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INSTITUTO DE ECONOMÍA

Serie Documentos de Trabajo

Diciembre, 2018

DT 16/2018

ISSN: 1510-9305 (en papel)

ISSN: 1688-5090 (en línea)

Forma de citación sugerida para este documento: Méndez, L. (2018) “Immigrants’ over-education and wage penalty. Evidence from Uruguay”. Serie Documentos de Trabajo, DT 16/2018. Instituto de Economía, Facultad de Ciencias Económicas y Administración, Universidad de la República, Uruguay.

Sobre-calificación de los inmigrantes y penalización en el salario. Evidencia para Uruguay

Luciana Méndez*

Resumen

Este estudio examina en qué medida los inmigrantes en Uruguay experimentan sobre-calificación en el empleo en el mercado de trabajo local; y si aquellos trabajadores sobre-calificados son penalizados en el salario en comparación con aquellos trabajadores cuya educación es la requerida por el empleo que desempeña.

Los resultados encontrados muestran que los trabajadores con mayor nivel de calificación tienen mayor probabilidad de encontrarse sobre-calificados en el empleo. También, se encuentra que cuanto mayor es la red social con la que cuenta el inmigrante, menor será su probabilidad de encontrarse sobre-calificado en el empleo. En el caso de las mujeres inmigrantes, la probabilidad de sobre-empleo se reduce a medida que el tiempo de residencia en Uruguay se incrementa, y el tiempo de experiencia continua en el mercado de trabajo aumenta. Finalmente, se observa una penalización en el salario para trabajadores inmigrantes sobre-calificados, tanto para mujeres como para hombres.

Palabras clave: Inmigración, sobre-calificación en el empleo, penalización salarial

Código JEL: J15, J24, J30, J62

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Immigrants' over-education and wage penalty. Evidence from Uruguay

Luciana Méndez

Abstract

This paper examines to what extent recently arrived immigrants in Uruguay experience occupation–over-education in the host labor market, and whether those over-educated workers are penalized in the destination country.

Results of this study show that the more immigrants are educated, the more chances they have for being over-educated. Also, immigrants embedded in larger immigrants' social networks are less prone to be over-educated. Findings also stress that for women, over-education is reduced the longer the length of residence in Uruguay and the more years of continuous employment experience they have. Finally, it is found that over-educated immigrants are penalized in the labor market; while only for women, the more they live and continuously work in Uruguay, the larger their labor earnings.

Key words: Immigration, over-education, wage penalty

JEL codes: J15, J24, J30, J62

1. Introducción

The literature on immigrant integration in the destination country provides vast evidence on occupation–education mismatch; largely observed immediately after upon arrival. Mismatch occurs when a worker is hired for a job which requires a particular level of education, but the individual has different skills than the required ones. In turn, over-education takes place when individuals accept jobs that require skills below their education level.

Human capital mismatch is an economic problem due to its association to productivity and its consequences on wage inequalities. As mismatched workers do not use efficiently their skills, individuals are wage penalized in the labor market; but also at the aggregate level the society does not make an efficient use of the finite stock of human capital available. Understanding whether the source of mismatch is attributable to institutional factors of the host countries is essential to identify which policy tools can be used to alleviate this problem. If the host labor market does not efficiently allocate immigrants' human capital, then policy interventions are desirable to improve immigrants' labor market outcomes.

Chiswick and Miller (2008, 2009) argue that imperfect transferability of human capital across borders, especially for those who migrate from less developed countries, more distant ones –in terms of cultural, language or geographically distant countries– is responsive for occupation–education mismatch of immigrants upon arrival. Also, through the search - and - match theory, immigrants' over-education can be hypothesized through imperfect information about the host labor market. Once entering in the labor market, searching for higher job levels (those requiring high education) continues and workers can eventually move up the occupation ladder to positions that better match their skills (Hartog, 2000).

Upon arrival, the lack of knowledge on the job finding methods, the difficulties in getting recognition of their credentials, could generate disequilibrium in which recently arrived skilled immigrants would compete for low-skilled jobs while building up knowledge of the host country's labor market (Green, 1995). Over time, immigrants adapt to the requirements of the host's labor market as they gain experience in their new job, improve language skills, and major knowledge on the functioning of labor market institutions.

Then, when residence length increases and immigrant's accumulates information regarding the host labor market, the incidence of over-education is expected to decrease over time (Chiswick and Miller, 2009). Immigrants would present a U-shape occupation mobility pattern, in which after an initial downgrading starts a gradual improvement over time (Chiswick et al., 2005).

In this line, the model of Duleep and Regets (1999) predicts a greater initial downgrading among well-qualified immigrants because their skills are less transferable, but also a swifter recovery as a result of a greater investment in human capital because of the lower opportunity costs and the higher expectations of profitability. Factors such as cultural, economic and technological distance between the origin and host countries also increase the initial downgrading. Conversely, access to personal or social networks in the destination country (prior compatriots living in the host country) may well inhibit or improve the initial downgrading. On the one hand, the network can provide information on job vacancies. On the other hand, if the social capital accumulated by the network is restricted to a particular segment of the labor market, the opportunities given to the newcomer are limited to that segment (Simon et al., 2011).

Empirical studies confirm these theoretical proposals, mainly for immigrants arriving to developed countries (Bauer and Zimmermann, 1999; Chiswick et al., 2005, Simón et al., 2011; Mahuteau and Junankar, 2008). Also, wage penalty experienced by over-educated immigrants in developed host countries is found in Kalfa and Piracha (2013), Hartog (2000), McGuinness (2006), Leuven and Oosterbeek (2011); Piracha and Vadean (2013). However, limited research exists assessing immigrants' performance in a non-developed host country.

The present study addresses the extent to which immigrants' human capital is efficiently allocated in Uruguay; that is whether immigrants are over-educated in the host labor market and to explain the associated factors influencing on immigrants' occupational mismatch. At last, it is explored whether over-educated immigrants are penalized on earnings in the labor market.

This paper contributes to the literature on international migration by providing an empirical case study of immigrants' integration in a developing and small country such as Uruguay. Empirical literature on immigrant's labor market outcomes largely focuses on developed countries receiving migrants from less developed ones. However, studies based on south-south migration are relatively scarce in the literature. Then, it would be interesting to examine whether those patterns observed by the literature are reproduced in a less technologically advanced context; in such a country with employment structures based on medium and low-skilled jobs.

Since 2008 onwards Uruguay experiences increasing inflows of immigrants arriving to the country, reversing the negative migration balance that characterized the country since 1960s.¹ The last census data carried on 2011 shows that recent immigrants are mainly from the Latin America and Caribbean regions, largely from Argentina and Brazil, followed by Chile, Paraguay and Peru. Between 2014 and 2017 more than 30,000 permanent residences were provided by the Uruguayan authorities to immigrants²; period in which Venezuela adds to the list of sending countries (MRREE, 2017), surpassing in 2017 immigration arriving from Argentina.³

Factors such as the economic recession experienced in developed countries and the more restrictive entry policies implemented afterwards, made that Latin American immigrants that otherwise would choose a developed country as a migration destination, looks at the region as a plausible place to move. In turn, Uruguay stands out in the region as a social, political and economically stable country, possibly attracting factors for foreign population. At last, it is worth to mention that Uruguayan policies regarding the entrance of immigrants is not a restrictive one; once in the country immigrants can ask for a temporary residence which allows to have access to health care services, education or labor market participation.

Immigrants recently arrived in Uruguay exhibit high education level in comparison to non-migrants natives. According to the last National Population Census conducted in 2011, 62 percent of immigrants aged 25 years old and older arriving between 2005 and 2011 have tertiary education versus 18 percent of non-migrant natives (Koolhaas and Nathan, 2013). In turn, 46 percent of those who arrived between 2000 and 2004 have tertiary studies. It is worth to mention that high educated Uruguayans are more prone to migrate than the overall native non-migrant population (Koolhaas and Nathan, 2013); then new arrivals of skilled individuals could at least compensate the historical loss of human capital that the country experiences.

¹ Despite this great inflow of immigrant population, it represents a low proportion of total population in Uruguay (2.4% of total population).

² According to the Census carried on 2011, the total population in Uruguay is around 3.4 million of inhabitants.

³ 9,206 residences are given in 2017, of which 3,248 are to Venezuelans, 2,184 to Argentineans, and 1,832 to Brazilians. Other countries of origin are Colombia, Peru, Paraguay, Chile, Bolivia and Ecuador (MRREE, 2017).

Immigrants' integration in the Uruguayan labor market is first analyzed by focusing on those factors affecting over-education by using simple probit and bivariate probit models in order to consider the potential endogeneity issues that can arise due to immigrant's unobservables influencing employment selection. The analysis is conducted separately for women and men for better addressing labor market participation decisions. Second, the study moves to analyze if immigrants are penalized on wages due to occupation-education mismatch.

Results of this paper show first, that the probability of being over-educated for immigrants increases the more educated people are and the smaller the proportion of immigrants from the same region of origin in the total immigrant population. Findings also stress that for women, but not for men, over-education decreases with time spent in Uruguay and with years of continuous employment they have. Second, a wage penalty is observed for over-educated women and men. Also, more educated immigrants are better rewarded in the labor market. Finally, an additional year living in Uruguay and continuity in employment, positively affect women' labor earnings; but has not statistically significant effects on men' wages.

The remainder of this paper is organized as follows. Section 2 presents data and descriptive statistics used in this study. Section 3 outlines the methodological framework and Section 4 discusses the main findings. Section 5 present robustness checks and Section 6 concludes.

2. Data and descriptive statistics

Data on international migration is generally scarce in all countries and Uruguay is not the exception. Two main data sources are available in Uruguay for international migration studies: Population Censuses and Continuous Household Surveys.⁴ Due to the objectives of this study, that is to analyze if immigrants in Uruguay are mismatched in the labor market, and if this mismatch is penalized in the labor market, I use microdata from Continuous Household Surveys (ECH: *Encuestas Continuas de Hogares*), conducted by the National Statistic Institute. The ECHs are annual and representative data for all households and individuals living in Uruguay, and report information regarding living conditions, individual socio-demographic and socio-economic conditions, labor market participation and income, among others.⁵

Due to the limited number of immigrants' surveyed in the ECH, yearly data from 2012 to 2016 is pooled. Sample selection includes individuals older than 17 years old at the time of arrival to Uruguay⁶ and younger than 65 years old at the time of the survey; excludes those employed in non-remunerated activities, public social programs and military activities. Also, the sample excludes those born in a foreign country but with internal migration in Uruguay and only considers people reporting as last place of residence a foreign country. This is due to one limitation of the ECHs; that do not directly ask about year of arrival to Uruguay. ⁷ Finally, in

⁴ See for instance Koolhaas and Nathan (2013) for an extensive review of data sources in Uruguay regarding immigration.

⁵ Note that the last National Census was conducted in 2011, year in which immigration flows were still incipient. Also, that immigrant composition in 2011 differs the one observed afterwards, that is the increasing inflows of newest origins, for instance from Venezuela; that as stated below, in 2017 surpasses the Argentinians getting legal residence in Uruguay. Also, the Census does not ask for individuals earnings.

⁶ Theoretical age at which individuals are supposed to have finished secondary level in their countries of origin.

⁷ The way the ECH identifies immigrants is by asking the place of residence immediately after birth. Then, migration patterns are explored by asking for the place of residence before the actual one (within Uruguay or not), and asks for the length of residence in the current location. Then, for people reporting being born

order to avoid cohort biases in the analysis, immigrants with more than ten years living in Uruguay at the time of the survey are excluded (Borjas, 1985, 1995).

Table 1 presents summary statistics for the restricted sample, disaggregated by migrant status, that is, non-migrant natives, returnees and immigrants. On average, immigrants are relatively younger than natives (returnees and non-migrants), returnees are relatively more men than women (47 percent) while immigrants and non-migrant natives relatively more women (53 percent). Within the immigrant population, more than half of them come from countries of the south-cone region, while 25 percent belongs to one country of the rest of the Latin American region.

Regarding human capital accumulation, immigrants are relatively more educated than non-migrant natives and returnees. While 60 percent of non-migrant natives did not complete secondary level, this proportion falls to 50 percent for returnees and to 20 percent for immigrant population. Conversely, one third of the immigrants completed at least university level, while 7 percent of non-migrant natives and 13 percent of the returnees did.

Finally, when focusing on labor market outcomes, immigrants and returnees experience relatively more unemployment in comparison to non-migrant natives (10 versus 7 percent), while immigrants and returnees are relatively more over-educated than non-migrant natives (39, 23 and 16 percent, respectively).

3. Methodological framework

3.1. *Over-education*

The key dependent variable of this study is occupation over-education. In this regard, the literature on job mismatch stresses alternative measures on occupation-education mismatch. The first measure uses worker's self assessment about the minimum education level required for the job they possess and if they have these education requirement or not (Dolton and Vignoles, 2000). The second approach, developed by Verdugo and Verdugo (1989), proposes the mean education level required across a range of occupations. Those individuals that are above the mean plus one standard deviation are considered over-educated, while those below the mean minus one standard deviation are defined as under-educated. A third measure of mismatch is based on methods used by different countries/labor organizations that define the average education level required for different occupations (Piracha et al., 2012). Due to data restrictions, this paper follows the approach proposed by Verdugo and Verdugo (1989).

3.1.1. *Simple probit model*

First, the probability of being over-educated is estimated separately for women and men through simple probit models as specified in equation 1.

$$y_{1i}^* = x_i' \beta + u_i \quad (1)$$

where $y_{1i} = 1$ if the individual is over-educated ($(y_{1i}^* > 0)$) and zero if correctly matched.

in a foreign country but that have changed place of residence within Uruguay, it is not possible to identify the year of arrival to the country; only years living in the actual residence.

However, if unobservable variables affect both the probability of employment and the probability of being over-educated, then estimations resulting in equation 1, are likely to be biased.

3.1.2. Biprobit model

As individuals may self-select into occupation (specially women), and because workers are heterogeneous in terms of their unobserved abilities, possibly affecting individuals' probability of being mismatched and other outcomes of the labor market, such as wages, estimations considers selection into employment (Piracha et al., 2012). Then, a binomial probit model is estimated, in which the first equation selects individuals into employment, and the second one analyzes the factors influencing on over-education.

$$y_{1i}^* = x_i' \beta + u_i \quad (2)$$

where $y_{1i} = 1$ if the individual is over-educated ($(y_{1i}^* > 0)$) and zero if correctly matched.

$$y_{2i}^* = x_i' \beta + z_i' \delta + v_i \quad (3)$$

where $y_{2i} = 1$ if the individual is employed ($(y_{2i}^* > 0)$) and zero otherwise.

The two-equation model is estimated by using maximum likelihood approach as follows:

$$\ln L_i(\beta, \delta, \rho) = \sum_i^N \{ y_{1i} y_{2i} \ln \Phi_2(x_i' \beta, z_i' \delta; \rho) + (1 - y_{1i}) y_{2i} \ln \Phi_2(-x_i' \beta, z_i' \delta; -\rho) + (1 - y_{2i}) \ln(1 - \Phi(z_{iy}')) \} \quad (4)$$

where ρ denotes the correlation coefficient between the error terms u_i and v_i ; $\Phi_2(\cdot)$ is the bivariate standard normal cumulative function and $\Phi(\cdot)$ the univariate standard normal cumulative distribution function. The parameters of the equations 1 and 2 are jointly estimated by maximizing the log-likelihood function in equation (4) with respect to the coefficient vectors β , δ and ρ . $\hat{\rho}$ gives insights of the selection bias. A statistical and significant $\hat{\rho}$ implies that unobserved individual factors that positively affect the probability of employment, also increase the probability of being over-educated. Conversely, a negative rho, reflects unobserved factors increasing the likelihood of employment while reducing the probability of over-education.

In order to correctly identify the model, this strategy requires a set of variables included in the selection but not in the outcome equation; variables included in z_i . Following the standard literature addressing endogeneity in employment (for instance see Piracha et al., 2012; Greene et al., 2007), variables considered in z_i are the number of dependent children at the household and whether the individual is married or not.

On the one hand, the presence of dependent children at home can generate an extra pressure for accepting a job, but also can inhibit employment, especially women's participation in the labor market due to child care. On the other hand, the presence of other adult in the household can either reduce or increase labor participation. If traditional role models define intra-household decisions regarding labor market participation, in which the man generally acts as the bread winner, then increasing his probability of being employed while reducing women' pressure of taking up employment (Piracha et al., 2012).

Common independent variables included in equations 2 and 3 are socio-demographic characteristics, such as age, race, maximum education level attained, region of origin, place of residence in the host country, year of arrival to Uruguay and year of the survey. Of special interest of this study, it is included a proxy of immigrants' social networks. This variable

considers the proportion of immigrants from the same region of origin on the total immigrant population.

Also, the outcome equation includes other variables that can affect over-education, such as sector of activity and interruptions in employment (having being unemployed in the last twelve months) or years continuously working. Note that this last variable reflects both years continuously working both in the country of origin and in the destination country if exceeds years living in Uruguay.

3.2. *Wage penalty*

Traditional mincerian wage equations are extended following the Verdugo and Verdugo (1989) specification in order to test whether over-educated immigrants are penalized in the Uruguayan labor market. As standard in the literature, this study estimates the equation 4 by controlling for employment selection (equation 5) as proposed by Heckman (1979):

$$\ln w_i = \alpha + x_i' \beta + over_i' \gamma + u_i \quad (4)$$

$$y_{2i}^* = x_i' \beta + z_i' \delta + v_i \quad (5)$$

$\ln w_i$ is the logarithm of the hourly wage of individual i . The key variable, $over$ is a dummy variable that equals one if the individual is over-educated and zero if he is well-matched. The coefficient of interest β , shows the average wage effect of being over-educated in comparison to being well-matched with the same level of education. The expected result is that over-educated immigrant workers are penalized in the labor market.

Common variables in both equations are included in x_i , such as age, attained education, race, region of residence in the destination country; years living in Uruguay, the ratio of immigrants from the same region of origin on the total immigrant population that proxies immigrants' social networks, and year of the survey. Equation 4 adds variables that can affect labor market performance such as sector of activity, labor experience proxied by years of employment' continuity and whether the immigrant experienced unemployment in the last 12 months. Instrumental variables considered in the selection equation are the same used for over-education analysis, number of dependent children at home and marital status.

4. Results

4.1. *Factors affecting over-education*

This study aims to analyze whether recent immigrants suffer over-education in the Uruguayan labor market, and to study those factors affecting immigrants' over-education. For this purpose, it is first studied the probability of being over-educated separately for women and men by estimating simple probit models. Second, in order to control for endogeneity issues that are likely to arise in these studies, bivariate probit models are estimated for both genders.

Simple probit models are presented in Table 2, separately for women and men. Different models alternatively add years since arrival in Uruguay, years continuously working, and both variables at the same time. Columns 1 to 3 show Average Marginal Effects (AME) after probit estimations for the probability of being over-educated for women, while columns 4 to 6 are for men.

Women's probability of being over-educated increase with the educational level attained, is higher for indigenous descendants in comparison to white women, and for those living in the Interior of the country relative to those living in Montevideo. Also, the larger the social network is, proxied by the proportion of immigrants from the same regional origin, the lesser the probability of being over-educated.

In line with the literature, years living in the destination country reduces in 16 percentage points the probability of being over-educated (column 1), while continuity in employment also reduces the probability of being over-educated in 16 percentage points (column 2). When both variables are jointly considered in the model, both variables reduces their statistical significance, but still influence on women's probability of being over-educated; one additional year living in Uruguay reduces in 13 percentage points the likelihood of over-education (column 3), while one extra year of continuous employment reduces the probability of over-education in 14 percentage points (column 3). The difference between years of continuous employment and years living in Uruguay gives some insight of the recognition of previous labor experience in the country of origin. When this variable is included in the analysis (column 4), the difference between years living in Uruguay and years of continuous employment is not statistically significant in women's probability of being over-educated.

Factors affecting males' probability of being over-educated are similar to the ones presented for females (columns 4 to 8). That is, over-education increases with immigrant's education. Also, region of residence differently influences on males' probability of over-education, those living in Montevideo reduces their chances of over-education in 7 percentage points. In turn, afro descendants are on average 16 percentage points more likely to be over-educated than whites. Those in larger social networks are less likely of being over-educated. Finally, conversely to what is observed for females, years living in Uruguay and years continuously working, do not significantly affect males' chances of over-education. Note that, while the activity sector is not statistically significant for women's probability of being over-educated, statistical and significant effects are found for males.

In order to control for potential endogeneity issues that can arise in this kind of studies, AME are estimated for the probability of being over-educated controlling for selection into employment.

Table 3 shows those variables associated to the probability of employment for both genders (selection equation). Note first, that the instrumental variables report the expected signs. Women with dependent children (aged 0 to 4) and the married ones are less likely of being

employed (columns 1 to 4), while married men are more prone of being employed than non-married men (columns 5 to 8).

When focusing on those factors affecting women's probability of being employed, findings are the expected ones (Table 3, columns 1 to 4). First, younger women and those living in Montevideo are more likely of being employed. Also, indigenous females are around 9 percentage points less likely of being employed than whites. Third, the more educated women are, the more chances they have of being employed. Finally, one extra year living in Uruguay improves females' chances of employment.

When addressing males' probability of employment, results show that those with at least complete university are almost 13 percentage points more likely of being employed than those with incomplete secondary level. Also, years living in Uruguay increase men chances of being employed. Variables such as race, age or place of residence do not significantly affect males probability of employment (Table 3, columns 5 to 8).

Table 4 shows AME of the probability of being over-educated after employment selection. Results found for women show that over-education increases with education. Also, indigenous workers are more likely of being over-educated than white immigrants. The size of the social network reduces the chances of over-education, while years of being continuously employed inhibit women chances of being over-educated. Note that while years of residence in Uruguay do not statistically significant influence on women's chances of over-education, the larger the difference between years of continuous employment and years living in Uruguay, the less chances of being over-educated. Then, giving insights that what matters relatively more for a good occupation- education match is labor continuity both in Uruguay and in the country of origin.

Results for males indicate that afro descendant, more educated immigrants and those living in Montevideo are more prone of being over-educated. Conversely to what is found for females, social networks, years living in Uruguay and years of continuous employment do not significantly influences on males probability of being over-educated.

Finally, it is worth to mention that the estimated correlation coefficients for different models are not statistically significant, explaining the similar findings for both genders controlling for employment selection and the ones presented with simple probit models.

4.2. *Wage penalty of over-education*

Women's wage estimations after controlling for employment selection are presented in Table 5. Different models consider years living in Uruguay (Column 1), years without employment interruptions (Column 2), while the last model considers the difference between years of continuous employment and years living in Uruguay (Column 3).

Note first, that, the instrumental variables used in the alternative specifications are statistically significant in explaining women's probability of employment; while the correlation coefficient of the error terms of both equations is negative and statistically significant (Panel B, Table 5); reflecting that unobserved individual factors that increase women's chances of employment, also reduces wage.

Findings obtained across the different estimations show that over-educated women are penalized in the labor market, by reducing earnings in 20 percent in comparison to well-matched women. Also, the more educated women are, the larger the reward in the labor market.

When focusing on the effect of years living in Uruguay on labor earnings, results show that an additional year in the destination country reduces earnings in 4 per cent (Column 1). In turn, the more years women are continuously employed, the more rewarded are in the labor market (column 2). That is, one extra year of labor experience increases earnings in 4 per cent. At last, column 3 considers the difference between years of continuous employment and years living in Uruguay. It is observed that women's ins and outs of employment are penalized in the labor market; a common issue for instance for younger women at fertility ages. Other variables such as race or social networks do not penalize nor reward differently women's earnings.

Similar results are obtained for males. Over-educated immigrants are penalized in the labor market for the different specifications considered in comparison to well-matched ones (around 27 per cent). Also, the income gap increases for more educated males in comparison to less educated ones. An additional year of labor continuity is rewarded in 1.6 percent on earnings, statistically significant at 10 percent (column 5), while years living in Uruguay does not significantly affect on wages (column 4). When the difference between years living in Uruguay and continuous years working is taken into account, no statistical. Finally, note that variables such as race or the size of the network proxied by the proportion of immigrants from the same region of origin as a percentage of total immigrant population, do not statistically influence on wages.

So far, this study has analyzed the factors affecting immigrant's over-education in the Uruguayan labor market, and if this over-education is penalized in the labor market. At the time Uruguay experiences increasing inflows of immigrants arriving to the country, it is also observed that Uruguayans that had previously emigrated are returning to the country. Then, it would be interesting to better know if the penalties on immigrants' wages for being over-educated are similar for those recently arriving to the country but have born in Uruguay.

The study then moves to explore if recently Uruguayan returnees experiences similar labor market difficulties to the ones experienced by immigrants; that is, if penalties in the labor market arise for those over-educated in comparison to well-matched returnees, and to compare the relative penalty for immigrants and returnees.

Then, wage equations are re-estimated by adding a dummy variable that equals one if the individual is a returnee and zero if he is an immigrant, and an interaction term between over-education and migration status, in order to capture if the Uruguayan labor market differently penalizes over-education for immigrants and returnees. Tables 6 and 7 present the estimated results for women and men, separately.

After controlling for sample selection into employment (see panel B for statistical significance of the instruments used and the correlation error term), results show that the Uruguayan labor market does not differentiate between Uruguayans and foreign arriving to the country; that is over-educated workers are penalized whether or not being Uruguayans returning to the country or immigrants.

5. Robustness check

Results presented above consider immigrants with no internal migration in Uruguay. Then, it could be argued that the selected sample of immigrants present different characteristics than those who moved within the country.

In order to check the validity of previous results, I first estimate the probability of being over-educated for those immigrants that five years ago lived in a different country. Second, augmented mincerian equations are estimated. The ECHs allows for this analysis by asking individuals' residence five years ago, i.e. same residence as the actual one, a different location such as department or different country.

Tables 8 and 9 show estimates for the probability of being over-educated and labor earning equations, respectively. Note that overall results are similar to previous ones. For instance, over-education is associated to immigrants' education, for women and men. The larger the social network is, the less likely women are over-educated in the job. Also, an additional year of experience in the labor market, reduces women's probability of being over-educated. Afro-descendant males are more prone to be over-educated than white males, while the sector of activity has statistically and significant effects on males' probability of over-education in the job.

Finally, a wage penalty is observed for those over-educated immigrants. The penalty for those living in Uruguay for less than five years are similar to the ones previously estimated; around 20 and 30 percent, respectively for women and men.

6. Concluding remarks

This paper aimed to study immigrants' integration in Uruguay by analyzing their participation in the host country. In particular, the study focused on those factors that are associated to immigrants working in jobs that requires less skills that the ones immigrants have. Also, it analyzed to what extent over-educated immigrants are penalized in the host labor market.

For this purpose, the probability of being over-educated was first estimated through simple probit models and with biprobit models in order to consider endogeneity issues that can arise in this kind of studies. Second, mincearian earning equations controlling for sample selection were estimated, by adding as a key variable whether workers are over-educated or not, as proposed by Verdugo and Verdugo (1989).

Findings of this study are in line with the literature analyzing immigrant integration in the host country. First, results show that the more educated immigrants are, the more likely to be over-educated; probably explained by the imperfect portability of human capital between the home and host labor markets. Gender differences are observed in relation to some key variables explaining the probability of over-education. For instance, labor market experience and social networks affect females' chances of over-education but not males'. Specifically, labor experience, proxied as years of continuity in employment, has a negative impact on the probability of women's being educated; reinforcing the idea that the more years immigrants live in the host country, the more knowledge of labor market institutions they acquire. Finally, the larger women's social networks, the smaller the probability of being over-educated. For males, over-education is associated to the sector of activity the immigrant works. On this regard, more research is needed in order to understand the mechanisms through which the activity sectors could affect over-education.

Second, results stress that over-educated immigrants earn less than well-matched immigrants. Depending on the estimated model, wage penalty for women are 20 to 27 percent in comparison to well-matched ones; while for men this penalty is around 27 percent. At last, these penalties were compared to the ones experienced for those recently arrived Uruguayans from abroad. Results do not significantly differ between Uruguayan and foreign born migrants; probably reflecting that the Uruguayan labor market does not fully recognize skills acquired abroad.

Then, policy interventions aiming at efficiently allocate human capital resources that are brought from abroad may for instance, improve average productivity of the country, and also accelerate the integration process of those people coming to the country.

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Tables

Table 1 Descriptive statistics

Variable	Non migrant natives	Returnees	Immigrants
	Mean	Mean	Mean
Panel A			
Socio-demographic statistics			
Age	39.96	40.89	37.20
Female	0.53	0.47	0.53
<i>Maximum education completed</i>			
Incomplete secondary level	0.62	0.48	0.21
Complete secondary level	0.18	0.23	0.25
Tertiary non-university level	0.06	0.06	0.10
Incomplete university	0.08	0.10	0.12
At least complete university	0.07	0.13	0.32
Years since arrival		4.24	3.62
<i>Region of origin</i>			
South cone			0.54
LAC			0.25
Western developed countries			0.17
Other developing countries			0.04
Panel B			
Labor market statistics			
Employed	0.75	0.77	0.72
Unemployed	0.07	0.10	0.10
Over-educated	0.16	0.23	0.39
Under-educated	0.16	0.12	0.10
Well-matched	0.68	0.66	0.50
Obs.	344,298	5,499	2,078
% of the sample	97.80	1.59	0.61

Table 2. Probability of being over-educated. AME after probit

	Females						Males					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.003	(0.002)	0.004*	(0.002)	0.005**	(0.002)	-0.002	(0.002)	-0.001	(0.002)	-0.001	(0.002)
Race (Omitted: White)												
Afro	0.081	(0.076)	0.090	(0.076)	0.078	(0.076)	0.193***	(0.059)	0.188***	(0.060)	0.192***	(0.059)
Indigenous	0.111*	(0.058)	0.101*	(0.058)	0.112*	(0.058)	0.022	(0.053)	0.027	(0.053)	0.028	(0.053)
Other	-0.094	(0.138)	-0.106	(0.129)	-0.096	(0.132)	0.035	(0.116)	0.053	(0.116)	0.053	(0.118)
<i>Education attained (Omitted: Incomplete secondary level)</i>												
Complete secondary level	0.220***	(0.049)	0.221***	(0.046)	0.221***	(0.047)	0.346***	(0.033)	0.345***	(0.033)	0.345***	(0.033)
Tertiary non-university level	0.431***	(0.062)	0.450***	(0.060)	0.443***	(0.060)	0.560***	(0.059)	0.551***	(0.059)	0.557***	(0.059)
Incomplete university	0.515***	(0.057)	0.532***	(0.054)	0.523***	(0.055)	0.604***	(0.049)	0.607***	(0.048)	0.602***	(0.049)
At least complete university	0.423***	(0.048)	0.450***	(0.044)	0.440***	(0.045)	0.502***	(0.032)	0.502***	(0.032)	0.507***	(0.032)
Activity sector (Omitted: agriculture)												
Manufacture	0.084	(0.163)	0.070	(0.168)	0.085	(0.165)	-0.192**	(0.075)	-0.194***	(0.074)	-0.188**	(0.075)
Electricity, gas and water	-0.372*	(0.219)	-0.380*	(0.218)	-0.368*	(0.219)	-0.082	(0.199)	-0.083	(0.196)	-0.079	(0.199)
Construction	-0.161	(0.274)	-0.214	(0.263)	-0.187	(0.266)	0.026	(0.073)	0.015	(0.073)	0.024	(0.073)
Commerce, restaurants and hotels	-0.069	(0.153)	-0.074	(0.158)	-0.069	(0.155)	-0.160**	(0.070)	-0.167**	(0.069)	-0.161**	(0.070)
Transport and communication	-0.055	(0.165)	-0.064	(0.169)	-0.057	(0.165)	-0.344***	(0.074)	-0.346***	(0.074)	-0.342***	(0.074)
Firm services	-0.144	(0.156)	-0.151	(0.161)	-0.145	(0.157)	-0.349***	(0.073)	-0.353***	(0.073)	-0.349***	(0.073)
Communal, health and social services	-0.184	(0.152)	-0.191	(0.157)	-0.183	(0.154)	-0.326***	(0.071)	-0.327***	(0.071)	-0.320***	(0.072)
Social networks	-0.298***	(0.089)	-0.297***	(0.089)	-0.272***	(0.088)	-0.094	(0.082)	-0.074	(0.083)	-0.076	(0.083)
Residence: Montevideo (Omitted: Interior)	-0.148***	(0.042)	-0.140***	(0.042)	-0.144***	(0.042)	-0.070*	(0.036)	-0.069*	(0.036)	-0.067*	(0.036)
Survey year (Omitted: 2012)												
anio=2013	0.050	(0.072)	0.066	(0.071)	0.060	(0.071)	0.064	(0.059)	0.070	(0.059)	0.066	(0.058)
anio=2014	0.006	(0.065)	0.013	(0.065)	0.007	(0.064)	-0.010	(0.051)	-0.007	(0.051)	-0.010	(0.051)
anio=2015	0.006	(0.063)	0.011	(0.061)	0.006	(0.062)	0.058	(0.050)	0.064	(0.050)	0.060	(0.050)
anio=2016	0.056	(0.062)	0.062	(0.061)	0.057	(0.061)	0.052	(0.050)	0.055	(0.050)	0.054	(0.050)
Years since arrival	-0.016**	(0.007)			-0.013*	(0.007)	0.006	(0.006)			0.007	(0.006)
Yrs continuously working			-0.016***	(0.006)	-0.014**	(0.006)			-0.004	(0.003)	-0.004	(0.003)
Difference (yrs working- yrs Uy)												
N	613		613		613		794		794		794	

Robust standard errors in parentheses

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

Table 3. Selection equation. Probability of being employed AME

	Females								Males							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	-0.006***	(0.002)	-0.006***	(0.002)	-0.006***	(0.002)	-0.006***	(0.002)	-0.000	(0.001)	-0.000	(0.001)	-0.000	(0.001)	-0.000	(0.001)
Race (Omitted: White)																
Afro	-0.032	(0.062)	-0.033	(0.062)	-0.033	(0.062)	-0.030	(0.062)	-0.012	(0.050)	-0.012	(0.050)	-0.012	(0.050)	-0.013	(0.050)
Indigenous	-0.089*	(0.050)	-0.096**	(0.049)	-0.091*	(0.051)	-0.103**	(0.047)	0.015	(0.041)	0.014	(0.041)	0.015	(0.041)	0.012	(0.041)
Other	-0.109	(0.162)	-0.101	(0.166)	-0.107	(0.163)	-0.074	(0.168)	-0.044	(0.098)	-0.043	(0.098)	-0.043	(0.098)	-0.042	(0.098)
<i>Education attained (Omitted: Incomplete secondary level)</i>																
Complete secondary level	0.084	(0.055)	0.083	(0.055)	0.084	(0.055)	0.079	(0.055)	0.035	(0.046)	0.035	(0.046)	0.035	(0.046)	0.036	(0.046)
Tertiary non-university level	0.176***	(0.060)	0.177***	(0.060)	0.176***	(0.060)	0.180***	(0.060)	0.056	(0.064)	0.056	(0.064)	0.056	(0.064)	0.057	(0.064)
Incomplete university	0.188***	(0.061)	0.192***	(0.061)	0.189***	(0.061)	0.203***	(0.061)	0.043	(0.057)	0.043	(0.057)	0.043	(0.057)	0.044	(0.057)
At least complete university	0.259***	(0.050)	0.262***	(0.050)	0.260***	(0.050)	0.266***	(0.049)	0.129***	(0.043)	0.129***	(0.043)	0.129***	(0.043)	0.129***	(0.043)
Social networks	-0.055	(0.084)	-0.055	(0.083)	-0.055	(0.084)	-0.065	(0.083)	-0.014	(0.072)	-0.013	(0.071)	-0.014	(0.072)	-0.011	(0.072)
Residence: Montevideo (Omitted: Interior)	0.116***	(0.038)	0.116***	(0.037)	0.116***	(0.038)	0.115***	(0.037)	0.023	(0.033)	0.022	(0.033)	0.022	(0.033)	0.022	(0.033)
Survey year (Omitted: 2012)																
anio=2013	0.092	(0.066)	0.089	(0.066)	0.091	(0.067)	0.091	(0.066)	0.019	(0.049)	0.018	(0.049)	0.019	(0.049)	0.017	(0.049)
anio=2014	0.037	(0.062)	0.029	(0.061)	0.034	(0.063)	0.025	(0.059)	-0.020	(0.048)	-0.021	(0.048)	-0.020	(0.048)	-0.022	(0.048)
anio=2015	0.197***	(0.055)	0.191***	(0.056)	0.196***	(0.056)	0.185***	(0.054)	-0.026	(0.045)	-0.026	(0.045)	-0.026	(0.045)	-0.026	(0.045)
anio=2016	0.082	(0.053)	0.081	(0.053)	0.081	(0.053)	0.083	(0.053)	-0.040	(0.042)	-0.040	(0.042)	-0.040	(0.042)	-0.041	(0.042)
Years since arrival	0.036***	(0.006)	0.036***	(0.006)	0.036***	(0.006)	0.036***	(0.006)	0.012**	(0.006)	0.012**	(0.006)	0.012**	(0.006)	0.012**	(0.006)
Married	-0.098**	(0.039)	-0.104***	(0.036)	-0.100**	(0.041)	-0.108***	(0.034)	0.057*	(0.029)	0.057*	(0.029)	0.057*	(0.029)	0.057*	(0.030)
Children 4yrs or less	-0.100***	(0.031)	-0.096***	(0.033)	-0.100***	(0.031)	-0.081***	(0.030)	-0.030	(0.029)	-0.031	(0.029)	-0.030	(0.029)	-0.031	(0.029)
Children 5-11 yrs	-0.027	(0.033)	-0.020	(0.032)	-0.025	(0.034)	-0.010	(0.029)	0.016	(0.031)	0.016	(0.031)	0.016	(0.031)	0.015	(0.032)
N	714	714	714	714	714	714	655	655	655	655	655	655	655	655	655	655

Robust standard errors in parentheses

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

Table 4. Outcome equation. Probability of being over-educated. AME

	Females								Males							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	0.002	(0.003)	0.003	(0.003)	0.004	(0.004)	0.000	(0.002)	-0.003	(0.002)	-0.002	(0.002)	-0.002	(0.002)	-0.003	(0.002)
Race (Omitted: White)																
Afro	0.098	(0.083)	0.085	(0.088)	0.097	(0.087)	0.057	(0.077)	0.162**	(0.066)	0.164**	(0.067)	0.162**	(0.067)	0.166**	(0.067)
Indigenous	0.151**	(0.068)	0.116	(0.071)	0.137*	(0.077)	0.076	(0.058)	0.025	(0.058)	0.032	(0.059)	0.031	(0.058)	0.031	(0.059)
Other	-0.105	(0.208)	-0.138	(0.156)	-0.123	(0.190)	-0.148	(0.119)	0.133	(0.118)	0.151	(0.120)	0.151	(0.120)	0.146	(0.121)
<i>Education attained (Omitted: Incomplete secondary level)</i>																
Complete secondary level	0.260***	(0.092)	0.201**	(0.079)	0.251*	(0.137)	0.161***	(0.033)	0.381***	(0.041)	0.377***	(0.043)	0.379***	(0.042)	0.372***	(0.051)
Tertiary non-university level	0.492***	(0.072)	0.445***	(0.108)	0.490***	(0.106)	0.374***	(0.063)	0.582***	(0.074)	0.584***	(0.073)	0.582***	(0.074)	0.585***	(0.074)
Incomplete university	0.553***	(0.063)	0.518***	(0.112)	0.562***	(0.093)	0.434***	(0.070)	0.659***	(0.058)	0.659***	(0.056)	0.658***	(0.057)	0.657***	(0.057)
At least complete university	0.469***	(0.058)	0.458***	(0.079)	0.487***	(0.063)	0.402***	(0.046)	0.488***	(0.051)	0.495***	(0.046)	0.492***	(0.051)	0.498***	(0.044)
Years since arrival	-0.016	(0.014)			-0.008	(0.017)			-0.003	(0.007)			-0.002	(0.007)		
Yrs working continuously			-0.018**	(0.008)	-0.018**	(0.008)					-0.004	(0.003)	-0.003	(0.003)		
Difference (yrs working- yrs Uy)							-0.012**	(0.005)							-0.003	(0.003)

Robust standard errors in parentheses

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

Table 4. Outcome equation. Probability of being over-educated. AME (cont.)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)								
Activity sector (Omitted: agriculture)																
Manufacture	-0.107	(0.176)	-0.129	(0.192)	-0.105	(0.190)	-0.120	(0.191)	-0.245***	(0.088)	-0.243***	(0.089)	-0.242***	(0.089)	-0.248***	(0.090)
Electricity, gas and water	-0.630***	(0.230)	-0.604***	(0.231)	-0.616***	(0.228)	-0.517**	(0.227)	-0.125	(0.161)	-0.123	(0.164)	-0.122	(0.162)	-0.127	(0.169)
Construction	-0.413	(0.274)	-0.458*	(0.258)	-0.445*	(0.266)	-0.405*	(0.236)	-0.056	(0.085)	-0.054	(0.086)	-0.055	(0.085)	-0.052	(0.088)
Commerce, restaurants and hotels	-0.274	(0.169)	-0.297	(0.182)	-0.277	(0.183)	-0.261	(0.188)	-0.223***	(0.082)	-0.223***	(0.083)	-0.222***	(0.083)	-0.226***	(0.084)
Transport and communication	-0.254	(0.187)	-0.270	(0.193)	-0.251	(0.197)	-0.230	(0.204)	-0.375***	(0.091)	-0.376***	(0.090)	-0.374***	(0.091)	-0.382***	(0.091)
Firm services	-0.370**	(0.177)	-0.387**	(0.188)	-0.373**	(0.186)	-0.334*	(0.197)	-0.367***	(0.090)	-0.367***	(0.089)	-0.365***	(0.090)	-0.372***	(0.091)
Communal, health and social services	-0.414**	(0.174)	-0.420**	(0.184)	-0.409**	(0.182)	-0.368*	(0.189)	-0.358***	(0.087)	-0.354***	(0.087)	-0.352***	(0.087)	-0.360***	(0.088)
Social networks	-0.351***	(0.104)	-0.325***	(0.106)	-0.331***	(0.100)	-0.289***	(0.097)	-0.096	(0.098)	-0.079	(0.100)	-0.079	(0.099)	-0.084	(0.100)
Montevideo	-0.113	(0.070)	-0.067	(0.066)	-0.097	(0.085)	-0.019	(0.045)	-0.096**	(0.044)	-0.093**	(0.044)	-0.093**	(0.044)	-0.094**	(0.044)
Survey year (Omitted: 2012)																
anio=2013	0.174*	(0.089)	0.201**	(0.080)	0.196**	(0.087)	0.183**	(0.074)	0.080	(0.075)	0.078	(0.075)	0.078	(0.075)	0.077	(0.075)
anio=2014	0.092	(0.076)	0.093	(0.068)	0.092	(0.074)	0.091	(0.056)	0.003	(0.065)	-0.001	(0.065)	0.001	(0.065)	-0.004	(0.065)
anio=2015	0.036	(0.100)	0.079	(0.078)	0.050	(0.110)	0.112**	(0.056)	0.024	(0.063)	0.022	(0.063)	0.024	(0.063)	0.018	(0.063)
anio=2016	0.096	(0.072)	0.104*	(0.061)	0.100	(0.069)	0.100**	(0.050)	0.067	(0.059)	0.067	(0.059)	0.068	(0.059)	0.064	(0.059)
rho	-0.222		0.366		-0.052		0.874		-0.58		-0.529		-0.575		-0.425	
N	466		466		466		466		556		556		556		556	

Robust standard errors in parentheses

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

Table 5. Labor earning equations

<i>Panel A. Earning equations</i>	Females						Males					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.015***	(0.005)	0.002	(0.004)	0.008*	(0.005)	0.015***	(0.004)	0.014***	(0.004)	0.015***	(0.004)
Race (Omitted: White)												
Afro	-0.064	(0.144)	-0.119	(0.114)	-0.088	(0.135)	-0.106	(0.126)	-0.116	(0.122)	-0.118	(0.124)
Indigenous	-0.019	(0.111)	-0.167	(0.104)	-0.034	(0.109)	-0.043	(0.104)	-0.057	(0.102)	-0.047	(0.102)
Other	0.310	(0.351)	0.146	(0.311)	0.344	(0.364)	0.202	(0.231)	0.153	(0.241)	0.192	(0.237)
<i>Education attained (Omitted: Incomplete secondary level)</i>												
Complete secondary level	0.234*	(0.121)	0.278***	(0.106)	0.164	(0.118)	0.453***	(0.107)	0.436***	(0.106)	0.431***	(0.107)
Tertiary non-university level	0.161	(0.156)	0.296**	(0.140)	0.072	(0.150)	0.627***	(0.161)	0.588***	(0.163)	0.577***	(0.164)
Incomplete university	0.301**	(0.135)	0.417***	(0.122)	0.191	(0.134)	0.741***	(0.123)	0.716***	(0.126)	0.720***	(0.126)
At least complete university	0.575***	(0.112)	0.769***	(0.106)	0.463***	(0.110)	1.259***	(0.111)	1.198***	(0.111)	1.187***	(0.120)
Over-education	-0.269***	(0.076)	-0.199**	(0.079)	-0.206***	(0.073)	-0.276***	(0.080)	-0.269***	(0.080)	-0.273***	(0.081)
Social networks	0.275	(0.192)	0.142	(0.168)	0.227	(0.185)	0.227	(0.181)	0.170	(0.184)	0.207	(0.182)
Years since arrival	-0.042***	(0.014)					0.020	(0.012)				
Yrs continuously working			0.041***	(0.009)					0.016*	(0.009)		
Difference (yrs working- yrs Uy)					0.050***	(0.008)					0.009	(0.008)

Robust standard errors in parentheses

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

Table 5. Labor earning equations (cont.)

<i>Panel A. Earning equations (cont.)</i>	(1)	(2)	(3)	(4)	(5)	(6)
Activity sector (Omitted: agriculture)						
Manufacture	0.711** (0.296)	0.700** (0.293)	0.682** (0.290)	-0.155 (0.200)	-0.170 (0.202)	-0.167 (0.205)
Electricity, gas and water	0.776** (0.378)	0.825** (0.363)	0.747** (0.357)	0.110 (0.230)	0.102 (0.232)	0.114 (0.232)
Construction	1.180*** (0.336)	1.266*** (0.344)	1.290*** (0.337)	-0.006 (0.222)	-0.010 (0.223)	-0.023 (0.226)
Commerce, restaurants and hotels	0.464 (0.288)	0.402 (0.292)	0.449 (0.284)	-0.220 (0.195)	-0.233 (0.197)	-0.240 (0.200)
Transport and communication	0.778*** (0.295)	0.757** (0.296)	0.750*** (0.290)	-0.027 (0.198)	-0.037 (0.201)	-0.035 (0.204)
Firm services	0.534* (0.292)	0.478 (0.296)	0.537* (0.288)	-0.136 (0.209)	-0.144 (0.212)	-0.141 (0.215)
Communal, health and social services	0.593** (0.289)	0.604** (0.289)	0.584** (0.285)	-0.137 (0.197)	-0.163 (0.198)	-0.162 (0.201)
Residence: Montevideo (Omitted: Interior)	0.064 (0.093)	0.233*** (0.077)	0.074 (0.089)	0.137* (0.080)	0.141* (0.079)	0.141* (0.079)
Survey year (Omitted: 2012)						
anio=2013	0.216 (0.149)	0.254** (0.127)	0.161 (0.145)	0.197 (0.138)	0.206 (0.136)	0.207 (0.137)
anio=2014	0.218 (0.140)	0.234* (0.128)	0.212 (0.137)	0.169 (0.115)	0.179 (0.112)	0.187* (0.112)
anio=2015	0.156 (0.132)	0.380*** (0.117)	0.164 (0.129)	0.155 (0.117)	0.162 (0.116)	0.175 (0.116)
anio=2016	0.242* (0.126)	0.308*** (0.113)	0.237* (0.123)	-0.068 (0.113)	-0.055 (0.112)	-0.050 (0.112)
Constant	4.467*** (0.373)	4.010*** (0.346)	4.695*** (0.365)	4.419*** (0.276)	4.554*** (0.280)	4.543*** (0.297)
<i>Panel B. Instrumental variables. Probability of employment</i>						
Married	-0.167* (0.101)	-0.351*** (0.120)	-0.179* (0.099)	0.293** (0.142)	0.287** (0.144)	0.278* (0.153)
(sum) hijos_menos5	-0.260*** (0.090)	-0.305*** (0.105)	-0.249*** (0.091)	-0.188 (0.141)	-0.181 (0.145)	-0.168 (0.160)
(sum) hijos5_11	-0.070 (0.087)	-0.099 (0.101)	-0.090 (0.089)	0.025 (0.140)	0.025 (0.140)	0.025 (0.141)
athrho Constant	-1.174*** (0.186)	0.151 (0.129)	-1.181*** (0.178)	0.220** (0.088)	0.157 (0.129)	0.077 (0.294)
lnsigma Constant	-0.193** (0.075)	-0.397*** (0.056)	-0.218*** (0.073)	-0.268*** (0.046)	-0.275*** (0.047)	-0.275*** (0.047)
rho	-0.826	0.150	-0.828	0.216	0.156	0.077
Obs.	693	693	693	631	631	631

Robust standard errors in parentheses

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

Table 6 Labor earnings equations. Immigrants and returnees. Females

	(1)	(2)	(3)	(4)	(5)	(6)						
Age	0.006***	(0.002)	0.003	(0.002)	0.008***	(0.002)	0.006***	(0.002)	0.006***	(0.002)	0.003	(0.002)
Race (Omitted: White)												
Afro	-0.064	(0.074)	-0.072	(0.073)	-0.032	(0.083)	-0.064	(0.074)	-0.064	(0.074)	-0.071	(0.073)
Indigenous	-0.066	(0.065)	-0.054	(0.064)	-0.014	(0.070)	-0.066	(0.065)	-0.066	(0.065)	-0.054	(0.064)
Other	0.168	(0.204)	0.195	(0.209)	0.272	(0.266)	0.170	(0.209)	0.169	(0.202)	0.196	(0.210)
<i>Education attained (Omitted: Incomplete secondary level)</i>												
Complete secondary level	0.229***	(0.049)	0.192***	(0.049)	0.089	(0.056)	0.227***	(0.049)	0.230***	(0.049)	0.192***	(0.049)
Tertiary non-university level	0.451***	(0.068)	0.367***	(0.069)	0.161**	(0.076)	0.450***	(0.067)	0.453***	(0.067)	0.368***	(0.069)
Incomplete university	0.533***	(0.063)	0.470***	(0.063)	0.349***	(0.068)	0.529***	(0.063)	0.534***	(0.063)	0.471***	(0.063)
At least complete university	0.871***	(0.060)	0.782***	(0.065)	0.522***	(0.068)	0.868***	(0.060)	0.873***	(0.060)	0.782***	(0.065)
Immigrant	-0.074*	(0.044)	-0.064	(0.043)	0.037	(0.048)	-0.051	(0.050)	-0.076*	(0.044)	-0.063	(0.043)
Over-education	-0.225***	(0.046)	-0.203***	(0.045)	-0.208***	(0.041)	-0.200***	(0.056)	-0.194**	(0.078)	-0.213***	(0.054)
Years since arrival	0.013**	(0.006)					0.013**	(0.006)	0.015**	(0.007)		
Yrs continuously working			0.034***	(0.005)							0.033***	(0.007)
Difference (yrs working- yrs Uy)					0.033***	(0.005)						
Immigrant*over-educ							-0.069	(0.090)				
Over-educ*yrs_arrival									-0.008	(0.014)		
Over-educ*yrs_working											0.003	(0.009)

Robust standard errors in parentheses

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

Table 6 Labor earnings equations. Immigrants and returnees. Females (cont)

<i>Panel A (cont.)</i>	(1)	(2)	(3)	(4)	(5)	(6)						
<i>Activity sector (Omitted: agriculture)</i>												
Manufacture	-0.370*	(0.209)	-0.383*	(0.207)	-0.456**	(0.216)	-0.378*	(0.208)	-0.365*	(0.210)	-0.385*	(0.207)
Electricity, gas and water	0.105	(0.249)	0.070	(0.248)	-0.084	(0.253)	0.095	(0.249)	0.106	(0.249)	0.071	(0.248)
Construction	0.273	(0.246)	0.328	(0.248)	0.183	(0.252)	0.264	(0.244)	0.279	(0.247)	0.328	(0.247)
Commerce, restaurants and hotels	-0.295	(0.205)	-0.292	(0.202)	-0.357*	(0.213)	-0.303	(0.204)	-0.291	(0.205)	-0.293	(0.202)
Transport and communication	-0.068	(0.213)	-0.063	(0.210)	-0.163	(0.218)	-0.075	(0.212)	-0.063	(0.214)	-0.064	(0.210)
Firm services	-0.177	(0.211)	-0.174	(0.208)	-0.225	(0.218)	-0.184	(0.210)	-0.173	(0.212)	-0.175	(0.208)
Communal, health and social services	-0.157	(0.204)	-0.149	(0.201)	-0.232	(0.213)	-0.167	(0.203)	-0.153	(0.204)	-0.151	(0.201)
Residence: Montevideo (Omitted: Interior)	0.107***	(0.038)	0.114***	(0.038)	0.036	(0.044)	0.106***	(0.038)	0.106***	(0.038)	0.114***	(0.038)
<i>Survey year (Omitted: 2012)</i>												
anio=2013	0.017	(0.063)	0.021	(0.061)	-0.016	(0.069)	0.019	(0.063)	0.015	(0.063)	0.022	(0.061)
anio=2014	0.056	(0.064)	0.059	(0.063)	0.026	(0.070)	0.056	(0.064)	0.054	(0.064)	0.060	(0.062)
anio=2015	0.144**	(0.060)	0.149**	(0.060)	0.065	(0.068)	0.144**	(0.060)	0.142**	(0.060)	0.150**	(0.060)
anio=2016	0.090	(0.057)	0.096*	(0.057)	0.091	(0.064)	0.092	(0.058)	0.088	(0.057)	0.097*	(0.057)
Constant	4.992***	(0.226)	5.130***	(0.220)	5.704***	(0.239)	5.000***	(0.225)	4.978***	(0.228)	5.134***	(0.220)
<i>Panel B. Instrumental variables. Probability of employment</i>												
Married	-0.148**	(0.063)	-0.146**	(0.062)	-0.010	(0.049)	-0.148**	(0.063)	-0.148**	(0.062)	-0.146**	(0.062)
Children aged 0-4yrs	-0.145**	(0.062)	-0.145**	(0.062)	-0.075	(0.050)	-0.145**	(0.062)	-0.145**	(0.062)	-0.145**	(0.062)
Children aged 5-11 yrs	-0.005	(0.050)	-0.004	(0.050)	-0.007	(0.042)	-0.005	(0.050)	-0.005	(0.050)	-0.004	(0.050)
athrho Constant	0.114*	(0.063)	0.081	(0.095)	-1.282***	(0.087)	0.114*	(0.064)	0.116*	(0.063)	0.078	(0.097)
lnsigma Constant	-0.341***	(0.029)	-0.361***	(0.029)	-0.152***	(0.035)	-0.341***	(0.029)	-0.341***	(0.029)	-0.361***	(0.029)
Obs.	2,446		2,446		2,446		2,446		2,446		2,446	

Robust standard errors in parentheses

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

Table 7 Labor earnings equations. Immigrants and returnees. Males

<i>Panel A.</i>	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.011***	(0.002)	0.008***	(0.002)	0.009***	(0.002)
Race (Omitted: White)						
Afro	-0.097	(0.080)	-0.095	(0.079)	-0.096	(0.079)
Indigenous	-0.003	(0.062)	-0.010	(0.061)	-0.005	(0.062)
Other	0.180	(0.184)	0.149	(0.184)	0.156	(0.186)
<i>Education attained (Omitted: Incomplete secondary level)</i>						
Complete secondary level	0.287***	(0.048)	0.286***	(0.048)	0.285***	(0.048)
Tertiary non-university level	0.505***	(0.084)	0.486***	(0.083)	0.481***	(0.083)
Incomplete university	0.615***	(0.073)	0.606***	(0.073)	0.611***	(0.073)
At least complete university	0.901***	(0.060)	0.885***	(0.060)	0.878***	(0.060)
Immigrant	-0.064	(0.046)	-0.061	(0.045)	-0.073	(0.045)
Over-education	-0.235***	(0.043)	-0.233***	(0.043)	-0.236***	(0.043)
Years since arrival	-0.005	(0.006)			-0.005	(0.006)
Yrs continuously working			0.015***	(0.004)		
Difference (yrs working- yrs Uy)					0.015***	(0.004)
Immigrant*over-educ					-0.037	(0.083)
Over-educ*yrs_arrival						0.029**
Over-educ*yrs_working						0.011

Robust standard errors in parentheses

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

Table 7 Labor earnings equations. Immigrants and returnees. Males (cont.)

<i>Panel A. (cont.)</i>	(1)	(2)	(3)	(4)	(5)	(6)
<i>Activity sector (Omitted: agriculture)</i>						
Manufacture	-0.043	(0.113)	-0.058	(0.112)	-0.063	(0.114)
Electricity, gas and water	-0.160	(0.159)	-0.154	(0.158)	-0.160	(0.158)
Construction	0.028	(0.113)	0.015	(0.112)	0.009	(0.113)
Commerce, restaurants and hotels	-0.150	(0.110)	-0.157	(0.109)	-0.163	(0.110)
Transport and communication	0.029	(0.120)	0.015	(0.119)	0.014	(0.121)
Firm services	-0.027	(0.120)	-0.040	(0.119)	-0.040	(0.120)
Communal, health and social services	0.034	(0.112)	0.010	(0.111)	0.005	(0.113)
Residence: Montevideo (Omitted: Interior)	0.054	(0.039)	0.055	(0.038)	0.059	(0.039)
<i>Survey year (Omitted: 2012)</i>						
anio=2013	0.081	(0.061)	0.083	(0.061)	0.083	(0.061)
anio=2014	0.090	(0.062)	0.083	(0.062)	0.091	(0.062)
anio=2015	0.059	(0.062)	0.056	(0.061)	0.064	(0.061)
anio=2016	0.060	(0.054)	0.051	(0.054)	0.059	(0.054)
Constant	5.162***	(0.130)	5.207***	(0.129)	5.239***	(0.131)
<i>Panel B. Instrumental variables. Probability of employment</i>						
Married	0.401***	(0.065)	0.399***	(0.065)	0.394***	(0.065)
Children aged 0-4yrs	0.047	(0.080)	0.052	(0.080)	0.052	(0.080)
Children aged 5-11 yrs	0.027	(0.062)	0.027	(0.062)	0.027	(0.061)
athrho Constant	-1.071***	(0.097)	-1.071***	(0.101)	-1.103***	(0.096)
Insigma Constant	-0.212***	(0.032)	-0.218***	(0.032)	-0.211***	(0.032)
Obs.	2,490		2,490		2,490	

Robust standard errors in parentheses

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

Table 8. Probability of being over-educated. AME

	Females			Males								
	(1)	(2)	(3)	(4)	(5)	(6)						
Age	0.005*	(0.003)	0.007**	(0.003)	0.004	(0.003)	-0.001	(0.002)	-0.001	(0.002)	-0.002	(0.002)
Race (omitted: White)												
Afro	0.077	(0.083)	0.078	(0.083)	0.048	(0.094)	0.188***	(0.070)	0.187***	(0.070)	0.197***	(0.073)
Indigenous	0.101	(0.079)	0.100	(0.078)	0.119	(0.081)	-0.020	(0.062)	-0.018	(0.062)	-0.016	(0.064)
Other	-0.117	(0.203)	-0.115	(0.199)	0.008	(0.250)	0.015	(0.154)	0.020	(0.156)	0.018	(0.157)
<i>Education attained (omitted: Incomplete secondary)</i>												
Complete secondary	0.287***	(0.058)	0.286***	(0.057)	0.285***	(0.061)	0.312***	(0.042)	0.312***	(0.042)	0.315***	(0.043)
Tertiary non-university	0.410***	(0.075)	0.423***	(0.075)	0.427***	(0.079)	0.575***	(0.067)	0.574***	(0.067)	0.563***	(0.069)
Incomplete university	0.673***	(0.064)	0.679***	(0.060)	0.672***	(0.064)	0.658***	(0.064)	0.657***	(0.064)	0.667***	(0.065)
At least complete university	0.506***	(0.053)	0.517***	(0.051)	0.501***	(0.055)	0.476***	(0.039)	0.477***	(0.039)	0.471***	(0.040)
Years since arrival	-0.018	(0.018)					0.004	(0.015)				
Yrs continuously working Difference (yrs working- yrs Uy)			-0.014**	(0.007)					-0.001	(0.004)		
					-0.010	(0.006)					-0.001	(0.004)

Table 8. Probability of being over-educated (cont.)

	(1)	(2)	(3)	(4)	(5)	(6)
Activity sector (omitted: agriculture)						
Manufacture	0.118	(0.161) 0.108	(0.160) 0.016	(0.175) -0.295***	(0.096) -0.294***	(0.096) -0.287*** (0.099)
Electricity, gas and water	-0.381	(0.274) -0.407	(0.259) -0.495*	(0.260) 0.038	(0.127) 0.037	(0.128) 0.130 (0.110)
Construction	.	.	.	.	-0.023	(0.091) -0.024 (0.091) -0.022 (0.095)
Commerce, restaurants and hotels	-0.138	(0.150) -0.153	(0.150) -0.225	(0.160) -0.225**	(0.088) -0.225**	(0.088) -0.223** (0.091)
Transport and communication	-0.140	(0.168) -0.153	(0.166) -0.237	(0.175) -0.419***	(0.095) -0.420***	(0.095) -0.410*** (0.098)
Firm services	-0.167	(0.155) -0.179	(0.154) -0.232	(0.167) -0.392***	(0.094) -0.391***	(0.094) -0.378*** (0.097)
Communal, health and social services	-0.269*	(0.148) -0.277*	(0.148) -0.348**	(0.159) -0.388***	(0.088) -0.387***	(0.089) -0.373*** (0.092)
Social networks	-0.368***	(0.112) -0.356***	(0.110) -0.441***	(0.114) -0.045	(0.103) -0.039	(0.104) -0.066 (0.106)
Montevideo	-0.108**	(0.050) -0.100**	(0.050) -0.126**	(0.053) -0.016	(0.045) -0.017	(0.045) -0.021 (0.047)
Survey year (omitted: 2012)						
2013	0.179**	(0.087) 0.205**	(0.088) 0.206**	(0.092) 0.028	(0.068) 0.031	(0.068) 0.035 (0.071)
2014	0.130	(0.080) 0.134*	(0.080) 0.148*	(0.084) -0.053	(0.067) -0.051	(0.067) -0.038 (0.069)
2015	0.167**	(0.074) 0.164**	(0.074) 0.163**	(0.077) 0.030	(0.064) 0.033	(0.064) 0.039 (0.066)
2016	0.204***	(0.073) 0.204***	(0.073) 0.201***	(0.076) 0.067	(0.063) 0.069	(0.063) 0.074 (0.064)
Obs.	385	385	385	514	514	493

Robust standard errors in parentheses

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

Table 9. Earning equations

Panel A. Earning equations	Females			Males								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			
Age	0.005	(0.005)	-0.002	(0.005)	0.001	(0.005)	0.018***	(0.005)	0.013***	(0.004)	0.016***	(0.005)
Race (omitted: White)												
Afro	-0.156	(0.152)	-0.139	(0.118)	-0.177	(0.141)	0.006	(0.150)	0.020	(0.144)	0.005	(0.152)
Indigenous	-0.109	(0.137)	-0.127	(0.118)	-0.118	(0.132)	0.043	(0.120)	0.021	(0.117)	0.025	(0.120)
Other	0.349	(0.567)	0.090	(0.502)	0.403	(0.574)	0.052	(0.431)	-0.144	(0.464)	-0.098	(0.454)
Education attained (omitted: Incomplete secondary)												
Complete secondary	0.232*	(0.139)	0.179	(0.126)	0.178	(0.130)	0.646***	(0.136)	0.562***	(0.134)	0.613***	(0.134)
Tertiary non-university	0.289	(0.203)	0.201	(0.191)	0.151	(0.196)	0.767***	(0.206)	0.723***	(0.200)	0.733***	(0.204)
Incomplete university	0.363**	(0.169)	0.258	(0.167)	0.228	(0.171)	0.877***	(0.173)	0.821***	(0.171)	0.856***	(0.173)
At least complete university	0.729***	(0.150)	0.616***	(0.146)	0.607***	(0.147)	1.405***	(0.146)	1.321***	(0.144)	1.380***	(0.148)
Over-education	-0.231**	(0.105)	-0.191**	(0.097)	-0.180*	(0.104)	-0.321***	(0.103)	-0.306***	(0.102)	-0.315***	(0.103)
Social networks	-0.023	(0.245)	-0.062	(0.219)	-0.008	(0.237)	0.416*	(0.224)	0.412*	(0.227)	0.378*	(0.223)
Years since arrival	0.005	(0.035)					0.067**	(0.033)				
Yrs continuously working			0.049***	(0.012)					0.025**	(0.011)		
Difference (yrs working- yrs Uy)					0.052***	(0.011)					0.016	(0.011)

Robust standard errors in parentheses

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

Table 9. Earning equations (cont.)

	(1)	(2)	(3)	(4)	(5)	(6)						
Activity sector (omitted: agriculture)												
Manufacture	0.618*	(0.359)	0.461	(0.292)	0.645*	(0.343)	0.013	(0.309)	-0.148	(0.298)	-0.042	(0.314)
Electricity, gas and water	0.499	(0.434)	0.453	(0.380)	0.614	(0.444)	0.396	(0.282)	0.071	(0.297)	0.287	(0.294)
Construction	0.680*	(0.358)	0.618**	(0.288)	0.802**	(0.336)	0.213	(0.309)	-0.031	(0.308)	0.185	(0.314)
Commerce, restaurants and hotels	0.263	(0.341)	0.133	(0.276)	0.283	(0.324)	0.010	(0.290)	-0.142	(0.283)	-0.025	(0.294)
Transport and communication	0.679*	(0.350)	0.541*	(0.286)	0.679**	(0.332)	0.145	(0.303)	-0.009	(0.294)	0.091	(0.306)
Firm services	0.453	(0.343)	0.362	(0.275)	0.496	(0.325)	-0.029	(0.319)	-0.176	(0.311)	-0.054	(0.325)
Communal, health and social services	0.478	(0.340)	0.353	(0.274)	0.492	(0.323)	0.016	(0.294)	-0.143	(0.285)	-0.031	(0.299)
Montevideo	0.234**	(0.102)	0.230***	(0.089)	0.225**	(0.101)	0.145	(0.100)	0.165*	(0.094)	0.121	(0.098)
Survey year (omitted: 2012)												
2013	.	.	.	.	.	.	.	.	.	.	.	.
2014	0.196	(0.197)	0.142	(0.179)	0.082	(0.185)	-0.000	(0.171)	0.016	(0.160)	0.042	(0.172)
2015	0.122	(0.194)	0.089	(0.176)	0.105	(0.189)	0.154	(0.151)	0.174	(0.140)	0.161	(0.147)
2016	0.316*	(0.170)	0.305*	(0.158)	0.315*	(0.164)	0.043	(0.147)	0.105	(0.137)	0.091	(0.143)
Years since arrival	0.282*	(0.168)	0.264*	(0.153)	0.282*	(0.162)	-0.170	(0.134)	-0.139	(0.127)	-0.141	(0.131)
Constant	4.229***	(0.442)	4.606***	(0.370)	4.471***	(0.417)	3.975***	(0.372)	4.380***	(0.372)	4.215***	(0.378)
<i>Panel B. Instrumental variables. Probability of employment</i>												
Married	-0.250*	(0.152)	-0.325**	(0.145)	-0.245	(0.150)	0.150	(0.167)	0.153	(0.165)	0.150	(0.166)
Children aged 0-4yrs	-0.437***	(0.145)	-0.365**	(0.142)	-0.439***	(0.145)	0.045	(0.189)	0.053	(0.187)	0.045	(0.188)
Children aged 5-11 yrs	-0.096	(0.138)	-0.110	(0.131)	-0.093	(0.137)	-0.108	(0.152)	-0.098	(0.154)	-0.109	(0.153)
athrho Constant	0.161	(0.169)	0.172	(0.151)	0.133	(0.155)	0.081	(0.161)	0.068	(0.155)	0.081	(0.150)
Insigma Constant	-0.388***	(0.073)	-0.427***	(0.075)	-0.418***	(0.077)	-0.280***	(0.053)	-0.275***	(0.053)	-0.278***	(0.054)
Obs.	455		475		455		423		439		423	

Robust standard errors in parentheses

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

INSTITUTO DE ECONOMÍA

Serie Documentos de Trabajo

Diciembre, 2018
DT 16/2018



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