

Job Autonomy and Education-skill Matches of Immigrant Workers in Germany*

Robert C. M. Beyer[†]

This letter examines the determinants of occupational autonomy and education-skill matches of immigrant workers in Germany. Their jobs are characterized by much lower autonomy than those of comparable natives and the immigrant penalty decreases only minimally over time. In contrast to wages, the difference between immigrants from advanced and non-advanced countries is small. But immigrants from advanced countries are much more likely to have a job matching their qualification. The probability of a match does not increase over time for highly educated immigrants, but does for others. Highly educated immigrant women have an additional disadvantage. In some industries low autonomy and skill downgrading of immigrant workers are particularly common.

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[†]The World Bank Group, 1818 H St NW, Washington, DC 20433; email: rcmbeyer@worldbank.org; phone: +1 202 6297845.

1. Introduction

In recent years immigration to Germany has peaked. Up until 2013, net immigration to Germany consisted mainly of migrants from EU countries. In the following years, especially in 2015 and 2016, asylum seekers from outside of the EU accounted for most of the immigration. Independent of the nature of the immigration, the large increase in the number of people has compound implications for labour demand and supply and moves questions about the labour market integration of immigrants in Germany at the forefront.¹

Across developed countries, immigrant workers face large wage penalties (Dustmann and Frattini 2011) and lower returns on education and experience accumulated in the home countries, especially after arrival (Basilio et al. 2017). Because of skill downgrading, immigrants tend to work in jobs with a lower socio-economic classification than comparable natives (Dustmann et al. 2013).

Tasks are increasingly used to explain patterns of employment outcomes (Spitz-Oener 2006, Dustmann et al. 2009, Black and Spitz-Oener 2010, Gathmann and Schönberg 2010, Autor 2013). In line, the difficulty of immigrants to secure jobs with worthy “occupational autonomy” has been shown to explain half of the immigrants’ wage gap in Germany (Beyer, 2018).

The autonomy level of the occupational activity (job autonomy) employed in Beyer (2018) is based on task descriptions, the employee’s level of responsibility, and the training required and is measured on a scale from 1 for “low” to 5 for “high”.² Moving up one level in the autonomy measure is associated with an average wage increase of 20 percent (Beyer 2018). The autonomy level itself, however, is a labour market outcome. This letter examines the determinants of occupational autonomy and explores the education-skill match of medium and highly educated immigrant workers.

2. Data and Estimated Models

All data is taken from the German Socio-Economic Panel (GSOEP), which is a representative household survey located at the German Institute for Economic Research (DIW) in Berlin. Importantly, the survey contains information about the years of arrival of immigrants. Being an immigrant is defined by a place of birth other than Germany and hence children of migrants born in Germany are considered natives. For the following estimations data from 29 waves is used. After basic data cleaning, the working-age population consists of 200,000 observations for natives and over 35,000 observations for immigrants. Among the

¹ Examples include Brücker and Jahn (2011), Glitz (2012), Bertoli et al. (2016), Moreno-Galbis and Tritah (2016), and Basilio et al. (2017).

² While the level of responsibility is important for the autonomy, other characteristics matter as well. The variable consolidates information on task descriptions, the kind of activities involved, flexibility, use of professional knowledge, level of responsibility, required training, and company size. For more information about this variable and how it compares international job classifications see Hoffmeyer-Zlotnik and Geis (2003), DIW (2014), and Beyer (2018).

natives, 28 percent have high education and 57 percent have medium education. For immigrants the shares are 19 percent and 50 percent, respectively. Table 1 provides more summary statistics.

Table 1. Summary statistics of working age population

	Min	Mean	Max
<i>Natives (200,388)</i>			
Age	17	40.5	70
Medium education	0	0.57	1
High education	0	0.28	1
Trained for job	0	0.57	1
Job Autonomy	1	2.64	5
<i>Immigrants (35,472)</i>			
Age	17	41.5	70
Medium education	0	0.50	1
High education	0	0.19	1
Trained for job	0	0.37	1
Job Autonomy	1	1.92	5

I first estimate an ordered logit model with the level of autonomy as the dependent variable and include the following explanatory variables: being a migrant, the years spent in Germany (linear and squared), whether the immigrant is from an advanced country,³ has good German writing skills, has a German degree, the level of education, the years of working experience (linear and squared), and several controls.⁴ Since a German degree and German language skills are included as regressors, the years spent in Germany capture other assimilation benefits.

Next, I further explore the performance of medium and highly educated immigrants by estimating three logit models. First, looking only at highly skilled immigrants, I analyse the marginal affect for having an education-skill match, i.e. a job that requires high education, or high autonomy; and, second, I study the marginal effects of medium educated immigrants to have at least medium autonomy.

3. Results

Table 2 reports the average marginal effects for the different levels of autonomy. Education is the most important factor, with high education being much more important than medium education. But the penalty from being an immigrant is nearly as large. An immigrant is on average 30 percent more likely than a comparable native to have a job with low autonomy. As for wages, the immigrant penalty becomes smaller over time, but assimilation is minimal: after 20 years, the average marginal effect from being an immigrant is still 23 percent. Only an immigrant who writes German well, has a German degree, and is born in an

³ Countries are grouped in advanced and non-advanced based on IMF classification.

⁴ Controls are reported below the regression tables.

advanced country has a probability as low as a native to obtain a job with a low level of autonomy. Looking at high autonomy, immigrants are 9 percentage points less likely to have high autonomy job and, again, the effect remains strong over time.

In contrast to substantial differences between immigrants from advanced and non-advanced countries regarding their wage performance (Beyer 2018), the difference here is much smaller. Such a pattern could arise if highly educated immigrants from advanced countries, while performing worse than natives regarding autonomy, at least do jobs that require their high education whereas those from non-advanced countries do not. In fact, over two-thirds of highly skilled natives have a job matching their qualification and this fraction is even a bit higher for immigrants from advanced countries. In contrast, only 42 percent of the other immigrants have a such a job match.

Table 2 Average marginal effects for level of occupational autonomy

	Low	Low-Medium	Medium	Medium-High	High
Migrant	0.30***	0.20***	-0.14***	-0.27***	-0.092***
Years in Germany	-0.0051***	-0.0033***	0.0023***	0.0045***	0.0016***
YiG Squared	0.000081**	0.000052**	-0.000036**	-0.000072**	-0.000025**
Advanced Country	-0.063***	-0.041***	0.028***	0.057***	0.019***
Good German Writing	-0.12***	-0.075***	0.052***	0.10***	0.036***
German Degree	-0.10***	-0.067***	0.046***	0.092***	0.032***
Medium Education	-0.10***	-0.067***	0.046***	0.093***	0.032***
High Education	-0.34***	-0.22***	0.15***	0.30***	0.10***
Experience	-0.0055***	-0.0036***	0.0025***	0.0050***	0.0017***
Experience Squared	0.00010***	0.000066***	-0.000046***	-0.000092***	-0.000031***
Female	0.047***	0.030***	-0.021***	-0.042***	-0.014***

*** p<0.01, ** p<0.05, * p<0.1

Note: The table shows average marginal effects from a logit regression for the level of occupational autonomy. As controls I include year dummies, a dummy for Eastern Germany, whether the person works full-time and is married, the unemployment experience, whether a immigrants arrived after 2007, as well as the years in the firm.

Source: GSOEP 1984-2013 and author's calculations.

The first column of Table 3 shows the average marginal effects for a high educated migrant to have a job that requires high education, the second column that the migrant has high autonomy, and the third that a medium educated migrant has at least medium autonomy. While the years spent in Germany make it more likely for a medium educated immigrant to have a job with at least medium autonomy, there is no positive effect for highly educated immigrants. This suggests that for medium educated immigrants there are integration benefits in addition to the ones explicitly controlled for in the regression absent for highly skilled immigrants. For the former, the time spent in Germany can substitute for other positive characteristics. One explanation could be that the jobs of medium educated immigrants tend to be less technical. In line, the level of experience has a negative effect for highly skilled immigrants, but a positive one for medium

educated immigrants.⁵ The latter are hence able to climb the job ladder by gaining working experience which translates into better jobs with higher autonomy and consequently higher wages. This prospect is absent for highly educated immigrants, whose probability to find a job requiring their training or a job with high autonomy is higher at the beginning and diminishes over time.

Table 3 Average marginal effects for matches and high/medium autonomy

	High Education		Medium Education
	Match	High Autonomy	Med./High. Autonomy
	(1)	(2)	(3)
Years in Germany	0.000217 (0.00501)	0.00380 (0.00546)	0.0115*** (0.00369)
Years in Germany Squared	-4.95e-05 (0.000100)	-8.99e-06 (0.000115)	-0.000158* (8.42e-05)
Arrived after 2007	0.133 (0.0920)	0.0490 (0.0881)	0.127* (0.0740)
Advanced Country	0.227*** (0.0401)	0.135*** (0.0429)	0.104*** (0.0329)
German Degree	0.0846** (0.0427)	0.119*** (0.0431)	0.145*** (0.0307)
Good German Writing	0.386*** (0.0575)	0.0935*** (0.0318)	0.0528** (0.0243)
Experience	-0.0193*** (0.00641)	-0.0152** (0.00610)	0.00666* (0.00343)
Experience Squared	8.47e-05 (0.000128)	0.000118 (0.000147)	-0.000181** (8.04e-05)
Female	-0.136*** (0.0407)	-0.239*** (0.0373)	-0.0359 (0.0307)
Age	0.0125*** (0.00332)	0.00705** (0.00316)	-0.00467** (0.00222)
Controls	YES	YES	YES
Observations	5,010	5,010	15,599

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Note: Average marginal effects from logit models. As controls I include the industry (agriculture, energy, mining, manufacturing, construction, trade, transport, as well as bank and insurances), year dummies, a dummy for Eastern Germany, whether the person works full-time and is married, the unemployment experience, as well as the years in the firm. The omitted industry is Services.

Source: GSOEP 1984-2013, own calculations.

Being born in an advanced country has a larger effect on having a job match than high autonomy. The opposite is true for a German degree that has a larger average marginal effect for having high autonomy. A

⁵ This result is not due to multicollinearity of the explanatory variables: correlation between these variables is not very high and consequently signs and significant levels do not change when potentially problematic variables are excluded.

German degree is particularly important for medium educated immigrants. In contrast to medium educated women, highly educated ones have a disadvantage over men, with a stronger effect for high autonomy than job matches. Finally, there are some industries in which over-education and skill downgrading are particularly common. For highly skilled immigrants these are Manufacturing and Trade, whether one looks at matches or high autonomy. On the other hand, high-skilled immigrants find the best jobs in Services. For medium educated immigrants, the sectors with the worst performing immigrants are in decreasing order Manufacturing, Transport, Mining (only at 10 percent significance level), and Construction. On the other hand, medium educated immigrants working in Banking and Insurances are most likely to have at least medium autonomy. For them it is more likely that employers are appreciating their skills, whereas in sectors in which manual labour is more common, a migrant's individual schooling and training are less important and hence less compensated.

4. Conclusion

Immigrants face substantial obstacles to find jobs with occupational autonomy as high as comparable natives. These difficulties are persistent and similar for immigrants from advanced and other countries. But for immigrant workers from non-advanced countries, skill-downgrading reflected in low job matches is a larger problem.

In addition to a German school degree and German language skills, years spent in Germany tend to close the autonomy gap. All these factors are strongly connected to the age at immigration. Many refugees who arrived recently are young and often still pursue further education in Germany and will hence benefit from these factors.

However, to successfully integrate the large influx of refugees into the labour market and to attract more highly-skilled labour migrants in the future, it is essential to reduce obstacles to skill transfer and allow immigrant workers to contribute according to their abilities. Reasons for skill downgrading could be outright discrimination or details of the labour market institutions, such as the ease of converting educational degrees. A better understanding of the reasons for the imperfect substitutability of immigrants and natives in the German labour market is needed to design appropriate policy actions.

Finally, social integration and labour market integration may be interrelated and the role of networks has been shown to matter for other integration outcomes. In future work, the GSOEP data could be used to study the effect of social networks on job autonomy, i.e. the kind of work immigrants do.

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