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High Unemployment in Germany:
Why do Foreigners Suffer Most?

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Abstract

In Germany, immigrant unemployment is not only higher than native unemployment; it also reacts more to changes in the situation on the labor market. Decomposing the gap between native and immigrant unemployment into a baseline and a labor-market situation component, I find that the unemployment rate of immigrants would lie at 5.6 percentage points for zero native unemployment (the baseline component of the gap). An increase in overall unemployment by 1 percentage point leads to a 0.7 percentage points higher increase in immigrant unemployment than in native unemployment (the situation component). The large part of this difference, about 3/4 of the baseline and 4/5 of the situation component, can be explained by differences in the endowments with classical human capital (educational degrees and experience) between immigrants and natives. Also controlling for country-specific human capital, particularly language skills, the situation component becomes insignificant and the baseline effect again decreases by 1/2. Adding controls for social networks, the baseline effect also becomes insignificant. Thus, human capital and social networks can possibly fully explain the difference between native and immigrant unemployment in Germany.

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1   Introduction

A substantial part of today's German labor force consists of immigrants; in 2008, the share of foreigners amounted to 8.7% (Statistisches Bundesamt). The share of foreign born people in the German labor force is still considerably larger (17.1% in 2005, see Geis et al., 2009). Due to their large number, the situation of immigrants on the labor market has a strong effect on overall welfare in Germany. Employment statistics show that the labor market situation of immigrants is bad: In 2008, the unemployment rate of foreigners was 18.1%, whereas the overall unemployment rate was only 8.0% (Bundesanstalt für Arbeit, 2009). Comparing the developments in total and foreign unemployment over time, leads to an additional finding. The gap between foreign and native unemployment is particularly high in years with a high overall unemployment rate; figure 1 depicts foreign and overall unemployment rates in Western Germany between 1969 and 2008.[1] This paper analyzes empirically the reasons for the gap between native and immigrant unemployment as well as the stronger fluctuation in immigrant unemployment. I find that the main reason for both is the lower endowment with human capital of immigrants; besides, lower formal degrees, lacking language skills are also a reason for the worse situation of foreigners. At least for the gap between native and immigrant unemployment, differences in social networks also play a role.

Up to now, empiric papers on the differences between immigrant and native unemployment in Germany are scarce. In contrast to this, a substantial literature deals with differences in wages between immigrants and natives in Germany (see Thomsen et al., 2007; Lang, 2005, and the citations in them) . This is astonishing, as employment and unemployment rates immensely differ between natives and immigrants in Germany, whereas wage levels are nearly identical, see Geis et al. (2009). For other countries, there are also much more studies on differences in wages between immigrants and natives than on differences in employment. However for instance in the US, the difference in unemployment rates between immigrants and natives is negligible, whereas the difference in wages is much larger than in Germany, see Geis et al. (2009). The same explanations (differences in human capital, discrimination, etc.) suggest themselves for differences in un-/employment

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[1]Focussing on Western Germany has two advantages. First, it allows to trace unemployment back before 1990. Second, as over 95% of the foreigners in Germany today live in Western Germany, it also makes foreigners and natives better comparable. Therefore, in the following the paper focuses on Western Germany.

Figure 1: Development of foreign unemployment in Western Germany
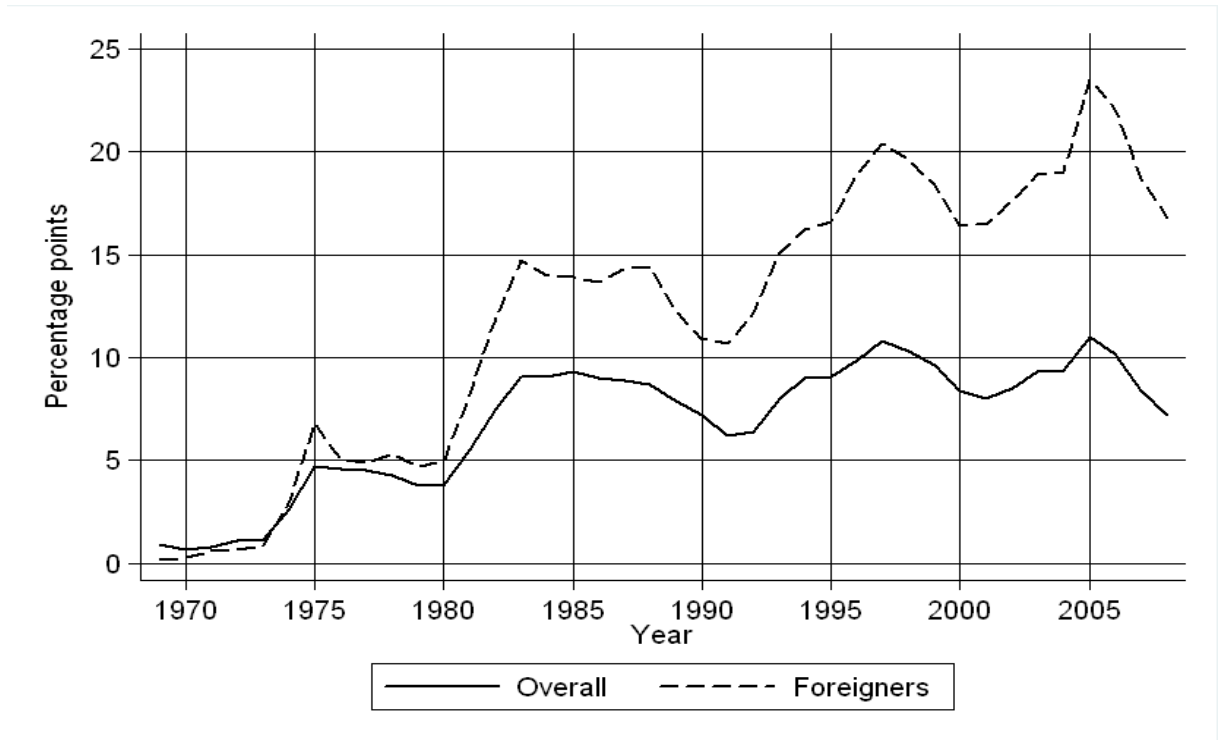
and wages between natives and immigrants; nevertheless, the (quantitative) relevance of these explanations can completely differ (see Nordin and Rooth, 2009). Thus, to understand why immigrants are so badly integrated into the German labor market, differences in un-/employment rates have to be analyzed.

Up to now, Dustmann et al. (2009) is the only paper documenting that immigrant employment in Germany (and the UK) reacts considerably more to cyclical variations than native employment.[2] They also analyze the effects of cyclical fluctuations on wages and find no difference between immigrants and natives. Moreover, they include controls for (rough) education groups and age in their empiric analysis and still find a stronger cyclicality of immigrant unemployment; my estimations also indicate that formal degrees cannot fully explain the stronger reaction of immigrant unemployment to changes on the labor market (see below). The fact that immigrant unemployment is not only higher but also more cyclical than native unemployment, has implications for an empirical analysis of

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[2]Nevertheless, there are also some papers on the cyclical development of the unemployment rates of the Black in the U.S.; Abbring et al. (2001), Bradbury (2000), Couch and Fairlie (2008), Fairlie and Sundstrom (1997) and Fairlie and Sundstrom (1999).

the native-immigrant un-/employment gap. The gap can be decomposed into a baseline component and a labor-market situation component[3] (in the following called situation component): The baseline component measure the difference between immigrant and native unemployment assuming some fixed level of native unemployment. The situation component measures in how far immigrant and native unemployment react differently to changes on the labor market (or to changes in the overall unemployment rate respectively). The decomposition allows us to assess how large immigrant unemployment would be for different situations on the labor market; this is a precondition to evaluate labor market measure for immigrants, when the labor market simultaneously changes due to cyclical fluctuations.

Using data from the German Socio-Economic panel, I analyze the two components of the native-immigrant unemployment gap. Fixing native unemployment at zero and defining immigrants as foreigners, I find a baseline component of 5.6; this means that, for a native unemployment rate of zero, the unemployment rate of immigrants would be 5.6 percentage points. The situation component is 0.7; this means that a one percentage point increase in the total unemployment rate increases immigrant unemployment by 0.7 percentage points more than native unemployment. In a further step, I analyze potential explanations for these differences between native and immigrant unemployment. For this, I include controls for various factors that can affect the probability of an individual to be employed in my empiric analysis. I first include the "classical" determinants of the labor market situation of an individual; personal characteristics, as age and sex, educational degrees and employment experience. Both, the baseline and the situation component of the unemployment gap are still significant; however, the baseline component decreases by 3/4 and the situation component by 4/5.

The "classical" determinants are primarily measures for general human capital. However, country-specific human capital, as language skills, can also affect the labor market success of an immigrant. Additionally controlling for lacking language skills decreases both components of the unemployment gap by 1/2. The situation component is no more statistically significant indicating that this component is potentially fully explained by the "classical" determinants and lacking country-specific human capital. Not only human

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[3]This component measures primarily the effect of cyclical fluctuations. However, as the baseline is calculated for a fixed unemployment rate and not the trend unemployment rate, it is not a business cycle component in the proper meaning of the word.

capital but also the position of an individual in the society can affect her employment success. Immigrants can have a lower position than natives due to discrimination; this can be taste based discrimination or some sort of statistical discrimination. However, lacking social networks can also impair the position of immigrants in the society. Including self-assessed discrimination and / or measure for social networks (number of friends, contact to Germans) in my estimations, the baseline component as well as the situation component of the unemployment gap become statistically and economically insignificant.

The paper is organized in the following way. In section 2, the empirical approach and the German Socio-Economic Panel (GSOEP) as data source are described. Section 3 discusses estimates for the components of the native-immigrant unemployment gap without controls. In section 4, the effect of the "classical" determinants of labor market success, educational degrees and employment experience, on the unemployment gap are analyzed. Section 5 deals with the effects of language fluency and assimilation. In section 6, the relevance of discrimination and lacking social networks for the difference between native and immigrant unemployment are discussed. Section 7 concludes and discusses policy implications.

2   Data and empiric approach

Employment rates of immigrants can be strongly affected by immigration and emigration flows. Assume for instance that at a certain point in time a large number of highly qualified people arrive and immediately get a job. At this time, the employment rate of immigrants will rise, although none of the unemployed immigrants that have already lived in the country comes into employment. The unemployment rate of immigrants will correspondingly decrease. At a later point in time, the aforementioned highly qualified people may again emigrate. At this time, the immigrant unemployment rate will increase, although no immigrant is actually fired. The labor-market situation in an immigration country can have a strong effect on migration flows, as it affects migration incentives, as expected wages, and immigration policy (e.g. recruitment programs for specialized workers). Thus, in- and outflows of immigrants can affect the situation component of the unemployment gap between immigrants and natives.

Dustmann et al. (2009) find that cyclical immigration flows are not the driving force behind the stronger cyclicality of immigrant unemployment in Germany. Analyzing the

native-immigrant unemployment gap, one should nevertheless control for changes in the composition of the immigrant labor force.[4] A convenient way to do this, is to use panel data and follow the employment history of the same individuals over time. To properly measure the situation component[5], the data has to contain observations for different labor market situations. The German Socio-Economic Panel (GSOEP)[6] is well suited to analyze the native-immigrant unemployment gap. It contains a sufficient number of immigrants and allows to follow the employment histories of individuals over more than two business cycles (encompassing a large range of labor-market situations). In addition, the GSOEP contains information on a large variety of individual characteristics; in particular, it contains information on language usage of immigrants and social networks – information that is found in few data sets. Descriptive statistics for the variables that are used in the empiric analysis can be found in table 1.

In 1984, the GSOEP was launched with two partial samples, one for natives (sample A) consisting of 4,500 households and one for foreigners (sample B) consisting of 1,400 households. This "foreigner sample" mainly covers the families of former "guest worker".[7] In later years, various additional samples have been included in the GSOEP; thereof, the "immigrant sample" (sample D) that was launched with 522 households in 1994/95 is also interesting for my analysis, as it covers more or less all immigrant groups.[8] Some of the sampled immigrant households have migrated back in the meantime, so that the composition of immigrants has also changed in the GSOEP. The GSOEP allows to distinguish return migration from panel mortality; persons who have migrated back are not considered in my estimations.[9] One could argue that the sampling of the GSOEP leads some kind of cohort bias. However, comparing samples A and B, this bias should have the same extent for immigrants and natives.

I define individuals who state in the survey to be working as employed and individuals who state to be unemployed as unemployed. Moreover, I define individuals as being

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[4]The effects of (cyclical) changes in the immigrant labor force are potentially also an interesting object of investigation. However, they have nothing to do with the integration of immigrants that is actually analyzed with the native-immigrant unemployment gap.

[5]If the situation component is not properly measured, the unemployment gap cannot be decomposed.

[6]see Wagner et al. (2007) for further information on the GSOEP.

[7]Only households with an Italian, Spanish, Greek, Yugoslavian or Turkish head were sampled.

[8]The sampling restriction for sample D was that at least one household member has immigrated after 1984.

[9]Completely balancing the panel would lead to a large loss of observations.

Table 1: Descriptive statistics

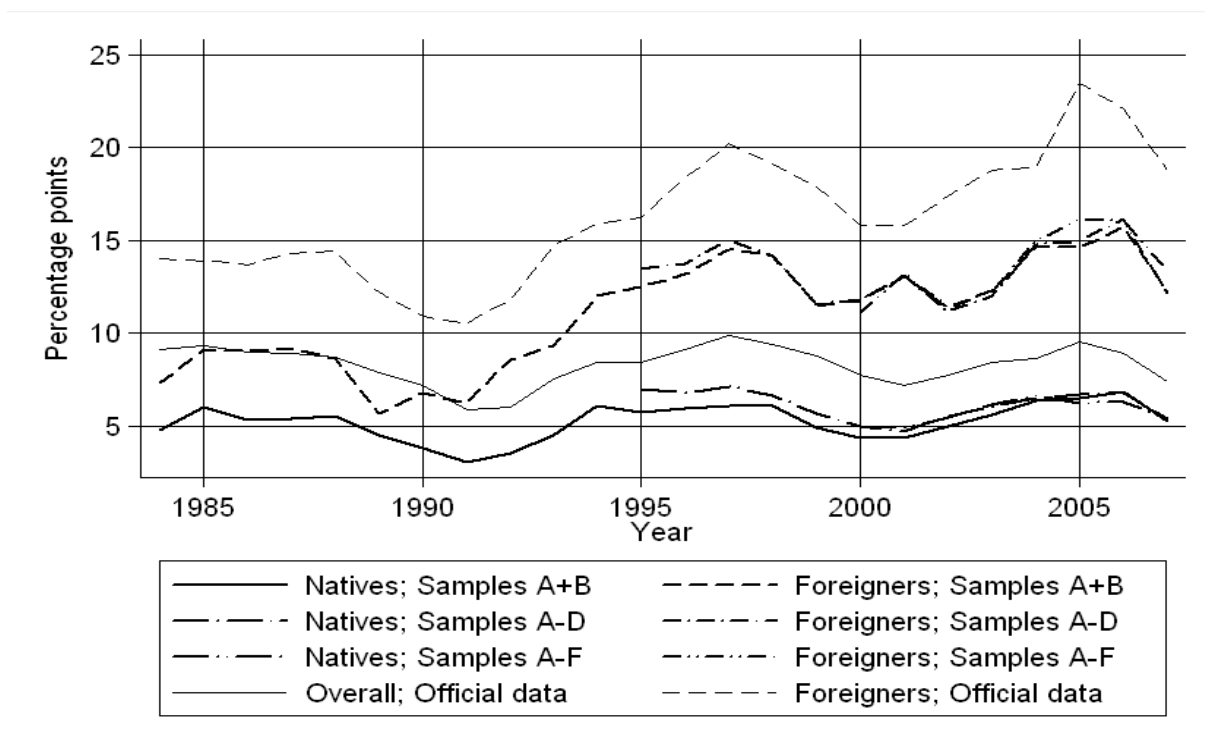|	Total Population	Natives	Foreigners	Born in Turkey	In former Yugoslavia	Elsewhere
Female	51.32%	52.54%	46.70%	46.38%	50.72%	48.10%
Age	44	46	38	38	43	44
	(17.2)	(17.6)	(14.1)	(13.4)	(12.5)	(14.7)
Birth year	1950	1949	1955	1956	1950	1949
	(17.7)	(18.3)	(14.4)	(13.1)	(12.0)	(14.4)
Empl. Experience	16.2	16.7	13.8	11.9	18.5	18.7
	(13.2)	(13.3)	(12.5)	(11.8)	(11.9)	(12.9)
Unempl. Experience	0.5	0.5	0.8	1.0	0.9	0.6
	(1.6)	(1.5)	(1.8)	(2.1)	(1.8)	(1.6)
CASMIN 1a	6.58%	2.51%	23.02%	25.91%	22.32%	18.12%
CASMIN 1b	20.30%	17.48%	31.68%	35.71%	27.35%	28.82%
CASMIN 1c	33.87%	36.06%	25.03%	21.09%	35.23%	29.32%
CASMIN 2a	4.89%	4.63%	5.92%	6.34%	2.10%	3.35%
CASMIN 2c-gen.	3.48%	3.76%	2.36%	1.24%	0.89%	2.16%
CASMIN 2c-voc.	4.88%	5.70%	1.57%	0.84%	0.45%	3.10%
CASMIN 3a	3.16%	3.74%	0.80%	0.68%	0.45%	1.74%
CASMIN 3b	6.03%	6.91%	2.52%	1.69%	2.16%	4.49%
Degree abroad	14.65%	0.87%	67.00%	74.57%	82.35%	54.39%
Years abroad	3.9	0.7	15.9	19.1	21.3	18.8
	(9.3)	(4.6)	(12.4)	(10.9)	(10.1)	(12.6)
Partly for. lang. at home	7.32%	0.22%	35.96%	36.40%	37.21%	27.52%
Mostly for. lang. at home	5.14%	0.08%	25.59%	41.94%	16.17%	17.18%
Newspaper language	4.57	4.99	3.12	2.43	3.48	3.62
(1 only for. - 5 only Ger.)	(1.01)	(0.16)	(1.32)	(1.18)	(1.12)	(1.35)
Sometimes discriminated	7.35%	0.33%	35.72%	43.24%	31.93%	24.80%
Often discriminated	1.67%	0.06%	8.16%	12.02%	5.61%	5.06%
No contact with Germany	2.91%	0.00%	13.99%	21.57%	10.11%	9.55%
Number of friends	4.4	4.3	4.8	5.7	4.3	3.9
	(4.3)	(4.0)	(5.3)	(6.6)	(3.3)	(3.9)

Standard deviations are given in parentheses.

non-working but in the labor force, if they state to be unemployed or non-working for reasons other than old age (over 65), education or training, maternity leave and military / community service. Unemployment rates that are based on these definitions are lower than the official ones; this is mainly due to the fact that in the official statics self-employed, civil servants and employees below the reporting threshold are not counted as employed. For an analysis of the native-immigrant unemployment gap, these workers should be considered; otherwise changes of individuals between dependent work and self-employment and the like, that may be affected by the labor-market situation, can bias the results. As shown in figure 2, official unemployment rates and unemployment rates calculated using the aforementioned definitions show the same temporal variations.[10] As in the official data, foreign unemployment shows a stronger variation than native unemployment. Thus, the effect of in- and outflow of immigrants on the situation component of the immigrant-native unemployment gap is obviously not substantial for the considered years.

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[10]Curves for samples A-F were included. Samples E+F (launched in 1998 and 2000) cover the whole population and are large (7,000 households); thus, they make the numbers for the later years more reliable.

Figure 2: Foreign unemployment in the GSOEP

———— Natives; Samples A+B	– – – – Foreigners; Samples A+B
—·—·– Natives; Samples A-D	–·—·– Foreigners; Samples A-D
—··—·· Natives; Samples A-F	–··—··– Foreigners; Samples A-F
———— Overall; Official data	– – – – Foreigners; Official data

Source: Own calculations; only persons in Western Germany are considered.

For the empiric analysis of the native-immigrant unemployment gap, I use Pooled Probit[11] as estimation model. The dependent variable in the baseline specification is a binary variable indicating if an individual is unemployed or employed (see above). The gap between native and immigrant employment rates may differ from the gap between unemployment rates; therefore, I use a binary variable for being employed or non-working (see the definitions above) as dependent variable in some extensions. I decided for the unemployment gap as baseline specification, as non-working is in most cases voluntary. In the GSOEP, the status of being unemployment comes from a survey question and not from a registration process; thus, it should comprise the large part of people who are non-working but want to work. As changes in voluntary non-working affect the results for the employment gap, the unemployment gap is probably the better measure for the labor-market situation of immigrants.

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[11]A random or fixed effects model is not suitable for my analyzes, as the variation of interest comes mainly from the cross-sectional dimension; the baseline component of the unemployment gap is solely determined by cross-sectional differences between immigrants and natives. In addition, the determinants of the unemployment gap, as education levels are primarily, do hardly vary over time.

To measure the baseline component of the unemployment gap, I use a dummy variable indicating if an individual is an immigrant or a native person. Immigrants can either be defined by nationality or by country of birth; as the definition of immigrants can affect the results, I work with both definitions alternately. To measure the situation component, I use an interaction between the immigrant dummy and state-specific unemployment rate at the respective time. In addition, I also control in all estimations for the current labor market situation using state-specific unemployment rates. These state-specific unemployment rates are annual values[12] and come from the official statistic.[13] In home-country specific regressions, I use dummies for being born in Turkey, former Yugoslavia, Southern Europe, Eastern Europe and elsewhere instead of the immigrant dummy. Each of these dummies is then interacted with the state-specific unemployment rates to measure the situation components of the unemployment gaps for the various groups.

To get qualitatively and quantitatively interpretable results, I calculate marginal effects at mean; the beta-coefficient for the interacted terms and the interaction term would not even be qualitatively interpretable (see Ai and Norton, 2003). At the mean denotes that for all explaining variables the mean values are used in the calculation of the marginal effects. In Probit regressions, marginal effects differ over observations, as they depend on the ex-ante probability of the dependent variable (the probability to be unemployed). Therefore, the results presented in the following hold for average immigrants, but not necessarily for immigrants with characteristics far away from the average.

3 Decomposition of the native-immigrant unemployment gap

In this section, I present estimates for the baseline and situation component of the native-immigrant unemployment gap without further controls. These results tell us in how far the unemployment gap is driven by the labor-market situation and allow us to assess

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[12]In the GSOEP individual employment is inquired month wise; however, seasonal unemployment patterns are beyond the scope of this paper. Moreover, most other variables of interest are only available on a yearly base.

[13]The unemployment rates could also be calculated from the GSOEP. However, this has two disadvantages. First, this could lead to a endogeneity bias, which is minimized using a different source and definition of the unemployment rates. Second, the GSOEP is to small to calculate reliable state specific unemployment rates and the economic situation in Germany differs over states.

Table 2: Foreigner-native unemployment gap without controls

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.0070***	0.0072***	0.0064***	0.0068***	0.0073***	0.0084***
	(0.0005)	(0.0004)	(0.0004)	(0.0006)	(0.0008)	(0.0011)
Foreigner	0.0564***	0.0552***	0.0576***	0.0554***	0.0599***	0.0461***
	(0.0039)	(0.0039)	(0.0038)	(0.00050)	(0.0063)	(0.0078)
Foreigner*unempl.	0.0069***	0.0070***	0.0074***	0.0076***	0.0061***	0.0131***
	(0.0014)	(0.0014)	(0.0013)	(0.0018)	(0.0024)	(0.0027)
R^2	0.0281	0.0257	0.0234	0.0314	0.0250	0.0037
Observations	122956	133536	169861	71772	51184	158451
Samples	A+B	A-D	A-F	A+B	A+B	A+B

The dependent variable is a dummy variable for unemployment/employment, in (6) for non-employment/employment. The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean. Standard errors are given in parenthesis; * significant at the 10%-level, ** significant at the 5%-level and *** significant at the 1%-level. In (4) only males and in (5) only females are considered.

how large the unemployment gap would be under different labor market situation (different aggregate unemployment rates). With this information predictions of immigrant unemployment can be derived from predictions of the overall unemployment rate. This is necessary for evaluating immigration policy measures; it allows us to calculate immigrant unemployment in the counterfactual case although the labor-market situation changes due to cyclical variation.[14]

The results for the two components of the unemployment gap are given in tables 2 and 3; in table 2, immigrants are defined by nationality, whereas in table 3 they are defined by country of birth. Estimated marginal effects for the baseline specification (samples A and B) defining immigrants as foreigners are displayed in the first column of table 2. The value for baseline component is given by the estimator for the foreigner dummy of 0.056. It indicates that, for a native unemployment rate of zero, immigrant unemployment rate would be 5.6 percentage points. The estimator for the interaction term of 0.0070 measures the situation component. It indicates that, if the overall unemployment rate increases by 1 percentage point, the immigrant unemployment rate increases by 0.70 percentage points more than native unemployment. For an overall unemployment rate of 7.2 percentage points, the Western German unemployment rate in 2008, my estimation predict a difference between native an immigrant unemployment of $5.6 + 0.7 \times 7.2 = 10.6$ percentage points; this almost exactly equals the actual difference of 10.5 percentage points.[15] To test the robustness of these results, I have repeated the regression using

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[14]As such immigration policy measures generally work in the long run, (cyclical) labor market changes are an important issue for their evaluation.

[15]The official foreigner unemployment rate in western Germany was 16.8 percentage points and the official native unemployment rate 6.3 percentage points.

Table 3: Foreign born-native unemployment gap without controls

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.0070***	0.0069***	0.0068***	0.0068***	0.0085***	0.0078***
	(0.0005)	(0.0004)	(0.0005)	(0.0004)	(0.0011)	(0.0011)
Foreign born	0.0551***	0.0576***			0.0620***	
	(0.0041)	(0.0038)			(0.0080)	
Foreign born*unempl.	0.0057***	0.0060***			0.0113***	
	(0.0014)	(0.0013)			(0.0027)	
Born in Turkey			0.1009***	0.1042***		0.1527***
			(0.0082)	(0.0083)		(0.0134)
Turkey*unemployment			0.0108***	0.0115***		0.0134***
			(0.0028)	(0.0029)		(0.0045)
Former Yugoslavia			0.0539***	0.0539***		0.0083
			(0.0090)	(0.0091)		(0.0156)
Yugoslavia*unempl.			0.0140***	0.0142***		0.0231***
			(0.0029)	(0.0030)		(0.0047)
Southern Europe			0.0350***	0.0357***		-0.0147
			(0.0068)	(0.0069)		(0.0013)
S. Europe*unempl.			0.0006	0.0017		0.0016
			(0.0025)	(0.0025)		(0.0045)
Eastern Europe			0.0398**	0.0660***		0.1192***
			(0.0173)	(0.0098)		(0.0286)
E. Europe*unempl.			0.0023	0.0055*		-0.0018
			(0.0041)	(0.0029)		(0.0082)
Born elsewhere			0.0084	0.0273**		0.0023
			(0.0105)	(0.0113)		(0.0228)
Elsewhere*unempl.			-0.0010	-0.0008		-0.0038
			(0.0026)	(0.0025)		(0.0067)
R^2	0.0271	0.0290	0.0319	0.0329	0.0048	0.0100
Observations	122956	133536	122956	133536	158451	158451
Samples	A+B	A-D	A+B	A-D	A+B	A+B

The dependent variable is a dummy variable for unemployment/employment, in (5) and (6) for non-employment/employment. The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean. Standard errors are given in parenthesis; * significant at the 10%-level, ** significant at the 5%-level and *** significant at the 1%-level.

more samples from the GSOEP and differentiating between men and women, see columns 2 to 5 of table 2. The estimation results are hardly affected by these changes.

Changing the definition of immigrants to people who are born abroad has a stronger effect on the results. The estimated baseline component of the unemployment gap is reduced to 5.5 percentage points and the situation component to 0.57 percentage points. Nevertheless, the difference to the baseline estimates is not statistically significant. Differentiating between home country groups shows that the unemployment gap varies strongly over immigrant groups. I find the highest baseline component for people from Turkey with 10.1 percentage points. The estimate for the next following group, people from former Yugoslavia, is with 5.4 percentage points only about half as large. The estimates for people from Eastern and Southern European countries are with 4.0[16] and 3.5 percent-

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[16]Including additional samples from the GSOEP, the estimator for people from Eastern Europe becomes much larger. This is not surprising as after 1989 many people from Eastern Europe have immigrated to Germany and fundamentally changed this population group.

age points still smaller and the estimate for people born elsewhere is even insignificant. The estimates for the situation component of the unemployment gap are only significant for people from Turkey and former Yugoslavia; they are 1.08 and and 1.40 percentage points. Thus, immigrants from Turkey and former Yugoslavia exhibit not only the largest unemployment compared to natives; they also suffer most from deteriorations of the labor-market situation in Germany. This indicates that integration policy should focus on these two groups, that are both among the largest.

Analyzing the employment gap instead of the unemployment gap leads to an interesting result. Defining immigrants as foreigners, the estimator for the baseline component is with 4.6 percentage points noticeably smaller than the estimator for the unemployment gap with 5.6 percentage points (see table 2). The situation component is with 1.31 percentage almost twice as high. Defining immigrants as foreign born people and differentiating between home country groups shows the same picture (see table 3). Thus, compared to natives, the employment of immigrants obviously reacts more to changes on the labor market than their unemployment. The fact that immigrants in most cases have/had[17] shorter claims for unemployment insurance may be an explanation for this, although unemployment is self-assessed. Nevertheless, the extent of the difference remains puzzling.

4   Educational degrees and experience

Since the ground-breaking work of Mincer (1974) empirical economists generally use years of schooling or educational degrees and employment experience to explain the labor market success of individuals. In virtually all studies, independent if labor market success is measured by employment probabilities, wages or something else, statistically and economically highly significant effects of education and experience are found. Immigrants and natives in Germany strongly differ with respect to their educational degrees. In 2005 14% of the foreign born people between 25 and 65 had no educational degree, whereas the overall share was only 4% (Statistisches Bundesamt, 2007).[18] Thus, the difference

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[17]Before the Hartz IV reforms 2005 unemployment benefit claims strongly depended on the time that a person has worked in Germany.

[18]Nevertheless, as shown in Geis et al. (2009), differentiating between education groups, immigrant unemployment rates are still considerably higher than native unemployment rates.

in the education structure between immigrants and natives suggest itself to explain the unemployment gap.

From a theoretic point of view, the effects of the low education and experience levels of immigrants on the baseline component of the unemployment gap is obvious. The German labor market exhibits frictions that affect primarily low skilled labor; in particular, the generous social benefits in Germany lead to such frictions. These frictions prevent wages from declining to the equilibrium level and thus lead to unemployment. By the same reasoning, an effect of education and experience on the situation component of the unemployment gap can be explained. A worsening of the labor-market situation is generally connected with a reduction of productivity. This reduction should lead to declining wages. However, labor market frictions prevent this, so that unemployment increases. As the frictions work stronger for low skilled people, their unemployment increases more; thus, the low education level of immigrants can also explain the situation component of the unemployment gap.

As to cyclical changes which are the driving force behind changes in the labor-market situation, there is yet another explanation for the different reactions of immigrant and native unemployment. Besides general human capital, workers also need job / firm specific human capital. Job specific human capital has, at least partly, to be financed by the employer; hence, hiring a new worker is more costly than retaining an incumbent worker. If a worker is not needed for a certain time but his job has to be filled again later on, depending on the time span, it can pay off for the employer to hold the worker. The higher the job specific human capital of a worker, the more likely he is retained for a certain time span, for instance during a recession, although he is not needed. High skilled workers generally need more firm specific human capital than low skilled workers, think for instance of assembly-line workers and developing engineers; thus, they are more likely retained. Unfortunately, thorough theoretical and empirical research in how far the effects of business cycles on low and high skilled labor differ does not yet exists.[19] Nevertheless, additional estimation results, discussed in Appendix A, show that low skilled unemployment in Germany indeed reacts more to changes in the labor-market situation than high skilled unemployment.

To control for education in my estimations, I use the Comparative Analysis of So-

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[19]Hoynes (2009) and Dustmann et al. (2009) indicate that low skilled workers are stronger affected by business cycles.

cial Mobility in Industrial Nations (CASMIN) classification for educational degrees. The CASMIN classification divides educational degrees into eight[20] groups (see Brauns et al. (2003)). It is similar to the International Standard Classification of Education (ISCED), but considers explicitly vocational degrees. These vocational degrees play an important role on the German labor market; thus, they should be considered analyzing unemployment. Employment experience is directly observed in the GSOEP;[21] following the literature I also include its square in the regressions to control for potential non-linearities. Not only employment experience but also unemployment experience can affect human capital and labor market success of an individual; motivation often decreases and skills that have to be trained continuously, as fluency in a foreign language, decline. Analogous to employment experience, I also add unemployment experience and its square in my estimations. In addition to education and experience, I also control in all regression for sex, age and birth cohort (measured by year of birth).

Estimation results including the controls for education, experience and personal characteristics are given in table 4.[22] All estimates, including the ones for unemployment experience, have the expected signs and are highly significant (except for one CASMIN dummy). Defining immigrants as foreigners, the estimator for the baseline component of the unemployment gap is 1.5 percentage points and the estimator for the situation component is 0.15 percentage points; both are statistically significant. A comparison with the results without controls shows that educational degrees and experience reduce the estimate for the baseline component by about 3/4 and the estimate for the situation component by about 4/5. Defining immigrants as foreign born leads with 1.4 percentage points to a similar estimator for the baseline component; however, the situation component is with 0.8 percentage points considerably smaller and insignificant. Differentiating between home country groups leads to similar findings, see table 5. Only the baseline component for people from Turkey and the situation components for people from Turkey and former Yugoslavia are still significant at the 5%-level;[23] compared to the regression without controls the estimated effects all decreased by more than 2/3.

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[20]In the GSOEP and in my estimations level 2c is further divided into vocational and general maturity.

[21]The GSOEP even distinguishes between experience in full and part time employment. I use the sum of the two as employment experience.

[22]The square terms do not appear in the tables, as for them no own marginal effect exists. Their estimators are highly significant.

[23]At the 10%-level the baseline component for people from Southern Europe is also significant.

Table 4: Education and experience effects

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.0036***	0.0036***	0.0063***	0.0036***	0.0036***	0.0036***
	(0.0003)	(0.0003)	(0.0009)	(0.0003)	(0.0003)	(0.0003)
Foreigner	0.0149***	0.0146***	0.0082		0.0127***	0.0116***
	(0.0024)	(0.0024)	(0.0070)		(0.0029)	(0.0029)
Foreigner*unempl.	0.0015**	0.0019***	0.0064***		0.0014*	0.0012***
	(0.0007)	(0.0007)	(0.0023)		(0.0007)	(0.0007)
Foreign born				0.0135***		
				(0.0024)		
Foreign born*un.				0.0008		
				(0.0007)		
Female	0.0061***	0.0072***	0.1487***	0.0056***	0.0061***	0.0061***
	(0.0017)	(0.0017)	(0.0057)	(0.0017)	(0.0017)	(0.0017)
Age	0.0004***	0.0004***	0.0141***	0.0004***	0.0004***	0.0004***
	(0.0001)	(0.0001)	(0.0005)	(0.0001)	(0.0001)	(0.0001)
Birth year	-0.0003***	-0.0003***	-0.0024***	-0.0003***	-0.0003***	-0.0003***
	(0.0001)	(0.0001)	(0.0003)	(0.0001)	(0.0001)	(0.0001)
Employment	-0.0011***	-0.0012***	-0.0192***	-0.0011***	-0.0011***	-0.0011***
experience	(0.0001)	(0.0001)	(0.0005)	(0.0001)	(0.0001)	(0.0001)
Unemployment	0.0171***	0.0183***	0.0593***	0.0170***	0.0171***	0.0170***
experience	(0.0006)	(0.0006)	(0.0036)	(0.0006)	(0.0006)	(0.0006)
CASMIN 1a	0.0329***	0.0346***	0.1352***	0.0350***	0.0328***	0.0317***
(inad. completed)	(0.0062)	(0.0062)	(0.0154)	(0.0063)	(0.0062)	(0.0062)
CASMIN 1b	0.0189***	0.0187***	0.0739***	0.0198***	0.0188***	0.0189***
(gen. el. school)	(0.0033)	(0.0032)	(0.0098)	(0.0033)	(0.0033)	(0.0033)
CASMIN 1c	0.0110***	0.0113***	0.0527***	0.0112***	0.0110***	0.0114***
(basic voc. qual.)	(0.0024)	(0.0024)	(0.0081)	(0.0024)	(0.0024)	(0.0024)
CASMIN 2b	0.0012	0.0037	0.0261**	0.0019	0.0011	0.0010
(inter. gen. qual.)	(0.0037)	(0.0037)	(0.0119)	(0.0037)	(0.0037)	(0.0037)
CASMIN 2c-gen.	-0.0164***	-0.0171***	0.0754***	-0.0166***	-0.0164***	-0.0165***
(gen. mat. cert.)	(0.0028)	(0.0030)	(0.0149)	(0.0028)	(0.0028)	(0.0028)
CASMIN 2c-voc.	-0.0131***	-0.0135***	-0.0659***	-0.0134***	-0-0130***	-0-0131***
(voc. mat. cert.)	(0.0029)	(0.0029)	(0.0101)	(0.0029)	(0.0029)	(0.0029)
CASMIN 3a	-0.0136***	-0.0154***	-0.1088***	-0.0139***	-0.0135***	-0.0135***
(lower tert. ed.)	(0.0035)	(0.0033)	(0.0123)	(0.0035)	(0.0035)	(0.0036)
CASMIN 3b	-0.0167***	-0.0154***	-0.1282***	-0.0169***	-0.0167***	-0.0167***
(higher tert. ed.)	(0.0027)	(0.0027)	(0.0086)	(0.0027)	(0.0027)	(0.0027)
Degree abroad					0.0031	
					(0.0031)	
Years abroad						0.0002
						(0.0001)
R^2	0.2388	0.2350	0.2395	0.2384	0.2388	0.2389
Observations	122956	133536	158451	122956	122956	122956
Sample	A+B	A-D	A+B	A+B	A+B	A+B

The dependent variable is a dummy variable for unemployment/employment, in (3) it is non-employment/employment. The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean. Standard errors are given in parenthesis; * significant at the 10%-level, ** significant at the 3%level and *** significant at the 1%-level. The reference category for the education levels is CASMIN 2a (intermediate vocational qualification).

Although foreign educational degrees are officially equivalent to native degrees, their contents can strongly differ. Thus, people who have acquired a degree abroad may not be perfect substitutes for people who have acquired the degree in the immigration country. This could be one explanation why the unemployment gap is still significant. The GSOEP contains the information if the highest degree has been acquired in Germany or abroad.[24]

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[24]I use a dummy variable indicating, if a person has acquired her highest educational or her highest vocational degree or both abroad.

Table 5: Differentiation by home country with controls

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.0035***	0.0035***	0.0035***	0.0032***	0.0031***	0.0052***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0012)
Born in Turkey	0.0251***	0.0125**	0.0062	0.0068	0.0055	0.0303
	(0.0042)	(0.0049)	(0.0049)	(0.0058)	(0.0057)	(0.0192)
Turkey*unemployment	0.0033**	0.0028**	0.0022*	0.0031**	0.0035**	0.0107**
	(0.0014)	(0.0013)	(0.0013)	(0.0015)	(0.0015)	(0.0050)
Former Yugoslavia	0.0073	-0.0030	-0.0082*	-0.0082	-0.0105**	-0.0567***
	(0.0050)	(0.0051)	(0.0047)	(0.0053)	(0.0052)	(0.0196)
Yugoslavia*unempl.	0.0036**	0.0021	0.0018	0.0013	0.0015	0.0096*
	(0.0014)	(0.0013)	(0.0011)	(0.0012)	(0.0013)	(0.0056)
Southern Europe	0.0069*	0.0006	-0.0052	-0.0070	-0.0095**	-0.0610***
	(0.0038)	(0.0042)	(0.0043)	(0.0047)	(0.0045)	(0.0180)
S. Europe*unempl.	-0.0021	-0.0019	-0.0022*	-0.0017	-0.0016	0.0004
	(0.0014)	(0.0014)	(0.0012)	(0.0013)	(0.0012)	(0.0050)
Eastern Europe	0.0081	0.0076	0.0069	0.0093	0.0197***	0.0338
	(0.0082	(0.0091)	(0.0089)	(0.0108)	(0.0058)	(0.0268)
E. Europe*unempl.	0.0008	0.0016	0.0016	0.0017	-0.0005	0.0025
	(0.0020)	(0.0021)	(0.0021)	(0.0022)	(0.0017)	(0.0076)
Born elsewhere	0.0102	0.0085	0.0045	-0.0039	0.0047	0.0095
	(0.0065)	(0.0078)	(0.0075)	(0.0070)	(0.0072)	(0.0299)
Elsewere*unempl.	-0.0012	-0.0018	-0.0018	-0.0033	-0.0033	-0.0019*
	(0.0022)	(0.0027)	(0.0025)	(0.0025)	(0.0020)	(0.0103)
Mostly foreign		0.0087***	0.0075***	0.0069***	0.0082***	0.0687***
language at home		(0.0021)	(0.0022)	(0.0024)	(0.0024)	(0.0144)
Partly foreign		0.0046***	0.0032**	0.0036**	0.0038**	0.0237**
language at home		(0.0015)	(0.0016)	(0.0018)	(0.0016)	(0.0107)
Foreigner			0.0091**	0.0055	0.0071	-0.0076
			(0.0039)	(0.0045)	(0.0044)	(0.00141)
No contact				0.0173**	0.0188***	0.0519***
to Germans				(0.0068)	(0.0068)	(0.0187)
Number of friends				-0.0004***	-0.0004***	-0.0013**
				(0.0001)	(0.0001)	(0.0006)
R^2	0.2395	0.2489	0.2489	0.2579	0.2541	0.3124
Observations	122956	104165	104165	82093	90637	105238
Sample	A+B	A+B	A+B	A+B	A-D	A+B

The dependent variable is a dummy variable for unemployment/employment, in (6) it is non-employment/employment. The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean. Standard errors are given in parenthesis; * significant at the 10%-level, ** significant at the 3%level and *** significant at the 1%-level. Not shown in the table in all regression CASMIN-Dummies, (squared) employment and unemployment experience, age birth year and sex were used as additional explaining variables.

Including an indicator for the place of the highest degree in my regression, I find no significant effect. Besides degrees, working experience may also be imperfectly comparable over countries. Therefore, I also use the years a person has lived abroad as additional control; the estimated effect is also insignificant. In both cases, the estimators for the situation component of the unemployment gap virtually did not change; the changes in the estimators for the baseline component are not significant. Thus, the place where educational degrees and employment experience are acquired does obviously not play an important role for the success of immigrants on the German labor market.

5 Assimilation and language usage

Beginning with Chiswick (1978), numerous economic papers deal with the effects of assimilation on the labor market success of immigrants. The large part of these papers measures labor market success by income; nevertheless, some papers as Clark and Lindley (2009) and Venturini and Villosio (2008) also consider the employment probability as an additional indicator.[25] Empirical analyses have shown that (directly) after arriving in the immigration country immigrants earn much lower wages and have a lower probability to be employed than comparable natives. With the time an immigrant has spent in the immigration country, his wage converges in most cases to the level of comparable natives.[26] With respect to employment, such an assimilation process is less obvious (see Clark and Lindley, 2009; Venturini and Villosio, 2008). The need for immigrant assimilation can be explained by lacking immigration country specific skills, especially language fluency, at the time of arrival.[27]

The years that an immigrant has lived in the immigration country are an obvious and often used measure for assimilation. As long as only immigrants are considered, the usage of years since migration as an explaining variable in a regression analysis does not pose a problem. However, as the aim of my estimations is to explain differences in the unemployment rates between natives and foreigners, I necessarily also have to consider observations for natives; years since migration cannot even be set missing for them. What is now the "right" value for the years since migration of natives? At first sight, one could think of setting years since migration to zero for natives; however, this is nonsense, as it would mean that natives have the same degree of assimilation as foreigners who have just arrived. Another possibility would be to set years since migration equal to some large value (e.g. 100 or the life expectancy); nevertheless, the (exact) value for years of migration would neither be justified.

There is a possibility to control for years since migration in the regressions in spite of

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[25] Amuedo-Dorantes and de la Rica (2007) analyze occupational assimilation instead of income assimilation.

[26] See Borjas (1994) and Borjas (1999)

[27] Immigrant assimilation can also be explained independent of an increase in human capital. Assume that there is on the job search of the Burdett and Mortensen (1998)-type. Immigrants have to anew start their career path when they enter the immigration country (searching a first job, improving their wages by job changes and wage bargaining etc.). Thus their wages successively assimilate to the native wage level.

Table 6: Assimilation and language fluency

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.0036***	0.0036***	0.0036***	0.0036***	0.0036***	0.0064***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0011)
Foreigner	0.0106***	0.0128***	0.0074**	0.0062***		-0.0294***
	(0.0033)	(0.0030)	(0.0032)	(0.0029)		(0.0093)
Foreigner*unempl.	0.0012	0.0014*	0.0008	0.0007		0.0070***
	(0.0007)	(0.0007)	(0.0008)	(0.0007)		(0.0025)
Foreign born	0.0044				0.0053*	
	(0.0042)				(0.0030)	
Foreign born*unempl.					0.0004	
					(0.0008)	
Years in Germany	-0.0002					
	(0.0002)					
Years since migration	0.0003					
	(0.0002)					
Years in Germany/age		-0.0052				
		(0.0059)				
Mostly foreign language at home			0.0088***		0.0096***	0.0862***
			(0.0021)		(0.0020)	(0.0116)
Partly foreign language at home			0.0035**		0.0045***	0.0253***
			(0.0015)		(0.0014)	(0.0089)
Language of newspaper reading				-0.0020***		
				(0.0005)		
R^2	0.2391	0.2388	0.2481	0.2448	0.2480	0.3026
Observations	122956	122956	104165	108082	104165	133846
Sample	A+B	A+B	A+B	A+B	A+B	A+B

The dependent variable is a dummy variable for unemployment/employment, in (6) it is non-employment/employment. The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean. Standard errors are given in parenthesis; * significant at the 10%-level, ** significant at the 3%level and *** significant at the 1%-level. Not shown in the table in all regression CASMIN-Dummies, (squared) employment and unemployment experience, age birth year and sex were used as additional explaining variables. The reference category for (4) is only German spoken at home. Missing values are imputed by person using the next following (next preceding) year for which an observation exists; persons without any observation are not considered.

this problem. If the number of years that an individual has lived in Germany is used as an additional control variable, years since migration can be interpreted as an interaction between years in Germany and being foreign born.[28] Including the two variables in my baseline estimation, the estimator for years since migration is statistically insignificant and positive, see table 6. [29] Assimilation would imply a negative effect. As being foreigner is the definition of immigrants in the baseline and years since migration is an interaction of being foreign born, I control for both in the estimation. Only being foreigner is significant, indicating that nationality is more important for the unemployment gap than country of birth; not shown in the paper, this finding is confirmed by further robustness checks. One could argue that the ability of an immigrant to assimilate depends on the age at which she has immigrated. Then, an obvious measure for assimilation would be years in Germany

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[28]This means that natives get a value of zero. However in the calculation of the marginal effects, it is considered that years since migration only have explaining power for foreigners.

[29]Summing up the estimators for years since migration and years in Germany also leads to a positive value.

relative to age. Compared to years since migration, this measure has the additional advantage that no control for years in Germany is needed, which can be problematic in combination with age. The estimated effect for this relative assimilation measure is negative, as expected (see table 6); however, it is insignificant. Thus, my estimation results indicate that the time immigrants have spent in Germany does not explain their employment situation; it is neither an (important) determinant of the native-immigrant unemployment gap.

Language skills are generally the most important part of country specific human capital. Thus, they are probably the better measure for the labor-market relevant aspects of immigrant assimilation than years since migration. The GSOEP does not directly measure the language fluency of immigrants; however, it contains a question on the language spoken at home. Three response options are given: *mostly German, mostly my native language* and *both.* Using this information, I built dummy variables for speaking mostly a foreign language at home and speaking partly a foreign language at home (the answer *both*).[30] Including these two dummies in my baseline specification, I get highly significant and positive estimators for them. In addition, as expected, the estimate for mostly speaking a foreign language at home is larger than the estimate for partly speaking a foreign language. The inclusion of language skills into my estimation has also a strong effect on the estimators for both components of native-immigrant unemployment gap. The baseline component is with 0.74 percentage points only about half as large as in the case without this controls (1.49 percentage points); nevertheless, it is still significant at the 5%-level. The estimate for the situation component is statistically insignificant and with 0.08 percentage points negligibly small.[31]

Robustness checks confirm these results. Defining immigrants as foreign born people leads to a similar picture, although the estimator for the baseline component is with 0.53 percentage points smaller and only significant at the 10%-level, see table 6. Differentiating between home country groups, only baseline and situation component for people from Turkey remain significant, see table 5. Considering countries of birth, naturalization and

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[30]This information is not available for all years. For immigrants, for whom at least one observation exists, missing years have been imputed. In a loop, missing values have in a first step been replace by the value for the following year and in a second step by the value of the preceding year.

[31]The estimate indicates that an increase in overall unemployment by 10 percentage points leads only to a 0.8 percentage points higher increase in the unemployment rate of immigrants compared to the increase in the unemployment rate of natives with the same human capital endowment; an effect that is obviously economically insignificant.

thus nationality can also be a measure of assimilation. Including a foreigner dummy, the baseline effect for people from Turkey becomes also insignificant. Analyzing the native-immigrant employment gap instead of the unemployment gap leads to weird results: The estimator for the baseline component is highly significant and negative; the estimator for the situation component is highly significant and positive. This would indicate that foreigners are less likely to be non-working than comparable natives in good economic situations but react more to economic changes by leaving the labor market. As a further robustness check, I use a different measure of language skills. The GSOEP contains also the following question: *What nationality newspaper do you read?* with response options ranging from 1 *Only newspaper of my home country* to 5 *only German newspapers*.[32] Using this variable instead of the language spoken at home leads to similar estimates for the two components of the unemployment gap, see table 6.[33] Nevertheless, as many people do not read newspapers regularly, this measure may be doubtful. Therefore, language spoken at home is used as control for language skills in the following.

Altogether, my estimations show that the language skills of immigrants, or more broadly their country specific human capital, are an important explanation for the native-immigrant unemployment gap. Controlling for language skills, the situation component of the gap becomes insignificant. Thus, the stronger reaction of immigrant unemployment to labor market changes can potentially be fully explained by their lower human capital endowment. Lacking language skills are also an explanation for the baseline component of the gap; nevertheless, the baseline component is not fully explained by differences in human capital endowment. In addition, the results in this section indicate that years since migration are not closely related to language skills and cannot explain immigrant unemployment. This is in line with Schmidt (1997), who shows that earnings of immigrants in Germany neither strictly increase with years since migration. The labor market situation of immigrants does obviously not automatically improve with the time spent in Germany.

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[32]Natives are assumed to read only German newspapers. For immigrants who state to read no newspaper at all, the variable is set to missing. Missing years are imputed as described above.

[33]Not shown in the paper including both measures in the same regression leads to weird results.

6 Discrimination and social networks

In the preceding chapters, I have analyzed the impact of differences in the human capital endowment on the native-immigrant unemployment gap and found that these differences cannot full explain the gap. Although human capital is surely the most important determinant of the labor market success of an individual, it is not the only one. Her social position also affect her labor-market situation. Various factors determine the social position of an individual; such factors are the influence that she has on others, the extent to which others owe her favors and the number and social positions of other individuals with whom she is acquainted. Human capital is certainly an important determinant of the social position of an individual; however, it cannot fully explain it.[34] Other factors, like the possession of an individual and the social position of her parents, also play an important role.

There are various modes of action how the position in the society of an individual, or more concretely her social network, affects her labor market success. First, the social contacts of an individual determine which information she has about the labor market.[35] This information is particularly important for job search. If an individual does not know that there is a job offer or that she is potentially suited for it, she will not apply. Even if a job offer is publicized, social contacts can help individuals to find out about it, as collecting information on job offers is not costless. The second mode of action is also related to the information flow. Potential employers have more information about people with whom they have direct or indirect social contacts. Everything else equal, a risk averse employer will prefer a candidate about whom he has more information.

A further argument why employers should prefer applicants with a high social position is gift exchange. Potential employers may already owe the candidate or some of his relatives a favor or they want the candidate or his relatives to owe them a favor. In Germany, gift exchange is not important for regular jobs; however, for internships and the like it sometimes plays a role. In addition, the position in the society determines the picture that an individual has of herself. A strong position generally leads to a better and more precise picture. This in turn helps the individual to sell herself in interviews

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[34]In how far the position is explained by human capital depends in how far soft skills, as capacity for teamwork, are regarded as human capital.

[35]It can also affect the time, when she has the information; having earlier the information of a job offer, an individual can for instance better prepare application documents.

and the like. Many more channels through which the position of an individual in the society affect her labor-market success are imaginable. Unfortunately, up to now, there is not much research on the effects of the social position on the labor market success of individuals (see Granovetter, 2005; Montgomery, 1991, for theoretic approaches).

The most obvious argument why the position of immigrants in the society should on average be lower than the position of natives is discrimination. Other members of the society may simply not be willing to have social contacts to them because they are immigrants or because of their ethnicity (discrimination in the sense of Becker, 1971); thus, employers may not be willing to hire immigrants. Beckerian discrimination is not the only potential explanation for disadvantages of immigrants in recruitment processes; information asymmetries and statistical discrimination may also play a role. In particular with respect to application documents, there can be very pronounce information asymmetries. A potential employer can often quite exactly assess the content of native degrees and the quality of native educational institutions, whereas she has hardly an idea of foreign degrees and institutions. If such an employer is risk averse, she always prefers a native worker to a comparable immigrant worker. Similarly, immigrants, or a certain group of them, may on average have worse labor market relevant characteristics compared to natives, for instance worse language skills. In this case, an employer who cannot completely observe these characteristics of an applicant will also prefer natives (statistical discrimination).[36]

The effect of discrimination on the labor market success of immigrants is often measured by the following approach. In an estimation controls for all observed labor market relevant characteristics are used. The remaining difference between immigrants and natives is then ascribed to discrimination, see for instance Nielsen et al. (2004). This approach is not convincing as it requires that all labor market relevant characteristics are observed;[37] otherwise the estimated discrimination effect is biased and no statement on discrimination can be made. In general, there is hardly an alternative to this approach, as an objective measure for discrimination does not exists. The GSOEP offers a question on experienced discrimination. Of course, self-assessed discrimination is no clean measure for real discrimination; immigrants will often not be aware that they have worse labor market relevant characteristics than natives and ascribe disadvantages to discrimination. Nevertheless, estimation results should give us at least an idea about the effects of discrim-

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[36]See e.g. Altonji and Pierret (2001), Chaudhuri and Sethi (2008).

[37]Moreover, it has to be controlled for all non-linearities in the effects of these characteristics.

Table 7: Discrimination and social networks

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	0.0036***	0.0033***	0.0033***	0.0032***	0.0033***	0.0057***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0012)
Foreigner	0.0051	0.0027	0.0006	0.0005		-0.0303***
	(0.0033)	(0.0033)	(0.0035)	(0.0032)		(0.0112)
Foreigner*unempl.	0.0007	0.0008	0.0007	0.0013*		0.0067**
	(0.0008)	(0.0009)	(0.0008)	(0.0008)		(0.0029)
Foreign born					0.0023	
					(0.0033)	
Foreign born*unempl.					0.0005	
					(0.0008)	
Mostly foreign	0.0076***	0.0083***	0.0075***	0.0104***	0.0085***	0.0811***
language at home	(0.0021)	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0141)
Partly foreign	0.0028*	0.0041*	0.0036**	0.0055***	0.0043***	0.0269**
language at home	(0.0016)	(0.0018)	(0.0018)	(0.0016)	(0.0017)	(0.0105)
Often	0.0071***		0.0073**			
discriminated	(0.0026)		(0.0029)			
Sometimes	0.0022		0.0020			
discriminated	(0.0015)		(0.0017)			
No contact		0.0190***	0.0181***	0.0204***	0.0189***	0.0550***
to Germans		(0.0070)	(0.0069)	(0.0071)	(0.0070)	(0.0190)
Number of friends		-0.0003***	-0.0004***	-0.0004***	-0.0003***	-0.0011*
		(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0006)
R^2	0.2486	0.2565	0.2569	0.2519	0.2565	0.3109
Observations	104165	82093	82093	90637	82093	105238
Sample	A+B	A+B	A+B	A-D	A+B	A+B

The dependent variable is a dummy variable for unemployment/employment, in (6) it is non-employment/employment. The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean. Standard errors are given in parenthesis; * significant at the 10%-level, ** significant at the 3%level and *** significant at the 1%-level. Not shown in the table in all regression CASMIN-Dummies, (squared) employment and unemployment experience, age birth year and sex were used as additional explaining variables. Missing values are imputed by person using the next following (next preceding) year for which an observation exists; persons without any observation are not considered .

ination; they should more or less be an upper bound. The exact wording of the question on discrimination is: *Over the last two years how often were you discriminated against in Germany based on your origin.* with response options *never, seldom* and *often.*[38] Including dummies for being often and seldom discriminated against affects the estimates for the unemployment gap. Not only the estimate for the situation component, that has already been insignificant before, but also the estimate for the baseline component is now insignificant and small, see table 7; the estimators for discrimination are positive and highly significant.

Discrimination is not the only potential reason for a lower position of immigrants in the society compared to natives. Differences in social networks can also play a role. The migration literature has shown that, in most cases, people migrate in the context migrant networks (see Munshi, 2003); thus, they have a social network in the immigration country immediately after their arrival. Nevertheless, compared to the networks of natives the

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[38]Missing values are imputed as for language spoken at home.

networks of immigrants may on average still be small disconnected to the networks of natives who are influential on the labor market. A rough measure for the size of the social network of an individual is the number of her (good) friends; the GSOEP contains a question on this. A rough measure for the connection of immigrant and native networks are private contacts between immigrants and natives. Based on questions on visits from and with Germans, I built a dummy variable indicating if an immigrant has private contacts to Germans or not. Including these two variables in my estimations has the same effect as including discrimination. Both, the estimator for the situation component and the estimator for the baseline component, are insignificant and small, see table 7. Having no contacts to Germans is highly significant and has the expected positive sign, the number of friends is highly significant and has the expected negative sign. Various robustness checks lead to the same results, see tables 5 and 7.

including both number of friend and no contact to Germans as well as self-assessed discrimination in a regression, both have significant effects (see table 7). Thus, the effect of discrimination on employment is not explained by my measures for differences in social networks. Nevertheless, this does not necessarily mean that discrimination plays an important role on the German labor market. On the one hand, self-assessed discrimination is at least to a certain degree endogenous, so that its estimate is upward biased. On the other hand, my measures for social networks are very rough. Thus, their estimates show that social networks have an effect on the individual employment probability. However, they probably do not capture the complete effect of social networks on un-/employment. Therefore, one should also be cautious interpreting their estimates quantitatively.

7   Conclusions

The unemployment rate of immigrants in Germany is not only higher than the rate of natives but also reacts more to changes in the labor-market situation. Decomposing the native-immigrant unemployment gap into a baseline and a situation component, I find a baseline component of 5.6 percentage points and a situation component of 0.7 percentage points. The large part of the difference, about 3/4 of the baseline and 4/5 of the situation component, can be explained by differences in the endowment with classical human capital (educational degrees and experience). Also controlling for language skills, the situation component becomes insignificant and the baseline component again decreases by 1/2. Adding (self-assessed) discrimination and/or controls for social networks the

baseline component also becomes insignificant.

What do these results imply for immigration and integration policy? If Germany wants to decrease its immigrant unemployment, it has to improve the education of immigrants. In the long run, a higher education level will quite likely also improve the position of immigrants in the German society. Improving language fluency is probably easier for an immigrant than reaching a higher educational degree; good language skills are actually a precondition to acquire an additional degree in Germany. Thus, the starting point for immigration policy are (better) language classes for immigrants; possibly, immigrants have to be obligated to join this programs. The native-immigrant unemployment gap in Germany is immense and the costs of unemployment for the German state are large due to the generous welfare state. Thus, if a measure to improve the human capital of immigrants is effective, even rather high investments in it will pay off. Hence, research and political effort should be put in the search of effective measures.

My results have also some implication for further research on integration of immigrants. First, besides human capital, social networks and the like are also an explanation for differences in the labor-market success between immigrants and natives. To fully understand how social networks affect the labor market success of immigrants, more theoretic and empiric research necessary. Disentangling the effects of discrimination and social networks would not only be an enrichment for the (economic) research on integration and minorities; social networks cannot also be a starting point for integration policy. Second, immigrant employment in Germany reacts much stronger to changes on the labor market, especially business cycles, than native unemployment. Thus, analyzing differences between immigrant and native un-/employment the labor-market situation has to be considered. This is especially important for evaluations of immigration policy measures under changing labor market situations.

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8 Appendix: Cyclicality of skill-specific unemployment

As discussed in section 3, up to now there is not much evidence on the connection between skill level and cyclicality of unemployment. Using the data from the GSOEP, I test if low skilled unemployment reacts more to changes of the labor-market situation than high skilled unemployment. Analogous to the analysis of the situation component of the native-immigrant unemployment gap, I regress individual un-/employment on the overall unemployment rate, the individual education level and an interaction between the two. The results are given in table A1 and clearly show that low skilled unemployment reacts more to changes on the labor market than high skilled unemployment. As I do not want to control for some sort of selection here, the regressions are weighted by standard population weights.

Table 8: Skill-specific unemployment and labor-market changes

	(1)	(2)	(3)	(4)	(5)	(6)
Unempl. rate	0.0102***	0.0074***	0.0069***	0.0035***	0.0034***	0.0036***
	(0.0003)	(0.0006)	(0.0006)	(0.0003)	(0.0003)	(0.0003)
CASMIN	-0.0172***	-0.0139***		-0.0070***	-0.0057***	
	(0.0009)	(0.0010)		(0.0006)	(0.0004)	
CASMIN*unempl.	-0.0023***	-0.0017***		-0.0009***	-0.0009***	
	(0.0002)	(0.0003)		(0.0002)	(0.0001)	
ISCED			-0.0187***			
			(0.0015)			
ISCED*unemployment			-0.0024***			
			(0.0004)			
CASMIN 1a						0.0466***
(inad. comp.)						(0.0105)
CASMIN1a*un.						0.0015
						(0.0031)
CASMIN 1b						0.0296***
(gen. el. school)						(0.0053)
CASMIN1b*un.						0.0043**
						(0.0017)
CASMIN 1c						0.0164***
(basic voc. qual.)						(0.0034)
CASMIN1c**un..						0.0009
						(0.0010)
CASMIN 2b						0.0013
(inter. gen. qual.)						(0.0047)
CASMIN2b*un.						0.0047***
						(0.0012)
CASMIN 2c-gen.						-0.0219***
(gen. mat. cert.)						(0.0030)
CASMIN2cg*un.						-0.0016
						(0.0010)
CASMIN2c-voc.						-0.0182***
(voc. mat. cert.)						(0.0045)
CASMIN2cv*un.						0.0027**
						(0.0012)
CASMIN 3a						-0.0136***
(lower tert. ed.)						(0.0048)
CASMIN3a*un.						-0.0030**
						(0.0013)
CASMIN 3b						-0.0138***
(higher tert. ed.)						(0.0034)
CASMIN3a*un.						-0.0035***
						(0.0010)
R²	0.0650	0.0414	0.0316	0.2498	0.2387	0.2512
Controls	no	no	no	yes	yes	yes
Sample	Overall	West	West	West	A+B	West

The estimation method is pooled Probit and the displayed coefficients are marginal effects at the mean; the dependent variable is individual unemployment. Except for (5), which is unweighed, all estimations are weighted by population weights. Standard errors are given in parenthesis;* significant at the 10%-level, ** significant at the 3%level and *** significant at the 1%-level. Controls include (squared) employment and unemployment experience, age birth year sex and an foreigner/native. The reference category for the education levels in (6) is CASMIN 2a (intermediate vocational qualification).

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