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## Labour market integration of immigrants - Evidence for the German guest workers

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# LABOUR MARKET INTEGRATION OF IMMIGRANTS – EVIDENCE FOR THE GERMAN GUEST WORKERS

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## Abstract:

During the 1960s and 1970s a large number of immigrants came to Germany as temporary labour migrants. Many of them remained, captured their family and their children entered the labour market since the 1980s. Our paper analyses their labour market experience in terms of employment, unemployment and earnings. The recruitment stop induced by the first oil crisis in 1973 allows us to distinguish guest workers, on the one hand, and family members, on the other hand, in a natural experiment setting.

The results reveal enormous differences between the groups. Guest workers who came until 1973 differ markedly from those migrants who came later as family members, especially in terms of unemployment. These differences are more pronounced for women than for men. The descendants of the European guest workers are very well integrated into the German labour market which points towards positive long-run effects of the guest worker policy measure. However, the migrants stemming from a different ethnic background face much more difficulties in terms of labour market integration.

Keywords: Natural experiment, guest workers, family migrants, integration

JEL No: J15, J21, J31, J61

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# 1 Introduction

During the 1960s and early 1970s a large number of immigrants came to Germany as labour migrants. The German economy was booming, and firms and economic policy institutions sought support from temporary guest workers from abroad. The German Federal Labour Office installed recruitment agencies in many European countries which opened them an easy route to the German labour market.<sup>1</sup> The most important guest worker countries were Italy, Spain, Greece, Portugal, the former Yugoslavia and Turkey. Many of the guest workers received permanent residence permits and stayed in Germany. The first oil price shock and the increasing unemployment in Germany in 1973/1974 put a stop to those activities. However, during the 1970s and early 1980s another large group of immigrants came to Germany as family members. In addition the mostly young guest workers started families and their children entered the German labour market since the 1980s.

Our paper analyses the labour market experience of those migrants based on individual data from the German Socio-Economic Panel (GSOEP), 1984 – 2012.<sup>2</sup> Through the recruitment stop in 1973 we can distinguish hired labour migrants, on the one hand, and family migrants, on the other hand, which is unique in the immigration literature. We exploit this setting to test whether guest workers take a long run advantage out of their specific starting conditions. In addition, the comprehensive longitudinal data set provides extensive data for the analysis of the descendants of the guest workers as well. Hereby we are able to test for long-run effects of the guest worker policy.

When analyzing the integration of migrants, selection is an important issue. Firstly, there is the self selection of the more mobile and probably more active population into migration.<sup>3</sup> Secondly, when dealing with long-run effects, return migration is an important issue.<sup>4</sup> Many guest workers (and family migrants) left after some years, and only a small fraction remains in Germany permanently. Note that the data for our empirical analysis starts in 1984, i.e. we observe only immigrants who stay in Germany in the long run.

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<sup>1</sup>For a more detailed description of the recruitment process, see for example Bauer et al. (2005) and Mattes (2005).

<sup>2</sup>See Wagner et al. (2007) for a description of the GSOEP data.

<sup>3</sup>See Roy (1951) and Borjas (1987) for early discussions of the selectivity of migrants.

<sup>4</sup>See Dustmann (2003) and Dustmann and Görlach (2016). In migration analyses we don't have much information on those who leave. However the information on those who stay is the most important for the labour market in the host country.

The selection process of the German guest workers exhibits some further specifics.<sup>5</sup> Firstly, the firms and the recruitment agencies actively selected the migrants according to the needs of the German labour market. This meant during the 1960s a focussing on people with low formal qualification levels for unskilled or semi-skilled industry work. Secondly, the agencies recruited the guest workers in their home countries and thereby addressed people who, to a large part, probably would not have migrated otherwise.<sup>6</sup> Thirdly, the guest workers typically received short-term contracts, and each prolongation sets another selection procedure in motion, on the side of the worker and on the side of the firm. Note that the guest workers were actively recruited in their home country and typically received a one year contract from a firm in Germany.

Our hypothesis is that guest workers who stay permanently in Germany are a positive selection in terms of labour market association and labour market success.<sup>7</sup> We expect that family members, on the other hand, exhibit a less close labour market association and consequently less labour market success.

Most of the economic literature on the integration of immigrants is concerned with earnings adjustment and focusses on men.<sup>8</sup> Our empirical analysis tries to give a general picture of the overall labour market integration, and we estimate labour market participation and unemployment as well. In addition, we estimate models for men and women. The majority of the German guest workers was male, but there was a surprisingly large share of female guest workers as well. Our analysis focusses on the difference of the labour market integration of guest workers compared to family migrants. The analysis of the second generation provides additional hints on long-run effects of the German guest worker program. Although cultural and ethnic differences are not the core focus of our analysis, we distinguish between migrants from different ethnic backgrounds.

The results reveal enormous differences between the groups. We show that the EU-European guest workers who decided to stay fare well on the German labour market. Especially women exhibit a stronger labour market affinity and higher earnings compared to Germans. Family migrants, coming after 1974, differ markedly especially in terms of unemployment. The second generation is very well integrated into the

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<sup>5</sup>See for example Bauer et al. (2005), Mattes (2005) and Bodvarsson and Van den Berg (2013) for more detailed discussions.

<sup>6</sup>See Mattes (2005).

<sup>7</sup>See Dustmann and Görlach (2016) for a discussion.

<sup>8</sup>See for example Borjas (1994) and Bodvarsson and Van den Berg (2013) for overviews.

German labour market. However, migrants with a different ethnic background face more difficulties on the labour market.

The paper is organized as follows. Section 2 gives a short overview of the literature, focussing on labour migrants. Section 3 introduces the data and the empirical approach. The GSOEP supplies a large data set with comprehensive information for each of the migrant groups. Section 4 presents the estimation results for employment, unemployment and earnings. Section 5 concludes.

## 2 Literature

Most economic studies of immigrants' labour market integration focus on earnings assimilation. Early surveys in the U.S. like Chiswick (1978), Carliner (1980) or Borjas (1985) reveal significant earnings disadvantages of immigrant men at the time of entering the U.S. labour market. Field-Hendrey and Balkan (1991) report a similar result for immigrant women, while Long (1980) shows an earnings advantage for immigrant women. All these studies document an earnings assimilation towards natives in the following years.<sup>9</sup> Children of immigrants are overall successful in the U.S., as early studies like Chiswick (1977) and more recent ones from Card et al. (2000) and Card (2005) point out.

Comparable studies are conducted for Germany as well, but with different results. The group which received the highest scholarly attention regarding labour market integration in Germany are male guest workers.<sup>10</sup> This special group, i.e. hired labour migrants, were actively recruited by German firms from 1955 until 1973; recruiting took place in cooperation with the German Federal Labour Office in the home countries of the guest workers. German firms sought support from low-skilled workers for low-paid jobs, who could temporarily support cyclical production at low cost. Many guest workers returned to their home countries, but some of them stayed permanently, as documented by Bauer et al. (2005).

Studies of male immigrants report significant earnings disadvantages for these immigrants at the time of labour market entry in Germany. In contrast to the U.S. literature Dustmann (1993) and Schmidt (1997) cannot find assimilation towards natives, whereas Licht and Steiner (1994) and Pischke (1992) find some evidence for

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<sup>9</sup>For detailed overviews of the literature on U.S. immigration see Borjas (1994) and Card (2005).

<sup>10</sup>A detailed overview of the literature dealing with German immigration is given by Bauer et al. (2005).

concave assimilation paths. Detailed data on the labour market success of second generation immigrants in Germany are available only since recently. Algan et al. (2010) examine their earnings situation and show that second generation immigrants earn more than their parents, although their earnings do not reach parity with Germans.

Beside earnings, labour market participation and unemployment are important aspects of labour market integration, both in the U.S. and in Germany. Fields (1935) is an early example discussing unemployment of immigrants in the U.S.; however structural analyses of immigrants and natives were not possible until more detailed micro data was available. With such data Chiswick (1982), Chiswick et al. (1997) and Hurst and Chiswick (2000) report lower employment and a higher unemployment rate among immigrants when they enter the U.S. labour market. Similar to earnings assimilation, the initial disadvantage disappears after a few years in the host country. For Germany Bender and Karr (1993) as well as Steiner (2001) document high unemployment rates for male guest worker and their children and no assimilation towards natives. They assign this outcome mainly to the insufficient education of immigrants.

Apart from the general perception, the German guest worker program was not exclusively designed for men. There was a large number of female guest workers as well, especially in the textile and automotive industries.<sup>11</sup> Female guest workers accounted for up to 30 percent of total foreign workers in 1974. Our study is the first dealing explicitly with labour market integration of female guest workers. There is one study by Dustmann and Schmidt (2000) dealing with the integration of female immigrants into the German labour market, which however does not distinguish between guest workers and family migrants. They document an earnings disadvantage of female immigrants and no assimilation towards natives. Algan et al. (2010) show that second generation women are more often employed than their parents, although less often than German natives.

Female immigrants face more difficulties to integrate in the U.S. labour market as well. Important studies focussing on their employment and unemployment situation are Reimers (1985), Schoeni (1998), Antecol (2000), Read (2004) and Blau (2015). Reimers (1985) and Schoeni (1998) attribute those difficulties mainly to observable characteristics, whereas Antecol (2000), Read (2004) and Blau (2015) stress cultural influences, especially the ‘role of women’ in the home country. The differences

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<sup>11</sup>For a detailed description of labour supply through female guest workers see Mattes (2005).

between female immigrants and natives are less pronounced in the second and third generation which hints towards a labour market integration process in the U.S..

The German guest workers stem from different cultural and ethnic backgrounds, and Uhlenborff and Zimmermann (2006) and Kalter and Granato (2001) accentuate the differences for a specific immigrant group in Germany, the Turks. Akerlof (1997), Akerlof and Kranton (2000) and Darity et al. (2006) focus on the role of ethnic identity for economic and social decisions. These models demonstrate that rational economic decisions are affected by social considerations, including ethnic identification. Such considerations can change individuals utility functions and alter economic outcomes. Empirical studies for Germany by Constant and Zimmermann (2008) and Constant et al. (2009) reveal the relevance of ethnic identity for German immigrants; their results show that identity mainly depends on pre-migration characteristics.

### 3 Data and empirical specification

The empirical analysis is based on the micro data from the German Socio-Economic Panel (GSOEP). The GSOEP is a large and comprehensive survey of private households and persons in Germany and captures a broad variety of socio-economic indicators.<sup>12</sup> The first wave started in 1984 with about 9 000 Germans and about 3 000 foreign nationals, and the survey is carried out annually since then. Foreigners from the most important guest worker countries Italy, Spain, Greece, the former Yugoslavia and Turkey were intentionally largely oversampled in the GSOEP.<sup>13</sup> In 1984 foreigners in Germany accounted for about 7 percent of the total population. Our empirical analysis uses subsamples A and B of GSOEP, i.e. our data start in 1984. Subsample A refers to German nationals, subsample B consists of foreigners. The refreshment samples which started later were omitted, and the small number of migrants from other countries and migrants with German nationality were omitted as well.

The focus of our empirical analysis is the distinction between guest workers, on the one hand, and family migrants, on the other hand. In addition, we distinguish migrants coming as children to Germany and children born in Germany. All analyses

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<sup>12</sup>See Wagner et al. (2007) for a more detailed description of the GSOEP.

<sup>13</sup>Immigrants from Portugal, another important guest worker country, were not included in the GSOEP.

are carried out for 3 country groups and for males and females separately.

Firstly migrants arriving from 1955 until 1973 came predominantly through the recruitment agreements. These recruitment agreements, together with the extremely favourable labour market situation in those years, provided an easy entry into the labour market for the guest workers. Therefore we expect that they should be more successful during the years since 1984 as well. Note that the starting date of the GSOEP data implies that we observe the guest workers only after at least ten years since migration. The households for the survey were sampled at that date as well. This implies a specific kind of selection. Our data set does not provide information on guest workers who left Germany before that date. Note also that not all immigrants who arrived until 1973 were guest workers. Some of them came as children, and some of the female (and male) migrants just accompanied their husbands.

Secondly we look at the labour market success of migrants coming after 1973. In November 1973 a recruitment stop for guest workers was put into place, and since 1974 the German economy experienced high and increasing unemployment. The most important reason for immigration since then was family reunion and not labour migration. This was further enforced by the legal situation. This implies a very different kind of selection. We expect that family members exhibit a less tight labour market association compared to the guest workers. In addition, the economic downturn since 1974 presumably made labour market entry more difficult for them.

Thirdly we look at the labour market experience of the second generation. The first generation of guest workers arrived in the 1960s and early 1970s. They captured their family in the 1970s and early 1980s, and their children entered the German labour market since the 1980s. Our analysis distinguishes those born in Germany (with a foreign nationality) and those who came to Germany as children (i.e. immigration age less than 18 years). The experience of the descendants gives us additional information on the long-run perspectives for the labour market integration of foreigners in Germany.

Within the immigrants we distinguish three country groups, first the now EU-European countries Italy, Spain and Greece, second former Yugoslavia, and third Turkey.<sup>14</sup> In general, we expect an easier integration for migrants from the EU-European countries due to the common cultural background. People from Turkey with a largely muslim population might experience more difficulties. Yugoslavia was

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<sup>14</sup>The analysis is based on the nationality at the time of the first inclusion in GSOEP, i.e. those who acquired the German nationality later on are still counted as foreigners.



a communist state until 1991, and immigrants from there might experience difficulties in a market economy. Finally, we distinguish males and females. The first generation of guest workers are mainly males, aged 20 to 40 and working in industry. The situation for females was different. On the one hand, there was a large number of female guest workers as well, even among migrants arriving in the early sixties.<sup>15</sup> On the other hand, some of the female immigrants just accompanied their husbands and probably faced more difficulties entering the labour market, compared to migrants arriving with an employment contract.

Figures 1 to 3 provide some information on the immigrants. Figure 1 depicts the immigration year of the adult migrants in our data set, distinguished by males and females. Most of them came in the 1960s and early 1970s as guest workers, and the reduction after 1973 is evident, especially for males. The peak in 1969/1970 is related to the extremely low unemployment rate in Germany back then. However, a significant number of migrants came after 1973 as well, as family migrants of guest workers. A somewhat surprising result is the large number of females arriving already during the 1960s.<sup>16</sup> The share of females is larger for migrants coming after 1973, i.e. the data indicate that the traditional family setting prevails for the guest workers.

Figure 2 depicts the age at immigration of migrants arriving during the guest worker years. Most of them were in the age group from 18 to 35, but there was a large number of children as well. In the empirical analysis, migrants coming as children (less than 18 years) were treated as second generation. For women (and for men as well) one should hold in mind that some of them came as family members and not as labour migrants. Unfortunately there is no definite information about the guest worker status (e.g. labour contract at time of immigration) in the data set. Figure 3 depicts the age at immigration of migrants coming since 1974. The median age for males is 18, i.e. most came as children or youth. For females the mean and median age is slightly higher, i.e. a larger share probably came as husbands/fiancées/partners.

Figures 4 to 6 give some information on the second generation of migrants. Figure 4 shows that most of the children came to Germany in the late 1960s and early 1970s. Another large group came in the late 1970s and early 1980s, probably together with their (female) parents or other family members. Figure 5 shows that those coming as children or youth were mainly born in the 1960s. They entered the German

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<sup>15</sup>See figure 1 below.

<sup>16</sup>Some firms intentionally requested female guest workers. Note that the scientific literature on female guest workers is scarce. An important exception is Mattes (2005).

Figure 1: Immigration year, adult migrants

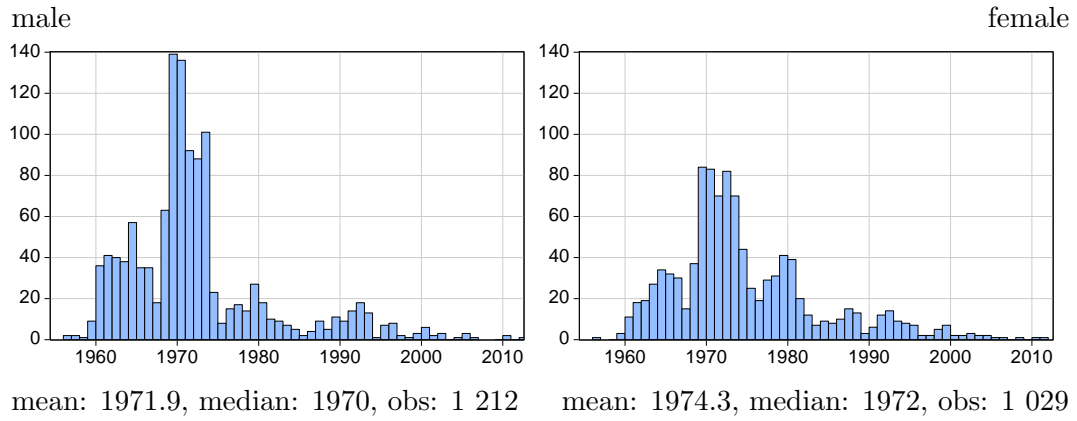


Figure 2: Age at immigration, migration until 1973

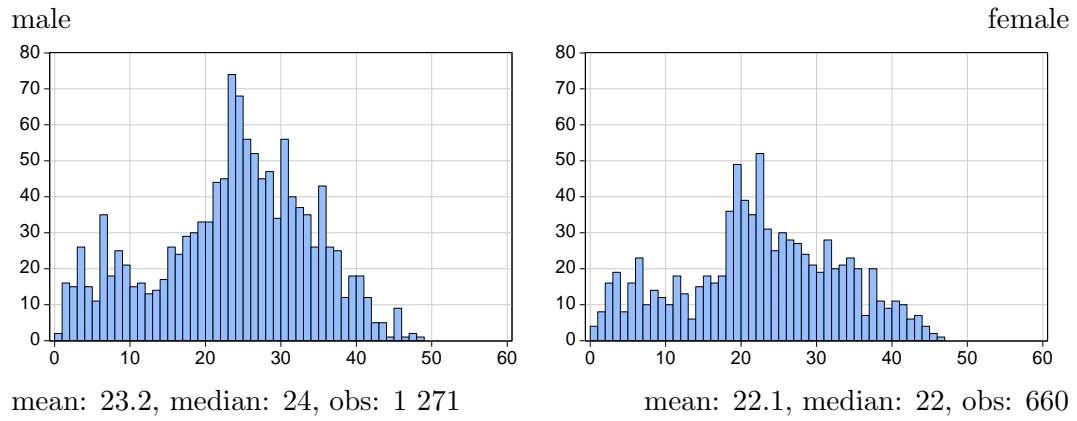
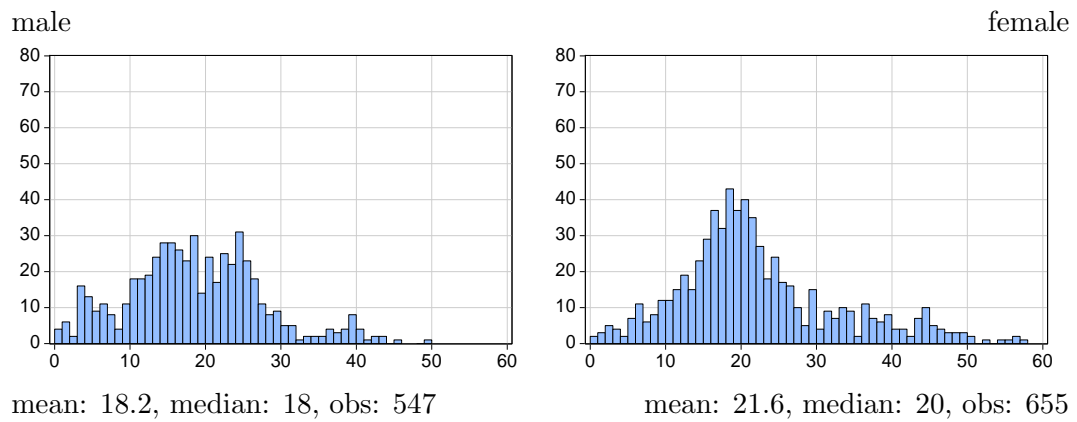


Figure 3: Age at immigration, migration since 1974



Source: GSOEP 1984–2012, sample A and B

Figure 4: Immigration year of youth

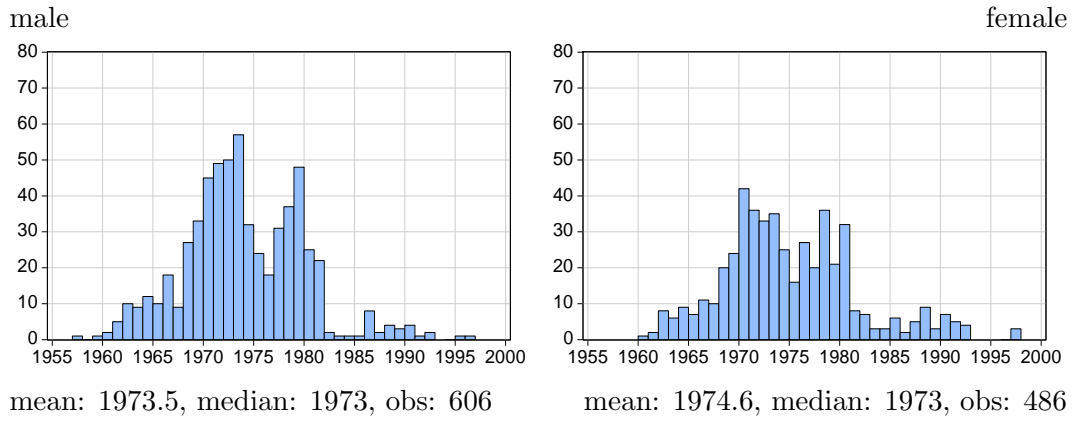


Figure 5: Year of birth, youth migrants

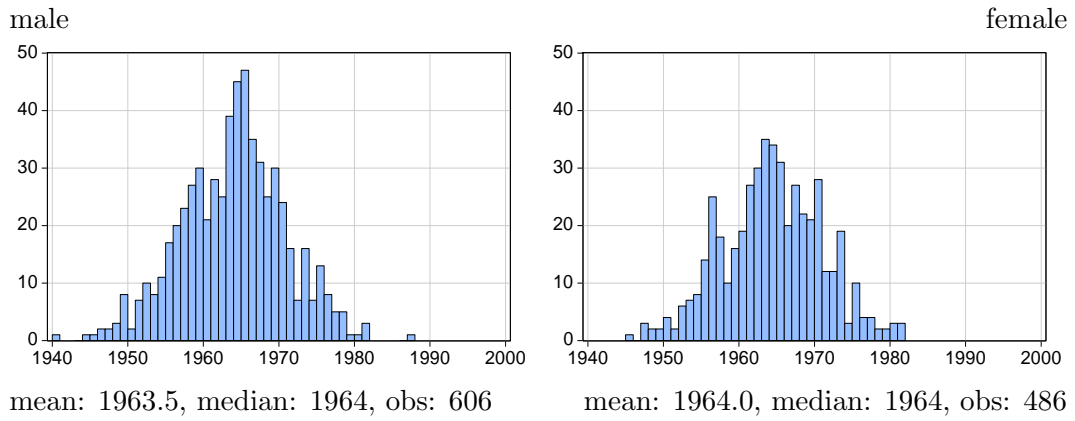
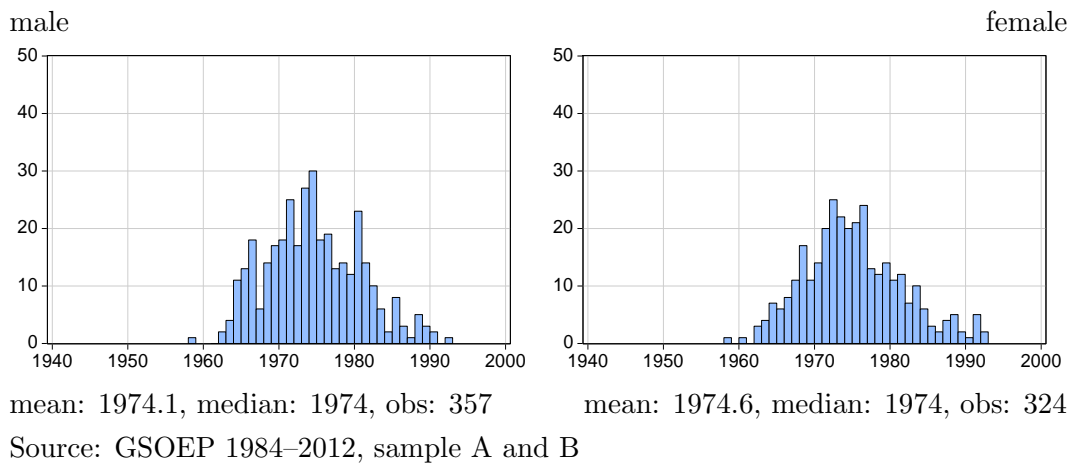


Figure 6: Year of birth, born in Germany



labour market since the late 1970s, i.e. in a situation with high and increasing unemployment. Figure 6 reports the years of birth for children born in Germany with a foreign nationality.<sup>17</sup> Most of them were born since the late 1960s and entered the labour market since the late 1980s.

Table 1 reports some descriptive statistics for Germans, immigrants and their descendants.<sup>18</sup> The GSOEP data provide about 60 000 observations for German males and a corresponding number for females. The total number of observations for migrants from the EU-European countries Italy, Greece and Spain is about 15 000, the number of observations for migrants from Turkey is roughly the same size. About 60 percent of the observations stem from migrants arriving until 1973, about 25 percent refer to those coming later, and the second generation accounts for about 15 percent. This supplies sufficient information for detailed subgroup analyses. There are less migrants from the former Yugoslavia; the results referring to them should be interpreted with care.

A strong labour market handicap of the immigrants is the low endowment with human capital. Especially the guest workers (immigration year  $\leq 1973$ ) and among them especially the females exhibit a very low formal qualification level. This was intended by the recruitment agreements; guest workers were selected especially for low or unskilled industry work. The GSOEP provides data for years of schooling including apprenticeship training and university/college. This indicator for education is largely comparable across nationalities. 9 years of schooling correspond to the German lower secondary school diploma (Hauptschule), and 13 years is the German high school diploma (Abitur). The numbers beneath 9 years of schooling for female EU-European and Turkish guest worker imply that they had not achieved an education comparable to the lowest German school diploma. The corresponding numbers for foreign men are slightly higher, but on average the years of schooling for Germans is about 2 to 3 years higher. The data reveal a remarkable increase of the years of schooling of about 2 years across generations, but even the second generation exhibits a considerably lower formal qualification level compared to Germans. An important exception are female descendants born in Germany.

Note finally the specific age structure within the sample with averages of 46 to 49 years for the guest workers (immigration year  $\leq 1973$ ), 35 to 38 years for the family members (immigration year  $\geq 1974$ ), 30-33 years for children coming with age

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<sup>17</sup>Descendants from migrants born in Germany with German nationality were treated as Germans.

<sup>18</sup>Descriptive statistics for all variables of the analysis are reported in tables A.1 and A.2 in the appendix.

Table 1: Descriptive statistics, subgroups

	males			females		
	obs.	school	age	obs.	school	age
<b>Italy, Greece, Spain</b>						
immigration year $\leq$ 1973	3 611	9.0	49.3	2 561	8.2	48.6
immigration year $\geq$ 1974	1 099	9.7	37.2	1 081	9.6	37.6
age at immigration $<18$	2 253	10.0	33.8	1 952	9.6	33.4
born in Germany	1 416	11.2	26.8	1 253	10.9	27.8
<b>Yugoslavia</b>						
immigration year $\leq$ 1973	2 210	9.9	47.4	1 734	9.1	46.1
immigration year $\geq$ 1974	300	10.1	36.5	807	8.9	40.5
age at immigration $<18$	634	10.3	29.8	689	9.8	31.8
born in Germany	485	11.1	26.3	558	11.5	27.3
<b>Turkey</b>						
immigration year $\leq$ 1973	2 468	9.2	49.4	1 508	8.3	47.1
immigration year $\geq$ 1974	1 197	10.2	35.6	2 078	8.7	38.2
age at immigration $<18$	3 246	9.9	30.3	2 457	9.3	30.0
born in Germany	909	10.4	26.2	876	10.8	26.6
<b>Germans</b>	60 140	12.0	39.4	62 320	11.5	39.4

GSOEP 1984–2012, sample A (Germans) and B (foreigners), all persons aged 20 to 60.

Schooling refers to years of education and includes apprenticeship training and university/college.

Age is in years.

at immigration $<18$  and 26–28 for children born in Germany. The average age of Germans in the data set is slightly below 40 years.

## 4 Estimation results

The econometric analysis of migrants' labour market association and labour market success is based on pooled panel data estimates for employment, unemployment and earnings. The explanatory variables for employment and unemployment are years of schooling, age or experience, family status, the presence of children and region. Earnings are determined by schooling, experience, working time, family status, the presence of children and region. Employment is defined as working full or part time, unemployment refers to those registered at the Labour Office, and earnings is gross labour income per month.

The observation period captures 29 years from 1984 until 2012. The sample consist of the whole population aged 20 to 60 for employment and unemployment and of those with positive income for the earnings equation. We specify a log-linear model for the earnings equation and use probit models to estimate the employment and unemployment probability. All regressions include year fixed effects and are carried out separately for men and women. We cluster standard errors at the household level to correct for household heterogeneity and serial correlation within household participation years. For all regressions we include dummy variables for each of the sub-groups of foreigners. Germans are the reference group.

The estimation results for the control variables are reported in table A.3 in the appendix. The rate of return to schooling is about 8 percent for men and women. Males and females share an u-shaped experience-unemployment profile and an inverted u-shaped earnings-experience profile which is more pronounced for men. Schooling exhibit a strong effect on employment and unemployment as well. Family status (marriage and children) increases the employment probability and earnings for men and reduces it for women. Finally in the economically strong south the conditional employment probability and earnings are higher and unemployment is lower.

Table 2 reports the estimates for the different migrant groups, separated by immigration year, for three different immigration country groups and separated for men and women. The guest workers from the now EU-European countries Italy, Spain and Greece were the first who came to Germany,<sup>19</sup> they are also the largest group in our sample. The results for male guest workers (left columns) reveal a basically successful labour market integration. The conditional earnings are slightly

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<sup>19</sup>The recruitment agreement between Germany and Italy was set up in 1955, those with Spain and Greece were closed in 1960.

Table 2: Employment, unemployment and earnings – First generation

	males			females		
	empl.	unempl.	earnings	empl.	unempl.	earnings
<b>Italy, Greece, Spain</b>						
immigration year $\leq$ 1973	-0.08 (-1.1)	0.01 (0.1)	-0.04 (-2.5)	0.32 (4.3)	0.30 (3.8)	0.13 (5.2)
immigration year $\geq$ 1974	-0.04 (-0.3)	0.24 (2.2)	-0.07 (-2.4)	0.18 (1.6)	-0.00 (-0.0)	0.01 (0.3)
<b>Yugoslavia</b>						
immigration year $\leq$ 1973	-0.19 (-2.0)	0.13 (1.6)	-0.08 (-4.5)	0.54 (5.6)	0.27 (3.2)	0.10 (3.6)
immigration year $\geq$ 1974	-0.07 (-0.6)	0.22 (1.5)	-0.05 (-0.7)	-0.06 (-0.5)	0.06 (0.5)	0.06 (1.4)
<b>Turkey</b>						
immigration year $\leq$ 1973	-0.58 (-7.5)	0.43 (5.5)	-0.10 (-5.4)	-0.12 (-1.3)	0.47 (5.7)	0.07 (1.7)
immigration year $\geq$ 1974	-0.57 (-5.9)	0.66 (6.3)	-0.14 (-4.3)	-0.59 (-6.3)	-0.13 (-1.3)	-0.06 (-1.7)

GSOEP 1984–2012, sample A (Germans) and B (foreigners), persons aged 20–60,  
t and z-statistics in parenthesis, standard errors are clustered at the household level.

Reported are the results of the coefficients of the dummy variables for the groups.  
Probit estimates for employment and unemployment, OLS estimates for the earnings equation.  
Reference group: Germans

empl.: full of part time employment  
unempl.: unemployment, registered at the Labour Agency  
earnings: log. monthly gross labour income

lower compared to Germans, but the difference amounts to only 4 percent, and the differences in terms of employment and unemployment are not significant.

The results for migrants who came since 1974 as family members indicate a less successful labour market integration. Their earnings difference is about 7 percent, and their unemployment probability is significantly higher. The estimated coefficient of 0.24 corresponds to a conditional unemployment rate differential of about 2 percentage points. This might be the long-run consequence of the easier labour market entry for the guest workers through their contract in a booming labour market. It might also be the result of the different selection process for guest workers compared to family members.

The difference between migrants coming before and after the recruitment stop is even more pronounced for women. Firstly, the employment probability for women from the EU-European countries coming until 1973 is significantly higher than those of corresponding German women.<sup>20</sup> The employment rate of migrant women coming as family members since 1974 is considerably lower. In addition, the conditional earnings of the female guest workers exceed those of German women by substantial 13 percent. Most striking yet is the large difference between female guest workers and family migrants in terms of unemployment. Women coming during the guest worker years exhibit high conditional unemployment rates, the family migrants who came later share the low unemployment probability of German women. One argument is that the stronger labour market affinity of the female guest workers, compared to German women, leads to higher employment and higher earnings but also to a higher unemployment incidence. Another argument is that the German labour market with higher unemployment rates since the 1980s provides less opportunities for the low qualified guest workers. Nevertheless the low unemployment probability for female family members comes as a surprise.

When looking at the results for migrants from other countries we observe some similarities but also substantial differences. When looking at migrants from the former Yugoslavia the similarities prevail.<sup>21</sup> For male migrants the earnings difference is of similar size, and unemployment is higher for the family migrants. When looking at women the contrast between those who came before and after the recruitment stop is very pronounced. The female guest workers exhibit higher employment and

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<sup>20</sup>Not all of these women who came before 1974 were guest workers. Some of them were family members who just accompanied their husbands.

<sup>21</sup>The recruitment agreement between Germany and Yugoslavia was closed in 1968; i.e. the guest workers came within the short time span until 1973. Note the smaller sample size of this group.



higher earnings, but also higher unemployment; those coming later as family member differ hardly from German women in terms of labour market association and labour market success.

When looking at migrants from Turkey the differences predominate.<sup>22</sup> The most striking difference is the higher unemployment for nearly all groups, with the exception of female family members. In addition, the employment rates are substantially lower, both for women and for men and even for the guest workers. Finally, the earnings differences for men are larger as well. These results indicate that successful labour market integration of migrants in general and guest workers in particular does not come as a matter of course. One general reason might be ethnic or cultural differences and a strong(er) ethnic identity for Turks which makes labour market integration more difficult.

Table 3 displays the results for the second generation, i.e. migrants who came to Germany as children aged below 18 years and children born in Germany with a non-German nationality.<sup>23</sup> Most of them entered the labour market since the 1980s and early 1990s. This was a period of slow economic growth and high unemployment rates in Germany. The results for the descendants of the EU-European guest workers reveal a very good labour market integration. Males exhibit a higher employment probability and higher earnings than comparable Germans. This result holds for both groups, migrants coming as children as well as children who were born in Germany. There is no significant difference in terms of unemployment.

For females we observe a clear difference between migrants coming as children and children who were born in Germany. Migrants coming as children exhibit higher employment probabilities and higher earnings but also higher unemployment probabilities, i.e. a strong labour market association. For those born in Germany the labour market ties are weaker. We interpret this as a kind of convergence of labour market behaviour towards German women. Young migrants exhibit a labour market behaviour comparable to female guest workers; children born in Germany hardly differ from German women in terms of labour market behaviour and labour market success.

The results for the descendants of the guest workers from Yugoslavia are similar,

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<sup>22</sup>The recruitment agreement with Turkey was closed in 1961. By now the Turks are the largest nationality group in Germany with a population share of about 2 percent. This corresponds to a share of about 20 percent of the foreign population in Germany.

<sup>23</sup>Those born in Germany with German nationality were treated as Germans.

Table 3: Employment, unemployment and earnings – Second generation

	males			females		
	empl.	unempl.	earnings	empl.	unempl.	earnings
<b>Italy, Greece, Spain</b>						
age at immigration<18	0.24 (2.4)	-0.03 (-0.4)	0.07 (3.5)	0.40 (5.1)	0.19 (2.5)	0.10 (3.3)
born in Germany	0.25 (3.0)	-0.01 (-0.2)	0.06 (1.7)	-0.09 (-1.0)	-0.04 (-0.4)	-0.02 (-0.6)
<b>Yugoslavia</b>						
age at immigration<18	0.24 (2.1)	0.08 (0.7)	0.02 (0.7)	0.14 (1.1)	0.44 (2.8)	0.02 (0.5)
born in Germany	0.02 (0.2)	0.25 (1.9)	0.04 (0.6)	-0.11 (-0.9)	0.20 (1.8)	0.05 (1.4)
<b>Turkey</b>						
age at immigration<18	0.01 (0.1)	0.44 (6.4)	0.07 (4.1)	0.05 (0.8)	0.34 (5.7)	0.04 (1.7)
born in Germany	-0.24 (-2.4)	0.49 (5.8)	-0.09 (-1.6)	-0.29 (-2.9)	0.23 (2.3)	-0.09 (-1.4)

GSOEP 1984–2012, sample A (Germans) and B (foreigners), persons aged 20–60,  
t and z-statistics in parenthesis, standard errors are clustered at the household level

Reported are the results of the coefficients of the dummy variables for the groups.  
Probit estimates for employment and unemployment, OLS estimates for the earnings equation.  
Reference group: Germans

empl.: full of part time employment  
unempl.: unemployment, registered at the Labour Agency  
earnings: log. monthly gross labour income

although their labour market success is lower. This mirrors the results of the first generation. A corresponding negative result is revealed for the descendants of the Turkish guest workers. Remarkable are especially the lower employment rates for those born in Germany and the high unemployment incidence for men and women. This confirms the difficult labour market integration for people with a different cultural and ethnic background.

## 5 Conclusion

The recruitment stop of guest workers by the German government in 1973 offers a natural experiment setting to separate guest worker from family migrants. Our paper exploits this setting to examine the long-run labour market integration of those migrants, who eventually decided to stay permanently. The GSOEP supplies nearly 30 years of individual employment data which offers a unique opportunity to estimate the difference between guest workers and family migrants.

The analysis reveals enormous differences between the groups. Male EU-European guest worker and guest worker from Yugoslavia show lower unemployment rates compared to family migrants. Female guest worker exhibit stronger labour market ties compared to Germans and family migrants. Participation rates and earnings are marked higher, but unemployment is also higher.

The second generation of EU-European immigrants is integrated very well, with high employment rates and high earnings. Female migrants coming to Germany as children or youth exhibit higher participation rates and higher earnings than comparable Germans. Children born in Germany can hardly be distinguished from their German peers in terms of labour market success.

Immigrants from Turkey and their descendants are quite different. They participate in the labour market less often, and when they participate they exhibit higher unemployment rates for nearly all subgroups: Men and women, guest worker and family migrants and first and second generation.

Our results reveal three primary conclusions: First, fast labour market integration of immigrants is important for long-run labour market success. Guest workers who came to Germany with an employment contract fare better than family migrants. Second, especially female immigrants gain from easy labour market access. Participation rates and earnings of female guest workers are higher compared to

family migrants Third, immigrants from countries with a different ethnic and cultural background face difficulties in terms of labour market integration. As a policy implication, our results suggest that alleviating labour market access for immigrants is likely to improve individual and social integration substantially in the long run.

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## Appendix

Table A.1: Descriptive statistics, subgroups, endogenous variables

	males			females		
	empl.	unempl.	earnings	empl.	unempl.	earnings
<b>Italy, Greece, Spain</b>						
immigration year $\leq$ 1973	84.2	9.2	1 720	56.3	8.9	1 114
immigration year $\geq$ 1974	88.1	8.5	1 910	52.6	4.9	1 217
age at immigration $<$ 18	88.5	5.0	2 065	61.5	7.4	1 314
born in Germany	72.7	6.1	2 121	49.8	5.7	1 308
<b>Yugoslavia</b>						
immigration year $\leq$ 1973	85.8	8.3	1 945	71.9	8.1	1 294
immigration year $\geq$ 1974	87.0	7.4	2 403	44.1	5.6	1 257
age at immigration $<$ 18	79.0	7.1	2 054	54.0	11.8	1 218
born in Germany	62.0	10.9	2 257	54.7	9.9	1 532
<b>Turkey</b>						
immigration year $\leq$ 1973	73.7	16.9	1 681	36.8	12.5	1 120
immigration year $\geq$ 1974	75.6	15.5	1 896	20.0	3.8	939
age at immigration $<$ 18	80.5	11.8	2 023	41.4	11.0	1 163
born in Germany	55.9	16.4	1 787	39.1	10.2	1 329
<b>Germans</b>	82.8	5.0	2 589	55.9	4.9	1 465

earnings: gross monthly labour income in Euro

empl.: full-time and regular part time employment, dummy or share

unempl.: registered unemployed at the labour agency, dummy or share

GSOEP 1984–2012, sample A (Germans) and B (foreigners), all persons aged 20–60



Table A.2: Descriptive statistics, control variables

	males				females			
	married	children	hours	south	married	children	hours	south
<b>Italy, Greece, Spain</b>								
immigration year $\leq 1973$	86.4	43.4	40.8	41.4	92.2	38.6	35.1	44.9
immigration year $\geq 1974$	83.4	64.4	41.8	51.6	84.7	66.1	34.3	27.9
age at immigration $< 18$	65.3	59.7	41.2	42.6	75.9	64.8	35.1	49.1
born in Germany	23.9	31.6	42.2	47.6	42.2	48.9	34.2	47.4
<b>Yugoslavia</b>								
immigration year $\leq 1973$	87.8	44.6	41.1	58.9	82.2	37.1	35.3	60.7
immigration year $\geq 1974$	81.7	59.0	43.1	70.3	90.3	57.4	33.0	58.9
age at immigration $< 18$	44.3	49.9	41.5	60.0	63.9	61.0	34.1	60.5
born in Germany	19.5	25.5	40.8	43.3	31.7	33.2	35.2	44.4
<b>Turkey</b>								
immigration year $\leq 1973$	91.8	60.5	40.3	31.1	92.2	57.4	35.4	29.6
immigration year $\geq 1974$	89.7	76.4	41.0	41.0	97.5	76.8	28.7	42.9
age at immigration $< 18$	73.3	76.3	40.7	37.6	75.7	81.2	33.8	32.7
born in Germany	38.2	50.1	40.3	32.5	49.2	50.5	35.1	40.2
<b>Germans</b>	62.1	38.7	43.1	34.3	65.8	42.1	32.2	34.3

children: children under age 16 living in the household, dummy or share

hours: numbers of working hours per week

south: living in southern Germany, dummy or share

GSOEP 1984–2012, sample A (Germans) and B (foreigners), all persons aged 20–60

Table A.3: Explanatory variables						
	males			females		
	empl.	unempl.	earnings	empl.	unempl.	earnings
schooling	0.04 (7.8)	-0.09 (-12.4)	0.08 (43.7)	0.06 (9.7)	-0.06 (-7.5)	0.08 (31.6)
exp.		-0.03 (-6.2)	0.06 (40.5)		-0.02 (-3.2)	0.05 (29.3)
exp. <sup>2</sup> /100		0.09 (8.9)	-0.11 (-33.7)		0.04 (3.6)	-0.09 (-24.8)
log(hours)			0.56 (27.9)			0.97 (73.3)
married	0.42 (12.8)	-0.33 (-9.0)	0.12 (12.5)	-0.38 (-13.4)	-0.37 (-10.7)	-0.03 (-2.4)
children	0.11 (3.9)	0.03 (1.1)	0.01 (0.8)	-0.67 (-26.6)	0.09 (3.3)	-0.10 (-9.0)
south	0.20 (6.9)	-0.17 (-5.6)	0.05 (5.6)	0.13 (4.8)	-0.19 (-6.6)	0.03 (2.8)
mean	.821	.064	7.641	.541	.056	7.011
obs	80 278	79 430	59 739	80 214	79 195	42 275

GSOEP 1984–2012, sample A (Germans) and B (foreigners), persons aged 20–60; the polynomial of forth degree for age in the employment regression is not reported; t and z-statistics in parenthesis, standard errors are clustered at the household level. All regression equations include dummy variables for the waves and for the different migrant groups.

empl.: full of part time employment  
unempl.: unemployment, registered at the Labour Agency  
earnings: log. monthly gross labour income  
schooling: schooling includes apprenticeship training and university/college  
exp.: potential experience, calculated as age – schooling – 6  
hours: actual hours worked per week  
married: dummy for married individuals  
children: dummy for children of age 16 or lower living in the household  
south: regional dummy for the south of Germany