The immigrant-native pay gap in Germany

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Abstract:

This note analyzes income differences between foreigners and natives in Germany. Using social survey data (ALLBUS) for 2012, I use Mincer style quantile regressions and Oaxaca-Blinder decompositions to estimate the size of the income differential. People not born in Germany, have an income lose for about 6,5 to 10 per cent. People with a foreign citizenship have even higher income losses. They face penalties between 8 to 14 percent. Decomposition shows a 9,2 percent difference for immigrants, while most of the gap is unexplained. Individuals without German citizenship have a 15,8 percent difference. Here more of the half remain unexplained.

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[1] This work is the author's private opinion.

Introduction

This note analyzes income differences between foreigners and natives in Germany. Following Borjas (1994) and Altonji and Blank (1999), differences in income or wages of immigrants are mostly explained by differences in productivity aspects. Here a general lower human capital such as lower levels of education or less language skills, a mismatch situation of offered and demanded qualifications, or sorting in low income occupations and sector, or selection into self emplyoment, all these explanations lead on average to lower earnings of immigrants. However parts of the income penalties can be driven by discrimination.

I use recently published social survey data (ALLBUS) for the year 2012 to perform Mincer style quantile regressions and Oaxaca-Blinder decompositions to estimate the size of the income differential. This paper is organized as follows: First, the overview of the research literature on the subject of our research will be presented. Second, the ALLBUS data and the empirical model will be described. Third, the models will be run and the results duly presented and interpreted. Finally, in the conclusions the outcomes of our research will be clearly stated.

Overview of the research literature

Paper such as Jandová (2012) or Švec (2013) discuss that Germany has turned from a non-migration country into an open country, that welcome higher net migration rates. Along with that, papers discuss income differentials between natives and foreigners. Aldashev et. al (2012) use German SOEP data to analyze the income gaps between German with and without foreign background and foreigners. With decomposition techniques they report 11,3 to 20 percent gaps between foreign and native men and women. The size of the gaps are similar between Germans with and without migration background. Here 16,5 and 14,8 percent are reported for men and women. The authors claim that only a small part of the gap is explained by endowment differences. More than 88 percent of the gap remain unexplained. Lehmer and Ludsteck (2011) use large

German social security data to decompose country specific income gaps for male immigrants and natives. They show that some heterogeneity exist between different countries. Compared to Germans immigrants differ in income from 8 (Spanish citizen) to 44 percent (Polish citizen). Using the same approach for income quantiles, Lehmer and Ludsteck show that for most countries of origin the size of the gap diminish along the income distribution. Bertolucci (2013) use German linked employer-employee data and regression techniques to analyze income differentials within firms. He presents a 12.8 to 16.8 percent income loss for immigrants. However not only immigrants suffer from income penalties, most part of the literature deals with the gender gap for women or gay men (e.g. Humpert, 2012).

The data set and methodological issues

I use the recently published wave (2012) of the German social survey ALLBUS (GESIS, 2012). For a discussion of the data set. The majority of the 1,654 individuals are native Germans. While 10 percent (169 persons) of the entire population is not born in Germany, only 5 percent of them (76) has no German citizenship. This two foreign subgroups include more than sixteen different nationalities, mostly from Europe. I observe individuals who earn income from work. They are between 18 and 65 years old. I control for the usual determinants: age, age square, working hours, employment, part time work, union membership, education level family formation , children and German federal states. See table 1 for descriptive Statistics.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Log Income	1,654	7.322179	0.6390002	4.60517	11.0021
Female	1,654	0.4594921	0.4985071	0	1
Not Born in Germany	1,654	0.1021765	0.3029719	0	1
No German Citizenship	1,654	0.0459492	0.2094383	0	1
Age	1,654	42.65236	11.98838	18	64
Age 2	1,654	1962.858	992.374	324	4,096

Working Hours	1,654	40.00423	10.77892	5	96
Work	1,654	5.009674	1.038824	1	7
Part Time Employment	1,654	0.1777509	0.3824185	0	1
Union Membership	1,654	0.1862152	0.389398	0	1
Education	1,654	2.114873	0.7354864	1	3
Family Formation	1,654	2.633011	1.868036	1	5
Children	1,654	0.643289	0.4791733	0	1
Federal State	1,654	87.23035	41.6947	1	16

Source:own calculation

I use Mincer style quantile regressions (with 10 to 90 percent) and the Oaxaca-Blinder decomposition technique (Oaxaca, 1973; Blinder, 1973) to estimate the size of the income differential.[2] The logarithm of individual gross monthly income is used to perform the analysis. The general estimation is like the following:

$$\log y_i = a_0 + a_1 \text{Foreigner}_i + a_2 X_i + \varepsilon_i$$

For every individual i the logarithm of the monthly income is regressed on a dummy for being foreign (birthplace / citizenship) and on a vector of individual social-economic characteristics. Epsilon describes the residuum.

Results

At first I analyze differences in immigrant income along the income distribution. Table 2 shows the results of the quantile income regressions. Both groups face similar income penalties compared to the German population. The results shows, that both groups are doing relatively better at the higher part than at the lower of the income distribution. Immigrants, people who were not born in Germany, have on average an income lose for about 6,55 to 10,11 percent. Foreigners, people with a foreign citizenship born in Germany or abroad, have even higher income losses. They face penalties on average between 8,22 to 14,28 percent. Although all coefficients for immigrants and foreigners have negative signs, only two of the five quantiles have significant results. The other variables

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2 I use the STATA commands qreg and oaxaca (written by Jann (2008)).

reported have the expected signs, while log income increase with age, women face significant negative income gaps between 20 and 30 percent. The results for the other coefficients are reported by the author upon request. To sum up the direction and the size of the income penalty is similar to the results of Bertolucci (2013).

Table 2: Quantile Regression for foreign born (left) and a foreign citizenship (right)

Q10	Coefficient	t-value	Q10	Coefficient	t-value
Age	0.0556066	3.71	Age	0.0504169	4.55
Female	-.03464174	-5.67	Female	-0.3453118	-6.61
Foreign Born	-0.0555636	-0.89	Foreign Citizenship	-0.0506253	-0.55
Constant	4.840243	13.35	Constant	4.874225	17.11
N=1,654	R^2=0.3714		N=1,654	R^2=0.3713	
Q25	Coefficient	t-value	Q25	Coefficient	t-value
Age	0.0234697	2.41	Age	0.0225783	2.76
Female	-0.2574389	-7.80	Female	-0.2617289	-7.43
Foreign Born	-0.1065975	-1.92	Foreign Citizenship	-0.1541219	-1.98
Constant	5.869232	22.64	Constant	5.875272	20.84
N=1654	R^2=0.3715		N=1654	R^2= 0.3720	
Q50	Coefficient	t-value	Q50	Coefficient	t-value
Age	0.0291613	3.87	Age	0.0265929	3.85
Female	-0.22047	-7.82	Female	-0.2178905	-8.44
Foreign Born	-0.0528023	-1.36	Foreign Citizenship	-0.0547031	-1.07
Constant	6.052135	27.21	Constant	6.079574	33.20
N=1,654	R^2=0.3641		N=1,654	R^2=0.3639	
Q75	Coefficient	t-value	Q75		Coefficient	t-value

Age	0.0381986	4.84	Age	0.037664	6.23
Female	-0.2384431	-7.33	Female	-0.2299911	-7.87
Foreign Born	-0.0677778	-2.17	Foreign Citizenship	-0.0856882	-1.93
Constant	5.963338	26.75	Constant	5.952493	27.73
N=1,654	R^2=0.3594		N=1,654	R^2=0.3588	
Q90	Coefficient	t-value	Q90	Coefficient	t-value
Age	0.0357773	3.70	Age	0.0341482	3.27
Female	-0.2609285	-6.95	Female	-0.2663471	-7.61
Foreign Born	-0.0681419	-1.29	Foreign Citizenship	-0.0499494	-0.79
Constant	6.114509	12.39	Constant	6.137309	12.36
N=1,654	R^2=0.3565		N=1,654	R^2=0.3563	

Controlled for age squared, working hours, work (ref: farmer), part time work (ref: full time), union membership (ref: no), education level (ref: low), family formation (ref: married), children (ref: no), federal state (ref: Schleswig-Holstein)

Source: own calculation

Now, I use Oaxaca- Blinder decomposition to estimate how much of the gap is explainable by differences in endowment, such as differences in age, education, or work. The results are reported in table 3. For immigrants, people who are not born in Germany, decomposition shows a difference of 8,7 log points or 9,2 percent between natives and immigrants. Adjusting immigrants endowment to the native one would increase immigrant income by 1,3 percent, but a gap of 7,8 percent point remain unexplained. In other words 84,8 percent of the gap itself remains unexplained by differences in endowments. In the second model, called foreigners or people without German citizenship, the differences are even larger. There is a difference of 14,6 log points or 15,8 percent between natives and foreigners. Adjusting foreigners endowment to the native one would increase immigrant income by 5,5 percent, but a gap of 9,8 percent point remain unexplained. Here 62,0 percent of the gap itself remains unexplained by endowment. Again these results for the native-immigrant income gaps and the size of the explained or unexplained parts are similar to the German

literature, such as Aldashev et al. (2012) and Lehmer and Ludsteck (2011).

Table 3: Oaxaca Decomposition for foreign born (left) and a foreign citizenship (right)

Differential	Coefficient	z-value	Differential	Coefficient	z-value
Prediction_Native	7.331128	439.91	Prediction_Native	7.328912	455.79
Prediction_Foreign Born	7.24354	155.46	Prediction_Foreign Citizenship	7.182375	99.13
Difference	0.0875882	1.77	Difference	0.1465365	1.97
Decomposition			Decomposition		
Explained	0.0127182	0.33	Explained	0.0533359	0.99
Unexplained	0.0748699	2.02	Unexplained	0.0932006	1.95

Source: own calculation

Conclusion

This research note I analyzes income differences between foreigners and natives in Germany.

With German social survey data (ALLBUS) for the year 2012, I perform Mincer style quantile regressions and Oaxaca-Blinder decompositions to estimate the size of the income differential.

The results are in line with earlier work on German native-immigrant income gap. People who were not born in Germany, have on average an income lose for about 6,5 to 10 percent. People with a foreign citizenship have even higher income losses. They face penalties on average between 8 to 14 percent. Decomposition shows a 9,2 percent difference, while 84,8 percent of the gap itself remains unexplained by differences in endowments. Individuals without German citizenship have a 15,8 percent difference. Here 62,0 percent of the gap itself remains unexplained.

To sum up immigrants face income losses relative to the German working population. It is an interesting result, that differences exist in the size of the income gap bet ween foreign born individuals and foreign citizenship. However the rather small numbers of observes immigrants is a limitation of this note.

Literature

Aldashev, A, Gernandt , J, Thomsen S.L. (2012). The immigrant-native wage gap in Germany, *Journal of Economics and Statistics (Jahrbuecher fuer Nationaloekonomie und Statistik)* 232(5): 490-517.

Altonji, J, Blank, R. M. (1999) Race and gender in the labor market, in:Ashenfelter, O., Card, D. (ed.), *Handbook of Labor Economics*, 3(3), Elsevier.

Bertolucci, C. (2013) Understanding the native-immigrant wage-gap using matched employer-employee data: Evidence from Germany, *Industrial and Labor Relations Review*, forthcoming.

Blinder, A. (1973) Wage discrimination: reduced form and structural estimates, *Journal of Human Resources*, 8(4): 436-455.

Borjas, G.E. (1994) The economics of immigration, *Journal of Economic Literature* 32(4), 1667-1717.

GESIS - Leibniz Institute for the Social Sciences (2012): ALLBUS/GGSS 2012 (Allgemeine Bevölkerungsumfrage der Sozialwissenschaften/German General Social Survey 2012). GESIS Data Archive, Cologne. ZA4614 Data file Version 1.0.0

Humpert, S. (2012) Somewhere over the Rainbow: Sexual Orientation Discrimination in Germany, *University of Lüneburg Working Paper Series in Economics* 245

Jandová, P. (2012) Migration and economic condition in the EU: A case study of immigrants in Germany, *International Economics Letters* 1(1): 41-48.

Jann, Benn (2008) The Blinder-Oaxaca decomposition for linear regression models, *STATA Journal* 8(4): 453-479.

Lehmer, F., Ludsteck, J. (2011) The immigrant wage gap in Germany: Are East Europeans worse off? *International Migration Review* 45(4): 872-906.

Oaxaca, R. (1973), Male-female wage differentials in urban labor markets, *International Economic Review* 14 (3): 693-709.

Švec, O. (2013). Labor migration in the EU: An empirical evidence, *International Economics Letters* 2(1): 15-26.