Age and Foreign Nationality -
A Double Drawback for Reemployment in Germany?

Preliminary Draft

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In this paper, we analyze reemployment prospects over the life course for Germans and non-Germans. Health issues, discrimination or compositional effects in the occupational structure may lead to a double drawback for older foreigners. But the accumulation of country-specific human capital and selectivity effects may as well alleviate the negative effect of aging for foreigners. Applying a piecewise-constant hazard rate model on register data of the German Federal Employment Office for male employees aged 25 to 65 years from 1975 to 2001, we find that reemployment prospects are about 7 percentage points lower for foreigners than for their German counterparts. The age-nationality pattern shows a significantly stronger negative effect of aging for foreigners than for Germans, but only for ages 45 to 55. The effect of nationality on reemployment varies strongly across nations and ranges from - 17 percentage points for Greeks up to + 5 percentage points for people from the former Republic of Yugoslavia. With advancing age, reemployment chances decrease for all nationalities, particularly for foreigners of Greek and Turkish nationality, whose prospects for reemployment are up to the age of 60 on average about 27 percent below that of natives.
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JEL Classification: J14, J15, J24

A. Introduction

Attracting young and well educated foreigners is seen to be one solution to slow down the graying of societies and the impending scarcity of skilled labor, caused by low fertility rates and a continuously increasing lifespan [Blanchet 1989, UN 2000]. To revert to foreign labor has also been a solution for the German Government in the time period 1955 to 1973: *gastarbeiter* (guest workers) from southern countries such as Italy, Spain, Greece, Turkey or the former Republic of Yugoslavia were recruited to meet the excess demand for manual labor.

The typical guest worker was aged 15 to 25 years at the time of entry to Germany [Fertig and Schmidt 2001]. But most of the foreign workers did not only come temporarily during their prime age time. They stayed beyond the time of the extensive demand-driven immigration policy in Germany, which ended after the first oil shock in 1973. A migrant arriving for example in 1965 at the age of 25 was in his early thirties when immigration policy changed and is in his retirement age by now.

Before we follow up the path of non-German workers during their working life, let us give a short overview about the foreign population and their employment situation. In 1970 were about 3 million persons of foreign nationality living in Germany. Until 2003, their number had increased to 7.3 million [BMFSFJ 2005b], or a share of 8.9% of the total population. While the foreign population dynamically increased, the number of salaried employees has stayed

quite constant at 2 millions from 1970 onwards. In 2004 their number accounted to 1,796,500 persons. Table I provides absolute numbers and the respective shares of the total number of foreign employees for the five largest ethnic groups of foreign employees.

country of origin	number of employees	% of all foreign employees
Greece	96,161	5.4
Italy	175,136	9.8
Ex-Yugoslavia	153,763	8.6
Turkey	479,884	26.9
Poland	62,363	3.5

Table I Employment of selected nationalities in 2004
Source: BMFSFJ [2005b] p. 584; edited by the authors

The employment situation of foreigners in Germany worsened over the years. The unemployment rate for foreigners grew from 12 % to 22.8 % between 1992 and 2004 (that corresponds to 549,944 unemployed persons in 2004) [Federal Employment Office 2005].

Moreover, unemployment rates differ strongly across nationalities (see Table II). The differences can be attributed partly to socioeconomic determinants like education and occupational structure [Bender and Karr 1993]. Overall differences in unemployment rates indicate that belonging to a certain nationality might play a role for reemployment prospects.

Foreign nationality paired with age seems to be a double handicap on the labor market: in 2002 198.000

country of origin	unemployment rate 2004 (in %)
Ex-Yugoslavia	18.3
Greece	18.0
Italy	19.8
Morocco	23.2
Spain	13.8
Turkey	25.8

Table II Unemployment rate for selected nationalities
Source: [Federal Employment Office 2005] p. 81

foreigners (18,5 %) aged 45 to 65 were unemployed [Bauer et al. 2004]. This is higher than the all-over unemployment rate for foreigners below the age of 45 (15.1%) and exceeds the unemployment rate of older Germans (ages 45 to 65: 11.3 %) by far. The average unemployment duration of 16 months was 2 months longer than for elderly Germans [Bauer et al. 2004], while the share of long-term unemployed was about the same (53 %). A Norwegian study of Rogstad and Raaum [1997] – to our knowledge the only one explicitly with aging migrants – finds that age together with ethnic background and long-term unemployment are the most important barriers on the labor market.

nationality	German	non-German
unemployment rate	11.3 %	18.5 %
average duration (in 2000)	14 months	16 months
unemployed >1 year	53.0 %	53.6 %

Table III Characteristics of unemployment for ages 45-65 in 2002/2003
Sources: [BMFSFJ 2005a], [Bauer et al. 2004]

One explanation for the bad labor market chances for older non-Germans is the composition of sectors they work in. Foreign and older persons are both more strongly affected by structural change compared to Germans and younger persons. Foreign workers are over-represented in the manufacturing and construction sectors. In 1974, almost 80 % of foreign employees worked as wage-earning manual workers in the manufacturing sector, while for all workers this share amounted to 56 %. Until 2000, the share of foreigners in the manufacturing sector decreased to 53 % (total: 40 %)[1] [BMFSFJ 2005a].

In the 1970s, both sectors underwent structural changes due to increasing automation in manufacturing and to outsourcing of labor-intensive parts of the

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[1]More detailed information about the sectoral distribution of foreign workers during the time period 1970-2000 is provided by Hönekopp [1987] and Seifert [2001].

production to low-wage countries. This reduced working opportunities for foreigners [Seifert 2001].

Employment opportunities in Germany depend heavily on formal education. However, education received abroad is often not accepted as being equivalent and this narrows employment opportunities for foreigners. In 2004 about 72 % of all foreign unemployed had no vocational degree, which was more than twice as high as the respective share for Germans (29,5 %)(see [BMFSFJ 2005a] p. 414). The sectoral composition of jobs and the educational distribution for older persons is similar [Bauer et al. 2004].

Given the difficult employment situation of foreigners and for older persons in general, and the surprisingly huge number of affected persons, it is relevant to know more about the job career of those migrants who grew old in Germany. Especially the stability of employment histories and the reintegration process after job loss are issues to be considered by labor market policy. Our paper aims to fill the existing gap in labor market and migration research and especially concentrates on the last point: the reemployment prospects after job loss of foreign persons compared to Germans. Here we are especially interested in how reemployment chances change over the life course. Our three research questions are:

1. To what extend do reemployment prospects of Germans and non-Germans differ?

2. What is the effect of aging on reemployment prospects and how does it differ for both groups?

3. How does the reemployment pattern over the life course vary for different nationalities?

To answer these questions, we first establish a theoretical framework of factors driving reemployment with a special focus on the effect of age and nationality (section B). On this basis, we analyze the employment histories of male workers in Germany from 1975 to 2001 using register data of the German Federal Employment Office. We estimate piecewise-hazard rate models for each research question, controlling for labor market indicators, demographic variables, and aspects of the individual employment history. The statistical model, variables, and data used are described in more detail in section C, the results in section D. The comparison of reemployment rates of Germans and non-Germans (subsection D.1) shows that the reemployment rate for foreigners was about seven percentage points lower than for Germans. Estimating separate models for Germans and non-Germans in section D.2, we find that the chance of reemployment decreases over the life course no matter what the nationality is. Though, reemployment prospects worsen to a bigger extent for older foreigners between ages 45 and 55. A more detailed analysis based on differentiated nationality groups shows that growing old is especially a

drawback on the labour market for foreigners of Turkish and Greek nationality. Foreigners from Italy, the former Republic of Yugoslavia, Africa and Asia display reemployment patterns more similar to Germans of the same age (D.3).

Section E concludes and draws attention to the necessity of further research on labor market dynamics for the elderly migrant population in Germany.

B. Age, nationality and reemployment

Productivity and the capacity for innovation are generally judged to be lower for elderly, especially because general physical fitness, health and at least some cognitive capabilities such as speed of reasoning tend to decline over the life course [Bogai et al. 1994, Börsch-Supan et al. 2005, Skirbekk 2003]. Though, as in most occupations maximum capacity is not necessary to accomplish work tasks and as there is hardly any gerontological evidence that the performance of the elderly declines (e.g. Avolio et al. [1990]), the weak employment situation may as well reflect a certain extent of age discrimination on the employer side [Büsch et al. 2004]. In countries with seniority-based salary systems, the average wage of elderly sometimes exceeds their average productivity and makes "old" labor expensive [Ebbinghaus 2006].

One reason for the weak performance on the labor market is seen in the obsolescence of human capital: Even if levels of educational attainment do not differ strongly between old and young, formal education of older workers dates back decades. Those with a long tenure at their last employer have accumulated a lot of firm-specific human capital, which might not be valued to the same extend at another employer [Fallick 1991, Kletzer 1998]. Additionally, the amount of vocational training received decreases with age [Ebbinghaus 2006, Tros 2006].

The probability to *get* a job offer is influenced by the factors described above. But reemployment depends also on the probability to *accept* this job offer [Petrongolo 2001][2]. The latter is strongly influenced by the reservation wage of a person. According to the "option value approach" of Stock and Wise [1990], individuals maximize their expected lifetime utility when deciding between work, unemployment and retirement. Previous salaries, the level of unemployment benefits and the volume of already accumulated (private and public) pension retirements influ-

ence the probability to search for a job and, eventually, to accept a job. Empirical evidence shows that higher wages earners are more probable to sustain the desired standard of living even if they retire early (see e.g. Feldman [1994]). Thus, reemployment rates of higher wages earners will be rather low, even if, from a labor-demand perspective, they could get job offers.

Broadly, reemployment patterns of older non-Germans are determined by the same effects. Though, the affliction with health problems is even higher among non-Germans (see [BMFSFJ 2005a]). BMFSFJ [2005a] emphasize that health problems of older workers can be mainly attributed to the type of occupation. Particularly jobs with heavy physical strains and jobs in manufacturing are supposed to cause illnesses of older workers. This is also true for jobs in the service sector that are often combined with high psychological stress [BMFSFJ 2005a]. Keeping in mind that foreigners are over-represented in such job occupations, they might suffer more frequently from job-related illnesses. This conjecture is strengthened by the fact that in the age group 56 to 60 the frequency of visits to a physician has been higher for non-Germans [Bauer et al. 2004]. Moreover in 2002 the share of employees being ill for more than six weeks is almost twice as high for foreigners than for natives (13.7 % versus 6.9 %) [Özcan and Seifert 2005]. Karr and Apfelthaler [1981] show that the negative effect of age is especially strong if it appears hand in hand with health problems and therefore non-Germans might be especially stroken by this double effect.

Another barrier for re-entry on the labor market, which is independent of age, could be discrimination. We follow Goldberg et al. [1995] who define that direct discrimination occurs when a foreign person is disadvantaged because he or she is (assumed to be) of foreign nationality or origin. They compared job application outcomes of native and Turkish males who applied for the same job offer[3]. Even second-generation migrants were still disadvantaged in about 19 % of all job applications. Constant and Massey [2005] find evidence for the segmented labor market theory suggested by Piore [1979]. They show that there is discrimination on the German labor market for foreigners from former guest worker countries with regard to their relative position in the labor market. Migrants are bound to jobs with low prestige and little possibilities for social upward movement over time.

With regard to the reemployment probability and unemployment duration of older foreigners, we also have to take into account that they are close to retirement age. Corresponding to the "option value

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[2]In basic job search models, the reemployment rate is denoted as product of the job offer arrival rate and the probability to accept a job. For a more detailed linkage of the empirical approach we follow in this paper and theoretical job search models see Frosch [2006].

[3]The characteristics of both applicants were comparable and their speech not distinguishable. Origin was only apparent by their name.

approach" described above, one of the biggest motivations to accept bridge employment for some years before retirement is the lack of financial resources [Harris 1981]. This is often the case for foreigners. Mainly working in low-wage sectors, they accumulate less public and private pension entitlements. Hence the available income for 50-year old foreigners from former recruitment countries is about 20 % lower than for Germans. For people of this age group originating from Turkey, the income gap amounts to 42 % [Bauer et al. 2004]. Consequently, between 1992 and 2004 the fraction of immigrant households that reported no savings is considerably higher in comparison to German households (58 % versus 40 %)[Bauer and Sinning 2005]. Also the average savings rate for savings in Germany is about 6 or 7 percentage points lower for households with a migration background than for natives.

Therefore, the necessity to extend work life even if it is difficult to reintegrate after job loss can be assumed to be higher, on average, for foreign unemployed. Comparing labor force participation rates Bauer et al. [2004] shows that the labor-force participation rate for workers at the age 60-65 is 4.1 percentage points higher for non-Germans, which could be an indicator for later retirement.

Chiswick [1978] and Carliner [1982] provide some supplementary considerations concerning the evolution of labor market performance of immigrants over their life course: They analyze the process of skill accumulation of immigrants and find that immigrants earn 17 % less than nationals when they just have arrived in the host country. They explain this finding by the fact that immigrants lack skills specific of the receiving country's labor market (e.g. language proficiency). The human capital stock of nationals and migrants converges when migrants start adapting to the receiving labor market. Constant and Massey [2005] picture this effect for foreigners on the German labor market. In the long run, the initial wage gap in weekly wages at the point of entry between foreigners and natives is countervailed by the wage premium to additional years of work experience, which is four times as high for foreigners than for natives[4].

We will refer to this process as *skill accumulation*. According to these assumptions and findings, the human capital obsolescence effect older employees suffer from could be partly compensated by the assimilation of country specific human capital.

Selectivity might also play a role for the (re)employment prospects of migrants on the labor

market: as only the most able and ambitious persons start a new life in a foreign country, immigrants are "more able and more highly motivated" and they "choose to work longer and harder" than non-migrants (Chiswick [1978], p. 900 and p. 89). Even a double selectivity might exist if we assume that in the long run, only the most skilled see chances on their host country's labor market and the others prefer to go back to their countries of origin.

Those considerations can easily be connected with a life course perspective: If *human capital assimilation* takes place, the productivity of immigrants should grow the longer they are in the country and thus, the older they are. The impact of age on labor market performance should then be less pronounced for persons with a migration background than for nationals. This effect could be reinforced if, additionally, positive *selectivity* works. Older migrants could be even more successful in dealing with aging and have less negative consequences for their employment situation than non-migrants. Though, if health problems, compositional effects with regard to the occupational structure or discrimination aspects are more pronounced for non-Germans than for nationals, the effect of aging could even be stronger.

C. Empirical model

Piecewise-constant hazard rate model. Hazard rate models are commonly used to study unemployment durations and the reemployment process [Fitzenberger and Wilke 2004, Gilberg et al. 1999, Petrongolo 2001].

Advantages of these models are that they allow to consider the impact of exogenous variables that may affect reemployment even if these variables are time-varying, like the current age of an individual. Moreover right-censoring is statistically accounted for in these models [Blossfeld et al. 1986]. In our case right-censoring occurs in case unemployment histories are not complete. An appropriate model for the analysis of reemployment after job loss is the following exponential hazard rate model.

$$\lambda(t, x) = \lambda_0(t)e^{\beta x} \tag{1}$$

The term $\lambda(t, x)$ denotes the hazard rate, which depends on the nonemployment duration t and a set of exogenous variables that may vary across time. The hazard rate, also called the conditional failure rate indicates the instantaneous potential of a person per time unit to experience reemployment, given this person is still nonemployed until time t. Thus the hazard rate indicates the "speed of reemployment": the potential of reemployment in relation to person

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[4]Lang, Günter [2004] estimates an initial wage gap of 10% on arrival in Germany. The estimated yearly wage increase is about 0.3% which means that it takes foreigners about 28 years to reach income parity with natives.

months. Person months refer to the number of non-employment months for all persons being unemployed at time t.

$\lambda_0(t)$ is the baseline hazard that depends only on the nonemployment duration t and expresses the instantaneous potential of reemployment for a reference group with certain characteristics. If the baseline hazard takes a constant value, the classical exponential hazard model is on hand. In line with other research on reemployment durations (see [Blossfeld and Rohwer 1995, Fallick 1991]), we estimated a piecewise-constant exponential hazard rate model. Here the baseline hazard is assumed to be constant for certain time intervals but varies between them.[5]. In our case, the baseline risk is allowed differ for example for persons in the first three month of non-employment compared to the baseline risk for persons having a non-employment duration between 3 and 6 months.

A set of covariates x, like the ones we will describe further down in this section, is covered in the term $e^{\beta x}$. The vector β represents a set of coefficients that indicate the effect of the independent variables x in shifting the time varying baseline hazard function $\lambda_0(t)$ upwards or downwards and thus increase or decrease reemployment prospects [Teachman 1982].

Reemployment is an event in the labor market history of an individual that can take place more than once. In the basic file about 46.9 % of all spells under study refer to multiple nonemployment episodes. We therefore extend the above model to allow for multiple episodes of reemployment. Multiple episode models take into account that the assumption of independent observation is violated [Gilberg et al. 1999].

For a comprehensive overview about the statistical modeling of multiple episode models, parameter estimation and other methodological issues see Vermunt and Moors [2005].

Data Set. We use register data for West Germany from the IAB[6]. Employment histories are provided on a day-to-day basis. Depending on the dataset, 1 or 2 % of all employees registered by the social insurance system from 1975 until 2001 are covered[7]. Several millions of (un)employment spells produced by more than 275,000 individuals employed in West Germany allow for highly differentiated analyses.

Not to complicate the analysis with gender-specific aspects, with influences of the structural differences between East and West Germany, and with frequent job changes due to job hopping at the start of career, we restrict our analysis to male employees in West Germany between 25 and 65 years. Furthermore we only consider unemployment episodes with a minimum duration of at least one month in order to avoid an estimation bias due to frictional unemployment.

Information about the place of birth or the time of entry to Germany is not provided. The criterion for identifying foreign workers is therefore citizenship only. For a basic analysis of the nationality effect and the age-nationality pattern (see D.1 and D.1), we use the regional file covering data up to the year 2001. However, in this data set the nationality variable only distinguishes between German vs. non-German nationality. To analyze the reemployment pattern by nationality, we then apply the same model on the basic employment file (see D.3). Data is then only available up to the year 1995, but 16 ethnic groups can be identified.

Table IV gives an overview about the characteristics and differences of the two data sets.

Data Set:	Basic File	Regional File
Total Sample		
Observation period	1975-1995	1975-2001
Sample size	1 %	2 %
No. of persons	559,540	1,293,819
No. of spells	7.8 million	21,0 million
Estimation Sample		
No. of persons[a]	72,463	172,781
No. of unemployment episodes, thereof	136,456	385,432
- multiple episodes(%)	47 %	55 %
- leading to reemployment within 2 years	97,770 (72 %)	275,502 (71 %)
Differences in Variables		
Nationality	16 ethnic groups	German yes/no
Region	east, west	343 districts
Industrial sector	95 sectors	16 sectors

[a]characteristics: male, above 25, West Germany, nonemployment duration > 1 month

Table IV Comparison of the two datasets

Variables. The baseline hazard rate λ_0 refers to the time elapsed since job loss and is specified in 6 categories: 2 to 3 months, 4 to 6 months, 7 to 9 months, 10 to 12 months, 13 to 18 months, and 18 to 24 months. But simply defining unemployment duration as difference between start and end of the period in which unemployment benefits are granted can result in severe biases. Idle periods, exhaustion or delayed registering can lead to non-entitlement and therefore a stop in benefit receiving. We therefore follow the definition suggested by Fitzenberger and Wilke [2004](p. 7/8) and define nonemployment as the time elapsed since

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[5]For further information about time varying baseline hazards see also [Vermunt and Moors 2005]

[6]Institut für Arbeitsmarkt- und Berufsforschung (Research Unit of the German Federal Employment Office)

[7]For East Germany, data is only available from 1992 on. Employment histories are therefore incomplete for the generation 50+. Furthermore, interpretation of results demands to include the structural changes in the transformation process after reunification [Brasche and Wieland 2000]. Thus we concentrate our analysis on West Germany.

job loss and until reemployment or drop out. Thus we do not depend on the information whether a person receives unemployment compensation or not during this time.

Though, the reader has to keep in mind that non-employment does not necessarily mean unemployment but can also indicate that a person directly moves from unemployment to (early) retirement or drops out due to other reasons. In the case of migrants, return migration is also accounted for as nonemployment. To alleviate those possible biases, we right-censor nonemployment durations after 24 months[8] and at age 65 to account for retirement[9]. However, for the rest of the analysis, we have to keep in mind that our statements refer only to month 2 to 24 of the unemployment episodes.

The vector of covariates includes time-constant and time-varying variables from three domains:

1. *Labor market and policy indicators*: The current period is included as a time-varying covariate to control for developments on the labor market over time. The season at start of nonemployment is also included to capture special patterns for occupations with high job mobility due to seasonal work.

2. *Demographic variables*: Current age, nationality, and educational attainment are used as further explanatory variables. Except current age which varies over time, all covariates are measured at the time of job loss and are assumed to remain constant over time. This assumption is realistic for our sample because after age 25, changes in education or nationality are rare and therefore negligible.

3. *Employment history*: To account for the employment history before job loss, the cumulated duration of nonemployment before the current nonemployment spell, the salary group in the last job, and the industrial sector of the last employer are included.

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[8]This is realistic because (a) unemployment benefits are still paid and (b) most reemployment cases take place within the first 24 months [Frosch 2006]

[9]Thanks to the right-censoring, we also adjust indirectly for those who return to their home-countries whilst unemployed and reduce another source of possible bias.

D. Results and Discussion

D.1. The effect of nationality

The first model using data from 1975 to 2001 compares reemployment prospects for non-Germans and Germans. The survival curves of both groups displayed in Figure 1 give a first impression:
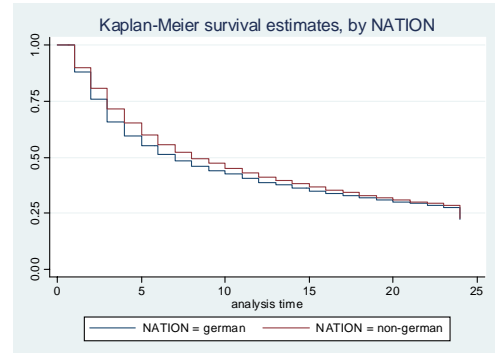

Kaplan-Meier survival estimates, by NATION

Figure 1: Kaplan-Meier survival curves by nationality.

Out of those who were classified nonemployed for at least one month, about 50 % managed to return to employment within the first ten months. After two years, 25 % were still unemployed. Surprisingly, the survival curves do not differ significantly in shape and level for Germans and foreigners, but we did not yet adjust the estimates for any control variables.

To shed more light on the influence of nationality on reemployment, we now apply the piecewise-constant hazard rate model for multiple unemployment episodes per person, described in section C, on data of the regional file and control for age, previous salary level, calender period, cumulated duration of previous unemployment periods and industrial sector.

We first estimate a joint model for all nationalities (see Model 1 in Table VIII). The absolute baseline hazard for the reference group[10] decreases with unemployment duration. In month 2 and 3 after job loss, 81 unemployment cases occur per 1000 person months spent in nonemployment. Six months later, the rate is only about half the initial level. In the last time category, month 18 to 24, the rate increases again slightly (about 54 cases), most probably because benefit entitlements end after two years and the motivation to

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[10]Throughout this paper, the reference category is always an nonemployment episode of a German (male in West Germany) aged 25 to 40 years without any professional education, who lost his job within the first three months of a year, previously worked in the manufacturing sector and earned below 1000 Euro. The unemployment episode is the first job loss for this person and happened between 1975 and 1980.

return to employment increases. If we compare the results of separately estimated models for Germans and foreigners, we identify similar patterns of the absolute baseline hazard for both groups.

The relative reemployment risk for foreigns compared to Germans is only 0.93. This finding complements previous empirical evidence, that nationals have better reemployment chances [Fahrmeir et al. 2003] and a higher reemployment speed (e.g. Lüdemann et al. [2004], Wilke [2004]) than foreigners.

The results for the control variables go in line with previous empirical findings and the theoretical considerations presented in section B: As expected, we find a strong negative relationship between current age and reemployment. The higher the educational attainment, the easier is it to get back into employment. Reservation wage theory suggests a negative relationship between the last salary group and reemployment. Most probably due to an increasing variety of early retirement possibilities and a reduction of entitlement age, reemployment chances decrease between 1975 and 2001. Seasonal effects show that it is easier to get reemployed when job loss happens in the winter months than in the summer months (see also Lüdemann et al. [2004]). A more detailed interpretation of these basic results can be found in Frosch [2006]

D.2. The age-nationality effect

We are not only interested in the level of the difference between Germans and non-Germans, but also want to analyze the evolution of the effect of foreign nationality *over the life course*. Therefore we now estimate the model separately for younger and older employees (see Model 2 and 3 in Table VIII). The upper part of Table V gives a rough picture of the situation, displaying the relative reemployment risk of foreigners compared to Germans for different age groups.

The gap in reemployment chances between German and foreign persons amounts to 8 percentage points for those in the prime age group (25 to 54 years). It increases to 12 percentage points for age group 55 to 65.

To refine the age-nationality pattern, we suggest to compare reemployment risks of Germans and non-Germans across age groups. For this purpose, we estimate the hazard model described above jointly for all age groups, but separately for Germans and foreigners (see Models 4 and 5 in Table VIII). Figure 2 and Table V show the development of the relative risks over the life course for the two groups[11]. In both cases the

Age group	Relative reemployment risks (German=1)
25 to 54	0.92***
55 to 65	0.88***

Age group	Relative reemployment risks by age		
	German	Non-German	Difference?
25 to 39	1	1	no
40 to 44	0.92***	0.90***	yes (*)
45 to 49	0.86***	0.78***	yes (***)
50 to 54	0.71***	0.59***	yes (***)
55 to 59	0.24***	0.23***	no
60 to 65	0.08***	0.10***	yes (*)
different pattern?			yes (***)
sample size [a]	333.968	57.623	
Significance levels :	* : 10%	** : 5%	*** : 1%

[a]Number of unemployment cases; multiple unemployment episodes per person are possible.

Table V Relative risks by nationality and age

basis group for the relative risk is the lowest age group from 25 to 39 years.
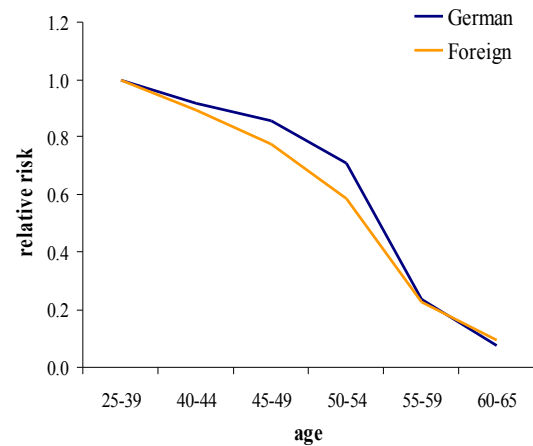

Figure 2: Relative impact of age on reemployment prospects for Germans and non-Germans.

Differences in the two curves can be interpreted as differences in the strength of the age effect on reemployment. We conducted a Wald test for each pair of parameters to see if the development of the effect of aging over the life course differs significantly for Germans and foreigners. The the comparative disadvantage in reemployment prospects between the youngest and the oldest age group is almost independent from nationality and amounts to about 90 percentage points. But from the relative risk curve for

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[11]As in the previous hazard rate model, we control again for salary level, calender period, cumulated duration of previous unemployment periods and industrial sector. As the sample

refers only to male unemployed living in West Germany, gender and regional issues are indirectly accounted for.

non-Germans lying below the curve for Germans, we can see that especially between ages 45 and 55, age is bigger drawback for non-Germans than for Germans (compared to the initial value of each group for ages 25 up to 40). This result is significant on the 1 %-level.

As an overall result, both positive effects that could alleviate the impact of aging on reemployment for foreigners, the accumulation of country-specific human capital by immigrants might experience over the life course and positive selectivity, seem to be overcompensated by other factors. Thus, bad health conditions or double discrimination might play a decisive role in explaining the differences found. Another, completely different explanation might be that we did not completely capture the effect of sectoral composition. Even controlling for the industrial sector of the last employer before job loss, we might have missed the long term consequences for those who previously worked in manual occupations and then had to re-orientate because of the bad employment situation due to structural change.

The gap in the importance of the age effect closes starting with age 55. In the oldest age group, from 60 to 65 years, the relative reemployment risk compared to the youngest age group is even slightly higher for foreigners, though the result is only significant at 10 %-level. This could be attributed to an increasing influence of financial considerations: having accumulated on average less public and private pension entitlements, foreigners could depend on staying into work life longer than Germans. But we could as well attribute this catching up in reemployment chances to selectivity: those who do not perform on the German labor market might return to their home country and thus not appear in the unemployment statistics.

D.3. Nationality-based differences

In this part we first quantify the discrepance in reemployment opportunities for Germans and members of several nationality groups[12]. In a second step, we determine the extent to which the effect of aging on reemployment prospects differs across nationalities. Basically we apply the models described in sections D.1 and D.2 to the basic file of the employment sub-sample. This data set consists of data only from 1970 to 1995 but contains more specific information about nationality than the regional file. The basic file provides information about the eight main source countries for labor migration, namely Greece,

Italy, the former Republic of Yugoslavia, Portugal, Spain, Turkey, France, and Austria, and about seven aggregated groups of countries (Benelux, other EG-countries, other industrialized nations, Eastern Europe, Africa, Asia, other countries).

Estimating the model[13] as described in Section D.1 supplemented by detailed information about nationality we find that reemployment prospects vary considerably between nationalities. Differences range from minus 17 percentage points for Greeks to plus 7 percentage points for migrants from other industrial countries. However, controlling for labor market indicators, demographic variables, and individual employment histories, the coefficient of the dummy variable for nationality was not significant for 9 out of 17 nationalities[14]. This indicates that the differences in reemployment can be mainly attributed to socioeconomic determinants that we included in our analysis.

For nationalities shown in Table VI, the impact of nationality on the risk of reemployment was significant. As in Section D.1 German nationality is the reference category for the relative risks.

nationality	rel. risk	95 %-CI		persons
Germany	1			61,331
Greece	0.83 **	0.75	0.91	648
Italy	0.87**	0.83	0.92	1,509
Ex-Yugoslavia	1.05**	1.01	1.09	1,756
Turkey	0.0.87**	0.85	0.90	3,507
Africa	0.89*	0.82	0.97	479
Asia	0.85**	0.79	0.91	798
Significance levels :	$*$: 10%	$**$: 5%	$***$: 1%	

Table VI Relative reemployment risks by nationality

We find that reemployment prospects of Greeks are worst, lying about 17 percentage points below that of Germans. There are high differences in reemployment prospects for migrants from Turkey and for Italy (each minus 13 percentage points difference). Reemployment prospects for migrants from other former recruitment countries like Spain and Portugal were 8 percentage points and 7 percentage points respectively lower than for Germans, but the coefficients were not significant. However, people from the former Republic of Yugoslavia have significantly better reemployment prospects than Germans (about 8 percentage points). Significant differences exist also for migrants from Asia (minus 15 percentage points) and Africa (minus 11 percentage points).

The result that reemployment prospects are higher

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[12]Belonging to a nationality (group) corresponds to being citizens of the respective country or a country that is included in the aggregated group of countries, e.g. Africa. Thus the criteria we refer to is citizenship only. Following the term nationality may also be used for a group of aggregated countries.

[13]The result tables for the different nationalities can be provided on request via e-mail to one of the authors.

[14]This is the case for Portugal, Spain, France, Benelux, other EG-countries, other industry nations, Eastern Europe, and other countries.

for people from the former Republic of Yugoslavia compared to other foreigners is in line with the observation that since the mid-eighties foreigners from (Ex-) Yugoslavia have been facing the lowest unemployment rate of all non-EU nationalities (see also Table II and [Hönekopp 1987]). Furthermore Bender and Karr [1993] find that workers from the former Republic of Yugoslavia have an occupational structure that is more similar compared to Germans than foreigners of Turkish, Italian and Greek nationality. According to Bender and Karr [1993], in 1992 the share of employees in the manufacturing sector was lowest for people from the former Republic of Yugoslavia (42.1 %) compared to Greeks (63.1 %) and Turks (58.7 %). About 38.4 % of all foreigners from the former Republic of Yugoslavia worked in the service industry. This share has not been reached by other nationalities.

Within the service sector people from the former Republic of Yugoslavia were mainly employed in the public service sector, e.g. in hospitals, whereas Italians concentrated mainly in the private services sector. This occupational structure could also have had an effect on reemployment that might not be caught by the control variable for economic sectors that we included in our analysis.

Interpreting these results, one should also keep in mind that we cannot control for determinants like language abilities, differences in norms and values, all-over duration of stay etc. that might play a role and at the same time vary across nationalities.

Based on a smaller dataset[15] Uhlendorff and Zimmermann [2006] also analyze the transition from unemployment to employment of workers from the former recruitment countries. In line with our results they find that reemployment is particularly difficult for workers from Turkey and Greece. However, they do not find significant differences in the hazard rate for immigrants coming from Italy, Ex-Yugoslavia, and Spain compared to natives.

Altogether, the first part of the nationality-specific analysis shows that the "risk" of reemployment differs significantly between nationalities. Furthermore, reemployment prospects are significantly worse for some ethnic groups of foreign workers, with the exception of foreigners from the former Republic Yugoslavia. Here fewer differences in the occupational structure may be the reason for advantages towards other ethnic groups, however, this does not explain why reemployment prospects for people from Ex-Yugoslavia are even better than for natives.

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[15]Uhlendorff and Zimmermann [2006] use data of the German Socioeconomic Panel. Their accordant sample of foreigners consists of 4,397 spells (spells of foreigners in our sample: 19,820). As in our study they do not control for language abilities, but they include information about the duration of stay.

In the second part of this section we have a closer look on foreigners from those nations for which nationality had a significant impact on reemployment (see Table VI). Supposing that aging adds to existing disadvantages, the question is whether the extent to which aging affects reemployment equals the German pattern. In what follows we estimate our model for each nationality separately.

The results show that the negative impact of age on reemployment exists for all nationalities but is considerably stronger for migrant workers from Greece, Italy, Turkey and Africa. For people of the former Republic of Yugoslavia and Asian migrants reemployment chances also decrease with age, but the effect of age is less pronounced than for Germans.

age	Germany	Asia	Greece	Turkey	Yugoslavia
25-39	1	1	1	1	1
40-44	0.90***	0.71**	0.90	0.77***	1.00
45-49	0.86***	0.75*	0.62***	0.56***	0.88**
50-54	0.74***	0.76**	0.46***	0.41***	0.78***
55-59	0.27***	0.37**	0.18***	0.23***	0.39***
60-65	0.13***	-	0.02***	0.14***	0.16***
different pattern?	yes(***)	yes(**)	yes(***)	yes(**)	
Sign. levels :	* : 10%	** : 5%	*** : 1%		

Table VII Age-Effect on Reemployment: Relative Risks for specific nationalities

Table VII provides an overview about the age-nationality patterns for different nationalities. Information is given about how belonging to a special age group affects the reemployment hazard compared to members of the youngest age group of the respective nationality. Furthermore we used a Wald-test to show whether the general age-pattern, considering all coefficients together, differs significantly from that of Germans. This is the case for foreigners from Asia, Greece, Turkey, and Ex-Yugoslavia.

The effect of age on reemployment prospects for people from the former Republic of Yugoslavia is not as strong as for natives. This nationality-specific aging pattern might be one reason for the better reemployment chances in general (see Table VI) in comparison to natives.

Reemployment prospects for Asian foreigners aged 50 to 59 are significantly better than for Germans. However, this has to be treated with caution because especially in the older age groups the sample sizes get very small. In this respect the nationality-specific analysis would benefit from using the weakly anonymized regional data set that provides information about 2 % of the labor force.

In the case of Greeks and Turks, age hampers reemployment in addition to existing general disadvantages due to nationality. Figure 3 pictures the age effect by the relative risk of reemployment for Greeks and Turks in comparison to Germans.

Differences in the age pattern between Germans and

Greeks start between 45 and 49. Further on, the negative effect of age on reemployment is stronger than for Germans and persists for all age groups. In contrast to this reemployment prospects decline much more sharply for Turks already for the age group 40-44. But like in the case of Germans and foreigners in general (see section D.2 the age effect on reemployment prospects is equal for both groups in the oldest age group 60 to 65). On average reemployment prospect for Greeks and Turks lie about 25 % and 29 % respectively below that of Germans.

Altogether, the second part of this section shows, that the strength of the age effect varies strongly between nationalities. For people from the former Republic of Yugoslavia and Asians aging effects reemployment less compared to the German pattern of aging. For foreigners of Greek and Turkish nationality it becomes evident that age is an additional drawback for reemployment.
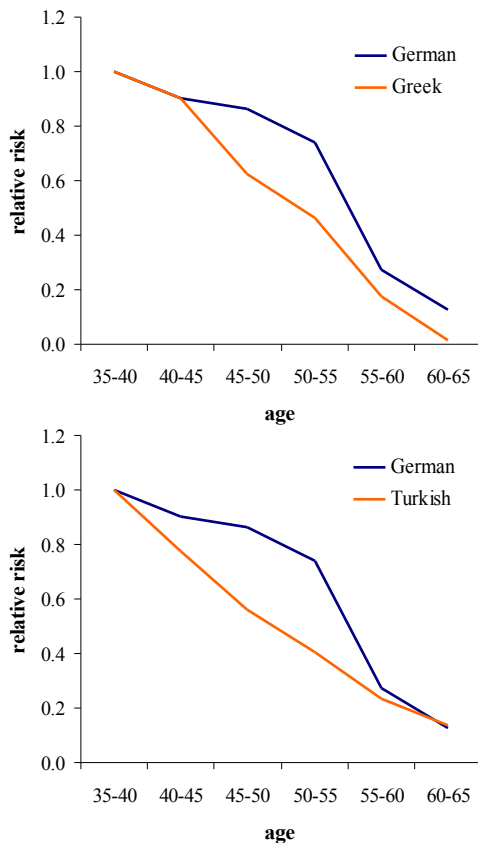
E. Concluding remarks

During the coming decades, the number of foreign workers on the German labor market is expected to increase. On the one hand, our aging society needs to attract well-educated foreign workers. On the other hand, most of the 1.025 million children of the resident foreign population will join the German labor market in the next decade [BMFSFJ 2005b].

If migrants and their children are supposed to stay and to participate actively in the labor market, we should know how foreigners fared on the German labor market in the past. Although the living and working situation of older foreigners has drawn some attention recently[16], there is only little information about the success or failure of older migrants on the labor market.

In this paper, we are particularly interested in reemployment prospects of non-Germans. Thus we only consider foreigners who have already been successful on the labor market. First of all, we try to quantify the effect of nationality on reemployment prospects. Then we especially focus on the effect of aging on reemployment chances. In a third step, we try to picture how reemployment patterns over the life course differ with respect to nationality.

We showed that theoretical considerations about job search, reservation wage and human capital accumulations do not provide a clear-cut picture whether aging and foreign nationality is a double barrier for reemployment after job loss. On the one hand, the disadvantages foreigners face in the labor market might decrease over the life course, because older foreigners are supposed to have a higher motivation to accept jobs, to experience a skill accumulation effect or to be positively selected. But on the other hand, health issues, discrimination effects or compositional effects in the occupational structure may lead to a double drawback for older foreigners.

Our results indicate that reemployment prospects are significantly worse for foreigners compared to natives. The gap in reemployment chances increases from 8 percentage points for the prime age group 25 to 54 to 12 percentage points for older workers. The overall pattern of the age effect differs significantly between foreigners and natives. Especially between the age of 40 and 54 years, the relative decrease of the reemployment risk compared to the youngest age group is, with 41 percentage points, higher than for Germans (29 percentage points). Looking at more refined nationality groups we find that reemployment prospects vary considerably between nationalities, and are in general lower compared to Germans.

Figure 3: Relative impact of age on reemployment: Greek, Turkish and German pattern

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[16](See Bauer et al. [2004], BMFSFJ [2005a] and Özcan and Seifert [2005])

The disadvantage is highest for Greeks (minus 17 percentage points and for Asians (minus 15 percentage points). Overall reemployment prospects range from minus 17 percentage points (Greeks) to plus 6 percentage points (people from other industrial countries).

Comparing the aging patterns of foreigners with that of natives we find significant differences for foreigners from Asia, Greece, Turkey, and Ex-Yugoslavia. The age effect is less pronounced for people from the former Republic of Yugoslavia and Asians even in comparison to Germans. Aging is particularly a drawback for foreigners of Greek and Turkish nationality, whose prospects for reemployment are on average about 27 percent below that of natives. Given that 26.9 percent of the total foreign workforce are of Turkish origin, this is alarming.

In their report about the older generation in Germany [BMFSFJ 2005a], emphasizes the necessity to identify the causes for differences in labor market prospects for foreigners compared to natives. In this paper

- we quantified the extent to which foreigners are disadvantaged in getting reemployed after job loss

- we answered the question whether age is an additional drawback for foreigners, and

- we showed that it is highly relevant to distinguish between nationalities.

It became evident that not only sociodemographic determinants like age, education and employment history have to be taken into account, but that also interactions between potential barriers for reemployment like nationality, health and age should be considered.

Reintegration of foreigners after job loss into the labor market is vital if the society wants to benefit most from labor migration. Attracting migrant workers to slow down the coming lack of skilled labor is one side of the medal, integrating them into the labor market and provide prospects for them in case they stay and come into age is the other.

Acknowledgments

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	Model 1 all	Model 2 25-54 years	Model 3 55-65 years	Model 4 German	Model 5 foreign
Unemployment episodes	385432	333968	51464	333968	57623
Reemployment cases	274502	262610	11892	262610	40036
Reemployment quota	71 %	79 %	23 %	79 %	69 %
Absolute Baseline Risk (per 1000 person months)					
Time elapsed since job loss					
month 2-3	81.76	81.22	54.15	80.97	79.97
month 4-6	64.88	64.98	33.02	63.14	71.10
month 7-9	45.71	46.56	14.97	44.13	52.59
month 10-12	39.63	40.49	12.35	38.23	45.79
month 12-18	33.26	33.65	12.30	32.01	38.91
month 18-24	54.10	54.96	16.24	52.37	61.11
Relative risks					
Current age					
25-39	1	1		1	1
40-44	0.92 ***	0.93 ***		0.92 ***	0.90 ***
45-49	0.85 ***	0.86 ***		0.86 ***	0.78 ***
50-54	0.69 ***	0.72 ***	1.00	0.71 ***	0.59 ***
55-59	0.24 ***	0.48 ***	0.49 ***	0.24 ***	0.23 ***
60-65	0.08 ***		0.18 ***	0.08 ***	0.10 ***
Period					
1975-1980	1	1	1	1	1
1981-1985	0.74 ***	0.75 ***	0.65 ***	0.76 ***	0.62 ***
1986-1990	0.75 ***	0.77 ***	0.55 ***	0.76 ***	0.66 ***
1991-1995	0.60 ***	0.62 ***	0.38 ***	0.62 ***	0.50 ***
1996-2001	0.64 ***	0.65 ***	0.50 ***	0.65 ***	0.53 ***
Last previous salary					
0-999	1	1	1	1	1
1000-1499	1.27 ***	1.26 ***	1.44 ***	1.29 ***	1.21 ***
1500-1999	1.38 ***	1.38 ***	1.48 ***	1.41 ***	1.24 ***
2000+	1.29 ***	1.35 ***	1.06 **	1.32 ***	1.17 ***
Nationality					
german	1 ***	1	1		
non-german	0.93 ***	0.92 ***	0.88 ***		
Previous unemployment duration (cumulated)					
no previous ue	1	1	1	1	1
up to 5 years	0.98 ***	0.96 ***	1.44 ***	0.96 ***	1.05 ***
5-10 years	0.86 ***	0.84 ***	1.41 ***	0.83 ***	1.00 ***
10-15 years	0.73 ***	0.73 ***	1.07	0.75 ***	0.90
15+ years	0.38 ***	0.62 **	0.00 ***	0.57 **	0.00 ***
Season at start of unemployment					
Jan-Mar	1	1	1	1	1
Apr-Jun	0.74 ***	0.75 ***	0.46 ***	0.73 ***	0.79 ***
Jul-Sept	0.69 ***	0.70 ***	0.41 ***	0.68 ***	0.75 ***
Oct-Dec	0.89 ***	0.90 ***	0.77 ***	0.89 ***	0.93 ***
Education					
no prof. edu.	1	1	1	1	1
prof edu.	1.03 ***	1.06 ***	0.93 ***	1.04 ***	1.09 ***
academic	0.82 ***	0.88 ***	0.59 ***	0.88 ***	0.78 ***
not specified	0.99	1.01	1.06 *	1.00	1.03
Sector					
20	1	1	1	1	1
10.00	1.41 ***	1.34 ***	3.38 ***	1.41 ***	1.41 ***
30.00	1.05 ***	1.00	1.81 ***	1.05 ***	1.09 ***
40.00	1.43 ***	1.34 ***	4.13 ***	1.42 ***	1.50 ***
50.00	1.05 ***	0.99	2.42 ***	1.04 ***	1.15 ***
60.00	1.18 ***	1.12 ***	2.77 ***	1.18 ***	1.17 ***
70.00	1.04 ***	0.97 ***	2.57 ***	1.00	1.23 ***
80.00	1.12 ***	1.03 ***	3.33 ***	1.10 ***	1.21 ***
99.00	1.58 ***	1.47 ***	4.84 ***	1.60 ***	1.42 ***

Table VIII Results for Model 1 - 5

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