

A “glass-ceiling” effect for immigrants in the Italian labour market?

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Abstract

This paper investigates earnings differentials between immigrants and natives. We focus on returns and on the (imperfect) transferability of human capital. Data are drawn from the 2009 Italian Labour Force Survey. We show that returns to human capital are considerably lower for immigrants as compared to natives and that there is no return to pre-immigration work experience, suggesting imperfect transferability of human capital. We also show that the small returns to immigrants’ human capital are mainly driven by intra-occupational earnings differentials and that, contrary to what is observed for natives, immigrants’ human capital does not help to get access to high-level occupations. We detect a “glass-ceiling” effect for immigrants workers, who appear to face a large penalty in accessing high paying occupations.

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1. Introduction

In recent years Italy experienced a marked increase in immigration. The share of migrants rose very rapidly: from 1.1% (738,000) in 1995 to 7.0% (4,235,059) in 2010. EU enlargement, since 2007, further contributed to increase migration flows from eastern European countries. Migrants are generally younger and active in the labour market, hence when their share is computed on the labour force figures (in 2010) are close to 9%. This significant and rapid growth of immigrants in the Italian labour force constitutes a substantial shock to labour market equilibria and likely to affect both employment and earnings differentials, particularly for what concerns the relative performance of immigrants and natives. The aim of the present paper is to investigate the effects of recent immigration waves on wage determination.

Empirical research on the earnings of immigrants has shown, for different countries, that returns to human capital are generally lower for immigrants as compared to native born (among many others, Chiswick, 1978; Dustmann, 1993; Baker and Benjamin, 1994; Shields and Wheatly Price, 1998; Friedberg, 2000; Chiswick and Miller, 2008). This is often explained with reference to the low portability of immigrants' human capital (i.e. pre-immigration education and work experience). Due to the lack and poor quality of the data, there are to date no comprehensive studies, that use nationally representative data to analyse immigrants' earnings differentials in Italy.¹ Only few studies have investigated these issues using administrative archives or data limited to specific regions. Amongst the few, Accetturo and Infante (2010) analyse the earning structure of one large Italian Northern region (Lombardia) and find that returns to education for immigrants are, on average, much lower as compared to natives (0.7-0.9% versus 4.7-6.1%). They also show that immigrants' returns to education, when compared to natives, remain low even over time, hence suggesting lack of assimilation. Venturini and Villosio (2008) examine the labour-market assimilation of foreign workers in Italy focussing on the earnings and employment of male workers. They use administrative data drawn from the social security archives (INPS), which contain only limited demographic characteristics and no information on individuals' educational attainment thus impeding any analysis of returns to human capital. They find no earnings differentials between immigrants and natives upon entrance into employment, but the earnings profiles diverge with work experience pointing to a lack of assimilation which increases over time.

Given the lack of evidence, the present paper intends to contribute to the existing literature documenting earnings differentials and returns to human capital for immigrants and Italians, using the 2009 Italian Labour Force Survey, which is the first nationally representative data with

¹ A number of studies have investigated the displacement effect of immigration on native workers' employment and wages for Italy. For example, Gavosto, Venturini and Villosio (1999) find no evidence of immigration on natives earnings and mixed results for (un)employment.

information on both earnings and foreign identifier.² We distinguish between the effect of human capital acquired abroad and domestically on earnings, and investigate the patterns of immigrants' skill transferability. We allow for differences in the returns to human capital (both education and work experience) between immigrants and natives, and for differences in returns to home and destination country's work experience (Friedberg, 2000).³ In line with previous findings, we show that returns to immigrants' education are lower as compared to that of native workers. We also find that pre-immigration work experience grants no returns in the Italian labour market and that years of post-migration labour market experience are rewarded at a considerably lower rate for immigrants as compared to natives.

In the second part of the paper we explore wage progression throughout the occupational ladder. In particular, we analyse the role of human capital, for immigrants and natives, in explaining inter-occupational and intra-occupational earnings differentials and in granting access to high-paying occupations (Chiswick and Miller, 2009). Our findings suggest that the main source of wage progression for immigrants is given by intra-occupational earnings growth and that, contrary to what is observed for natives, immigrants' human capital does not help to get access to high-level occupations. Finally, we detect a sort of "glass-ceiling" effects for immigrants workers located in the upper part of the distribution who face larger penalty in accessing high paying occupations.

The rest of the paper is organised as follows. The next section describes the data used for the analysis and presents some descriptive evidence. Section 3 shows some standard wage equations and compares returns to human capital for immigrants and natives. In section 4, we first estimate inter-occupational and intra-occupational wage differentials, and second we investigate changes along the wage distribution using quantile regressions. Section 5 presents some sensitivity checks, while section 6 concludes.

2. Data and descriptive statistics

We use data drawn from the 2009 wave of the Italian Labour Force Survey (LFS), a nationally representative dataset with information on workers' earnings as well as a foreign identifier (i.e. individuals with non-Italian citizenship).⁴ The LFS only covers foreigners registered at municipal

² Note that most studies which focus on the effects of immigration on earnings are usually forced to use large cross-sectional data (Census, Labour Force Surveys) to guarantee representativeness of the immigrant population (see for example, Chiswick and Miller, 2007 and 2009; Friedberg, 2000).

³ Friedberg (2000) showed that the returns to schooling obtained in the country (i.e. Israel) for immigrants was lower as compared to natives (8% and 10% respectively), and that for immigrants the returns to schooling acquired abroad was even lower (7%).

⁴ In order to improve the quality of data on foreigners, the LFS employs a number of *ad hoc* strategies to collect data on the immigrant population. For example, interviews in households with a foreigner head are made using the Capi technique (Computer assisted personal interviewing) instead of the Cati technique (Computer assisted telephoning interviewing). Moreover, since 2004 further constraints referring to foreigners separately by gender and citizenship have been introduced into the procedure of computing individual weights.

registry offices; hence the study does not consider illegal immigration. We restrict our sample to migrants from Eastern Europe, Asia, Centre and South America and Africa, while we exclude foreigners from EU15, North America, Oceania and Japan.⁵ We also focus the analysis on males only, since female migration patterns are quite different from that of males -- both in terms of purposes (i.e. family reunions) and with respect to the specific labour market segment where it is concentrated (mainly households' service sector). Our final sample contains 94,269 individuals, with 7,252 (7.69%) immigrants and 87,017 (92.31%) Italian citizens. Our variable of interest, as recorded in the LFS, is net monthly earnings (which excludes occasional elements of pay such as annual productivity bonuses, allowances, pay for non customary overtime, etc.). Table 1 shows some basic characteristics of the sample separately for immigrants and natives. Average monthly earnings are much lower for immigrants (-20%) as compared to Italians, while working hours are higher for latter group. Immigrants are younger (5 years), have resided in Italy on average for 10 years and their work experience, while being on average lower, is equally split between Italy and their country of origin.⁶ Moreover, immigrants tend to be less educated (approximately 1.5 years)⁷ and more frequently hired on "non-standard" contracts (15% *versus* 10%). Finally, immigrants are mainly located in Northern regions, as compared to Italians (68% *versus* 48%), while they are under-represented in the South (11% *versus* 36%).

TABLE 1

Table 2 reports average earnings across quartiles of the distribution separately by education and work experience for natives and immigrants -- for the latter both pre-immigration and post-immigration measures are reported. For both Italian and immigrants earnings levels are positively associated to both education and work experience, but the relationship is much stronger for natives: moving from the first to the last quartile, average education is 3 years higher for Italians, while 1.1 years for immigrants. The same holds for overall work experience: 21 to over 27 years from the first to the fourth quartile for Italians, and 21 to 23 years for immigrants.⁸ The evidence presented, at least at a descriptive level, show that earnings levels are higher for Italians and increase faster, along the earnings distribution, then it is the case for immigrants; which may be taken as a first

⁵ Immigration from these countries is very limited in Italy (it represents just 3% of the whole sample of migrants) and, most importantly, it is very different from immigration from the rest of the world.

⁶ Note that the small difference between years since migration and experience in destination country (less than 3 months) is due to a small number of foreigners who have acquired part of their education in Italy.

⁷ The LFS provides information on schooling levels (i.e. highest educational level achieved), which was converted in years of education with reference to the Italian educational system. Obviously this conversion may suffer from potential measurement errors.

⁸ Interestingly, experience in home country for immigrants is smaller at higher wage levels; while experience in the domestic country is greater at higher wage levels, although the observed increase is lower as compared to Italians.

rough indication that the association between wages and human capital accumulation is stronger for Italians than for immigrants.

TABLE 2

3. Basic earnings equations and the immigrants' pay gap

In this section we estimate standard human capital wage equations. First, we estimate a baseline specification, which represents our benchmark model, in which we first impose equal returns to schooling and experience for both immigrants and Italians, and second we restrict the returns to immigrants' pre- and post-immigration work experience to be the same. The specification of the benchmark model is the following:

$$\ln(w_i) = \alpha + \beta_0 WT_i + \beta_1 M + \beta_2 ED_i + \beta_3 EXP_i + \beta_4 YSM_i + \beta_4 X_i + \varepsilon_i \quad (1)$$

where $\ln(w_i)$ is the log of net monthly earnings, WT is weekly hours worked, M is a dummy variable for immigrant status, ED is education in years, EXP is potential work experience, YSM is the number of years since arrival in Italy, while X is a vector of personal and job characteristics (marital status, full-time, permanent job). All specifications include regional fixed effects. All restrictions implicit in model (1) are relaxed in model (2), where we allow for differences in returns to human capital between immigrants and natives, and for differences in return to home and destination country's work experience. The unrestricted version of our wage equation is,

$$\ln(w_i) = \alpha + \beta_0 WT_i + \beta_1 M + \beta_2 ED_i + \beta_3 (ED_i * M) + \beta_4 EXP_i^H + \beta_5 EXP_i^D + \beta_6 (EXP_i^D * M) + \beta_7 X_i + \varepsilon_i \quad (2)$$

where we interact education with the immigrant dummy ($ED_i * M$), and we split immigrants work experience between the part acquired in their home country (EXP_i^H) and the part acquired in the destination country ($EXP_i^D * M$). The first two columns of Table 3 present estimates of model (1), while columns 3 to 5 show estimates of model (2). For each model we estimate different specifications with and without controls for industry, firm size and occupations. When the returns to education and experience are restricted to be the same between immigrants and Italians (columns 1 and 2), we estimate a 10% earnings penalty for immigrants upon arrival (7.7% less when controlling for industry and firm size) which does not decrease over time after migration.⁹ Estimated returns to education and work experience are, respectively, 3.6% and 0.64% (4.5% and

⁹ Note that this result cannot be interpreted as a causal effect due to the potential endogeneity of return migration.

0.77% when conditioning on additional controls). The benchmark model, however, is easily rejected by the data. When we fit an unrestricted specification of the benchmark model to the data (columns 3 and 4), the estimated returns to education are, respectively, 4.9% and 4% for natives and 0.79% and 0.66% for immigrants.¹⁰ The inclusion of occupational dummies (column 5) further reduces the returns to education for both Italians and immigrants, thus suggesting that part of the estimated returns are explained by inter-occupational earnings differentials. We will delve into this issue further in the following section.

TABLE 3

The returns to work experience also show some interesting results. First, pre-immigration work experience is not valued at all in the Italian labour market. Second, there is a penalty for immigrants (as shown by the negative and statistically significant coefficient of the interaction term) on the returns to work experience. Overall, we find that returns to human capital (both education and work experience) are considerably lower for immigrants in the destination country, as compared to natives, and that there are no returns associated to pre-immigration work experience. As a final point, it is interesting to notice that the earnings gap between natives and immigrants is mainly explained by the lower returns to immigrants' human capital: the gap is close to zero (other things being equal) when both natives and immigrants have (roughly) ten years of schooling and becomes negative at higher levels of schooling, while work experience matter less.¹¹

4. Earnings, occupations and returns to human capital

In this section we investigate the role of occupational achievement in wage determination for both immigrants and natives. Typically, wage progression can be characterised as a combination of both factors affecting occupational attainment and those affecting the returns from human capital within any given occupation. The first, mainly shapes inter-occupational earnings differentials which, among other things, are likely to be influenced by educational levels and, for immigrants, by the penalty associated to the imperfect transferability of human capital skills. The second, mainly affects the intra-occupational earnings progression which, besides educational attainment, depends upon accumulated work experience which, for immigrants, is made up of pre- and post-immigration experience (Chiswick and Miller, 2009). In other words, with respect to previous findings (see

¹⁰ Note that the return to education for immigrants is the algebraic sum of the return to schooling for natives and the wage penalty for immigrant's schooling.

¹¹ Note that the high positive immigrants' earnings gap estimated upon arrival, as in columns (3) and (4) in Table 3, can be explained by the fact that there are very few individuals in the sample with less than 10 years of schooling.

section 3 above), we ask how much of the overall earnings gains associated with years of education, for both immigrants and natives, is due to inter-occupational differentials and how much is due to within occupation (intra-) earnings progression. We also investigate whether there is any earnings penalty for immigrants associated to the imperfect transferability of skills. The relevance of these features in wage determination, is empirically evaluated by augmenting our specification of the earnings equations, separately for immigrants and natives, with a wide array of occupational dummies.¹² Then comparing estimates of earnings equations with and without controls for occupations – that is, with and without occupational fixed effects – allows us to assess the returns to human capital holding constant the inter-occupational earnings structure, such that the conditional returns to human capital can be interpreted as the intra-occupational earnings payoff for natives and immigrants. However, since the distribution of immigrants and natives across occupations is unlikely to be random (as shown in figure 1), we do not pay too much attention to the inter-occupational earnings structure and focus mainly on the effect of human capital variables (i.e. schooling and work experience) on earnings.

Figure 1 reports the actual distribution of immigrants and natives across occupations, using the 2 digit ISCO classification which consists of 37 occupational groups. In panel (a) occupational groups are ranked using the average level of education, while in panel (b) the within-occupation average wage is used instead. In both panels of figure 1, immigrants are more likely to be employed in low-skilled and low-paid jobs, which partly reflect differences in accumulated human capital and partly unobserved factors such as imperfect transferability or discrimination. In the latter case, even when immigrants have comparable levels of education and work experience to those of native workers, they may be paid less due to their being concentrated in low-ranked occupations.

FIGURE 1

In Table 4, we report the estimates of earnings equations obtained replicating the same specifications as in Table 3 -- this time separately for natives and immigrants -- while conditioning on the occupational earnings structure. We show that the returns to schooling for native Italians, when occupational fixed effects are included, decrease from 4 percent (column 1) to 2.1 percent (column 2), close to a 50 percent reduction (column 3). In a similar way, but much smaller in magnitude, returns to schooling for immigrants decrease when we condition on occupational

¹² As discussed in Chiswick and Miller (2009), occupational fixed effects are generally not included in the earnings equation because they can be considered either as grouped variant of the dependent variable or an alternative measure of labour market outcome. Their inclusion, however, can shed light on the indirect channels through which earnings gains are achieved, that is through occupational attainment. More educated and more experienced workers have in general access to occupations that are ranked up in the occupational ladder and pay higher wages.

dummies: the coefficient on schooling decreases from 0.8 percent (column 4) to 0.64 percent (column 5), corresponding to a 20 percent reduction (column 6). This means that while for Italians almost half of the overall education payoff is associated to having access to high paying occupations, for immigrants only 20 percent of the (already quite modest) returns to education originate from access to high paying occupations. For both groups, the remaining part of the return to education is related to higher wages obtained within occupations.

TABLE 4

The returns to work experience, when inter-occupational pay differentials are held constant, also prove very informative. The payoff to work experience for Italians show a modest decline from 0.7 percent (column 1) to 0.53 percent (column 2), equivalent to a 22 percent reduction (column 3), thus suggesting that only a minor part of the earnings progression is achieved via access to high paying occupations. For immigrants, we find that post-migration work experience is hardly affected when occupation dummies are included (the coefficient drops by just 4 percent), while the payoff to pre-immigration work experience (i.e. accumulated in the home country) slightly increases with respect to the unconditional model – i.e. a 14 percent change (see column 3). This opposite effects suggest that while experience accumulated in the destination country seems to add very little to the (inter-occupation) wage progression of immigrant workers, more years of pre-immigration experience (conditional on years since migration) appear to drive immigrants into low paying occupations. This result is in line with earlier findings in the literature and can be explained with reference to both the imperfect transferability of skills across countries, as well as with labour market discrimination (see Chiswick, 1978; and Chiswick and Miller, 2009).

Our results clearly show that the overall returns to immigrants' human capital are very modest: the contribution of educational achievements to high paying occupation appears quite limited, while that of work experience is close to zero; the little pay progression immigrant workers seem to make mainly derives from the intra-occupational earnings mobility.

4.1 Quantile regression analysis

In order to explore better the patterns of earnings differentials for immigrant and native workers along the entire wage distribution, in this section we replicate the analysis of the returns to human capital using quantile regressions (Buchinsky, 1998). In particular, we focus attention on the penalty immigrant workers face, as compared to natives, in the returns to educational achievements at

different deciles of the distribution.¹³ The results are summarized in Figure 2, where we plot, at each decile, the coefficient estimates of the schooling variable interacted with the immigrant dummy, first excluding then including occupational dummies (the full set of estimates are not reported here for lack of space but are available upon request). The mean penalty estimated with OLS, as shown in columns 4 and 5 of Table 3, is also reported for comparison purposes.

FIGURE 2

Results show that, when occupational controls are excluded, the estimated penalty for immigrants increases along the earnings distribution: from -2.5 percent at lower deciles to -4.5 percent at the top of the distribution (OLS is -3.3 percent). This result is consistent with previous findings in the literature suggesting that for natives the payoff to education increases along the deciles of the earnings distribution, while for immigrants increases are far less pronounced (Chiswick, Le and Miller, 2006). When occupational fixed effects are added, both the value and the gradient along the deciles of the distribution are much less pronounced (OLS is -1.6 percent), and we cannot reject the null that the estimated penalty for immigrants is constant for the most part of the earnings distribution (i.e. penalty is statistically lower only at the first decile). With reference to the findings reported in the previous sections (see tables 3 and 4), this evidence also suggests that differences between natives and immigrants over the earnings distribution are mainly driven by the larger penalty that immigrants workers, located in the upper part of the distribution, face in accessing high paying occupations. There is no equivalent gradient in the penalty for within occupation returns to education. Overall, results point to a sort of “glass-ceiling” effects for immigrants which partly depends on the imperfect transferability of educational achievements and partly is attributable to the existence of occupational segregation.¹⁴

5. Robustness check

TBW

¹³ In practice, we re-estimated model (2), with and without occupational controls (i.e. as in Table 3 columns 4 and 5), and reported in figure 2 the coefficient estimates of the schooling interaction term.

¹⁴ Note that this can also be consistent with the hypothesis that immigrants at the bottom of the distribution are more favourably selected on the basis of unobserved characteristics as compared those immigrants located at the top, hence the smaller gap could also be attributed in part to higher ability and motivation of immigrants with respect to natives at lower deciles (see Chiswick, 1978)

6. Concluding remarks

In this paper we investigated the structure of earnings differentials between immigrants and natives in the Italian labour market. We used the 2009 Italian Labour Force Survey, which is the first nationally representative data with information on both earnings and foreign identifier. The analysis focused on the effect of human capital acquired abroad and domestically on earnings, allowing for differences in the returns to both education and work experience between immigrants and natives. In line with previous findings, we showed that returns to human capital are considerably lower for immigrants as compared to natives and that there is no return to pre-immigration work experience, suggesting imperfect transferability of human capital. We also explored the role of human capital, for immigrants and natives, in explaining inter-occupational and intra-occupational earnings differentials. Our findings suggest that the main source of wage progression for immigrants is given by intra-occupational earnings growth and that, contrary to what is observed for natives, immigrants' human capital does not help to get access to high-level occupations or progressing throughout the occupational ladder. Finally, we used quantile regression to quantify the effects of human capital along the earnings distribution. We show that immigrants workers located in the upper part of the distribution face a "glass-ceiling" effect through a restricted access to high paying occupations. Overall our results show that there is little assimilation of immigrants to natives, confirming earlier findings in the literature for other countries. While providing new and important evidence for the economic effects of immigration flows in the Italian labour market, there are some important questions that are left for future research. For example, future studies should try to assess what part of the observed wage penalties for immigrants' workers depend on imperfect transferability of educational attainment and what part is related to the existence of occupational segregation in the labour market.

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Table 1. Summary statistics

	Italian		Immigrants	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
Net monthly wage	1372,50	563,79	1097,71	343,74
Weekly working time	39,13	6,92	40,19	6,93
Age	41,85	10,94	36,99	9,32
Years of schooling	10,94	3,46	9,36	3,95
Pre-immigration work experience	-	-	11,80	8,73
Work experience in destination country	24,91	11,75	9,82	5,60
Years since migration	-	-	10,05	5,61
Full time	0,96	0,20	0,94	0,24
Married	0,61	0,49	0,59	0,49
Permanent worker	0,89	0,31	0,85	0,36
Nr obs	87017		7252	

Table 2. Distribution of human capital by wage quartiles

	Italians			Immigrants				
	<i>Education</i>	<i>Work experience</i>	<i>Monthly net wage</i>	<i>Education</i>	<i>Work experience</i>	<i>Pre-immigration work experience</i>	<i>Work experience in destination country</i>	<i>Monthly net wage</i>
Wage quartile								
1	9.87	21.23	830.73	8.75	20.76	12.09	8.66	712.87
2	10.06	25.06	1175.75	9.26	21.07	11.8	9.29	1033.72
3	10.92	26.06	1403.22	9.67	21.89	11.64	10.22	1189.18
4	12.92	27.3	2082.1	9.84	23	11.65	11.36	1496.51

Table 3. Basic earnings equations

VARIABLES	(1)	(2)	(3)	(4)	(5)
Immigrant	-0.1039*** (0.008)	-0.0772*** (0.007)	0.4222*** (0.016)	0.3428*** (0.016)	0.1754*** (0.016)
Education	0.0453*** (0.000)	0.0360*** (0.000)	0.0493*** (0.000)	0.0402*** (0.000)	0.0215*** (0.000)
Education x immigrant			-0.0414*** (0.001)	-0.0336*** (0.001)	-0.0165*** (0.001)
Experience	0.0077*** (0.000)	0.0064*** (0.000)			
Pre-immigration work experience			-0.0005 (0.000)	0.0001 (0.000)	0.0005 (0.000)
Work experience in destination country			0.0082*** (0.000)	0.0069*** (0.000)	0.0054*** (0.000)
Years since migration	-0.0019*** (0.001)	-0.0009 (0.001)			
Work experience in destination country x immigrant			-0.0048*** (0.001)	-0.0032*** (0.001)	-0.0017*** (0.001)
Constant	5.4179*** (0.013)	5.4541*** (0.015)	5.3605*** (0.013)	5.3995*** (0.015)	6.2503*** (0.024)
Observations	93,982	93,982	93,982	93,982	93,982
R-squared	0.407	0.445	0.417	0.451	0.502
Personal and job characteristics	YES	YES	YES	YES	YES
Regional fixed-effects	YES	YES	YES	YES	YES
Industry fixed-effects and firm size	NO	YES	NO	YES	YES
Occupations	NO	NO	NO	NO	YES

Robust standard errors in parentheses. Control for working time is included in all specifications.

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

Table 4. Earnings and occupations

VARIABLES	Natives			Migrants		
	(1) Standard model	(2) Model with 37 occupation dummies	(3) % change from standard model	(4) Standard model	(5) Model with 37 occupation dummies	(6) % change from standard model
Education	0.0399*** (0.000)	0.0213*** (0.000)	-0,47	0.0080*** (0.001)	0.0064*** (0.001)	-0,20
Experience	0.0068*** (0.000)	0.0053*** (0.000)	-0,22	-	-	-
Pre-immigration work exp	-	-	-	0.0014*** (0.000)	0.0016*** (0.000)	0,14
Work exp in dest country	-	-	-	0.0054*** (0.001)	0.0052*** (0.001)	-0,04
Observations	86,800	86,800		7,233	7,233	
R-squared	0.447	0.500		0.381	0.403	

Standard errors in parentheses.

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

Controls for working time, personal and job characteristics, firm size, region and industry are included.

Figure 1. Distribution by occupations - Natives and Migrants

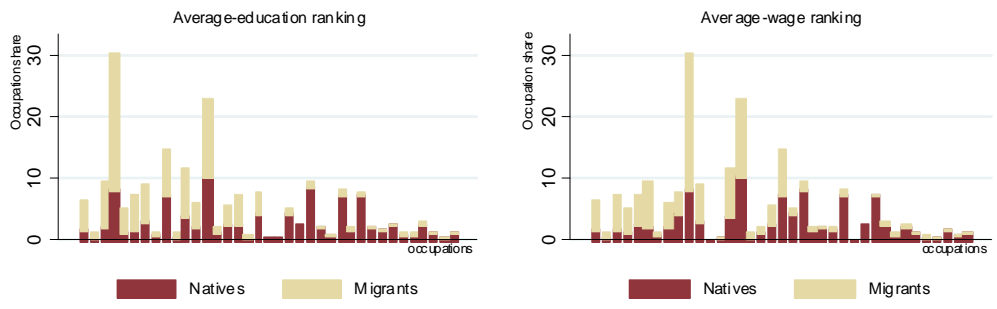


Figure 2. Penalty in the returns to educational achievements

