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# Substantial Labor Market Effects of the Residency Status: How Important are Initial Conditions At Arrival for Immigrants?

Eric Schuss

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# Substantial Labor Market Effects of the Residency Status

How Important are Initial Conditions At Arrival for  
Immigrants?

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## Abstract

This paper uses information on the legal status upon arrival to study long-term labor market effects, whereas selection and potential outmigration are taken into account by a large set of methods. I find that immigrants arrived with a job commitment in Germany achieve a long-term income advantage of 18.6% relative to other migrant groups, while language skills and ethnic networks can be excluded as transmission channels. Thus, a better linkage between job vacancies in the host country and the labor supply of potential migrants in the home country prevents mismatches and unrealistic expectations of potential migrants towards the host country.

Keywords: Residency status · Migrant selection · Initial conditions of immigrants

JEL-Classification: F22 · J61 · K37

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# 1 Introduction

Evaluating instruments that establish incentives for improving the economic and societal integration of immigrants have recently attracted the attention of a several studies in labor economics. However, empirical evidence shows that the quantitative effects of obtaining the destination country's citizenship are only marginal (Gathmann and Keller, 2014; Sajons, 2016). The disadvantage of the citizenship as an integration instrument is that it only sets a long-term incentive, becoming effective only after several years of residence – in fact, in Germany, after at least eight years of residence (due to the reforms of 2000). The residency status and skills of the guest country's language are meant to be more efficient integration instruments. It is possible to foster and promote language skills from the very first day after arrival (and even before), and the residency status is assigned to immigrants from the very first after arrival, realizing intrinsic effects on the incentives to integrate. This supposition is affiliated by a brief look at the Canadian migration credit system. The strength of the Canadian system, which rates willing migrants with respect to qualification, working experience, and language skills, is that it sends signals to migrants about the requirements of the Canadian labor market and communicate chances of a longstanding right to residency and obtaining Canadian citizenship from the very first day after migration – even before.

In Germany, residency status is such a vague concept because it enables the policy to implement hard or weak requirements to acquire a permanent residence permission. Thus, assignment rules to different kinds of legal status can be interpreted as signals and tools to communicate the requirements needed in order to compete in the German labor market. Via this communication channel, mistaken and excessive expectations about Germany can be eliminated and costs to migrants such as migration costs reduced (Duleep, 1994; Constant and Massey, 2003). Moreover, the length of permitted residence and the strength of communicated requirements can trigger or reduce incentives to invest in host country specific human capital, like social contacts to natives and learning the host country's official language. Thus, lending different residence status might have intrinsic effects on labor market integration, efforts in learning the host country's language, and migration behavior which in addition to residency status at arrival, serves as a forecasting instrument of integration success for policymakers.

Prior research to date focused on the wage differentials between legal and illegal migrants (for the United States, see, e.g. Koussoudji and Cobb-Clark, 2002; Amuedo-Dorantes et al., 2007; for Italy see Devilannova et al., 2014; Fasani, 2015; Dustmann et al., 2016). Labor market effects between different legal statuses attracted, however, less attention, mainly due to a lack of data. This is a gap this paper fills, which displays the first main contribution. By doing this, first, I show that immigrants, once having immigrated to Germany with a binding job offer, realize a substantial wage advantage of 14.3% relative to migrants that arrived on job searching in Germany, and an advantage of

18.6% relative to all alternative status groups. Second, by taking advantage of a broad set of pre-migration and migration specific variables, ethnic networks and unobserved heterogeneities like different levels of human capital and generally different employment biographies collected in the home country can be excluded as transmission channels. Third, I find that primary asylum seekers display a substantial wage disadvantage of 34.4% relative to ethnic Germans and of 40.1% relative to immigrants who arrived as job seekers at the time of immigration. This implies that having good initial conditions at arrival might be followed by an even bigger advantage, and investments in guest-country specific human capital are the more beneficial, the earlier they occur.

To my knowledge, this is the very first study detecting labor market effects from different kinds of legal residency status, – not only when undocumented and documented migrants are compared. My paper offers fundamental research and a large set of important and intriguing research questions to study in the future. Furthermore, the analysis tackles issues of endogenous selection and right censoring due to potentially return migration by different methods, including propensity score matching, which is shown to be a reliable method to substract pre-selection into different legal status.

After having outlined the relevance and the importance of the presented research questions, a literature review over the role of residency status and an overview over the juridical and political background behind the German residency law is provided in Section 2. The subsequent Sections 3 and 4 present the used data in detail and briefly describes the applied econometric approach. Section 5 displays the empirical results from different regression methodologies for the named research questions and in Section 6 I tackle the major econometric issues of right censoring, selection and heterogeneities of the effects. Finally, Section 7 concludes by deriving important implications for the internationalization of labor markets and the German and European policy of migration and integration.

## 2 Literature and juridical background

### 2.1 Literature Review

Recent evidence suggests that good initial conditions at arrival produce bigger advantages the earlier investments in language skills are made for instance. One reason of a weak labor market performance is the arrival without any command of the host country's language (Liebau and Schacht, 2016). In addition to language skills as one main integration instrument, analyzed by a large number of studies<sup>1</sup>, residency status has not been examined in detail in

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<sup>1</sup>Have for instance a look in Chiswick (1995), Clark and Drinkwater (2002), Bleakley and Chin (2004, 2010), Bauer et al. (2005), Di Paolo and Raymond (2012), Budria and Swedberg (2015) and Yao and van Ours (2015) that detect causal effects of language skills on labor market performance.

prior labor economics. There exists only a low number of studies for Australia (Brown, 1998) and for the United States, that distinguish between legal and illegal residency status with respect to integration indicators, whereas American papers often concentrate on undocumented Mexican migrants (see Hanson (2006) for a literature review).

Several impressive studies exploit the 1986 Immigration Reform and Control Act (IRCA) and tackles the problem of selection. This reform allows amnesty and assigns legal status to approximately 1.7 million unauthorized immigrants with continuous residence in the United States since 1982. Firstly, Kossoudji and Cobb Clark (2002) show empirical evidence for a general wage disadvantage of being undocumented of about 14% to 24%. Rivera-Batiz (1999) and Amuedo-Dorantes et al. (2007) confirm a positive effect in the intensive margin through legalizations, while Amuedo-Dorantes et al. (2007) detect a drop in the employment rate by 4.5 percentage points for men and 7.1 percentage points for women, which presumably results from increased reservation wages after legalization. Mendez et al. (2016) show that training programs are one transmission channel that promoted the positive link between the IRCA 1986 and gains in wages.<sup>2</sup> While there are a few more studies to discuss that treat legal status in the United States (Borjas and Tienda, 1993; Barcellos, 2010; Lozano and Sorensen, 2011; Pan, 2012; see Fasani (2015) for a more detailed literature review), this paper now focuses on legal status in Europe and Germany.

Illegal and undocumented migration is a phenomenon mainly occurring in the United States and in European countries bordering ocean, like Italy. This is a main reason why the residency status as a further instrument of integration and of governing individuals' behavior was barely analyzed with respect to labor market performance and other relevant outcome variables in European migration economics. Nevertheless, a few studies do exist. Fasani (2015) evaluates an amnesty in Italy in 2002, aiming to assign a two-year working and residence permit to undocumented immigrants (see Devillanova et al. (2014) for more details about requirements and the adoption of the law). Taking advantage of this exogenous enacted law that enables causal interpretations, Fasani (2015) only finds small and marginally significant effects for the period of 2003–2004. Legalized immigrants display a higher employment probability (2.7 percentage points) and a wage advantage of 3 percentage points relative to immigrants who were still awaiting the decision on whether their legalization application was successful or not. Devillanova et al. (2014), evaluating the same amnesty in Italy, show with a differences-in-differences approach that the prospect of obtaining legal status increases the employment probability highly

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<sup>2</sup>These analyses mainly focus on samples, consisting of Mexican and Central American immigrants, that a group of immigrants, Orrenius and Zavodny (2005) and Chassamboulli and Peri (2015) were also focusing on. Chassamboulli and Peri (2015) apply a dynamic equilibrium model to analyze the consequences for unemployment and income of native workers of different policy instruments, aiming to reduce the number of illegal migrants in the United States like increased border controls, increased rates of deportation and legalization.

significantly by 34.5 percentage points for immigrants residing in Milan, which corresponds to approximately two thirds of the increase in employment that undocumented immigrants in their data normally experience in the first year after arrival.

These studies have the advantage that the detected effects can be interpreted as causalities, given that legal rights were assigned more or less randomly within a pool of applicants that all meet the program requirements. However, the disadvantage is that they only identify differentials between legal and illegal migrants. Nevertheless, the information on legal status is highly relevant as a signal to immigrants – and not only when documented and undocumented migration is compared. Let us assume for a moment that there exist only two possible legal status groups – time-limited and time-unlimited residency rights. Due to feelings of uncertainties caused by status limitations, having only an unlimited permission is expected to decrease the planned time to stay in Germany as well as decrease incentives of investing in host country specific human capital (even the opposite effect is imagineable). Thus, lending different residence status might have intrinsic effects on labor market integration in both the short and the long-run, on efforts towards learning the host country’s language, and on migration behavior. Those few studies, which focused on differentials between different legal status groups, approve this consideration. For instance, Bratsberg et al. (2017) confirm this by a close look on differences in labor market assimilation between refugees, family migrants and economic migrants. Moreover, Fasani (2015) makes this point clear by showing that temporary immigrants living less than 11 years in Italy display a higher probability of being employed relative to persons with a current permanent legal status, while temporary immigrants suffer under a wage penalty of about 2.8%. Unfortunately, these effects cannot be viewed as causalities, because status and labor market performance are considered in the same period, and because no exogenous variation was used. This result is the starting point for my following econometric analysis.

## **2.2 Brief overlook over the juridical residency system in Germany and the European Union (EU)**

Policymakers are able to use residency status as an integration instrument and tool to govern individual behavior in labor markets by implementing heavy or weak requirements for a permanent residence permission. in Germany, changing rules for obtaining different status were indeed used by “The Law about Governance and Control of Immigration and about Regulation of Residence and Integration of Union Citizens and Foreigns, Law of In-Migration”.<sup>3</sup> This law came into force on January 1, 2005 and Article 1 of this reform, entitled “The Law about Residence, Occupation and Integration of Foreigns in Federal

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<sup>3</sup>Gesetz zur Steuerung und Begrenzung der Zuwanderung und zur Regelung des Aufenthalts und der Integration von Unionsbürgern und Ausländern, Zuwanderungsgesetz

Territory, Residence Act”<sup>4</sup> replaced a complex and numerous set of different residency status by two main ones, namely by the limited residence status and permanent residency permits.

Temporary working permissions are assigned for the purpose of apprenticeship (§ 16, § 17 Residence Act), employment (§ 18, § 20, § 21 Residence Act), due to political and humanitarian reasons (§§ 22-26, §104a, § 104b Residence Act) or family reasons (§§ 27-36 Residence Act). The Blue Card also belongs to the group of temporarily working permissions (§ 19a Residence Act, Directive of the European Community (EC) 2009/50/EC). The Blue Card is (first) limited up to four years and is assigned to academic professionals with a binding job offer and an annual salary of at least €49,600 (in 2016).<sup>5</sup>

In Germany, permanent rights of residency are established either via an unlimited settlement permit for non-Union citizens (*Niederlassungserlaubnis*, § 9 Residence Act) or permanent residency permission due to legal free movement of workers as an EU citizen (§ 9a Residence Act). To satisfy the conditions for unlimited settlement permits, the immigrant (among others) needs to hold a temporary working permit for at least five years, is able to ensure their livelihood, paid contributions for at least 60 months to the German pension system, and speaks the German adequately. The permanent residence for Union citizens resulting from legal free movement of workers within the EU differs to the unlimited settlement permit in the way that the unlimited settlement permission is only valid in the receiving country that lent the status to the immigrant. Permanent residence for Union citizens, however, allows further migration to any other EU member country. The following Section 3 aims, first of all, to explain how the different kinds of legal status are captured in my data and presents descriptive evidence on possible systematic differences in obtaining different residence rights and differences in the labor market performance with respect to different legal rights.

### 3 Data and descriptive statistics

The IAB-SOEP Migration Sample carried out by the German Institute for Employment Research (IAB) and the German Institute for Economic Research (DIW) is a unique dataset, which surveyed 8,716 immigrants and natives living in one of 4,697 households headed by someone with a migration history (Brücker et al., 2014; Kroh et al, 2015). Because the labor market performance is in the center of attention, I only include employable persons aged between 17 and 64. Furthermore, I restrict the sample to first generation immigrants and exclude individuals with missing information about their language skills and their residence status, so that a final sample of 5,055 observations over

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<sup>4</sup>Gesetz über den Aufenthalt, die Erwerbstätigkeit und die Integration von Ausländern im Bundesgebiet, Aufenthaltsgesetz (AufenthG)

<sup>5</sup>A lower salary limit of €38,688 is allowed in professions of excess labor demand (so-called shortage occupations) like physicians, natural scientists and engineers.



3,019 individuals and 88 different countries of origin remain, from which a great majority immigrated to Germany after 2000 (about 42.1%).

Importantly, the used dataset provides information on two kinds of status: First, the current residency status and second, the residency status at arrival. Table 1 illustrates that the official current residency status is subdivided into six categories with respect to the German and European juridical groundwork presented in Section 2.2. I distinguish between no status, and permanent right of residency, Blue Card, temporary working permission, tolerance permit and visa. Thus, migrants with a permanent settlement permit for non-Union citizens and migrants with a permanent residency permission due to legal free movement of workers as an Union citizen are pooled in the permanent right of residency group. The residency status at arrival is identified as the reason of immigration, which differs only slightly to the definitions of the current status and is based visibly on the Law of In-Migration as well as the Residence Act. There are again six different categories of immigrants – family members, asylum seekers, ethnic Germans, students and apprentices, and immigrants that arrived as job searchers in Germany, and immigrants with a job commitment, where the last two named migrant groups are in the center of attention in my empirical analysis. Table 1 summarizes status definitions and describes descriptive linkages between residency status at arrival and current residency status with notable outcomes. First, migrants with a job commitment and migrants that immigrated with the aim of job search both have good chances to obtain permanent right of residency later (respectively about two thirds). Descriptive evidence and simple t-tests (excluded from the table) suggest no significant higher chances for a future permanent residence permission for immigrants with a binding job offer. A presumed selection and a higher chance of permanent residence permit for immigrants with a binding job offer at arrival is thus not confirmed. Second, nevertheless, Table 1 presents notable differences between different migrant groups. For instance, a proportion of 49.9% of immigrants arrived in Germany as family members, later obtained permanent right of residency, while only one in three asylum seeker did. Moreover, the proportion of limited working permits of 21.4% is the highest in the group of primary asylum seekers.

(Table 1 about here)

To supplement these observations, Table 2 distinguishes the different groups of migration reason with respect to socio-economic, educational and pre-migration characteristics, and provides a summary on used variables. In addition to standard socio-economic information, the data used allow excluding language skills and ethnic networks as potential transmission channels between the residency status at arrival and the current labor market performance. First, information on current German language skills are provided and statistics given on whether the surveyed individuals are in (very) good command of at least one discipline (speaking, writing, reading). Moreover, pre-migration characteristics offer the same variable at the point in time of arrival (German language skills

at arrival) and whether someone attended a German language course in the home country. Second, the presence of ethnic networks is covered: The methods for finding the first job in Germany after arrival is surveyed distinguishing between informal ways of job searching (friends, family and acquaintances or business associates) and formal ways like job centers, agencies and ads in Germany or the country of origin. Having this information, the most instructive observation should be accentuated: There exist some differences between the two groups of main interest – immigrants with a job offer and immigrants on a job search – but the differences are not as big as expected. Immigrants with a job commitment are descriptively more often highly qualified and less often low qualified, and more likely display slightly better German language skills (currently and upon arrival). However, average education of both groups is better and German language skills are below average in both groups compared to the overall sample. To continue the comparison of these two groups of main interest, pre-migration characteristics show that immigrants with a job commitment at arrival were more likely employed at home – for instance 18.0% were in a working position with managerial functions and furthermore, this group was more likely attended a German language course in the home country.

(Table 2 about here)

Since the impact of residency status on labor market performance is at the center of attention, finally taking a look at indicators of labor market integration is sensible. Table 3 displays income information and further indicators of labor market success conditional on employment. Labor market income, my main outcome variable of interest, is derived from household surveys by applying the modified equivalence scale from the OECD. Continuous income information displays big differences between different migrant groups. The averagely annual labor market income of family members, job searchers and ethnic Germans do not differ that much – but asylum seekers stand out negatively and immigrants with a job commitment stand out positively. By considering categorical information, it can be noted that the lowest full-time employment rates are detected as well in the group of asylum seekers and family members, whereas this second named migrant group covers a big proportion of part-time employment (23.5%). The full-time employment rates of migrants with a job commitment at arrival and of migrants that arrived as job seekers in Germany are both above average. Taking a look at employment sectors, such big differences were not found when considering employment status variables.

(Table 3 about here)

## 4 Econometric methodology

The main interest of this paper is on the intrinsically effects of residency status at arrival  $S_i$  on labor market performance, approximated by logarithmized

labor market income  $\ln(Y_{it})$ . Thus, the marginal effect of legal status at arrival, which is the vector of parameters  $\beta_1$ , is at the center of attention. As there are six different status groups,  $S_i$  is a vector of five dummy variables while at least one status group needs to be left out as the reference category. Equation (1) is estimated by a set of different panel models and controls on German language skills, current residency status, further general socio-economic and educational variables, summarized in vector  $X_{it}$ , on pre-migration characteristics  $M_i$  and on country of origin fixed effects  $\delta_k$ , whereas  $k$  represents different countries:

$$\ln(Y_{it}) = \beta_0 + S_i\beta_1 + X_{it}\theta + M_i\gamma + \delta_k + \alpha_i + \varepsilon_{it} \quad (1)$$

This approach and the presented unique data help to take into account two typical econometric issues, which are often overlooked in literature. First, a wide range of research papers with a focus on the labor market performance of immigrants suffer under the problem of unobserved third factors. Unobserved third factors are, for instance, general skills and talents and past labor market performance in the country of origin that might impact both regressors like human capital as well as labor market performance (Borjas, 1994). Such unobserved heterogeneities were often attempted to be isolated implementing information on education and socio-economic characteristics of the individuals' parents (see e.g., Dustmann and van Soest, 2002). However, by exploiting further contents of the IAB-SOEP Migration Sample and by implementing a wide range of retrospective information, which cover the last year before migration, I control on unobserved heterogeneities in a new way: By including information on the employment status, working positions, skills of host country's language and relationship status respectively before migration in the home country, here the danger that such unobserved heterogeneities bias the estimation of my parameters of interest is reduced considerably. Second, because data supply information on the residency status at arrival and this variable is observable before the very first realization of labor market performance in the host country, the probability of endogenous selection and reversed causality between legal status and the outcome variable  $\ln(Y_{it})$  is reduced as well. Section 6.2 tackles this last issue in greater detail.

Econometric principles about panel data suggest preferring random effects applications to fixed effects regressions when the number of periods  $T$  is exceeded considerably by the number of collected observations  $N$  ( $N > T$ ). This is evidently the case due to using a panel data set of two waves for the years 2013 and 2014. Moreover, random effects are preferred due to pragmatic reasons, since the set of regressors in equation (1) consists of a large number of time-invariant regressors, like the set of pre-migration characteristics  $M_i$  and the residency status at arrival  $S_i$ , in which I am mostly interested. Furthermore, two waves do not result in a sufficiently high within-variation of the used time-varying regressors, and thus cannot legitimize the application of fixed effects regression. I apply different panel models to show the robustness of the detected results and the independence from the chosen methodology. Random effects estimation assumes absence of any correlation between unobserved heterogeneities

$\alpha_i$  and regressors used ( $E[\alpha_i|X_{it}] = 0$ ). To take this strong assumption into account, the corrected random effects model of Mundlak (1978) is applied as an alternative in the empirical section 5.<sup>6</sup> This extended method relaxes this assumption by adding within-means of those regressors that vary over time for a given individual (Greene, 2012). These means are allowed to correlate with  $\alpha_i$  ( $E[\alpha_i|X_{it}] = \bar{X}_i\lambda$ ), so that equation (1) changes in the following way by replacing the difference  $\alpha_i - E[\alpha_i|X_i]$  by  $u_i$  in a last step:

$$\begin{aligned} \ln(Y_{it}) &= \beta_0 + S_i\beta_1 + X_{it}\theta + M_i\gamma + \bar{X}_i\lambda + \delta_k + \varepsilon_{it} + (\alpha_i - E[\alpha_i|X_i]) \\ &= \beta_0 + S_i\beta_1 + X_{it}\theta + M_i\gamma + \bar{X}_i\lambda + \delta_k + \varepsilon_{it} + u_i \end{aligned} \quad (2)$$

## 5 Main empirical results

Table 4 presents empirical evidence for long-term labor market effects of the residency status at arrival. In Models (1)–(3), I use logarithmized labor market income conditional on employment as the outcome variable and apply random effects generalized least squares (GLS) regressions with heteroskedastic standard errors. Each regression controls on the influence of socio-economic, educational and migration variables, and country of origin fixed effects. Models (4)–(6) and each regression in Section 6 additionally includes pre-migration characteristics and current residency status; and as Table 4 shows, these additional controls change the magnitude of the results only marginally. The detailed set of each kind of variables can be obtained from Table 2.

(Table 4 about here)

The full models (4)–(6) show two major results. First, arriving in Germany as an asylum seeker reduces labor market income substantially – by 34.4% – relative to ethnic Germans, and by 40.1% relative to immigrants arrived as job seekers. This result – and particularly the amount of this effect – is surprising, as the estimations already control for educational background and unobserved heterogeneities like the labor market performance in the home country. Note that the detected effect of asylum seekers does not result from correlation with country of origin fixed effects. On the one hand, the composition of asylum seekers is very diverse with respect to current residency status, as Table 1 indicates. On the other hand, the group of primary asylum seekers consists of 40 different countries, including both industrial countries and developing countries with a wide range of nationalities from (former) Yugoslavia, Russia to non-Union countries like Turkey, Syria, Afghanistan etc. Second, a similar substantial effect is detectable, however, in the opposite direction for migrants with a job commitment at arrival, displaying a significantly higher labor market performance. With respect to ethnic Germans, the income advantage takes

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<sup>6</sup>This approach is accepted and used in a diverse set of different papers in labor and public economics (see for instance Ferrer-i-Carbonelli, 2005; Salvatori, 2010; Fitzenberger et al., 2011).

a value of 20.0% and using immigrants on job search as the reference category having a job commitment upon arrival increases labor market income significantly with respect to a significance level of 0.05 by approximately 14.3%. Including only the dummy of having a job commitment at arrival as the only residency status regressor, immigrants with a binding job offer display a significantly higher labor market performance than all other residency status categories by about 18.6%. As already mentioned, language skills at the current point in time and at arrival, ethnic networks and the current legal status can be excluded as potential transmission channels.

Even if the presented results would be only accumulated growth effects over years, these result are intriguing, especially if one keeps in mind that the average duration of residence of immigrants with a job offer at arrival is about 12.8 years, while the general average duration of stay for the overall sample is 14.8. Apparently, efforts on collecting information about the host country's labor market situation before migration is worth at lot.

In a further step, I tackle some minor issues. First, Table A.1 in the Appendix shows the independence of the presented results from the underlying panel model. Specifications (1)–(3) repeat the regressions by applying the corrected random effects Mundlak regression. This shows that the results are very robust in significance and magnitude, whereas the point estimates with Mundlak regressions are even slightly higher in absolute terms. Models (4)–(6) use pooled OLS, whereas conducting Breusch and Pagan Lagrangian multiplier (LM) tests for random effects suggest to prefer random effects GLS ( $p < 0.01$ ). Thus, random effects panel regressions are appropriate to conduct. Note that, with respect to the maximization of the degrees of freedom, I do not include year of immigration fixed effects and occupational sector fixed effects.<sup>7</sup> To generalize my implications presented in the concluding section – and to provide a more complete picture – empirical results for the full sample are presented in the Appendix in Table A.2 by using a panel logit model with a binary outcome, displaying the employment status and by applying a Tobit-I model with logarithmized earnings and by taking censoring from below into account.

The next section tackles three major econometric issues in detail: Right censoring due to potential outmigration or return migration, endogenous selection, and the heterogeneity of the effects.

## 6 Robustness checks

After a first look on the empirical importance of the legal status upon arrival, three major econometric issues remain and need to be handled. The first problem is associated with the short panel structure of two years. Migrants with a binding job offer, asylum seekers and immigrants, which arrived as job

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<sup>7</sup>Including these fixed effects does not change the results in significance and magnitude. These results can be demanded upon request from the author.

searchers in Germany, likely display a higher outmigration probability and a higher probability of being a mistaken migrant, which are characterized by excessive expectations to Germany. Thus, the found results could be biased due to right censoring since actual migration behavior can not be observed. The second issue, which is tackled in Section 6.2, is endogenous selection, which appears because different residency status are not randomly assigned to migrants and are possibly determined by observable characteristics. To subtract this selection and show robustness of the main results propensity score matching (PSM) is applied. Finally, the sample is characterized by a great heterogeneity with respect to countries of origin, education and different employment sectors. Hence, heterogeneties are a third issue worth tackling in greater detail.

## 6.1 Right censoring and return migration

Since data only covers the two years 2013 and 2014, observing actual (return) migration is not possible. However, merging my data to the standard longitudinal German Socio-Economic Panel (SOEP) that covers the time period up to 2015 indicates that no person in my sample left Germany in the years 2014 and 2015. A first point to mention is that each presented specification of Section 5 is robust with respect to return migration intentions and return indicators, such as sending remittances and having family members living abroad. A second, plausible method presented in Table 5 to control on biases due to (potential) right censoring is to exclude immigrants that briefly arrived in Germany. As a sideline, this methods also examines the persistence of initial conditions upon arrival.

(Table 5 about here)

Table 5 excludes stepwise immigrants with a duration of residence less than 4, 5, ..., 11 years, so that immigrants who recently arrived in Germany, and that are likely mistaken migrants are left out of my regressions. Table 5 clearly indicates with high significance a wage advantage for immigrants with a job commitment relative to ethnic Germans, job searchers, and relative to all status groups and a wage penalty of being a primary asylum seeker. Thus, the detected effects in the previous section do not result from the case that recently arrived immigrants display weaker labor market integration than immigrants who already accumulated German language skills and labor market experience (in Germany) for numerous years. Furthermore, the sustainability and persistence of residency status at arrival are highlighted in Table 5. Immigrants with a job commitment upon arrival still display a current wage advantage after more than 10 years of residence, whereas the wage penalty of asylum seeker is highly significant when excluding immigrants with less than 11 years of residence. To justify that my results do not suffer under right censoring, it can be assumed for a moment that primary asylum seekers and job searcher at arrival indeed display a higher emigration probability than immigrants with a job commitment. If this were the case, my sample would be positively selected,

in which unsuccessful immigrants leave Germany soon after some months and years. Thus, the presented results are lower bounds in absolute terms by tendency. To legitimate policy implications about recent migration waves, Table 6 furthermore differentiates estimations with respect to years of immigration. Estimation results indicate that the effects are stronger, the shorter the immigrant lives in Germany. This holds for the wage advantage for immigrants with a job offer at arrival and for the wage penalty for asylum seekers. The results are significant even if only the most recent migration wave since 2000 is taken into account.

(Table 6 about here)

In a nutshell, by specifying different ranges of residence and by the particularly consideration of immigrants arrived in Germany since 1990 the results from section 5 were shown to be persistent, valid also for recent migration waves and robust to the problem of short panel data and potential right censoring and different return migration probabilities between the different groups of residency status.<sup>8</sup>

## 6.2 Selection

Although residency status is observed at the point in time of migration temporal before the first realized salary in the German labor market and despite controlling on the labor market specific and socio-economic situation in the home country, an endogenous selection into legal status upon arrival is still possible. Thus, immigrants with a job commitment and immigrants on a job search at arrival might differ systematically with respect to general attributes like education, talent, ways of job seeking and unobserved characteristics. Table 1 illustrates that about two thirds in these both groups obtain a permanent right of residency later, which descriptively contradicts an initial selection – or at least shows that selection is not as big as expected. However, simple t-tests in Panel A of Table A.3 in the Appendix show that migrants with a job commitment at arrival and migrants which arrived as job seekers in Germany are different in five variables out of the list shown in Table 2. Conditional on employment, there exist only significant differences in the binary variables *sex*, *graduation in Germany*, *employed in the home country*, *employee with managerial functions* and *attended language course in the home country*.

(Table 7 about here)

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<sup>8</sup>Figure A.1 additionally looks into how the wage effect behaves if only immigrants with short durations of residence are considered. The figure shows estimated coefficients of  $\beta_1$  for the two groups with job commitment (A–C) and asylum seekers (D–F) relative to different reference categories and stratifies with respect to maximum duration residence, whereas the maximum years of residence that is considered is gradually expended.

An appropriate method to take endogenous selection into residency status at arrival into account is propensity score matching (PSM). Table 7 shows results from applying PSM, whereas only migrants with a job commitment upon arrival and migrants that arrived as job searchers are included in this analysis. First, I identify the determinants of having a job commitment at arrival by a probit estimation and by using all variables out of Table 2 as regressors, whereas variables on the residency status at arrival are excluded. Thus, having a job commitment at arrival is defined as the treatment and job searchers at the point in time of arrival are defined as the control group. Therefore, this first step estimates the probability of being a migrant with a job commitment at arrival (propensity score).

In a second step, I apply two different matching algorithms – namely kernel and radius matching – to indicate the average treatment effect on the treated (ATT) on labor market income. Table 7 shows that migrants with a job commitment at arrival display an ATT of €2,772.9 with kernel matching and €4,702.1 with radius matching. The results do not change in significance if the bootstrap method is used to calculate standard errors. Panel B of Table A.3 in the Appendix shows that the balancing property holds for the kernel matching algorithm. However, using radius matching, there are still differences between migrants with a job commitment and migrants who arrived as job searchers due to sex, employment status and employment position in the country of origin. Thus, the kernel matching algorithm is the most appropriate method in my setting and the wage advantage of a job offer at arrival is identified as approximately €2,772.9. Further analyses which are not presented in this paper indicate that using a logit instead of a probit in the first stage increases the treatment effect to €2,885.9, whereas the significance due to a significance level of 10% holds. Furthermore, using nearest neighbor matching with and without replacement end up with similar results compared to radius matching. The assumption of common support is also satisfied if kernel matching is applied. Density, displayed by a histogram in Figure A.1, shows that the propensity score is similar distributed in the treatment group and in the control group. Furthermore, if only the region of common support is considered – namely a propensity score between 0.097 and 0.754 – the still significant ATT increases to 2,885.9.

A second approach to take selection into account is stratification. This is shown in Table A.4, in which I stratify random effects estimation by the two likeliest variables, which might bias the results, namely employment status and language course attendance in the country of origin. It can be seen that even if only immigrants that attended a German language course in the home country or immigrants unemployed in the very last year before immigration to Germany are considered, the wage advantage of having a binding job offer upon arrival and the wage disadvantage of primary asylum seekers is still valid and robust in magnitude. This is just not the case if effects are compared to job searchers. Thus, the wage penalty of asylum seekers is still robust and significant and the substantial wage advantage of immigrants with a binding



job offer at arrival holds compared to ethnic Germans and all status groups.

### 6.3 Heterogeneous effects

Immigrants that arrived with a binding job offer have a substantial advantage in relation to immigrants needing to search for a job after arrival. Thus, by fostering a better linkage between job vacancies in Germany and willed migrants in the home country, the integration after arrival can benefit and potential mismatch because of unrealistic expectations of immigrants can be prevented. However, using the empirical analyses conducted in this paper as empirical evidence of an improving internationalization of supranational labor markets, showing that the detected effects are present in different groups subdivided with respect to the country of origin, education and employment sectors is required. Consequently, Table 8 subdivides the original sample conditioned on employment with respect to country of origin in Panel A, and to education in the lower panel.

Because attracting non-Union citizens to the German and European labor market in particular with high education is often a policy objective, distinguishing between Union and non-Union is important. Panel A shows evidence that the income advantage of immigrants that arrived in Germany with a job commitment is mainly present and significant in the group of non-Union citizens. Having a closer look at non-EU citizens, a binding job offer upon arrival increases labor market by about 26.3% relative to all other status groups, while no significant effect relative to immigrants arrived still searching for work is detectable. Not surprisingly, the negative substantial effects of primary asylum seekers are also mostly present in the group of non-Union citizens. Considering the group of Union before enlargement of 2007, having a binding job offer at arrival increases substantial labor market income by approximately 38.9% relative to ethnic Germans and to all other residency groups by about 15.2%. The last named result is only notable on the significance level of 10%. Because only 13.7% of ethnic Germans were born in a country within the EU, the regressions relative to immigrants on job search at arrival and to all status groups are the more sensible models.

(Table 8 about here)

Panel B shows further intriguing results worth mentioning. The income disadvantage of asylum seekers is present and highly significant in each education group, so that a lower integration of asylum seekers cannot only be due to low qualifications. This result arises the suspicion that downgrading might be an above-average problem in the group of primary asylum seekers. Downgrading or under-placement denotes a bad matching between apprenticeship and actual job, occurring if a large proportion of migrants that are skilled work in low-skilled jobs (Mattoo et al., 2008; Dustmann, 2011).<sup>9</sup> A second reason might

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<sup>9</sup>This question is not tackled in further detail here due to a lack of data. Friedberg (2001), Eckstein and Weiss (2004), Akresh (2006, 2008) and Charpin (2014) display some

be the lower quality of educational and occupational degrees obtained in non-European, third countries that have low chances of being accepted by German authorities. Table A.5 in the Appendix stratifies the results with respect to employment sectors and shows that the income disadvantage of primary asylum seekers can be also detected for blue-collar and white-collar workers and in the public sector (except relative to the reference category of immigrants arrived in Germany as job seekers). This demonstrates that the effects and importance of allowances of foreign professional qualifications is an intriguing research topic to study in the future.

Finally, it can be summarized, that the advantage of immigrants with a job commitment at arrival is mainly present in the group of high education and middle education, in the sector of white-collar jobs, and in the public sector. Considering asylum seekers, it is intriguing that their wage penalty is highly present in each education group.

## 7 Conclusion

This paper focuses on the residency status at arrival, an integration tool and forecasting instrument of labor market success, and integration potentials overlooked by labor economics to date. The residency status is interpreted as a signal that sends information about requirements to compete in the German labor market, so that the status can serve as a tool to prevent excessive expectation to Germany and avoidable migration costs for migrants. Following this hypothesis, I find a persistent income advantage for immigrants – once in Germany with a binding job offer – of about 14.3% compared to job searchers, and of about 18.6% compared to all other migrant groups. By taking advantage of a broad set of pre-migration and migration specific variables, language skills (upon arrival) and ethnic networks can be excluded as transmission channels. The second main finding is a substantial wage disadvantage for primary asylum seekers of 40.1% relative to immigrants that arrived as job searchers in Germany.

Unique data of the IAB-SOEP Migration Sample allow capturing unobserved heterogeneities with information on labor market performance and the socio-economic situation in the country of origin. Furthermore, right censoring due to potentially different emigration rates in the different migrant groups and endogenous selection are taken into account, which justifies that the detected effects are not only mere correlations.

The first finding serves as empirical legitimation for the internationalization of supranational labor markets. By implementing a better connection between job vacancies in Germany and willed migrants in the country of origin, the integration after arrival can benefit. Furthermore, mismatch and unrealistic expectations of potential migrants can be obviated. The reasons for the second

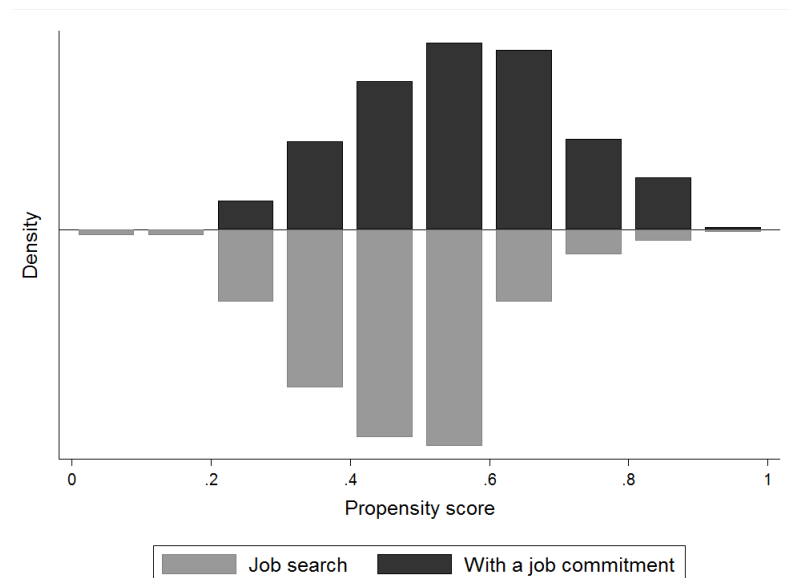
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evidence for downgrading in Israel, the USA and France.

finding – the wage disadvantage of asylum seekers – are very diverse. A long processing time till the asylum request is finally finished, a long time span between arrival and working allowance (also implemented by the German law), and insecurity about future plans and residency status are possible reasons for this result. The last named reason plays presumably a role for asylum seekers with subsidiary status and with a residence allowance linked to the continuation of civil war in the country of origin. By showing that the detected income penalty of primary asylum seekers is present in all educational levels, downgrading is a further reason, especially present in the group of asylum seekers. The impact of downgrading and the determinants of this phenomenon is a research aim worth of scrutiny in the future.

To my knowledge, this is the very first study detecting labor market effects from different kinds of legal status. I demonstrate persistent effects of the residency status – and not only when undocumented and documented migrants are compared (Fasani, 2015; Devillanova et al., 2014). Moreover, this paper’s fundamental research offers a set of important and intriguing research questions to study in the future. Future research should aim to use juridical variations of eligibility rules introduced by “The Law about Residence, Occupation and Integration of Foreigns in Federal Territory, Residence Act” in 2005 that replaced a complex and numerous set of different residency status. Finally, downgrading and the allowance of foreign qualifications are worth to analyze as possible transmission channels between initial conditions at arrival and a well-functioning integration of migrants.

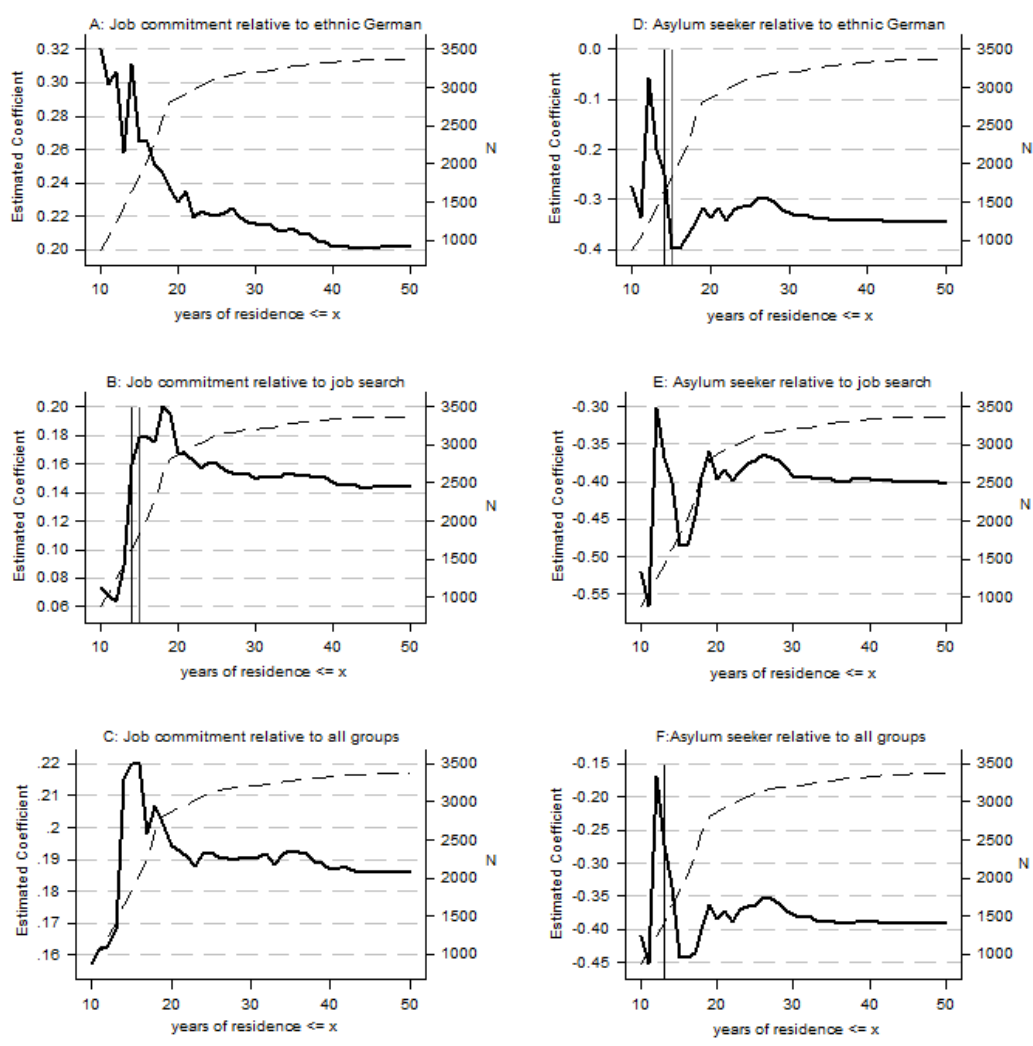
# Appendix



**Fig. A.1** Density of the propensity score of migrants with a job commitment (treatment group) and job searchers at arrival (control group)

Notes: Propensity score matching is conducted on a sample, including exclusively individuals who arrived as job searchers or with a job commitment in Germany whereas the status *with job commitment* is the treatment indicator. Propensity Score is estimated by applying probit estimations on regressors listed in Table 2, whereas variables on residency status at arrival are excluded ( $N = 579$ ). The outcome is the average treatment effect on the treated (ATT) is estimated with respect to labor market income. the figure is based on kernel matching with standard errors, which are calculated due to the bootstrap method with 500 replications. The figure checks the assumption of common support by illustrating the density of the propensity score in the treatment group (black) and in the control group (grey)

Source: IAB-SOEP Migration Sample, own calculations



**Fig. A.2** Estimated earning effects from residency status at arrival with expanding range of residence durations (years of residence  $\leq x$ )

Notes: The figure shows estimated coefficients of  $\beta_1$  for the two groups with job commitment (A–C) and asylum seekers (D–F) relative to different reference categories and stratified with respect to maximum duration residence, whereas the maximum years of residence that is considered is gradually expanded. Panel A for instance shows the estimated wage advantages of immigrants with a job commitment at arrival relative to ethnic Germans. The first value at years of residence  $\leq 10$  of about 0.3257 follows a regression due to specification (1) of Table 3, whereas all immigrants are excluded with a duration of residence of above 10 years. This range of residence is then gradually expanded till a maximum duration of residence of 50 years is reached. The black thick graph displays the estimated coefficients, while the dashed graph displays the sample size  $N$ . The two vertical lines indicate the significance level of 10% (thick black) and 5% (dashed black), indicating that all displayed coefficients are significant righthand of these vertical lines.

Source: IAB-SOEP Migration Sample, own calculations

**Table A.1** Estimation results with different panel models (conditional on employment)

	Random effects Mundlak regression			Pooled OLS		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Residency status at arrival:</b>						
Family member	0.0265 (0.0526)	-0.0602 (0.0659)		0.0273 (0.0466)	-0.0203 (0.0571)	
Asylum seeker	-0.3810*** (0.0710)	-0.4677*** (0.0791)		-0.3272*** (0.0690)	-0.3748*** (0.0744)	
Job search	0.0867 (0.0754)			0.0476 (0.0653)		
Ethnic German		-0.0867 (0.0754)			-0.0476 (0.0653)	
With job commitment	0.2300*** (0.0749)	0.1434* (0.0789)	0.2337*** (0.0617)	0.1859*** (0.0617)	0.1383** (0.0623)	0.1728*** (0.0492)
Student & apprentice	0.1308* (0.0713)	0.0441 (0.0786)		0.1115 (0.0702)	0.0639 (0.0752)	
<b>Additional control variables:</b>						
Socio-economic variables	Yes	Yes	Yes	Yes	Yes	Yes
Education & migration variables	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin	Yes	Yes	Yes	Yes	Yes	Yes
Pre-migration characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Current residency status	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.2232	0.2232	0.2041	0.2234	0.2234	0.2089
$\chi^2$	637.85***	637.85***	566.18***			
Observations	3,371	3,371	3,371	3,371	3,371	3,371
Individuals	2,146	2,146	2,146	2,146	2,146	2,146

Notes: \* $p < 10\%$ , \*\* $p < 10\%$ , \*\*\* $p < 1\%$ ; heteroskedastic Huber-White standard errors in parantheses  
The dependent variable is logarithmized labor market income. Each model controls on socio-economic covariates, variables of education and migration, pre-migration characteristics, current residency status and country of origin fixed effects. A detailed list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1. Model (1)–(3) apply the random effects Mundlak model and regresses log. labor market income additionally on within-means of relationship status, high & low education, German citizenship, German skills, remittances, family abroad and relationship status at arrival, whereas I do not report estimated coefficients of these covariates. Models (4)–(6) apply pooled OLS estimations.

Source: IAB-SOEP Migration Sample, own illustration

**Table A.2** Labor market effects of the residency status at arrival (full sample)

	Full-time employment			Labor market income		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Residency status at arrival:</b>						
Family member	-1.3245*** (0.4258)	-1.8072*** (0.6283)		0.0089 (0.2334)	-0.0759 (0.3282)	
Asylum seeker	-2.7149*** (0.6492)	-3.1977*** (0.8516)		-1.3068*** (0.2947)	-1.3916*** (0.3752)	
Job search	0.4826 (0.7447)			0.0848 (0.3659)		
Ethnic German		-0.4827 (0.8064)			-0.0848 (0.4070)	
With job commitment	2.0972** (0.9180)	1.6146** (0.7634)	3.0648*** (0.7558)	0.7968*** (0.2536)	0.7121** (0.3413)	0.9347*** (0.1916)
Student & apprentice	-1.0304 (0.6863)	-1.5031** (0.6045)		-0.2229 (0.3183)	-0.3076 (0.4013)	
<b>Additional control variables:</b>						
Socio-economic variables	Yes	Yes	Yes	Yes	Yes	Yes
Education & migration variables	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin	Yes	Yes	Yes	Yes	Yes	Yes
Pre-migration characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Current residency status	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo $R^2$						
$\chi^2$	374.69***	430.45***	445.03***	1,648.55***	2,364.79***	946.53***
Log likelihood	-2,164.1012	-2,164.1015	-2,180.4344	-13,179.897	-13,179.897	-13,195.089
Observations	5,055	5,055	5,055	5,055	5,055	5,055
Individuals	3,019	3,019	3,019	3,019	3,019	3,019

Notes: \* $p < 10\%$ , \*\* $p < 5\%$ , \*\*\* $p < 1\%$ ; (Bootstrap-)heteroskedastic standard errors in parentheses  
Models (1)–(3) apply a random effects logit regression to a binary outcome that equals one if the individual is full-time employed and models (4)–(6) determine logarithmized labor market income as the outcome variable and apply Tobit-I regressions with censoring from below at zero to indicate individuals with an income of zero. Each model controls on socio-economic covariates, variables of education and migration, pre-migration characteristics, current residency status and country of origin fixed effects. A detailed list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1.

Source: IAB-SOEP Migration Sample, own illustration

**Table A.3** Balancing property between migrants on job search and migrants with a job commitment at arrival (conditional on employment, N=597)

<b>Panel A: Raw data</b>				
	<u>by (with job commitment)</u>			
	mean difference	%Bias		
<b>Variables:</b>				
Male sex	0.0938**	<i>(20.1)</i>		
Graduation in Germany	0.0230**	<i>(17.0)</i>		
Employed in the home country	0.0884**	<i>(20.7)</i>		
Employee with managerial functions	0.1114***	<i>(32.0)</i>		
Attended language course in the home country	0.0689**	<i>(16.9)</i>		

<b>Panel B: Matched data</b>				
	<b>Kernel matching</b>		<b>Radius matching</b>	
	<u>by (with job commitment)</u>		<u>by (with job commitment)</u>	
	mean difference	%Bias	mean difference	%Bias
<b>Variables:</b>				
Male sex	0.0289	<i>(6.2)</i>	0.0938**	<i>(20.1)</i>
Graduation in Germany	0.0022	<i>(1.6)</i>	0.0230	<i>(17.0)</i>
Employed in the home country	-0.0158	<i>(-3.7)</i>	0.0884**	<i>(20.7)</i>
Employee with managerial functions	-0.0086	<i>(-2.5)</i>	0.1114***	<i>(32.0)</i>
Attended language course in the home country	-0.0131	<i>(-3.2)</i>	0.06892	<i>(16.9)</i>

Notes: \* $p < 10\%$ , \*\* $p < 5\%$ , \*\*\* $p < 1\%$

Propensity score matching is conducted on a sample, including exclusively individuals who arrived as job searchers or with a job commitment in Germany, whereas the status *with a job commitment* is the treatment indicator. Propensity Score is estimated by probit estimations with regressors listed in Table 2, where variables on residency status at arrival are excluded ( $N = 579$ ). The outcome is the average treatment effect on the treated (ATT) with respect to labor market income. Standard errors with respect to the bootstrap method is done with 500 replications. The table displays differences by simple two-sided t-tests, whereas Panel A compares raw data without matching and Panel B considers variables after the application of the matching algorithm, which is either kernel or radius matching.

Source: IAB-SOEP Migration Sample, own illustration



**Table A.4** Stratified random effects with respect to critical variables

	Employed at home		Language course at home	
	Yes	No	Yes	No
<b>With job commitment relative to:</b>				
Ethnic German	0.1539** (0.0770)	0.2380** (0.1128)	0.3500*** (0.1355)	0.1563** (0.0692)
Job search	0.1386* (0.0749)	0.1554 (0.1440)	0.2030 (0.1745)	0.1261* (0.0718)
All other groups	0.1637*** (0.0580)	0.2151** (0.0211)	0.2017* (0.1065)	0.1802*** (0.0537)
<b>Asylum seeker relative to:</b>				
Ethnic German	-0.3663*** (0.0969)	-0.3506*** (0.1156)	-0.5155** (0.2312)	-0.3441*** (0.0785)
Job search	-0.3816*** (0.1046)	-0.4332*** (0.1449)	-0.6625** (0.2682)	-0.3743*** (0.0860)
All other groups	-0.3937*** (0.0912)	-0.4078*** (0.0979)	-0.6436*** (0.2243)	-0.3594*** (0.0685)
Observations	1,839	1,532	658	2,713
Individuals	1,140	1,006	412	1,734

Notes: \* $p < 10\%$ , \*\* $p < 10\%$ , \*\*\* $p < 1\%$ ; heteroskedastic Huber-White standard errors in parantheses

The dependent variable is log. labor market income. Each model is estimated by random effects GLS and controls on socio-economic covariates, variables of education and migration, country of origin fixed effects, pre-migration characteristics and current residency status. A list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1. Estimations are stratified with respect to whether the individuals were employed in the home country in the very last year of migration or whether the individuals attended a German language course in the country of origin. Coefficients under the caption “With job commitment relative to” report labor market effects respectively relative to ethnic Germans, migrants, which arrived as job searchers, and all migrant groups. Coefficients under the caption “Asylum seeker relative to” have to be understood in the same way as in Table 4.  $R^2$  of each regression displayed in Table A.5 is in the interval [0.1760; 0.2399].

Source: IAB-SOEP Migration Sample, own illustration

**Table A.5** The empirical effects of the residency status at arrival with respect to the occupational sector

	(1)	Blue-collar		White-collar			Public sector		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Residency status at arrival:</b>									
Family member	0.0735 (0.0756)	0.0906 (0.0890)	0.0298 (0.0729)	-0.0090 (0.0644)	-0.0757 (0.0937)	0.2159*** (0.0629)	-0.1123 (0.1498)	-0.5089*** (0.1584)	
Asylum seeker	-0.4167*** (0.1161)	-0.3996*** (0.1172)		-0.3216*** (0.0926)	-0.3883*** (0.1136)		-0.2868 (0.1925)	-0.6833*** (0.1913)	
Job search	-0.0172 (0.0991)			0.0667 (0.1025)			0.3965*** (0.1747)		
Ethnic German		0.0172 (0.0991)			-0.0667 (0.1025)			-0.3965*** (0.1747)	
With job commitment	0.0425 (0.0927)	0.0597 (0.0946)	0.0298 (0.0729)	0.2324*** (0.0816)	0.1657* (0.0970)	0.2159*** (0.0629)	0.3757*** (0.1843)	-0.0208 (0.1579)	0.2661*** (0.1307)
Student & apprentice	0.1092 (0.1317)	0.1263 (0.1382)		0.1479* (0.0838)	0.0812 (0.1069)		0.3976*** (0.1501)	0.0011 (0.1612)	
<b>Additional control variables:</b>									
Socio-economic variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education & migration variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-migration characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current residency status	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.1854	0.1854	0.1632	0.2525	0.2525	0.2401	0.3467	0.3467	0.3071
$\chi^2$	239.88***	239.88***	207.91***	350.96***	350.96***	322.51***			
Observations	1,463	1,463	1,463	1,497	1,497	1,497	399	399	399
Individuals	1,033	1,033	1,033	1,042	1,042	1,042	291	291	291

Notes: \*  $p < 10\%$ , \*\*  $p < 5\%$ , \*\*\*  $p < 1\%$ ; heteroskedastic standard errors in parentheses  
The dependent variable is logarithmized labor market income. Each model applies random effects GLS and controls on socio-economic covariates, variables of education and migration, country of origin fixed effects, pre-migration characteristics and current residency status. A list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1.

Source: IAB-SOEP Migration Sample, own illustration

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**Table 1** Linkages between residency status at arrival and current status

	Current status						Overall
	No status	Perm. right of residency	Blue Card	Temp. working permission	Tolerance permit	Visa	
<b>Status at arrival</b>							
Family member	674 (32.9%)	1,022 (49.9%)	21 (1.0%)	273 (13.3%)	45 (2.2%)	13 (0.6%)	2,048 (100.0%)
Asylum seeker	241 (35.1%)	249 (36.3%)	5 (0.7%)	147 (21.4%)	44 (6.4%)	0 (0.0%)	686 (100.0%)
Job search	74 (20.1%)	246 (66.9%)	0 (0.0%)	40 (10.9%)	5 (1.4%)	3 (0.8%)	368 (100.0%)
Ethnic German	1,000 (90.1%)	84 (7.6%)	2 (0.2%)	17 (1.5%)	5 (0.5%)	2 (0.2%)	1,110 (100.0%)
With job commitment	53 (14.9%)	260 (73.2%)	8 (2.3%)	33 (9.3%)	1 (0.3%)	0 (0.0%)	355 (100.0%)
Student & apprentice	136 (27.9%)	261 (53.5%)	3 (0.6%)	84 (17.2%)	2 (0.4%)	2 (0.4%)	488 (100.0%)
Observations	2,178 (43.1%)	2,122 (42.0%)	39 (0.8%)	594 (11.8%)	102 (2.0%)	20 (0.4%)	5,055 (100.0%)

Source: IAB-SOEP Migration Sample, own illustration

**Table 2** Descriptive statistics

	Residency status at arrival							Overall
	Family member	Asylum seeker	Job search	Ethnic German	With job commitment	Student & apprentice		
<b>Socio-economic variables:</b>								
Alter (in years)	36.1	41.2	41.4	42.0	42.2	36.5	39.0	
Member of EU (in %)	29.6	2.5	67.7	13.5	75.5	44.9	29.9	
Male sex (in %)	34.9	57.1	60.1	46.0	71.8	38.3	45.1	
Relationship status (in %)	67.0	78.6	79.1	83.4	82.8	75.0	74.9	
<b>Education &amp; migration variables:</b>								
High education, ISCED 5–6 (in %)	13.9	16.2	19.0	15.1	26.2	46.5	18.9	
Middle education, ISCED 3–4 (in %)	45.6	37.2	48.1	59.8	46.2	34.2	46.7	
Low education, ISCED 1–2 (in %)	33.5	36.7	31.5	23.1	27.3	15.2	22.4	
Graduation in the home country (in %)	59.5	66.6	97.8	71.9	97.2	78.7	70.5	
Graduation in Germany (in %)	30.9	21.3	0.8	24.6	2.5	14.6	22.4	
Age at arrival (in years)	20.7	24.8	28.9	27.1	29.7	23.1	24.1	
Years of Residence (in years)	15.4	16.4	12.3	14.9	12.8	13.4	14.8	
German citizenship (in %)	33.1	19.3	35.3	90.0	15.5	28.3	43.2	
German language skills (in %)	76.3	70.4	69.0	80.6	72.4	84.6	76.5	
Formal way of job searching (in %)	25.2	32.2	30.7	42.3	36.6	33.2	31.9	
Remittances (in %)	12.0	9.9	19.0	9.0	25.9	17.0	13.0	
Family living abroad (in %)	11.8	10.1	19.0	9.9	23.7	17.4	13.1	
<b>Pre-migration characteristics:</b>								
German language skills at arrival (in %)	12.8	9.0	20.9	31.0	23.4	26.0	23.5	
Attended language course in the home country (in %)	13.4	6.7	16.6	22.3	26.2	35.3	17.7	
Employed in the home country (in %)	37.8	43.6	69.0	61.9	79.7	44.5	49.7	
Employee without managerial functions (in %)	28.0	29.6	53.8	50.6	57.2	36.7	38.0	
Employee with managerial functions (in %)	7.0	8.5	8.2	9.1	18.0	5.1	8.3	
Self-employed (in %)	2.7	5.3	7.1	2.0	4.5	2.7	3.3	
Relationship status in the home country (in %)	46.7	50.9	60.3	62.5	65.1	42.2	52.6	
Observations	2,048	686	368	1,110	355	488	5,055	
Individuals	1,221	413	216	668	208	293	3,019	

Source: IAB-SOEP Migration Sample, own illustration

**Table 3** Labor market performance by the residency status at arrival (conditional on employment)

	Family member	Asylum seeker	Job search	Ethnic Germann	With job commitment	Student & apprentice	Overall
<b>Annual household equivalent income:</b>							
Labor market income (in €)	21,346.0	14,155.0	22,530.8	21,177.6	27,342.3	28,912.1	21,925.2
<b>Employment status:</b>							
Full-time employment (in %)	51.6	55.1	71.4	66.5	86.3	59.1	61.3
Part-time employment (in %)	23.5	20.7	19.3	22.1	10.4	21.1	21.1
Marginal employment (in %)	16.8	18.1	7.9	7.5	2.3	15.9	12.5
<b>Occupational sector:</b>							
<i>Blue collar</i>	42.0	50.8	46.6	50.9	40.4	22.6	43.3
unskilled or semiskilled	34.0	42.3	35.9	40.4	33.2	18.3	35.0
skilled or technician	6.9	6.4	9.7	9.2	6.2	4.1	7.3
Foreman etc.	1.1	2.1	1.0	1.3	1.0	0.3	1.2
<i>White collar</i>	43.8	34.6	43.1	41.9	44.6	64.1	44.4
without apprenticeship	15.5	16.0	13.5	11.0	8.1	13.6	13.4
with apprenticeship or foreman	7.2	5.9	10.0	8.4	5.2	6.4	7.3
qualified, high qualified or executive function	21.2	12.8	19.7	22.5	31.3	44.1	23.7
<i>Public sector</i>	12.1	10.4	7.9	12.0	10.8	16.5	11.8
Observations:	1,234	376	290	819	307	345	3,371
Individuals	792	246	180	515	189	224	2,146

Source: IAB-SOEP Migration Sample, own illustration



**Table 4** Earning effects of the residency status at arrival (conditional on employment)

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Residency status at arrival:</b>						
Family member	-0.0041 (0.0484)	-0.0360 (0.0636)		0.0229 (0.0477)	-0.0339 (0.0630)	
Asylum seeker	-0.3945*** (0.0732)	-0.4264*** (0.0829)		-0.3442*** (0.0732)	-0.4010*** (0.0813)	
Job search	0.0319 (0.0704)			0.0568 (0.0699)		
Ethnic German		-0.0319 (0.0704)			-0.0568 (0.0699)	
With job commitment	0.1948*** (0.0611)	0.1629** (0.0662)	0.2095*** (0.0476)	0.2002*** (0.0610)	0.1433** (0.0659)	0.1855*** (0.0477)
Student & apprentice	0.0894 (0.0762)	0.0576 (0.0863)		0.1330* (0.0747)	0.0762 (0.0840)	
<b>Additional control variables:</b>						
Socio-economic variables	Yes	Yes	Yes	Yes	Yes	Yes
Education & migration variables	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin	Yes	Yes	Yes	Yes	Yes	Yes
Pre-migration characteristics				Yes	Yes	Yes
Current residency status				Yes	Yes	Yes
Breusch-Pagan LM test	435.56***	435.56***	437.92***	428.28***	428.28***	430.34***
$R^2$	0.1995	0.1995	0.1831	0.2185	0.2185	0.2039
$\chi^2$	524.36***	524.36***	487.66***	593.13***	593.13***	556.66***
Observations	3,371	3,371	3,371	3,371	3,371	3,371
Individuals	2,146	2,146	2,146	2,146	2,146	2,146

Notes: \* $p < 10\%$ , \*\* $p < 10\%$ , \*\*\* $p < 1\%$ ; heteroskedastic Huber-White standard errors in parantheses

The dependent variable is logarithmized labor market income. Each model applies random effects GLS and controls on socio-economic covariates, variables of education and migration & country of origin fixed effects. Models (4)–(6) additionally controls on pre-migration characteristics and current residency status. A list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1. In the lower panel, Breusch-Pagan lagrangian multiplier (LM) test shows whether random effects GLS or pooled OLS is more appropriate. Each model clearly rejects the nullhypothesis, so random effects GLS has to be preferred.

Source: IAB-SOEP Migration Sample, own illustration

**Table 5** Estimation results with a focus on lon-term migrants

	Adjusted sample due to years of residence (yor)			
	yor > 3	yor > 4	yor > 5	yor > 6
<b>With job commitment relative to:</b>				
Ethnic German	0.1930*** (0.0623)	0.1853*** (0.0628)	0.1714*** (0.0654)	0.2061*** (0.0664)
Job search	0.1523** (0.0691)	0.1571** (0.0713)	0.1727** (0.0751)	0.2037** (0.0792)
All other groups	0.1810*** (0.0491)	0.1801*** (0.0499)	0.1796*** (0.0535)	0.2120*** (0.0543)
<b>Asylum seeker relative to:</b>				
Ethnic German	-0.3504*** (0.0733)	-0.3561*** (0.0737)	-0.3642*** (0.0738)	-0.3655*** (0.0745)
Job search	-0.3911*** (0.0828)	-0.3843*** (0.0842)	-0.3628*** (0.0854)	-0.3679*** (0.0883)
All other groups	-0.3989*** (0.0653)	-0.4010*** (0.0658)	-0.4010*** (0.0659)	-0.4115*** (0.0665)
Observations	3,289	3,216	3,135	3,038
Individuals	2,101	2,063	2,013	1,951
	yor > 7	yor > 8	yor > 9	yor > 10
<b>With job commitment relative to:</b>				
Ethnic German	0.1878*** (0.0684)	0.1658** (0.0701)	0.1588** (0.0712)	0.1250* (0.0729)
Job search	0.2238*** (0.0852)	0.2015** (0.0870)	0.2215** (0.0895)	0.1525* (0.0906)
All other groups	0.2035*** (0.0566)	0.1974*** (0.0591)	0.1978*** (0.0594)	0.1708*** (0.0603)
<b>Asylum seeker relative to:</b>				
Ethnic German	-0.3690*** (0.0748)	-0.3795*** (0.0760)	-0.3718*** (0.0775)	-0.4044*** (0.0782)
Job search	-0.3330*** (0.0922)	-0.3437*** (0.0931)	-0.3091*** (0.0955)	-0.3769*** (0.0965)
All other groups	-0.4117*** (0.0667)	-0.4119*** (0.0678)	-0.4002*** (0.0690)	-0.4285*** (0.0689)
Observations	2,945	2,820	2,660	2,494
Individuals	1,889	1,822	1,723	1,615

Notes: \* $p < 10\%$ , \*\* $p < 10\%$ , \*\*\* $p < 1\%$ ; heteroskedastic Huber-White standard errors in parantheses

The dependent variable is logarithmized labor market income. Each model applies random effects GLS and controls on socio-economic covariates, variables of education and migration, country of origin fixed effects, pre-migration characteristics and current residency status. A list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1. Each specification excludes recently arrived migrants, where in the upper panel in the first column individuals with less than 4 years of residence are excluded. In the last column in the lower panel, I exclude all individuals with less than 11 years of residence. Coefficients under the caption "With job commitment relative to" report labor market effects respectively relative to ethnic Germans, migrants, which arrived as job searchers, and all migrant groups. Coefficients under the caption "Asylum seeker relative to" have to be understood in the same way.

Source: IAB-SOEP Migration Sample, own illustration

**Table 6** Estimation results with a focus on recent migration waves

	immiyear $\geq$ 1990	immiyear $\geq$ 1992	immiyear $\geq$ 1994	immiyear $\geq$ 1996	immiyear $\geq$ 1998	immiyear $\geq$ 2000
<b>Adjusted sample due to the year of immigration (immiyear)</b>						
<b>With job commitment relative to:</b>						
Ethnic German	0.2230*** (0.0660)	0.2206*** (0.0669)	0.2328*** (0.0690)	0.2544*** (0.0722)	0.2776*** (0.0825)	0.2670*** (0.0962)
Job search	0.1570** (0.0711)	0.1571** (0.0718)	0.1918*** (0.0744)	0.1773** (0.0771)	0.1851** (0.0833)	0.1025 (0.0833)
All other groups	0.1891*** (0.0517)	0.1846*** (0.0523)	0.1994*** (0.0539)	0.2057*** (0.0565)	0.2265*** (0.0608)	0.1766*** (0.0643)
<b>Asylum seeker relative to:</b>						
Ethnic German	-0.3200*** (0.0769)	-0.3380*** (0.0790)	-0.3239*** (0.0807)	-0.4008*** (0.0955)	-0.3931*** (0.1228)	-0.1850 (0.1480)
Job search	-0.3860*** (0.0879)	-0.4015*** (0.0897)	-0.3649*** (0.0942)	-0.4779*** (0.1088)	-0.4856*** (0.1311)	-0.3495** (0.1494)
All other groups	-0.3703*** (0.0698)	-0.3899*** (0.0718)	-0.3696*** (0.0740)	-0.4609*** (0.0898)	-0.4464*** (0.1190)	-0.2570* (0.1361)
Observations	3,050	2,952	2,834	2,358	1,904	1,517
Individuals	1,944	1,854	1,808	1,513	1,219	963

Notes: \* $p < 10\%$ , \*\* $p < 5\%$ , \*\*\* $p < 1\%$ ; heteroskedastic Huber-White standard errors in parentheses

Each model applies random effects GLS, uses logarithmized labor market income as the outcome variable, and controls on socio-economic covariates, variables of education and migration, country of origin fixed effects, pre-migration characteristics and current residency status. A list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1. Each specification excludes recently arrived migrants, where in the upper panel in the first column, individuals with less than four years of residence are excluded. In the last column in the lower panel, I exclude all individuals with less than 11 years of residence. Coefficients under the caption "With job commitment relative to" report labor market effects respectively relative to ethnic Germans, migrants, which arrived as job searchers, and all migrant groups. Coefficients under the caption "Asylum seeker relative to" have to be understood in the same way.

Source: IAB-SOEP Migration Sample, own illustration

**Table 7** Propensity score matching results (N=579)

	Income effect (diff. in means)	Standard error
<b>Kernel matching:</b>		
ATT	2,772.9*	(1,560.8)
ATT (bootstrap)	2,772.9*	(1,582.0)
<b>Radius matching:</b>		
ATT	4,702.1***	(1,188.2)
ATT (bootstrap)	4,702.1***	(1,386.7)

Notes: \* $p < 10\%$ , \*\* $p < 10\%$ , \*\*\* $p < 1\%$

Propensity score matching is conducted on a sample, that includes exclusively individuals who arrived as job searchers or with a job commitment in Germany, where the status *with job commitment* is the treatment indicator. Propensity Score is estimated by applying probit estimations with regressors listed in Table 2, where variables on residency status at arrival are excluded ( $N = 579$ ). The outcome is the average treatment effect on the treated (ATT) with respect to labor market income. Standard errors are calculated with 500 replications with respect to the bootstrap method. Two different matching algorithms are used: Kernel matching and radius matching.

Source: IAB-SOEP Migration Sample, own illustration

**Table 8** The empirical impact of the residency status at arrival with respect to countries of origin and education

Panel A: Country of origin									
	Union			Union before enlargement of 2007			non-Union		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Residency status at arrival:</b>									
Family member	0.1223 (0.1004)	-0.0106 (0.0870)		0.1872 (0.1484)	-0.0689 (0.1109)		-0.0075 (0.0531)	-0.0169 (0.0928)	
Asylum seeker		-0.3903 (0.2572)		-0.3735 (0.2595)	-0.6296** (0.2538)		-0.3852*** (0.0758)	-0.3947*** (0.1003)	
Job search	0.1329 (0.1119)			0.2561 (0.1583)			0.0095 (0.0945)		
Ethnic German		-0.1329 (0.1119)			-0.2561 (0.1583)			-0.0095 (0.0945)	
With job commitment	0.2308** (0.1052)	0.0979 (0.0807)	0.1018* (0.0613)	0.3894** (0.1533)	0.1333 (0.1000)	0.1520* (0.0793)	0.1880** (0.0902)	0.1785 (0.1150)	0.2626*** (0.0835)
Student & apprentice	0.2252** (0.1123)	0.0923 (0.0995)		0.4228*** (0.1599)	0.1667 (0.1326)		0.1139 (0.1114)	0.1045 (0.1389)	
$R^2$	0.2128	0.2128	0.2048	0.2326	0.2326	0.2208	0.1787	0.1787	0.1547
$\chi^2$	204.32***	204.32***	196.10***				333.29***	333.29***	279.08***
Observations	1,156	1,156	1,156	776	776	776	2,215	2,215	2,215
Individuals	713	713	713	482	482	482	1,433	1,433	1,433
<b>Panel B: Education</b>									
	High education			Middle education			Low education		
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
<b>Residency status at arrival:</b>									
Family member	0.1056 (0.1125)	-0.1422 (0.1577)		0.0106 (0.0653)	0.0320 (0.0991)		0.0528 (0.1032)	-0.0196 (0.1066)	
Asylum seeker		-0.2894* (0.1612)		-0.3379*** (0.0991)	-0.3165*** (0.1215)		-0.3785** (0.1506)	-0.4508*** (0.1416)	
Job search	0.2478 (0.1768)			-0.0214 (0.1064)			0.0723 (0.1256)		
Ethnic German		-0.2478 (0.1768)			0.0214 (0.1064)			-0.0723 (0.1256)	
With job commitment	0.4644*** (0.1400)	0.2166 (0.1452)	0.3030*** (0.1017)	0.1413* (0.0859)	0.1627 (0.1082)	0.1716** (0.0668)	0.0229 (0.1256)	-0.0495 (0.1511)	0.0209 (0.0909)
Student & apprentice	0.3177*** (0.1220)	0.0699 (0.1712)		0.0006 (0.1026)	0.2199 (0.1246)		-0.0244 (0.1861)	-0.0967 (0.1783)	
$R^2$	0.2172	0.2172	0.2029	0.1732	0.1732	0.1627	0.2023	0.2023	0.1766
$\chi^2$	174.92***	174.92***	158.20***	236.66***	236.66***	217.76***	205.43***	205.43***	180.77***
Observations	735	735	735	1,720	1,720	1,720	851	851	851
Individuals	459	459	459	1,092	1,092	1,092	573	573	573

Notes: \*  $p < 10\%$ , \*\*  $p < 5\%$ , \*\*\*  $p < 1\%$ ; heteroskedastic standard errors in parentheses  
The dependent variable is logarithmized labor market income. Each model applies random effects GLS and controls on socio-economic covariates, variables of education and migration, country of origin fixed effects, pre-migration characteristics and current residency status. A list on used covariates can be found in Table 2, where different current residency status are summed up in Table 1.  
Source: IAB-SOEP Migration Sample, own illustration