	46.47	neutral	42.86	57.14	neutral	NEUTRAL

Note: The figure in parenthesis indicates the order in which we presented the positions to the students.
The job evaluations in bold type indicate a difference between Norway and Germany.

Appendix 3. Students' Evaluation of the different items

	Young	Middle-aged	Old	KW	ANOVA
Norway:					
1. Technological know how	5.44	5.40	5.80	0.112	0.177
2. Computer skills	5.89	5.75	5.98	0.529	0.482
3. Organization capability	6.02	6.03	6.25	0.264	0.405
4. Foreign language skills	5.66	5.35	5.29	0.394	0.184
5. Capability to learn	5.84	5.90	5.80	0.740	0.827
6. Flexibility	5.99	5.53	5.55	0.010	0.015
7. Conscientiousness	5.74	5.68	5.81	0.488	0.745
8. Reliability	5.74	5.65	5.66	0.461	0.859
9. Capacity for teamwork	5.98	6.02	6.31	0.105	0.253
10. Communication capability	6.09	5.80	5.99	0.115	0.391
11. Persuasive power	5.35	5.53	5.61	0.210	0.321
12. Commitment	5.85	5.73	5.68	0.736	0.680
Germany:					
1. Technological know how	5.93	5.87	5.86	0.879	0.884
2. Computer skills	5.88	5.86	5.79	0.807	0.825
3. Organization capability	6.20	6.33	6.54	0.038	0.048
4. Foreign language skills	5.65	5.87	5.67	0.747	0.525
5. Capability to learn	6.25	5.72	5.40	<0.001	<0.001
6. Flexibility	6.34	6.14	5.60	<0.001	<0.001
7. Conscientiousness	5.87	5.89	6.02	0.457	0.374
8. Reliability	5.96	5.98	6.17	0.286	0.169
9. Capacity for teamwork	6.40	6.24	6.26	0.689	0.512
10. Communication capability	6.26	6.23	6.29	0.828	0.923
11. Persuasive power	5.73	5.91	5.99	0.183	0.200
12. Commitment	6.32	6.22	6.10	0.314	0.285

Note: In the column KW and ANOVA, the p-values of the Kruskal-Wallis Test and one factorial, respectively, are reported. For an interpretation, we take the more conservative approach and require that both tests agree with each other.

Appendix 4. **Personnel managers' Evaluation of the different items**

	Young	Middle-aged	Old	KW	ANOVA
Norway:					
1. Technological know how	5.84	6.12	5.98	0.601	0.476
2. Computer skills	5.83	5.85	5.94	0.914	0.840
3. Organization capability	5.60	5.84	5.81	0.446	0.375
4. Foreign language skills	5.58	5.88	5.59	0.207	0.346
5. Capability to learn	5.84	5.82	5.73	0.841	0.815
6. Flexibility	5.63	5.39	5.44	0.286	0.274
7. Conscientiousness	5.28	5.62	5.66	0.447	0.089
8. Reliability	5.17	5.67	5.59	0.109	0.017
9. Capacity for teamwork	5.95	6.02	6.03	0.986	0.913
10. Communication capability	5.64	5.81	5.72	0.789	0.631
11. Persuasive power	5.15	5.39	5.47	0.564	0.194
12. Commitment	5.59	5.63	5.31	0.159	0.221
Germany:					
1. Technological know how	5.37	5.60	5.79	0.114	0.239
2. Computer skills	6.08	6.05	5.87	0.331	0.442
3. Organization capability	6.01	6.21	5.81	0.234	0.142
4. Foreign language skills	5.98	6.63	5.60	0.300	0.371
5. Capability to learn	5.84	5.84	5.28	0.001	0.006
6. Flexibility	6.03	6.01	5.54	0.009	0.014
7. Conscientiousness	5.47	5.72	5.75	0.104	0.249
8. Reliability	5.57	5.81	5.73	0.242	0.441
9. Capacity for teamwork	6.11	6.26	6.05	0.444	0.456
10. Communication capability	6.19	6.30	6.06	0.340	0.402
11. Persuasive power	5.58	6.01	5.71	0.026	0.055
12. Commitment	5.95	6.06	5.81	0.523	0.423

Note: In the column KW and ANOVA, the p-values of the Kruskal-Wallis Test and one factorial, respectively, are reported. For an interpretation, we take the more conservative approach and require that both tests agree with each other.

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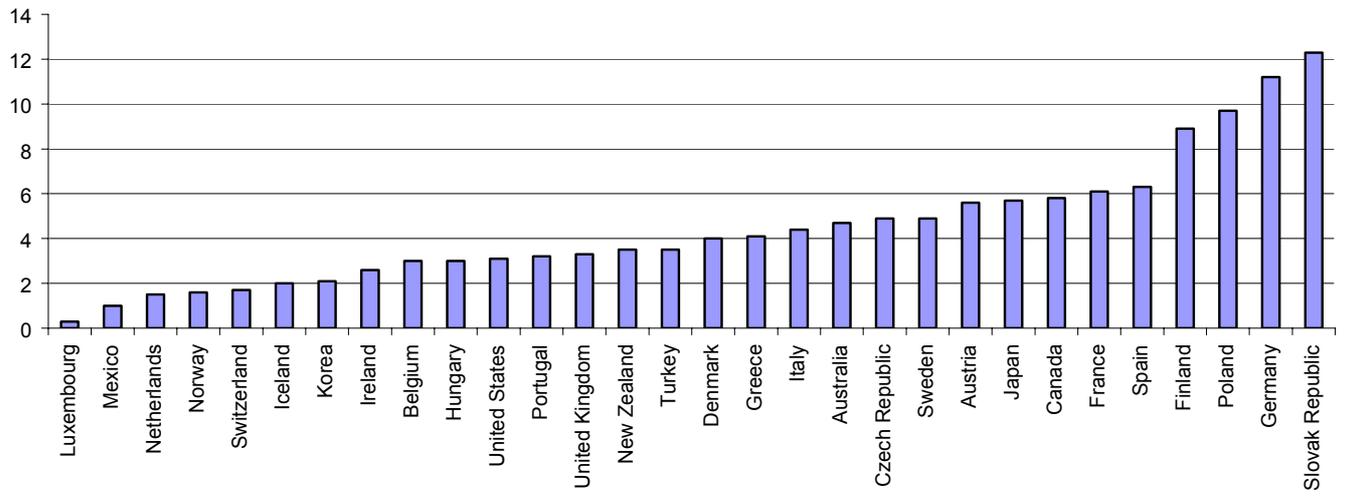Chiu S, Ngan RMH (1996) Opportunity and Discrimination in Employment. *Asia Pacific Journal of Social Work* 6:70-86.

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Figure 1. Unemployment rates of older workers (55 to 64) in %

Source: OECD, 2002, pp. 359-360