Arbeitsmarkt

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Do EU Anti-discrimination Provisions Make a Difference?

Macht das europäische Gebot der Nichtdiskriminierung einen Unterschied?

The Case of Wage Discrimination against EU Foreigners in Germany

Das Beispiel von Lohndiskriminierung von EU-Ausländern in Deutschland

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Zusammenfassung: Das Diskriminierungsverbot ist zwar ein wichtiger Grundsatz in der Europäischen Union (EU), über seine Auswirkungen innerhalb der Mitgliedsstaaten ist bisher allerdings wenig bekannt. Wir gehen davon aus, dass das Diskriminierungsverbot das Ausmaß von Lohndiskriminierung gegen EU-Ausländer auf den nationalen Arbeitsmärkten in der EU verringert. Diese Vermutung wird mit administrativen Prozessdaten überprüft, indem die Veränderungen von Lohnunterschieden zwischen vollzeitbeschäftigten deutschen und ausländischen Männern auf dem westdeutschen Arbeitsmarkt mit Juhn-Murphy-Pierce-Zerlegungen analysiert werden. Die Ergebnisse stützen die Hypothese: Während die Lohndiskriminierung für die meisten untersuchten Gruppen von EU-Ausländern nach dem Beitritt ihrer Herkunftsländer zurückgegangen ist, lässt sich für die meisten Ausländergruppen aus Drittstaaten gestiegene oder konstante Lohndiskriminierung beobachten. Die europäischen Nichtdiskriminierungsregeln und die mit ihnen verbundenen Übertragungsmechanismen wirken demnach in die intendierte Richtung.

Schlagworte: Arbeitnehmerfreizügigkeit; Arbeitsmarkt; Europäische Integration; Diskriminierung; Migration; Lohnunterschiede; Politische Soziologie; Europasozio-logie; Zerlegung

Summary: The prohibition of all types of discrimination is one of the tenets of the European Union (EU), but we know little about their effects in EU member states. Our hypothesis is that such regulations prevent within-job wage discrimination against EU foreigners in national labor markets. We test this assumption by decomposing changes in wage differences between German male employees and foreigners in the West German labor market by applying Juhn-Murphy-Pierce decompositions on administrative data. The findings generally support our hypothesis. While wage discrimination decreased for most groups of EU foreigners and for most rounds of EU enlargement, it rose for most groups of third-country nationals. We conclude that EU anti-discrimination provisions and case law ensuring free movement mitigate wage discrimination against EU foreigners in the German labor market.

Keywords: Decomposition; Discrimination; European Integration; Free Movement of Workers; Labor Market; Migration; Political Sociology; Sociology of Europe; Wage Gap.

1 Introduction

One of the tenets of the European Union (EU) is the ban on all types of discrimination. This principle has been developed in distinct policy areas such as equal pay for men and women and the prohibition of discrimination on the grounds of nationality (Treaty on the Functioning of the EU (TFEU), art. 18 and 157, Charter of Fundamental Rights of the EU, art. 21). Most elaborately and probably most consequentially, non-discrimination has been implement-

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ed in the area of freedom of movement. With regard to employment, EU foreigners are on equal terms with nationals in all EU member states. They have the right to move freely within the Union's territory to search and compete for as well as accept jobs. The EU treaties prohibit all types of discrimination related to this economic freedom, and they explicitly mention the aspects of employment, remuneration, and other conditions of work and employment (TFEU, art. 45).

Despite the centrality of these regulations to European integration, we know little about their influence on discriminatory practices. This lack of knowledge is even more astounding because in the US context, anti-discrimination provisions have sparked sustained scientific interest, particularly with regard to women and ethnic minorities (e.g. Darity & Mason 1998; Dobbin et al. 1993; Donohue & Heckman 1991; Tomaskovic-Devey & Stainback 2007). The accession of new countries to the EU best illustrates the relevance of non-discrimination regulations. By changing in status from third-country nationals to EU citizens, people from accessing countries enjoy equal rights within national labor markets throughout the EU. Thus, they are de facto naturalized in their host countries with regard to labor market participation.

Our hypothesis is that the EU anti-discrimination provisions regarding free movement reduce wage discrimination against EU foreigners in national labor markets. Wage discrimination prevails if foreigners with equal qualifications or equal productivity earn lower wages than natives due to their nationality (Petersen & Saporta 2004: 858). Empirically, we test this assumption by analyzing changes in wage differentials between male Germans and foreigners in the West German labor market by applying Juhn-Murphy-Pierce decompositions (Juhn et al. 1991) to administrative data.

2 Discrimination in labor markets

Our study links conceptually, empirically, and methodologically to previous research on discrimination in labor markets. Conceptually, Becker's (1971) theory of discrimination is an early milestone. He concentrates on whether employers' tastes for discrimination impair the survival of their firms in competitive markets. Other approaches focus on the role of incomplete information and stereotypes in individual rationales (Aigner & Cain 1977; Phelps 1972), or they emphasize the structural and cultural processes of discrimination that are located beyond individuals (Achatz et al. 2005; Dovidio et al. 2010; England et

al. 2002). Recent research scrutinizes the contextual and interactive dynamics that shape discrimination by pointing to the need to redirect attention from motives to mechanisms that specify "how people come to be stratified on the basis of their ascribed characteristics" (Reskin 2003: 2). This research includes examining the *mechanisms* of discrimination on lower levels of abstraction than in economic theories. In line with this stream of literature, Pager et al. (2009) argue that tastes for discrimination are not fixed and confined to a few employers but are, in fact, "more interactive, contextual, and widespread" (Pager et al. 2009: 779). Others investigate how opportunity structures shape the possibility of turning a preference for discrimination into discriminatory action (Bielby 2000; Midtboen 2014; Petersen & Saporta 2004). Organizations prove to be important intermediaries because they adopt legislative and normative prescriptions and translate them into organizational routines and practices that shape individuals' room to maneuver (Dobbin & Sutton 1998; Hirsh 2009; Tomaskovic-Devey & Stainback 2007). Drawing on this research, we identify mechanisms that show how the EU anti-discrimination provisions impact discriminatory practices against EU foreigners.

Empirically, there is mixed evidence on discrimination in labor markets. While some studies identify discrimination as a factor that structures labor market outcomes (Bertrand & Mullainathan 2004; Darity & Mason 1998; Donohue & Heckman 1991; Midtboen 2014), others are more hesitant (Evans & Kelley 1991; Kalter & Granato 2002; Wanner 1998; Verwiebe et al. 2003) or come to differentiated conclusions (Petersen & Saporta 2004). Representative of the second group, Evans & Kelley (1991) find practically no hints of discrimination in the jobs and pay of immigrants in Australia. While some employers admit discriminatory hiring practices, this does not translate into relevant economic disadvantages. In contrast, Bertrand & Mullainathan (2004) present substantial evidence of discrimination against ethnic minorities. In an experimental study, they send fictitious applications with white- and black-sounding names in response to job advertisements in two American cities and find that applications with white-sounding names receive 50 percent more invitations to job interviews. Other quasi-experimental and audit studies find disadvantages for minorities or migrants in other cities and countries (Kaas & Manger 2011; Midtboen 2014; Pager et al. 2009). Such findings reinforce interest in political interventions against discrimination. Research has particularly focused on equal opportunity law and its impact on blacks, Latinos and women (Dobbin et al. 1993; Donohue & Heckman 1991). Our study follows this line of research. It is the first to investigate the impact of EU an-

ti-discrimination provisions on wage discrimination in an EU member state's labor market using micro data.

The debate on the relevance of labor market discrimination has a methodological dimension. As an illegitimate practice, discrimination is notoriously difficult to measure. Empirical studies approach discrimination using more or less direct measures (Darity & Mason 1998). Indirect measures such as regression models and wage decompositions observe the outcomes of discrimination as group differences (e.g. between migrants and residents). These findings have the drawback that the differences may be caused by unobserved variables (see, for instance, Cancio et al. 1996). Direct measures such as audit studies (Goldin & Rouse 2000) or quasi-experimental designs minimize the (potential) confounding impact of unobserved heterogeneity. However, they are often empirically limited to certain regions or cities and certain labor market segments (see, for instance, Midtboen 2014) and direct measures cannot be used for past periods. Thus, researchers face a methodological dilemma: Either they revert to indirect measures that may be confounded by unobserved variables or they use direct measures of limited scope.

In our study, we decompose changes in wage differences between foreigners and Germans as an indirect measure of wage discrimination. We address the problems of indirect measurement first by analyzing exceptionally rich administrative data to minimize the potential impact of unobserved heterogeneity. Second, we apply Juhn-Murphy-Pierce (1991) decompositions that allow interpretations of the changes in wage discrimination over time and that are, in our case, robust with regard to different definitions of wage discrimination. Furthermore, we include non-EU countries in our analysis to be able to ascribe the observed developments to EU anti-discrimination provisions.

3 Background, mechanisms, and hypothesis

Freedom of movement for workers is one of four economic freedoms that constitute the backbone of European integration. The founders of what would become the EU hoped that market integration would bring Europeans closer together and open a “future of an ever closer” political and societal integration (Preamble to the Treaty of Rome, 1957). Nation states were to integrate into a liberal European order that is centered on ideas such as free trade, market competition, and individual freedom (Münch 2010). The European provisions and the ensuing case

law on economic freedom concentrate on cross-border issues such as intra-EU trade or the provision of services throughout the Union. In line with these provisions, free movement (TFEU, art. 45) protects Europeans that cross borders to work in a different member state of the EU. Free movement is designed to foster fair competition between nationals and EU foreigners in labor markets throughout the EU, and it prohibits all types of discrimination against EU foreigners regarding employment, remuneration, and other conditions of work and employment. Over the decades, the European Court of Justice has substantiated and widened the individual claims deriving from the article in case law (Oliviera 2002). As a consequence, EU foreigners are on equal footing with nationals in regard to employment in the host country. They effectively become co-nationals in the area of labor market rights. Their status is privileged vis-à-vis that of other foreigners (third-country nationals) who do not enjoy freedom of movement and the related anti-discrimination rights.

We want to know whether these EU provisions actually reduce wage discrimination between nationals and EU foreigners. It is important to note that legal provisions and law enforcement do not automatically change existing practices. Rather, they have to be recognized and incorporated – sometimes against resistance – before they translate into individual and organizational practices (Tomaskovic-Devey & Stainback 2007). For this reason, we wish to determine the mechanisms that change discriminatory practices against EU foreigners in their host countries' labor markets. We identify two such mechanisms:

First, one can distinguish between direct and indirect effects of anti-discrimination provisions (Hirsh 2009). Direct effects of law enforcement come from discrimination charges and affect only those establishments that are prosecuted. Indirect effects of law enforcement affect establishments in the vicinity of the charged establishment, i.e. those that are located in the same organizational field (DiMaggio & Powell 1983; Tomaskovic-Devey & Stainback 2007). In such organizational fields, discrimination charges establish “a culture of compliance that draws attention to sex and race equity, renders discrimination normatively unacceptable, and communicates what constitutes fair employment” (Hirsh 2009: 246). In a similar manner, EU anti-discrimination provisions on free movement and the ensuing case law exert direct and indirect pressure to compliance in member states' labor markets. They render wage discrimination against EU foreigners normatively unacceptable and stipulate changes in organizational practices that reduce the opportunity structure for wage discrimination. This mechanism improves the situation of EU foreigners in European labor markets either by impact-

ing employers' taste for discrimination (Becker 1971) or by changing organizational practices in such a way that the opportunity structure for discrimination is reduced (Dobbin et al. 1993; Pager et al. 2009).

Second, tastes for discrimination presuppose distinctions between in-groups and out-groups. Such distinctions lead to out-group derogation and/or to in-group favoritism, which in turn may motivate the differential treatment of in- and out-groups – in particular, discrimination against out-groups (Dovidio et al. 2010). Thus, the second mechanism that reinforces the EU anti-discrimination provisions on free movement builds on these social-psychological processes. Surveys show that EU integration has reshaped the boundaries between in- and out-groups in member states (Eurobarometer 2014). Throughout the EU, people from other EU countries are privileged over third-country nationals. In the German case, half of the German respondents appreciate migration from other EU countries. By contrast, approval of migration from outside the EU is much lower (29 percent). Societal processes of transnational integration maintain differences between EU foreigners and third-country nationals (Fligstein 2008; Mau 2010). With the accession of their countries of origin to the EU, people from accessing countries become members of the EU in-group. As a consequence of their status passage from third-country nationals to EU citizens, they profit from EU in-group favoritism and suffer less from out-group prejudice against third-country nationals. Hence, nationals are less inclined to discriminate against them due to their nationality.

These mechanisms contribute to the impact of EU anti-discrimination provisions deriving from free movement in national labor markets. We conclude that access to the EU positively influences the prevention of wage discrimination against new EU citizens. In other words:

Our hypothesis is that EU anti-discrimination provisions on free movement reduce wage discrimination against EU foreigners in national labor markets.

We expect reductions in wage discrimination to be rather slow because preferences for discrimination and organizational practices are resistant to change and do not become effective unless there are wage bargains, promotions or changes in jobs or positions.

4 Data and Method

We use three administrative datasets provided by the German Institute for Employment Research.¹ (1) The Employee History (*BeH V08.06*) consists of information from the registration for social security contributions. The data contain daily information on employees such as their gross daily wages, occupation, industry, a dummy for full-time or part-time work, and socio-demographic characteristics such as date of birth, sex, nationality, and qualifications. The data do not include information on civil servants or self-employed persons. (2) The Benefit Receipt History SGB III (*LeH V6.07*) consists of daily person-related data on the receipt of unemployment benefits. (3) The Establishment History Panel (*BHP7510*) includes extensive cross-sectional data on establishment characteristics that are aggregated from individual social security notifications. The dataset contains the basic characteristics of establishments such as the number of employees, the founding date, and the structure of employees on June 30 of each year.

We restrict our population of interest to men who are employed full-time in West Germany and are between 15 and 57 years old. We only consider employment that is subject to social security contributions each June 30 between 1980 and 2010. The gross daily earnings of full-time employments have to be higher than the limit for marginal part-time work as defined by law, which was 400 euros in 2010. We limit the sample to full-time employment because only gross daily earnings are reported, and we do not have any information on hours worked, but rather a full-time/part-time dummy. We exclude female employees because of their preference for part-time work (Hakim 2000). Such gender-specific preferences are particularly strong in conservative welfare states such as Germany that still adhere to the male breadwinner model (Esping-Andersen 1990). In fact, 35 percent of employed women with social insurance work part-time in Germany (as of June 30, 2010, Federal Employment Agency). For that reason, we expect biased results since wage gap decompositions of female full-time employment do not take selection into full-time employment into account (Heckman 1979). We exclude employment in East Germany to ensure that the results are not confounded by persistent wage differences between East and West Germany (Smolny & Kirbach 2011). This ex-

¹ A detailed description of the data sources is provided by Dorner et al. (2010) and Gruhl et al. (2012). The Research Data Centre of the Federal Employment Agency at the Institute for Employment Research provides a 2 percent sample of the datasets on individuals and a 50 percent sample of the establishment dataset for academic use.

emption affects only a small share of foreigners because 93.3 percent of employed foreigners work in West Germany (as of June 30, 2010, Federal Employment Agency).

After selecting the employments, we draw a disproportionate stratified random sample with sampling fractions that differ by nationality (Table 1). The sample size takes into account the total number of foreigners from each country of origin in the German labor market. We chose higher sampling fractions for smaller groups of employees on the German labor market.

The final dataset for the analysis contains 2,135,892 employments on each June 30 from 1980 to 2010. Table 2 provides an overview of all of the variables. Tables A1 and A2 in the appendix contain descriptive statistics.

The Employee History contains censored wages at the upper limit for social security contributions, e.g. if in 2010, the monthly gross wage is 3,750 euros, we only know that the true value is equal to or greater than this limit. We impute wages beyond the limit for social security contributions by estimating tobit regressions and adding random

Tab. 1: Sampling fractions per nationality

Sampling fraction in %	Nationalities
100	Finland, Sweden, Bulgaria, Romania, Latvia, Estonia, Lithuania, Slovenia, Norway, Belarus
70	Switzerland
50	Czech Republic, Slovakia, Hungary, Morocco, Vietnam
30	USA, Iraq, China
15	Portugal, Ukraine
10	Austria, Spain, Croatia, Bosnia-Herzegovina, Russian Federation, Albania
5	Greece
3	Italy, Poland, Macedonia
1	Turkey
0,1	Germany

Tab. 2: Measurement concepts of the dependent variable and all observed characteristics for the explained part of the wage gap

Variable (data source)	Measurement concept
log wage (Employee History)	The dependent variable is the logarithm of the gross daily wage on June 30 in 2008 prices.
nationality (Employee History)	We separately compute Juhn-Murphy-Pierce decompositions for each foreigner group. Nationality as a time-varying variable can change at the beginning of every new job or at the end of any year within a continuing job.
age (Employee History)	We use linear and quadratic terms of age, measured in years.
federal state (Employee History)	Nine dummy variables capture the federal state: Bavaria, Baden-Wuerttemberg, Hesse, Rhineland-Palatinate, Saarland, Hamburg, Bremen, Lower Saxony, North Rhine-Westphalia, Schleswig-Holstein.
vocational education (Employee History)	Three dummies capture the level of vocational education, including one missing dummy: no vocational education, vocational education, university degree, missing.
higher education (Employee History)	A dummy captures a higher education entrance qualification for university (A-level).
labor market entry (Employee History)	As we have information on individuals' whole employment history in the German labor market, we differentiate five temporal categories since first appearance in the German labor market: <1 year, >=1 and <2 years, >=2 and <3 years, >=3 and <4 years, >=4 years.
employment history (Employee History)	We differentiate five categories of cumulated duration of employment in Germany during the last 5 1/2 years. Interrupted and part-time employment is included: <1/2 year, >=1/2 and <1 year, >=1 and <2 years, >=2 and <5 years, >=5 years.

Tab. 2 (continued)

Variable (data source)	Measurement concept
tenure (Employee History)	We differentiate five categories of cumulated duration within the current employment during the last 5 ½ years. Part-time employment is included: <½ year, >=½ and <1 year, >=1 and <2 years, >=2 and <5 years, >=5 years.
unemployment history (Unemployment History)	We differentiate four categories of cumulated duration of unemployment benefit receipts in Germany during the last 5 ½ years: 0 years, >0 and <½ year, >=½ and <1 year, >=1 year. Receipt of unemployment benefits requires previous employment within the social security insurance system.
occupation (Employee History)	We use the classification of occupations developed by Blossfeld 1987: agricultural occupations, unskilled manual occupations, skilled manual occupations, technicians, engineers, unskilled services, skilled services, (semi-) professions, unskilled commercial and administrative occupations, skilled commercial and administrative occupations, managers, missing.
industry (Employee History)	We use the industry code according to the classification of economic activities (edition 1993) from the German Federal Statistical Office: agriculture/hunting/forestry/fishing, mining/quarrying, manufacturing, electricity/gas/water supply, construction, wholesale/retail/trade/repair of motor vehicles/motorcycles/personal/household goods, hotels/restaurants, transport/storage/communication, financial intermediation, real estate/renting/business activities, public administration/defense/compulsory social security, education, health/social work, other community/social/personal service activities/private households with employed persons, extra-territorial organizations and bodies, missing.
establishment size (Establishment History Panel)	The number of employees is divided into six categories, including one for missing: 1, 2 to 9, 10 to 49, 50 to 249, 250 or more, missing.
well-established firm (Establishment History Panel)	We included a dummy that equals 1 if an establishment has existed for 5 years or longer.
structure of employees within the establishment (Establishment History Panel)	We included several dummies for a high proportion of women (dummy on median), a high share of full-time employees (dummy on median), a high share of employees without vocational education (dummy on median), a high share of employees with middle vocational education (dummy on median), a high share of highly qualified employees (dummy on median), a high share of employees with missing information on education (dummy on the 90 % quantile), a high share of employees with German nationality (dummy on median), and a high share of engineers and natural scientists as a proxy for large research and development departments within establishments (dummy on the 90 % quantile).
unemployment rate	Yearly average unemployment rate within the district where the establishment is located is derived from the Federal Employment Agency.
regional type	The population density and regional type is based on the classification of districts developed by the German Federal Institute for Research on Building, Urban Affairs, and Spatial Development. On the district level, we differentiate between agglomeration areas, urbanized areas, and rural areas.
dummies per year (Employee History)	Dummies capture the year of employment between 1980 and 2010.

Tab. 3: Entry to EU and first decomposition period

Entry to the EU	Countries	Period 1
1952	Belgium, France, Germany, Italy, Luxembourg, Netherland (founding members)	—
1973	Denmark, Ireland, Great Britain/Northern Ireland	—
1981	Greece	1980
1986	Portugal, Spain	1982–1985
1995	Austria, Sweden, Finland	1991–1994
2004	Malta, Cyprus	—
2004	Poland, Hungary, Czech Republic, Slovakia, Latvia, Estonia, Lithuania, Slovenia	2000–2003
2007	Romania, Bulgaria	2003–2006
2013	Croatia	—

Note: The second decomposition period is 2007–2010.

noise from a truncated normal distribution to the predicted values (Gartner 2005; Hinz & Gartner 2005).

The datasets that we use provide several benefits: First, we use an exceptionally rich dataset that includes linked employer-employee data as well as individual data on (un-) employment histories, which allows us to focus on within-job wage discrimination and *in addition* allows us to control for individual histories of employment and unemployment. Second, the administrative data cover all employees who are subject to social insurance contributions in Germany between 1975 and 2010, thus allowing the full inclusion of smaller groups of EU foreigners and an analysis of the stepwise EU integration process that has continued over several decades (Table 3). Third, the Establishment History Panel includes information on establishment characteristics that could not have been collected from a survey of individuals. Finally, with respect to the dependent variable, the data rely on employers to report wages to social insurance. Hence, in contrast to surveys, administrative data are not compromised by participant selectivity or biased answers (Kim & Tamborini 2014).

We disentangle the effect of changes in the foreigner wage gap using the formal wage decomposition developed by Juhn et al. (1991). This decomposition method is an extension of widely used decompositions (i.e. Blinder 1973; Oaxaca 1973) that decompose the raw difference in mean wages between two groups *at a particular point in time* to an explained part that is due to differences in observed characteristics and an unexplained part that may be positive (wage premium) or negative (wage discrimination). In addition, the Juhn-Murphy-Pierce decomposition method allows us to analyze *changes* in wage gaps such as the change in the black-white wage gap (Juhn et al. 1991) or trends in the gender wage differential (Blau & Kahn 1997, 2000; Cha & Weeden 2014).

We assume that wage discrimination or wage premiums are absent if a foreigner with a certain set of observed characteristics earns as much as a German with the same set of observed characteristics. Let y_{it} be the logarithm of the gross daily wage for individual i at period t defined as

$$y_{it} = x_{it}b_t + \sigma_t\theta_{it}$$

where x is a vector of independent variables, b is a vector of coefficients, σ is the standard deviation of the residuals and θ is the vector of standardized residuals. Given two periods $t=1$ and $t=2$, the difference in the foreigner wage gap can be decomposed as the change in the explained gap ΔE and the change in the unexplained gap ΔU (Blau & Kahn 1997; Jann 2005):

$$\begin{aligned}\Delta E &= (\Delta x_2 - \Delta x_1)b_1 + \Delta x_2(b_2 - b_1) \\ \Delta U &= (\Delta \theta_2 - \Delta \theta_1)\sigma_1 + \Delta \theta_2(\sigma_2 - \sigma_1)\end{aligned}$$

where both first parts on the right-hand side of the equations present the quantity effects and each second term is a price effect.

The change in the explained wage gap due to observed characteristics ΔE is disentangled into quantity and price effects. The *explained quantity effect* is due to changes in the composition of observed characteristics, i.e. changing differences in observables between foreigners and Germans. For example, supposing that foreigners have lower vocational education levels within the first period, a declining gap in vocational education between foreign and German employees would decrease the foreigner-German wage gap as an explained quantity effect. The *explained price effect* measures changes in the remuneration of each observed characteristic as indexed by German employees. For example, supposing that foreigners have lower vocational education levels within both periods, a rising rate of German employees' return to vocational education would give the foreigners' deficit more weight and raise the wage gap as an explained price effect.

Likewise, the change in the unexplained part of the wage gap ΔU is disentangled into quantity and price effects. The *unexplained quantity effect* measures the changing differences between German and foreigners in relative wage positions after controlling for observed characteristics, i.e. whether foreigners rank higher or lower within the German residual wage distribution because of unobserved characteristics. The *unexplained price effect* is a measure of the changes in Germans' residual wage distribution if foreigners' percentile rankings in this distribution had not changed, i.e. changing returns to unobserved characteristics.

Both *quantity effects* refer to changing differences in the *composition* of observed and unobserved characteristics. Both *price effects* refer to the wage structure as changing *returns* to observed and unobserved characteristics. The sum of the unexplained price and the unexplained quantity effect describes the change in *wage discrimination* or *wage premiums*.

The stepwise EU integration process (Table 3) and a maximum observation window between 1980 and 2010 restrict our analysis to five rounds of enlargement between 1981 and 2007. We exclude workers from Malta and Cyprus due to small group sizes. We use two four-year periods to decompose wage differentials and maximize the interval between both periods because we expect that the change in wage discrimination is a slow process (see section 3). For this reason, the second period for all of the decomposi-

tions is the end of our observation window, i.e. 2007–2010, and the first period is the four-year period immediately prior to accession. In the case of Greece, our observation window prevents such a comparison; hence, we choose the first possible year. Throughout the analysis, we compare the wages of Germans to the wages of *foreigners*, not to the wages of *migrants* or *naturalized* foreign employees because the EU anti-discrimination rights deriving from free movement are attached to nationality and not to migration status.

We take several precautions to bolster our analysis and findings. First, to see whether improvements in wage discrimination are specific to EU foreigners and do not simply reproduce a general trend for foreigners, we compare changes in wage discrimination against EU foreigners to changes in wage discrimination against foreigners from non-EU countries (Table 4). The following considerations guide our selection of comparison countries: (a) We include countries that are relatively similar to the accession countries in terms of geographical proximity to the EU, culture, and economic strength. On these grounds we use, for example, Norway as a comparison for the Northern Enlargement in 1995 or Croatia and Albania as comparisons for the two Eastern Enlargements. (b) We further include countries that are dissimilar to the accession countries to get fuller picture of relevant labor market trends for non-Germans. On these grounds we use, for example, Vietnam as a comparison for the second Southern Enlargement and China as a comparison for the two Eastern Enlargements. In both cases, we prefer comparison countries with larger overall numbers of employees on the German labor market. (c) Our choice of comparison countries and time periods is limited by the dissolution and new formation of states after the fall of the Iron Curtain. We cannot trace nationals from the former Soviet Union and Yugoslavia after 1991. To give an example, Belarus cannot be used as a comparison for the second Southern Enlargement. What is more, some employers reported old nationalities for several years after the foundation of new states (e.g. Czechoslovakia, the Soviet Union, or Yugoslavia). Thus, our observation windows start in 1999 for workers from Belarus, Bosnia-Herzegovina, Croatia, the Czech Republic, Estonia, Latvia, Lithuania, Macedonia, the Russian Federation, Slovakia, Slovenia and Ukraine.

Tab. 4: Comparison countries per round of EU enlargement

EU enlarge- ment	Comparison countries
1981	Morocco, Turkey
1986	Morocco, Turkey, Vietnam
1995	Norway, Switzerland, USA
2004 and 2007	Albania, Belarus, Bosnia-Herzegovina, China, Croatia, Iraq, Macedonia, Morocco, Russian Federation, Turkey, Ukraine, Vietnam

Second, we estimate a 1-sided Fisher's exact test and a Wilcoxon-Mann-Whitney rank-sum test on the association between country of origin (EU country/comparison country) and changes in unexplained wage gaps between period 1 and period 2, which result from the Juhn-Murphy-Pierce decompositions (column K of table 5). Both tests confirm our interpretation of the Juhn-Murphy-Pierce decompositions. They indicate that changes in unexplained wage gaps are different between EU foreigners and third country nationals and that EU foreigners tend to have more advantageous changes in unexplained wage gaps than foreigners from the comparison countries (appendix, Table A3).

Third, we perform robustness checks with reduced sets of observed variables to approximate wider definitions of wage discrimination (appendix, Table A4, A5). We also perform a robustness check on the choice of the comparison periods. We replace the fixed second period (2007–210) with a flexible second period that covers the first four years after accession to the EU (appendix, Table A6). The decompositions show the same trends, i.e. declining wage discrimination against most EU foreigners and increasing wage discrimination against most third-country nationals.² The test statistics further suggest an association between changes in unexplained wage gaps and country of origin for all specifications (appendix, Table A3). Thus, the findings are robust to different definitions of within-job wage discrimination and the choice of the second period.

Fourth, as mentioned above, decompositions are indirect measures of wage discrimination that are prone to bias due to unobserved heterogeneity such as motivation or cognitive skills (Wellington 1994; Cancio et al. 1996). However, recent research finds a correlation between labor market history and such usually unobserved variables as personality traits, attitudes, expectations, and job search behavior (Caliendo et al. 2014). Because our

² Estimated changes in the unexplained wage gaps are comparatively smaller with the flexible second period than with the fixed second period. This is in line with our argument that changes in wage discrimination take time (see section 3).

analysis includes (un-) employment histories in Germany (Table 2), it is very unlikely that unobserved heterogeneity substantially distorts our results. Finally, changes in language proficiency could be another factor that drives decreases in wage discrimination. To control for this factor, we included several dummies that control for the time since an individual's first day in the German labor market (labor market entry, Table 2). Thus, we can ascertain that an individual had sufficient language proficiency to obtain a job and we know how much time has passed since labor market entry. We assume this time to be positively correlated with language proficiency (Lehmer & Ludsteck 2014).

5 Results and discussion

Table 5 shows the wage decompositions from five rounds of EU enlargements. As the Juhn-Murphy-Pierce decompositions are based on regressions of log daily wages that provide results in log points, we transformed all of the results with $(\exp(\text{result})-1)/(-1)$ for better readability and interpretation.³ After this transformation, columns A to F contain wage differences between Germans and foreigners (in percent/100). Positive values indicate higher mean wages of foreigners in comparison to Germans and vice versa. Columns G to M contain wage differences between the two periods (in percentage points/100). A minus sign indicates changes in wage differences to the disadvantage of the respective group of non-natives and vice versa.

We start (a) with a description of the decomposed wage gaps of (future) EU nationals in the period immediately prior to the accession of their home country to the EU, as can be found in columns A to C of table 5. This is followed by (b) a description of wage gaps in the period from 2007 to 2010 (columns D to F) and the changes in the wage gaps ever since the accession to the EU (columns G to M). We conclude (c) by looking at changes in wage discrimination against EU citizens (column K, bold typed countries) and (d) against foreigners from the comparison countries (column K, non-bold).

(a) The wage and labor market characteristics of EU foreigners on the German labor market vary with the countries of origin (St. Bernhard & Sa. Bernhard 2014; Verwiebe et al. 2003). *Prior to accession* people from all future EU member states receive lower mean wages (column A), have worse average labor market credentials (column B), and most of them suffer from wage discrimination (column C).

Exceptions are employees from Sweden, Austria, and Finland, who receive higher wages. These differences according to nationality support findings on the “origin effect” of migration, particularly the positive correlation between immigrant wages and the level of economic development in the country of origin (Borjas 1987; van Tubergen et al. 2004). More recent research emphasizes varying returns to education or labor market experience according to where it has been obtained (Dustmann et al. 2015; Sanromá et al. 2015). In this sense Austrians, Swedes, and Finns may benefit from higher returns to their human capital than foreigners from other EU countries.

EU foreigners from Central and Eastern European countries are more disadvantaged than EU foreigners that joined the EU with the Southern Enlargement. People from Bulgaria, the Czech Republic, Poland, Romania and Slovakia are the most disadvantaged groups, earning approximately half the mean German wage prior to EU accession. Although the major part of these raw wage differences can be explained by worse observed characteristics, some substantial *wage discrimination* remains (column C). Employees from Bulgaria and the Czech Republic suffer from the highest wage discrimination. Their wages are up to 14.0 percent lower than the wages of German employees with the same observed labor market characteristics.

By contrast, the negative raw wage gaps are less pronounced for employees from Greece, Portugal, and Spain and so is wage discrimination (3.4 % to 3.9 %). These findings are in line with research on difficulties in labor market integration for first-generation migrants from former guest worker countries (Kalter & Granato 2002). Remarkably, for nationals from these countries, wage discrimination accounts for a considerable part of the wage gap, i.e. wage discrimination accounts for half of the raw wage difference between Greeks and Germans.

Slovaks and Slovenians are special cases. They display (in the case of Slovaks, extremely large) negative raw wage differentials, but they trail the German comparison group even more with regard to their labor market characteristics. As a consequence, these groups end up with a wage premium of 9.7 percent for Slovaks and 2.3 percent for Slovenians.

(b) How do the wage differences develop *after accession*? Nationals from most of the EU countries benefit either from larger positive wage gaps (Austrians, Finns, Swedes) or from smaller negative wage gaps (columns A and G). Among the (former) disadvantaged groups of EU foreigners, Czechs, Estonians, Slovaks, and Spaniards achieve the largest improvements, with 8.3 to 13.6 percentage points smaller negative raw wage gaps. Improvements for most nationals arise because observed labor

³ As consequence of this transformation, rounding errors occur.

Tab. 5: Juhn-Murphy-Pierce decompositions of the foreigner-German wage gap for full-time employed men in the West German labor market (full set of observed characteristics)

	A	B	C	D	E	F	G	H	I	J	K*	L	M
	period 1 (before accession)			period 2 (2007–2010)			decomposition of wage gap differences between periods						
	raw	ex- plained	unex- plained	raw	ex- plained	unex- plained	raw	explained		unexplained			
							Δ	Δ	quantity	price	Δ	quantity	price
First Southern Enlargement 1981 (period 1: 1980)													
Greece	−0.068	−0.033	−0.034	−0.215	−0.161	−0.047	−0.138	−0.124	−0.046	−0.074	−0.013	−0.002	−0.011
Morocco	−0.130	−0.049	−0.077	−0.490	−0.336	−0.116	−0.318	−0.273	−0.095	−0.162	−0.036	−0.010	−0.026
Turkey	−0.111	−0.088	−0.022	−0.285	−0.237	−0.039	−0.156	−0.137	−0.039	−0.094	−0.017	−0.008	−0.009
Second Southern Enlargement 1986 (period 1: 1982–1985)													
Spain	−0.072	−0.036	−0.034	0.027	0.009	0.019	0.092	0.043	0.044	0.000	0.051	0.048	0.003
Portugal	−0.094	−0.053	−0.039	−0.238	−0.232	−0.005	−0.132	−0.169	−0.090	−0.073	0.032	0.034	−0.002
Vietnam	−0.301	−0.339	0.028	−0.631	−0.333	−0.224	−0.253	0.005	0.095	−0.100	−0.259	−0.208	−0.043
Morocco	−0.140	−0.066	−0.069	−0.490	−0.336	−0.116	−0.307	−0.253	−0.124	−0.114	−0.043	−0.020	−0.023
Turkey	−0.149	−0.109	−0.036	−0.285	−0.237	−0.039	−0.118	−0.115	−0.045	−0.067	−0.003	0.004	−0.007
Enlargement 1995 (period 1: 1991–1994)													
Finland	0.104	0.021	0.085	0.252	0.115	0.155	0.165	0.096	0.110	−0.015	0.077	0.061	0.017
Austria	0.092	0.036	0.058	0.162	0.085	0.085	0.077	0.051	0.042	0.009	0.028	0.018	0.010
Sweden	0.265	0.123	0.162	0.269	0.122	0.168	0.006	−0.001	0.013	−0.014	0.007	−0.010	0.017
USA	−0.087	−0.094	0.007	0.058	0.007	0.052	0.133	0.092	0.113	−0.024	0.045	0.042	0.004
Switzerland	0.069	0.040	0.030	0.146	0.081	0.071	0.083	0.042	0.046	−0.004	0.042	0.037	0.006
Norway	0.251	0.148	0.121	0.276	0.164	0.135	0.034	0.019	0.022	−0.003	0.015	0.002	0.014
First Eastern Enlargement 2004 (period 1: 2000–2003)													
Estonia	−0.309	−0.294	−0.012	−0.131	−0.172	0.035	0.136	0.094	0.116	−0.025	0.046	0.045	0.001
Poland	−0.516	−0.415	−0.071	−0.571	−0.535	−0.024	−0.037	−0.084	−0.060	−0.023	0.044	0.046	−0.002
Lithuania	−0.425	−0.361	−0.047	−0.350	−0.336	−0.010	0.053	0.019	0.052	−0.035	0.035	0.037	−0.002
Hungary	−0.264	−0.239	−0.020	−0.229	−0.236	0.005	0.028	0.003	0.026	−0.024	0.025	0.026	0.000
Latvia	−0.439	−0.365	−0.054	−0.369	−0.323	−0.035	0.048	0.030	0.060	−0.032	0.018	0.021	−0.003
Czech Re.	−0.514	−0.329	−0.140	−0.389	−0.230	−0.129	0.083	0.074	0.096	−0.024	0.010	0.019	−0.010
Slovakia	−0.516	−0.678	0.097	−0.378	−0.452	0.051	0.091	0.135	0.163	−0.034	−0.050	−0.053	0.002
Slovenia	−0.087	−0.113	0.023	−0.053	−0.071	0.017	0.031	0.037	0.045	−0.008	−0.006	−0.008	0.001
Iraq	−0.957	−0.714	−0.142	−1.085	−0.685	−0.238	−0.065	0.017	0.079	−0.068	−0.083	−0.067	−0.015
Russian Fe.	−0.403	−0.346	−0.043	−0.413	−0.284	−0.100	−0.007	0.046	0.081	−0.038	−0.055	−0.047	−0.007
Macedonia	−0.355	−0.370	0.011	−0.369	−0.315	−0.041	−0.011	0.040	0.069	−0.031	−0.052	−0.050	−0.002
Vietnam	−0.515	−0.298	−0.167	−0.631	−0.333	−0.224	−0.077	−0.027	−0.001	−0.026	−0.048	−0.034	−0.014
Morocco	−0.390	−0.303	−0.067	−0.490	−0.336	−0.116	−0.072	−0.025	0.012	−0.037	−0.046	−0.038	−0.007
Ukraine	−0.339	−0.272	−0.053	−0.310	−0.191	−0.100	0.022	0.064	0.095	−0.034	−0.045	−0.038	−0.007
Turkey	−0.239	−0.229	−0.008	−0.285	−0.237	−0.039	−0.037	−0.006	0.015	−0.021	−0.031	−0.028	−0.002
Albania	−0.496	−0.464	−0.022	−0.484	−0.423	−0.043	0.008	0.028	0.069	−0.044	−0.021	−0.018	−0.003
Croatia	−0.142	−0.152	0.008	−0.145	−0.150	0.004	−0.003	0.001	0.019	−0.018	−0.004	−0.005	0.001
Bosnia-He.	−0.299	−0.272	−0.021	−0.266	−0.245	−0.017	0.026	0.021	0.049	−0.029	0.005	0.006	−0.001
China	−0.582	−0.357	−0.165	−0.435	−0.329	−0.080	0.093	0.021	0.042	−0.022	0.074	0.078	−0.005
Belarus	−0.857	−0.351	−0.374	−0.190	−0.138	−0.046	0.359	0.157	0.181	−0.029	0.239	0.242	−0.004

Tab. 5 (continued)

	A	B	C	D	E	F	G	H	I	J	K*	L	M
	period 1 (before accession)			period 2 (2007–2010)			decomposition of wage gap differences between periods						
	raw	ex- plained	unex- plained	raw	ex- plained	unex- plained	raw	explained		unexplained			
							Δ	Δ	quantity	price	Δ	quantity	price
Second Eastern Enlargement 2007 (period 1: 2003–2006)													
Bulgaria	−0.462	−0.305	−0.121	−0.441	−0.307	−0.102	0.015	−0.001	0.008	−0.010	0.016	0.024	−0.008
Romania	−0.463	−0.360	−0.076	−0.665	−0.569	−0.062	−0.138	−0.153	−0.139	−0.013	0.013	0.018	−0.005
Macedonia	−0.369	−0.357	−0.009	−0.369	−0.315	−0.041	0.000	0.031	0.043	−0.012	−0.032	−0.030	−0.002
Iraq	−1.056	−0.710	−0.203	−1.085	−0.685	−0.238	−0.014	0.015	0.041	−0.028	−0.029	−0.017	−0.012
Turkey	−0.250	−0.230	−0.017	−0.285	−0.237	−0.039	−0.027	−0.006	0.005	−0.011	−0.022	−0.020	−0.002
Vietnam	−0.554	−0.295	−0.200	−0.631	−0.333	−0.224	−0.049	−0.029	−0.014	−0.014	−0.020	−0.008	−0.012
Russian Fe.	−0.431	−0.325	−0.080	−0.413	−0.284	−0.100	0.013	0.031	0.049	−0.019	−0.019	−0.014	−0.004
Morocco	−0.446	−0.318	−0.097	−0.490	−0.336	−0.116	−0.030	−0.013	0.005	−0.018	−0.017	−0.011	−0.006
Croatia	−0.152	−0.161	0.008	−0.145	−0.150	0.004	0.006	0.010	0.018	−0.008	−0.003	−0.003	0.000
Albania	−0.528	−0.460	−0.046	−0.484	−0.423	−0.043	0.029	0.026	0.046	−0.021	0.003	0.005	−0.002
Ukraine	−0.370	−0.238	−0.107	−0.310	−0.191	−0.100	0.044	0.038	0.054	−0.016	0.006	0.011	−0.005
Belarus	−0.295	−0.231	−0.052	−0.190	−0.138	−0.046	0.081	0.076	0.089	−0.014	0.006	0.009	−0.003
Bosnia-He.	−0.307	−0.269	−0.030	−0.266	−0.245	−0.017	0.032	0.019	0.034	−0.015	0.013	0.014	−0.001
China	−0.653	−0.419	−0.165	−0.435	−0.329	−0.080	0.132	0.063	0.063	0.000	0.074	0.082	−0.009

* Column K is set in italics if there was a wage premium in period 1. EU 27 countries are set in bold.

– Juhn-Murphy-Pierce decompositions are based on regressions of log daily wages that give results in log points. Results from decompositions are transformed with $(\exp(\text{result})-1)/(-1)$ for a better readability and interpretation. Rounding errors occur as a consequence.

– Reading aid: Period 1: Greeks had a 6.8 % lower mean wage than Germans. They had a 3.3 % lower mean wage because of observed characteristics and a 3.4 % lower mean wage because of unobserved characteristics. The wage gap changed by 13.8 %age points to the disadvantage of the Greeks after accession. The wage gap changed by 12.4 %age points to their disadvantage because of the composition of observed characteristics and by 1.3 %age points to their disadvantage because of the composition of unobserved characteristics. Columns A to C show the decomposition of the wage gap immediately before the accession to the EU. Columns D to F show the decomposition of the wage gap at the end of the observation window. Columns G to M show the decomposition of changes in wage gaps between both periods.

– Bosnia-He.: Bosnia-Herzegovina, Czech Re.: Czech Republic, Russian Fed.: Russian Federation.

Source: administrative data from the German Institute for Employment Research: Employee History (V08.06), Benefit Receipt History SGB III (V6.07), Establishment History Panel (7510), own calculations

market characteristics changed to their advantage with sometimes substantial explained quantity effects of up to 16.3 percentage points (column I). Improved occupational structures contribute substantially to smaller raw wage gaps for Hungarians, Latvians, Slovenians, and Spaniards. In contrast, cumulated experience on the German labor market is most important for Czechs, Estonians, Lithuanians, and Slovaks (appendix, Table A7). The latter refers to the assimilation effect that enhances human capital: foreigners acquire skills that are specific to the German labor market, including language proficiency, which allows them to improve their labor market outcomes relative to natives (Borjas 1994; Chiswick 1978).

Spaniards stand out as the only group of EU foreigners that improves from a negative to a positive raw wage gap

of 2.7 percent. In addition to more favorable educational and occupational structures (appendix, Table A7), this development is driven by changes in unexplained wage gaps (Table 5, column K). Thus, Spaniards are the only group among former guest workers that catches up with and even overhauls Germans. This observation is in line with the finding that Spaniards are more similar to Germans than other former guest workers such as Turks and Portuguese (Kalter & Granato 2002; appendix, Tables A1, A2).

In contrast to the Spanish case, Greeks, Poles, Portuguese, and Romanians suffer from larger raw wage differences than before their accession to the EU (columns A and G). These results are driven by disadvantageous changes in observed characteristics, particularly establishment characteristics and working experience in Ger-

many (appendix, Table A7), i.e. explained quantity effects (-4.6 to -13.9 percentage points, Table 5, column I). In line with this finding, previous research (Cobb-Clark 2003) has determined that the labor market outcomes and characteristics of migrants become less favorable when immigration laws are less restrictive or access is easier – and EU free movement amounts to a maximum liberalization of immigration laws for people from other member states.

c) We expect *wage discrimination* against EU foreigners in Germany to be lower after their countries of origin joined the EU than before joining (column K). Empirically, there are improvements for most groups of EU foreigners that suffered from wage discrimination before accession. Of the 16 groups of EU foreigners that we include in our analysis, 11 exhibited wage discrimination prior to accession (Table 5, column C). Changes in wage discrimination for 10 out of these 11 groups of EU foreigners are in line with our expectations (Table 5, column K). Thus, the empirical findings generally support our hypothesis. The trend holds for most rounds of enlargements and across group differences and various changes in group characteristics.

Reductions in wage discrimination are strongest for employees from Spain, Estonia, and Poland. Spain catches the eye with an improvement of 5.1 percentage points in their unexplained wage gap, which turns the former wage discrimination into a wage premium of 1.9 percent. Polish and Portuguese employees benefit from reductions in wage discrimination, too. This works against deteriorations in their raw mean wage gap and the worsened composition of their observed labor market characteristics. In the cases of Estonians, Hungarians, and Spaniards, wage discrimination disappears completely, and the remaining differences in mean wages are due to various observed characteristics.

Greek employees constitute the only exception because their wage discrimination increases slightly from 3.4 percentage points before accession to 4.7 percentage points at the end of the observation window. Altogether, no country turns a wage premium into wage discrimination. There are, however, diverging developments among the *wage premium* groups of EU foreigners prior to accession. Wage premiums increase for Finns and Austrians, are stable for Swedes and Slovenians, but decline for Slovaks.

(d) Wage discrimination is mitigated for almost all of the groups of EU foreigners after the accession of their home countries. To see whether this trend is specific to EU integration, we contrast the results of foreigners from EU countries with those of third-country nationals. We expect no or smaller reductions in wage discrimination for third-country nationals than for EU foreigners. Empir-

ically, with few exceptions, foreigners from EU accession countries do, indeed, fare better than their counterparts from non-accession countries. This result holds true for the vast majority of the comparison countries as well as for all rounds of accession. For example, wage discrimination against Spaniards and Portuguese is reduced over time, while this trend does not occur for Moroccans and Turks (Table 5, column K). Similarly, wage discrimination is ameliorated for all EU foreigners whose country of origin joined the EU during the Eastern Enlargements, while a comparable trend cannot be observed for foreigners from the vast majority of comparison countries.⁴

Overall, the results support previous research that has emphasized the relevance of discriminatory processes for the labor market outcomes of migrants and ethnic minorities (e.g. Darity & Mason 1998). Our findings indicate a lower extent of wage discrimination than found in quasi-experimental studies (Bertrand & Mullainathan 2004; Kaas & Manger 2011; Midtboen 2014). This difference is most likely caused by the fact that the opportunity structure for wage discrimination is more susceptible to discriminatory preferences at the point of hiring (which is what quasi-experimental studies investigate) than at the point of wage setting (which is what we examine) (Petersen & Saporta 2004). Moreover, our focus on within-job wage discrimination excludes all forms of discrimination that allocate different groups differently into jobs and that value comparable jobs differently (Achatz et al. 2005; England et al. 2002). It is therefore likely that our findings mark only the tip of the iceberg and that other discriminatory processes add to the disadvantages of (EU) foreigners.

Our research is designed to capture changes in wage discrimination over time. In a diachronic perspective, we show that wage discrimination can be positively affected by anti-discrimination provisions and the ensuing case law. EU citizens enjoy special protection against discrimination in other member states' labor markets, and they profit from this protection, in some cases quite dramatically. Studies on anti-discrimination provisions in other countries make similar observations. For example, it is generally acknowledged that the Civil Rights Act and its subsequent enforcement by the Equal Employment Opportunity Commission as well as the accompanying

⁴ Contrary to our hypothesis, Chinese and Belarussians benefit from declining wage discrimination. Table A2 in the appendix shows exceptionally high shares of academics for both groups. Chinese are the largest group of foreign students in Germany, mostly studying engineering. They possibly benefit from German immigration laws that allow foreign graduates from German universities to accept employment in Germany as well as from the large labor demand for engineers.

processes of societal modernization have reduced discrimination against and the segregation of women and ethnic minorities in the US (Darity & Mason 1998; Donohue & Heckman 1991; Hirsh 2009). Nevertheless, in both contexts, differences in the results for the majorities and minorities persist, and it remains to be seen whether the current legal provisions and mechanisms of change will suffice to eventually overcome discrimination in labor markets.

6 Conclusion

Freedom of movement for workers in the EU is a remarkable achievement of supranational integration. So far, the impact of EU anti-discrimination provisions in member states' labor markets has been a research lacuna. Against this backdrop, this study used an innovative, diachronic decomposition method on exceptionally rich data to investigate whether and to what extent EU provisions impact wage discrimination against male EU foreigners in the German labor market. The results show that wage discrimination on the basis of nationality negatively affects wages for people from many countries of the world. In accordance with European regulations and intentions, such wage discrimination diminishes and in some cases and even disappears for EU foreigners. Our findings also show that this development is specific to EU foreigners. Third-country nationals are not subject to a similar overall trend. Thus, at least for the German case, EU integration proves to be a factor that restructures the processes of labor market inequality.

The present study is only a starting point for research on the effects of EU anti-discrimination provisions on the free movement of workers. Further research could use alternative concepts of discrimination and ask whether EU provisions have similar effects on evaluative and allocative discrimination (Petersen & Saporta 2004; Rissing & Castilla 2014). Some researchers assume that such forms of discrimination are, indeed, widespread (Hinz & Auspurg 2010) and that – because they constitute more subtle forms of discrimination – they may be harder to abolish (Petersen & Saporta 2004). A case in point is that according to our results over time, observed characteristics pay off less for all foreigners (negative price effect, Table 5, column J). One could examine whether this result is an indication of evaluative discrimination, i.e. selective depreciation of labor market characteristics typical of foreigners, or if other processes lie behind these developments. Future studies could also compare changes in discrimi-

natory practices across EU member states' labor markets to identify differences and commonalities as well as the factors that facilitate or hamper the effectiveness of EU anti-discrimination provisions. Another issue worth considering is wage discrimination against female foreigners. Do EU anti-discrimination provisions work to their benefit in the same way that they do for male foreigners? How do processes of discrimination against foreigners intermingle with discrimination against women? Such studies may use other indicators of discrimination than wages such as segregation indices (Hirsh 2009) or participation in the labor force (Tomaskovic-Devey & Stainback 2007).

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