

Demographic Tailwind' from East Germany? The Anew Apprenticeship Opportunities of Foreign Youth in West Germany

Oskar Jost*, Holger Seibert*, Mirko Wesling**

Abstract

The German system of vocational education and training (VET) is very much firm based. Training takes place in private companies and is accompanied by vocational education in public vocational schools. Companies offer training positions according to their economic well-being as well as to future requirements in skilled manpower. For many years the German VET market was not able to provide school leavers with the necessary number of VET vacancies - especially in East Germany and especially for foreign youth in West Germany. Consequently, sufficient numbers of East German School leavers successfully applied for VET positions in West. With the recovery of the eastern German labour market, which is mainly attributable to demographic developments, the number of eastern German VETs in the West fell significantly.

Our paper analyzes if and to what extend the growing opportunities for foreign youth in West Germany are a result of the demographic changes in East Germany. For this purpose, we use employment registry data from the Federal Employment Agency as well as population data from the Federal Statistical Office. Detailed analyzes prevail in how far apprentices with foreign nationality are to be found in VET positions that used to be occupied by applicants from East Germany in the past. Thereby, regional analyzes on NUTS-3-levels play an important role, as foreign population in Germany is concentrated in urban districts. Furthermore, an occupational differentiation is necessary as foreign youth clusters in certain apprenticeship occupations. Thus, we compare regional occupation clusters where competition between East German and foreign youth took place.

Keywords

East Germany, demographic change, migrants, apprenticeship, fixed-effects

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* Institute for Employment Research, Regional Office Berlin, Friedrichstr. 34, 10969 Berlin

** German Confederation of Skilled Crafts, Mohrenstr. 20/21, 10117 Berlin

'Demographic Tailwind' from East Germany?

The Anew Apprenticeship Opportunities of Foreign Youth in West Germany

Introduction

The German system of vocational education and training (VET) is very much firm based. Training takes place in private companies and is accompanied by vocational education in public vocational schools. Companies offer training positions according to their economic well-being as well as to future requirements in skilled manpower.

For many years the German VET market was not able to provide school leavers with the necessary number of VET vacancies - especially in East Germany and especially for foreign youth in West Germany. The problems in East Germany were foremost economy driven, because smaller East German companies have always had lower resources to stem the necessary VET supply. In the most difficult years there have been almost twice as many applicants as open VET positions. Consequently, sufficient numbers of East German School leavers successfully applied for VET positions in West. In West Germany it was rather problematic for marginalized groups to find VET positions, such as school leavers without or only low degrees or foreign youth. As mobile VET applicants from East Germany usually had better school degrees, this led to a certain displacement for these marginalized groups on the VET market in West Germany.

After the fall of the Berlin Wall, the birth rate of the East German population fell dramatically (post-unification birth decline) as shown by Seibert/Wesling (2014). This led to a market easing in the VET market in East Germany, which is associated with a decline in the number of East German VETs in the West. This sudden demographic relief from East Germany after 2007 can be seen as an external shock onto the West German VET market as it came rather unexpected and markedly changed relevant framework conditions.

Our paper analyzes if and to what extent the growing opportunities for foreign youth in West Germany are a result of this demographic change in East Germany. For this purpose, we use employment registry data from the Federal Employment Agency as well as population data from the Federal Statistical Office. Detailed analyzes prevail in how far apprentices with foreign nationality are to be found in VET positions that used to be occupied by applicants from East Germany in the past. Thereby, regional analyzes on NUTS-3-levels and labour market regions play an important role, as foreign population in Germany is predominantly concentrated in urban districts. Furthermore an occupational differentiation is necessary as foreign youth tend to cluster in certain apprenticeship occupations. Thus, we compare regional occupation clusters where competition between East German and foreign youth took place.

At the same time, we have to disentangle to what extent the improving opportunities for foreign youth are caused by the improved economic conditions in West Germany. Therefore, we consider a longer period beginning already in 1999, when East German school leaver cohorts used to be much bigger and the East German VET market was rather consistently fierce.

Since there is no systematic information on whether apprentices lived in East Germany before taking up their training in West Germany, we identify East German apprentices as commuters to West Germany with East German place of residence. Thereby we underestimate the number of East German trainees in the West and their effect on educational opportunities for foreign youth

Literature Review

In contrast to the school-based vocational training system and higher education, access to firm-based VET is governed by the rules of the market. Companies decide autonomously whether they want to participate in training and which persons they want to admit to their organisations as trainees within the framework of a contractual relationship under private law. When selecting VET applicants, companies take into account those whom they trust to be able to meet the minimum requirements for vocational training, so that the training benefit exceeds the training costs (Eberhard 2016: 212). Furthermore, they take into account their social fit with the company, and the potential risk of additional costs, e.g. as a result of an abandonment of training or disrupting the production processes (Imdorf 2010, 2015). Thus, the transition chances of applicants resulting from their position in the labour queue (cf. Thurow 1977) are the result of their resources concerning individual school education, social capital, and the competitive situation on the VET market (Eberhardt 2016). For those young people who are unable to obtain a VET position, there is a state-organised transition system which primarily absorbs youth with poor school performance and is intended to increase their apprenticeship opportunities through various vocational preparation measures. It is criticised, however, that this transition system conceals the shortage of VET positions and relieves training companies of their responsibility to ensure that they themselves provide sufficient VET vacancies (Granato/Krekel/Ulrich 2015; Eberhard/Ulrich 2011).

Foreign young people are systematically disadvantaged on the German VET market. For example, their VET beginner rate is only half as high as that of German youths (Kroll/Uhly 2018: 11-14). One of the main reasons for the lower apprenticeship opportunities is the poorer performance in terms of school-leaving qualifications. Foreign young people are much more likely to leave school with a lower secondary school degree and much less likely with an upper secondary school leaving certificate (Brück-Klingberg et al. 2009: 295-296). As Protsch and Solga (2016: 656) describe it: “[...] access to training places in general and to attractive occupations more specifically is highly structured by school attainment [...]” However, even controlling for existing school-leaving qualifications and the regional characteristics of the education system, significant differences remain in the chances of access to training between native and foreign youth (Seibert/Imdorf/Hupka-Brunner 2009). Transitions to training prove to be particularly difficult for students with low- and medium-level attainment in times of economic crisis and when large cohorts of school leavers are pushing their way onto the training market. Instead, school-leavers with upper secondary degree are not affected in their transition chances neither by poor economic conditions nor by bottle-neck situations after school (Kleinert/Jacob 2013). Comparing federal states in Germany reveals that ethnic inequality in VET tends to be large if the supply of apprenticeships is rather small (Schuller 2018).

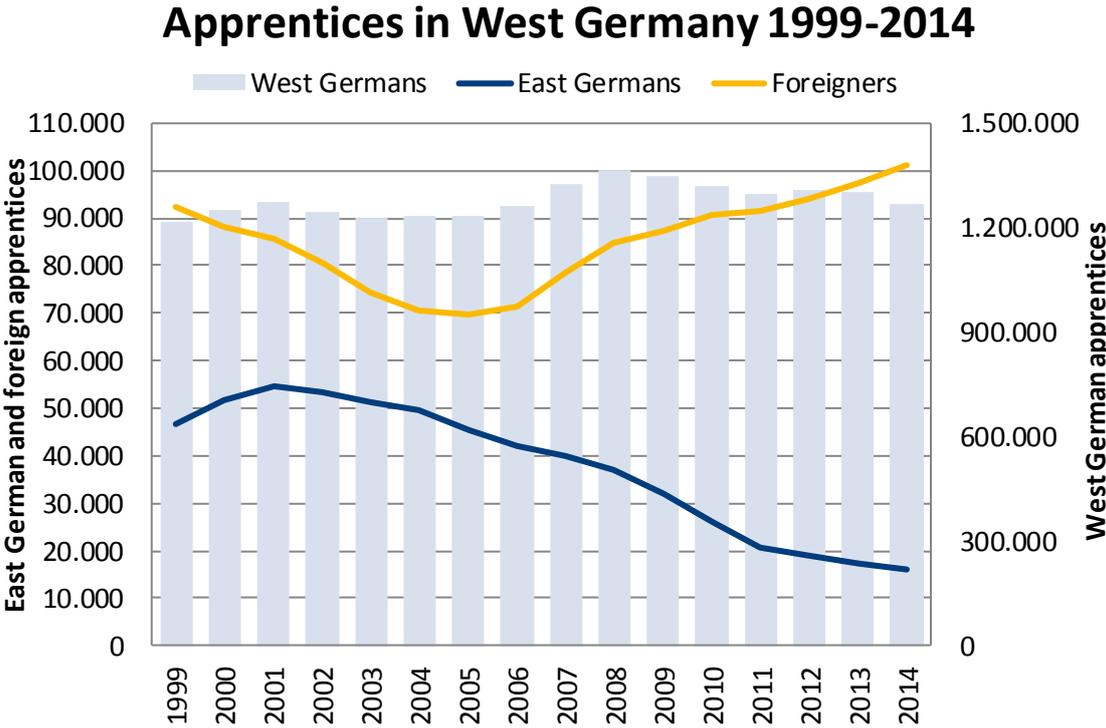
Finally, a whole series of organizational reasons are described which make it seem rational to favour German young people over foreign ones when awarding apprenticeships. They are thought to be easier to instruct. The risk of failure at the vocational school is said to be lower. There is less cultural irritation within ethnically more homogeneous teams. After all, no consumer discrimination is to be expected when hiring German instead of migrant apprentices (Imdorf 2007, 2010; Scherr et al. 2013, 2015).

Motivation and Description

The post-unification decline in births in East Germany in the beginning 1990s led to a massive time-delayed decline in youth population starting from 2005 as shown in Figure 2. In comparison, Figure 2 shows, on the other hand, that the number of apprentices has not decreased to the same extent. Given the two movements in the figure, it becomes clear that the decline of the young population has significantly contributed to closing the huge gap between VET supply and demand in East Germany within a very short period (cf. Jost/Seibert/Wiethölter 2019).

This meant that significantly more young people East Germans were able to take up VET training in East Germany and no longer had to commute to West Germany or leave their residence in the east. As a result, the number of East German apprentices commuting to West Germany fell rapidly within a few years. Figure 1 below shows the sharp decline in the number of young East Germans in the west. This decline was accompanied as already indicated by a parallel decline in the young population in the East. At the same time, Figure 1 shows that the decline of East German youth in the West was accompanied by a somewhat delayed corresponding increase of foreigners on the VET market. Here, the numbers diverge symmetrically along the time beginning in 2005.

Figure 1: VET market in West Germany

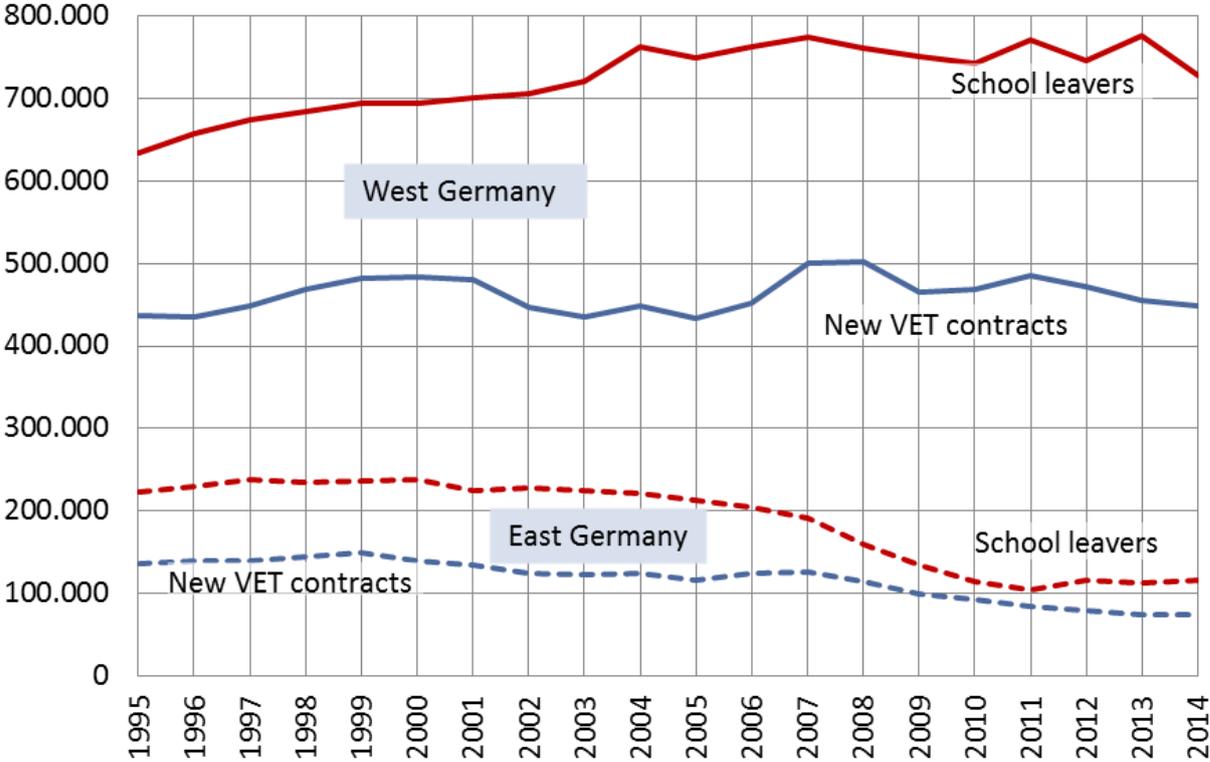


We therefore assume that East German young people took up training positions in West German firms, which became available when East Germans more and more found VET positions back home. In order to close this gap, employers in Germany resorted to foreigners.

In order to proof this connection between the two movements, however, we must exclude some possible influencing factors or point out similarities between East Germans and foreigners. For example, a sharp rise in the demand for VETs in the West could lead to foreigners finding more frequently training places. They would therefore have found training positions even without the

decline of the East Germans from the West. In order to take this circumstance into account, it is necessary to look at the number of new VETs hired after the decline of young East Germans from the West. Figure 2 below shows the numbers for new VET contracts in East and West Germany.

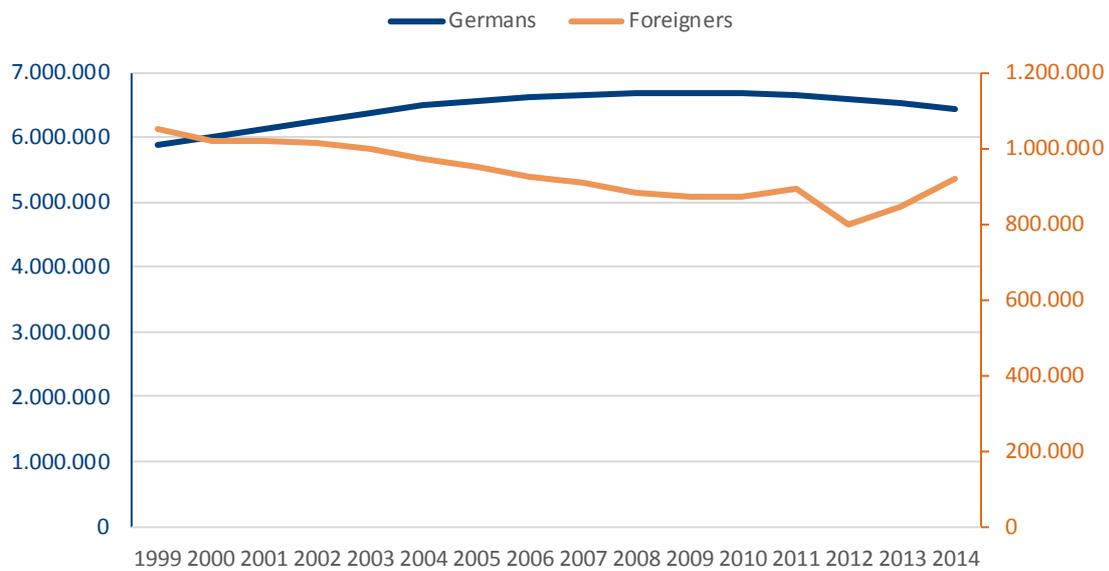
Figure 2: Number of new VET contracts and school leavers in East and West Germany



Source: IAB Employment History, Federal Statistical Office Germany

From the graph it becomes clear that although the number of new hires in West Germany increased between 2005 and 2007, it remained constant thereafter and declined slightly again after 2008. This makes it clear that the divergence of the curves in Figure 1 cannot be explained by increasing new VET contracts because the number of foreigners among the VET positions rose continuously until 2014. Another circumstance that can contribute to more foreign apprentices on the labor market here is a migration shock or an immigration wave. This would have an impact on the figures of foreign apprentices and lead to higher figures in the West. In order to exclude this circumstance, we will consider the total number of foreigners aged 15-24 in Figure 3 below.

Figure 3: Population of foreigners and Germans at age 15-24 in Western Germany.

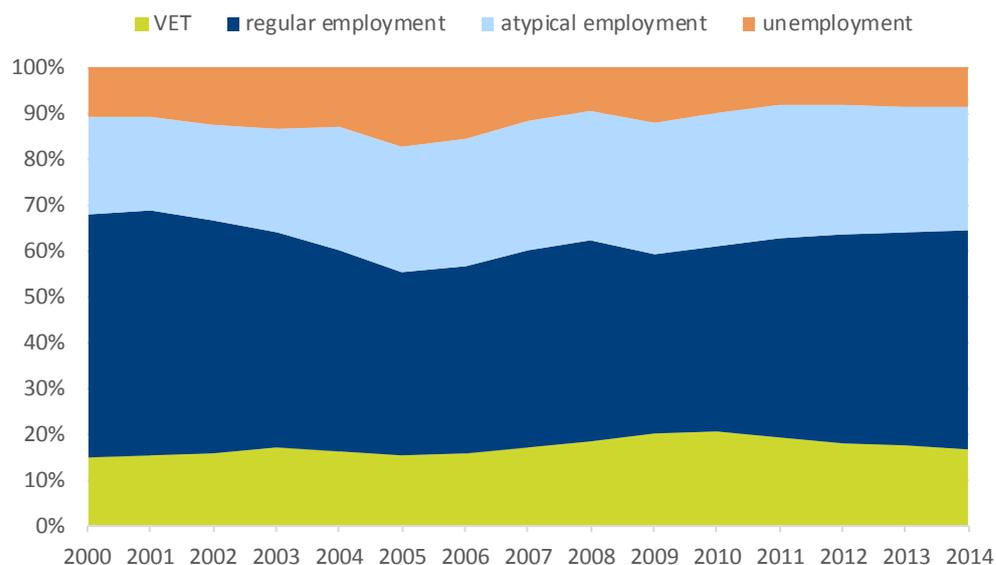


Source: Statistisches Bundesamt.

Figure 3 shows that the number of foreign youths actually fell in the period under review. In this way, we can rule out any waves of migration that might drive our results or argue against our hypothesis. Thus, these figures and changes from figure 2 and figure 3 confirm our hypotheses that foreigners took the places of the East Germans and did not find their way to newly created vacancies or due to any waves of migration.

This raises the question of the labor market status from which young foreigners come, so that they could enter vocational training. In the following figure 4, we show the percentage ratios of the labor market statuses of foreigners (excluding self-employed).

Figure 4: Labor market statuses of young foreigners in Western Germany.

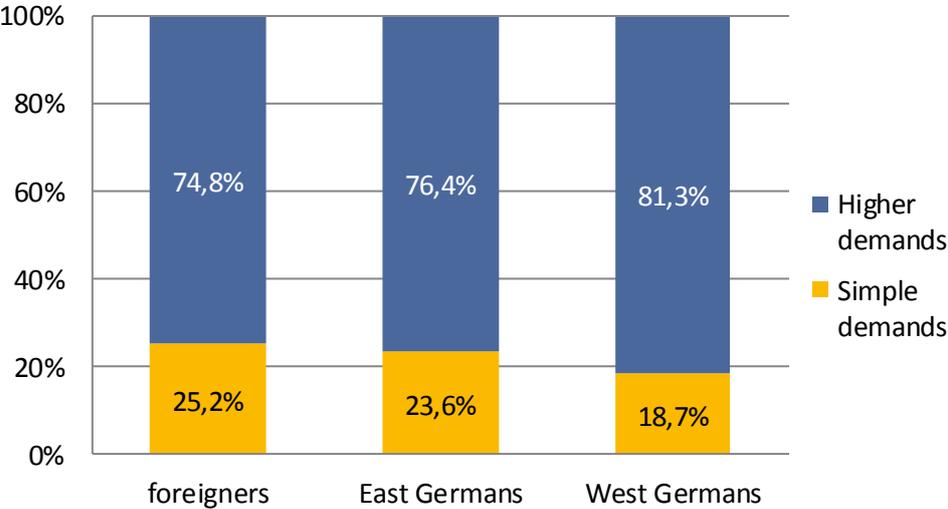


This shows that foreigners have indeed frequently switched from unemployment to vocational training in the period under review. The same can also be seen for regular employment, which share fell in favour of the share of vocal training. By contrast, the proportion of atypical employees

remained unchanged. This underpins our hypothesis and makes it clear that it has been possible to make better and better use of foreign resources.

In addition, we compare the skill demands of the foreign youths with the West and East Germans in the following in order to identify any similarities. We therefore consider the distribution of skill demands among these groups in West Germany subsequently in Figure 5. The figure shows that foreigners and East Germans apprentices actually work in similar skill demands. They are therefore more similar among themselves than with the West German apprentices. This distribution would argue for a certain substitutability between the two groups.

Figure 5: Apprentices in VET occupations with simple and higher skill demands in West Germany (average 1999-2014)



Another aspect to be considered in the analysis is the different spatial distribution of foreigners and East Germans in West Germany. The following figure 6 shows first of all that East German apprentices in particular mainly pursued their training in western German regions close to the border. In contrast, the western regions of West Germany have historically had a higher concentration of foreign youth especially in urban regions. However, in the majority of regions there is a sufficient overlay of East German and foreign youth with a subsequent competition among them. Over the years there have been, however significant shift in the ratio between East Germans and foreigners as can be seen in figure 7.

Figure 6: Distribution of East German and foreign apprentices across West Germany.

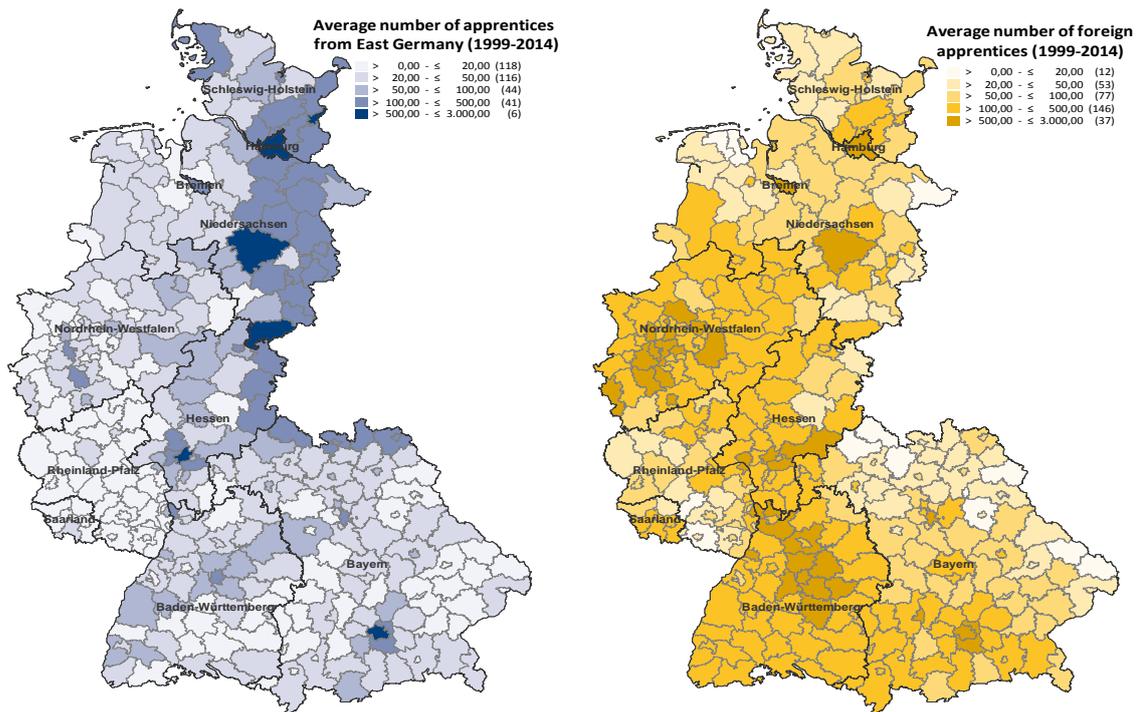
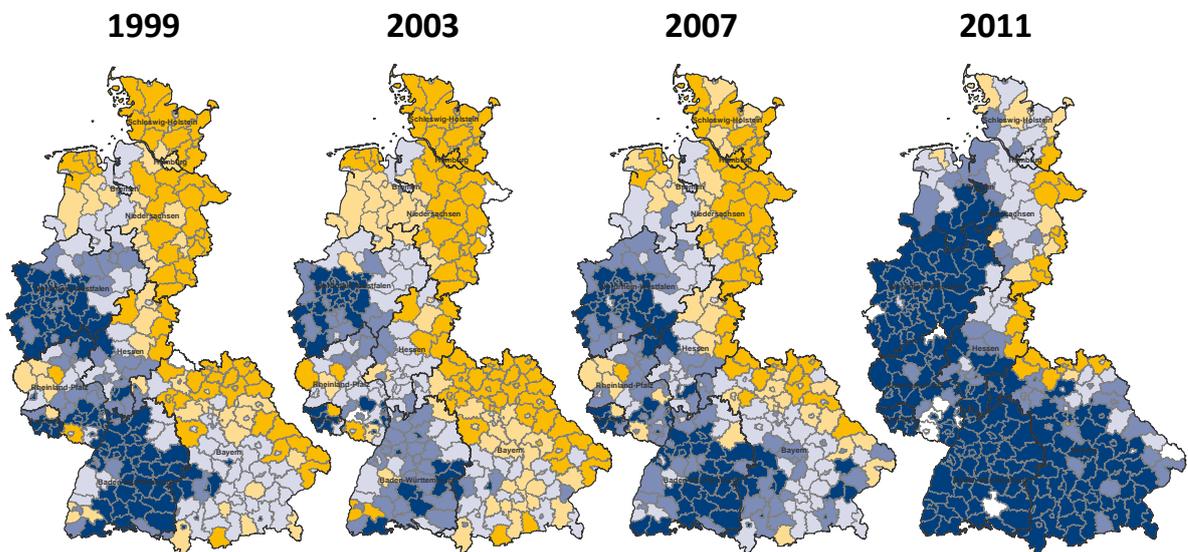


Figure 7: Development of the ratio of foreign and East German apprentices in West Germany in selected years.



Here it becomes clear that foreigners were increasingly penetrating the regions where many East German trainees had previously been. In order to consider this fact in our analysis, we draw on the concept of regional labour markets. These are defined by commuting interdependencies and the control of these regions in our subsequent multivariate analysis considers this circumstance.

Data

We use a special sample of the Integrated Employment Biographies (IEB) provided by the Institute for Employment Research (IAB). The IEB covers about 92% of the entire German labour force, excluding civil servants and self-employed. Our data basis comprises all foreign and German apprentices in West Germany. In addition, the data contain information on trainees in East Germany since 1991. However, this information is not included in our analytical analysis, but only in the above descriptions. With the help of the IEB data, we can identify all trainees separately by nationality. In addition, we have information on where the individuals work and live. This enables us to identify West German trainees and foreigners in the data. We identify East German trainees in West Germany with a place of work in the West and a place of residence in East Germany. In addition to this data, we use data from the Federal Statistical Office that includes, for example, the number of school leavers or new training contracts. Using these data sets, we create various variables that are needed for the subsequent analytical analysis.

Table 2: Variables used

Variable	Description
<i>Dependent Variable</i>	
Diff Foreigners	Difference of foreign apprentices between t and t+1
<i>Basic Variables</i>	
Diff east apprentices	Difference of East German apprentices between t and t+1
Diff app apprentices	Difference of all apprentices between t and t+1
Share migrants	Share of foreign population (15-24 years) per regional labour market
Share abi	Share of apprentices with upper secondary school degree
Share firms	Share of large scale companies per regional labour market
<i>Selectivity-related variables on location, industry and occupation</i>	
RAM	Labour market regions in Western Germany (108)
Occupations	Different occupations
Occupational Skill	Occupational skill demand (high and low)
Time dummies	Time dummies for 2000 - 2011

In order to take into account the different spatial distribution of foreigners and East Germans, which was especially true at the beginning of the 2000s, we create spatial-occupational clusters. These clusters are based on the concept of regional labor markets, which are defined by commuting interdependencies. Within these clusters, we identify foreigners, West Germans and East Germans among their occupations. The occupational classification within the clusters is divided into two approaches. On the one hand, we take a detailed look at the different occupations. On the other hand, a rough occupational classification as to whether the occupations have a high or low level of requirements. Both classifications are used in the following. Due to the panel structure of our data - data is available for the years 1999 to 2014 - we are able to use panel estimators. This allows us to exclude unobserved fixed heterogeneity. This circumstance is additionally enabled by the difference formation of the control variables. However, we must

exclude the years 2011 and 2012 from the multivariate analysis due to the changeover to a new occupational classification.

Multivariate Evidence

In order to analyse the previous interrelationships and our assumption in more detail, we will use the multivariate analysis. Here we build on the preceding descriptions and data that characterize our analytical approach and controls. We use a proven fixed effects approach. Based on our idea and the influences discussed in the descriptive chapter, our regression is composed as follows:

$$\Delta y_{it} = X_{it}\beta + \mu_i + \mu_t + \varepsilon_{it}$$

Δy_{it} here denotes the difference of foreign apprentices between the years in time $t = 1999, \dots, 2011$ in the labour market region $i = 1, \dots, 108$. X_{it} includes controls as discussed in the data chapter. μ_i and μ_t are time and region fixed effects. The results for the estimate are presented in Table 1 below.

Table 1: Estimation results

Dependent Variable: Differences to previous year in number of foreign apprentices, per cluster			
Independent Variables:		OLS (robust SE)	Fixed Effects
Differences to previous year in number of apprentices, per cluster	East Germans	-0.1847***	-0.1847***
	All apprentices	0.0784***	0.0783***
Share of foreign population (15-24 years), per region		-0.7415***	-0.7414***
Share of apprentices with upper secondary school degree (Abitur), per cluster		-1.3280**	-1.3276*
Share of large-scale companies, per cluster		-0.3332	-0.3328
Additional variables	Occupations	controlled	omitted
	Occ. skill demands	controlled	omitted
	Labor market regions	controlled	omitted
	Time dummies	controlled	controlled
N		34.228	34.258
N clustered/grouped		2.643	2.671
R2 (adjusted/within)		0.2917	0.2256
RMSE		71.842	71.845

* p<0.05; ** p<0.01; *** p<0.001

Hausman-test supported fixed instead of random effects model

Source: IEB, own calculations

The estimates show a significant negative effect of East German apprentices on foreign apprentices in West Germany. The coefficient shows that an increase of one East German trainee in West Germany is associated with a decline of -0.18 foreign trainees. This clearly shows the negative correlation between foreign and East German trainees on the training market in western Germany. It must be taken into account that, as usual, this is a ceteris paribus interpretation, so the other influences are kept constant.

The effect of the difference of all apprentices on the dependent variable, which here represents a proxy for the fundamental development on the training market, is 0.0784. This positive effect

shows that a fundamental improvement in the VET situation in West Germany has a positive impact on foreign apprentices. However, this effect is significantly smaller than that of East German apprentices. Thus, a decline in East German youth in West leads to a better labor market integration of foreigners than improved economic conditions.

Strikingly, an increasing proportion of foreign youths in a cluster has a negative effect on the training situation. Obviously, regions with a high proportion of foreigners have comparatively few foreign trainees.

It is noteworthy here, that the results between the OLS and the fixed effect estimate do not differ significantly from each other. Thus, the specification shows little sensitivity with regard to the methodology used.

The explanatory value of the model is comparatively low, but this results from the formation of differences that intercept a large part of the heterogeneity.

Discussion and Robustness

The multivariate results presented point to the fact that, as mentioned at the beginning, foreign apprentices found increasingly in VET programs as the number of East German apprentices declined in West Germany. The sharp decline in the birth rate in the East as a result of the fall of the Berlin Wall has therefore led to an improvement in the labour market integration of young foreigners in the West. These results have already become apparent in the descriptions, according to which the substitutability between foreigners and East German trainees is higher than between foreign and West German apprentices. One of the reasons why the foreigners could replace the East German trainees lies in a similar skill demand level, which is more similar than between the foreigners and West German youth. In connection with this, the two groups show a more similar distribution across the occupational groups, so that employers in these sectors had a greater need for junior staff after the migration of the eastern Germans back to East Germany.

Our results show a high robustness with regard to the modification of the estimation methodology. In particular, our estimate reacts robustly to changes in regional variables. We have repeated the estimate at the NUTS-3 regions level and obtained similar results. The same can be seen with regard to our control variables. Replacing the variable of the difference of the west German apprentices by the development of all trainees changes the results only minimally. We see this as a proof that speaks for our approach and increases the validity of our results. On top, the model used, shows little sensitivity to a recoding of the controls.

One point that unfortunately cannot be taken up in the analysis used is the determination of where foreigners come from with regard to their previous labour market status. It is conceivable that they might recruit themselves from the unemployment reserve on the one hand, but on the other hand that they could previously pursue low-quality jobs and then be able to find in VET programs. At this point it is therefore not clear where the foreign trainees come from exactly. In order to counter this situation, the respective biographies of the foreign youths should be taken into account in subsequent studies, insofar as they are available in the data.

Another weakness of the approach, which however tends to weaken the results, relates to potential dual national hearings. More recent laws that came into being in the 2000s allowed many foreigners to retain foreign citizenship when naturalised in Germany. This circumstance would

result in the proportion of foreign trainees being underestimated here, with the result that the results tend to be weaker than they actually are. A comprehensive solution for this circumstance is not possible because the data used does not capture this information.

Another aspect that can be considered in an extended future analysis is the examination of the topic at the firm level. This could be used to identify individual firms that previously employed East German youth and their behavior when East German youth no longer came to the West. This would make it possible to see exactly whether it were the same firms that replaced East Germans with foreigners or whether it was a general trend. It is also conceivable that the increasing employment of foreign apprentices has relieved many firm of their worries about foreigners. This would mean that the economic environment has contributed to a better climate with fewer prejudices for foreigners due to the decline of the East German population.

A major concern, which can also only be controlled insufficiently with the existing data, is the exact recording of the East German youths in the West. We rely on the employers in the process data, according to which young people in East Germany must have their place of residence but their place of work in the West. It is also conceivable that many young people have also moved their place of residence to the West and are therefore not covered by our identification strategy. This could be countered by examining the employment biographies to see whether the young people had previously been registered in eastern Germany. However, this would also not adequately address the problem as apprenticeship is often the first occupational declaration in the data in younger groups and previous place of residence is not covered for example during school.

Nevertheless, the results are unambiguous and the estimation and the descriptive descriptions prove the fact that foreign youths found training when East German youths went back to East Germany.

Conclusion

Our paper analyses the influence of East German youth emigration on the labor market integration of foreigners in West Germany. We could show that, due to the decline in the birth rate in the East, fewer East German youths went to West Germany to take up training there. In connection with this, free capacities were created in West German enterprises, so that they had recourse to foreign youths. We were able to rule out other potential influences. We were able to show that there were no migration shocks at that time and that the number of foreigners even decreased. At the same time, the skill demands point out that the substitution rate between foreigners and East Germans is highest compared to West Germans.

Furthermore, we were able to make it clear that any distortions such as dual citizenship would not diminish our effects. Our effects are therefore underestimated rather than overestimated. Another aspect, which we cannot adequately illustrate, is the fact that young people from eastern Germany have relocated to the west before starting their training. These young people would be interpreted by our approach as West Germans. We think, however, that this influence does not cloud the essential results.

Thus, we come to the central conclusion that the integration of foreigners in VET positions in the West was massively improved by the decline of the East German youth.

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