

Isphording, Ingo

**Working Paper**

## Returns to Local and Foreign Language Skills – Causal Evidence from Spain

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Ingo Isphording

## Returns to Local and Foreign Language Skills

Causal Evidence from Spain

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Universität Duisburg-Essen, Department of Economics  
Universitätsstr. 12, 45117 Essen, Germany

Rheinisch-Westfälisches Institut für Wirtschaftsforschung (RWI)  
Hohenzollernstr. 1-3, 45128 Essen, Germany

## Editors

Prof. Dr. Thomas K. Bauer  
RUB, Department of Economics, Empirical Economics  
Phone: +49 (0) 234/3 22 83 41, e-mail: [thomas.bauer@rub.de](mailto:thomas.bauer@rub.de)

Prof. Dr. Wolfgang Leininger  
Technische Universität Dortmund, Department of Economic and Social Sciences  
Economics – Microeconomics  
Phone: +49 (0) 231/7 55-3297, email: [W.Leininger@wiso.uni-dortmund.de](mailto:W.Leininger@wiso.uni-dortmund.de)

Prof. Dr. Volker Clausen  
University of Duisburg-Essen, Department of Economics  
International Economics  
Phone: +49 (0) 201/1 83-3655, e-mail: [vclausen@vwl.uni-due.de](mailto:vclausen@vwl.uni-due.de)

Prof. Dr. Christoph M. Schmidt  
RWI, Phone: +49 (0) 201/81 49-227, e-mail: [christoph.schmidt@rwi-essen.de](mailto:christoph.schmidt@rwi-essen.de)

## Editorial Office

Joachim Schmidt  
RWI, Phone: +49 (0) 201/81 49-292, e-mail: [joachim.schmidt@rwi-essen.de](mailto:joachim.schmidt@rwi-essen.de)

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Ingo Isphording<sup>1</sup>

## Returns to Local and Foreign Language Skills – Causal Evidence from Spain

### Abstract

*This study examines the returns to foreign and local language skills of immigrants in the Spanish labor market. Different sources of endogeneity are addressed by deriving a set of novel instruments for language proficiency through a measure of linguistic dissimilarity. Using cross-sectional data from the 2007 National Immigrant Survey of Spain (NISS), returns to language skills are estimated separately for Spanish, English, German and French proficiency. Foreign language proficiency produces high returns, which appear to be mediated through the channel of occupational choice. The results are discussed against the background of a severe foreign language skills shortage in the Spanish economy. Immigrants may deal as a supplier of foreign language proficiency in the short run. In contrast to most studies, I find no compelling evidence of a wage premium for local language proficiency.*

*JEL Classification: F22, J15, J24, J31*

*Keywords: Language skills; migration; human capital; linguistic distance; instrumental variable*

*January 2013*

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# 1 Introduction

The proficiency in foreign languages is a significant part of an individuals' human capital and has been recognized as a crucial productive trait in international trade (Fidrmuc and Fidrmuc, 2009), services (Tucci and Wagner, 2004) and tourism (Leslie et al., 2002). Due to the growing importance of foreign language proficiency induced by globalization, some countries struggle to maintain the necessary level of language skill endowments. Against this background, international migration may act as a channel through which language skill differentials between countries are equalized. The scarcity of foreign language skills in receiving countries acts as a pull factor attracting international migrants.

Broadly, two different strands of literature are concerned with the returns to language skills. First, the majority of studies focuses on returns to the language of the destination country of immigrants, starting with early work by Carliner (1981) and McManus et al. (1983), and concluding in IV estimates of language skill returns by Chiswick and Miller (1995), Dustmann and van Soest (2002) and Bleakley and Chin (2004). Second, a variety of studies addressed the positive labor market effects of speaking a second foreign language in general (Ginsburgh and Prieto-Rodriguez, 2007; Garrouste, 2008; Williams, 2006), or in the context of immigration by Toomet (2011) and Lang and Siniver (2009).

This study contributes to these strands of literature by examining the returns to both local and foreign language skills of immigrants, using data from the National Immigrant Survey of Spain (NISS)<sup>1</sup>. I exploit differences in language acquisition patterns caused by variations in the dissimilarity between mother tongue and acquired language as a source of exogenous variation. I derive a set of instrumental variables from linguistically-based information on phonetic differences (hereafter called 'linguistic distance') between languages. This approach permits an identification of the causal effect of language skills on wages for the most important foreign languages in the European context. To my best knowledge, it is the first study to address returns to foreign languages in Spain. Additionally, it challenges recent estimates of returns to local language skills in Spain by Budria and Swedberg (2012).

Due to a particular scarcity of foreign language proficiency, Spain constitutes an interesting example for the analysis of returns to language skills. About two thirds of Spaniards do not to speak, read or write in English (Centro de Investigaciones Sociológicas, 2010). Using data from the "Eurobarometer 64.3", a Europe-wide opinion survey conducted by Eurostat, I show that the scarcity of language skills in Spain strongly exceeds the EU average. Although very few Spaniards speak an economically relevant foreign language<sup>2</sup>,

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<sup>1</sup>The Spanish name of the survey is *Encuesta Nacional de Inmigrantes*

<sup>2</sup>According to Hagen et al. (2006), the economically most important languages in the EU are English, French, German, and Russian.

only a minority intends to improve foreign language skills. Moreover, foreign languages are not perceived as useful in the wider public. At the same time, Spanish employers experience foreign language skill shortages and report an excess demand for workers with foreign language skills that strongly exceeds the European average (Hagen et al., 2006).

Skilled immigration to Spain may act as an additional source of language-related human capital. During the last 15 years, Spain experienced an unprecedented increase in immigration. Traditionally a supplying emigration country, net migration flows turned positive at the beginning of the 1990s. Immigration flows have increased dramatically between 1997 and 2007: Based on data from the Spanish Labour Force Survey, Fernández and Ortega (2008) report an increase in the share of the foreign-born population from about 1.1% to almost 10.0%, with origins in Latin America, Eastern European countries and Africa. Data on the language proficiency of immigrants indicates a comparative advantage of immigrants in terms of French, English and German language skills<sup>3</sup>. This comparative advantage might be an explanatory factor for a wage advantage of immigrants in the upper parts of the wage distribution, compared to disadvantages in lower parts, as observed by Canal-Domínguez and Rodríguez-Gutiérrez (2008).

My empirical findings indicate significant wage premia for language proficiency in English, German and French. These premia are higher for females than for males, and a sizeable part is channeled indirectly through occupational choice. The results highlight the importance of foreign language skills for the human capital endowment of immigrants in Spain. Given a higher endowment of foreign language proficiency in the immigrant population relative to the native-born population, immigrants will have the advantage of being an additional supplier of language skills until the Spanish government will adjust the education system to the increased demand for foreign language skills. I find no compelling evidence of returns to Spanish proficiency. The lack of returns to the host country language - though contrary to the mainstream literature - is in line with the study of Toomet (2011) for the Baltic states. This particular result may be driven by the relative abundance of Spanish skills in the observed immigrant population.

This paper is organized as follows. Section 2 outlines the literature related to the empirical analysis. The scarcity of foreign language proficiency in Spain is discussed in Section 3. Section 4 explains the derivation of the instrument from linguistic information. A description of the data is given in Section 5. Section 6 includes a discussion of the results. Section 7 concludes.

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<sup>3</sup>see author's calculations from NISS data, Section 2.



## 2 Language skill supply and demand in Spain

Language skills are one form of human capital and as such they produce economic returns. Chiswick and Miller (1995) underpin the human capital character of language proficiency by the following properties: costly to acquire, embodied in a person, and productive. The functions of languages are diverse. Languages are the major channel of social interaction, they can be used to express emotions and one's own identity, they are used to record and store information of all kind, and they are an instrument to arrange and order thoughts (Crystal, 2010). The productive value of language ability is particularly relevant in the light of the ongoing transformation of the labor market in the information age (OECD, 2000). The productiveness of language skills is reflected by the returns in the labor market.

Expected returns to speaking a language are an important determinant of language acquisition (Chiswick and Miller, 1995). In the Selten/Pool model of language acquisition (Selten and Pool, 1991), individuals compare the “communicative benefit” of speaking a language to the associated costs of acquisition. The communicative benefit reflects economic incentives and is described by the expected utility arising from speaking a language. The expected utility in turn consists of a market and a non-market value of the language (Grin, 2003). The non-market value is not paid off monetarily, but results from the prestige accompanied by speaking a language, the potential joy of learning a new language, and increased options to communicate with foreigners. The market value is defined as the wage premium paid for being proficient in additional languages. The wage premium depends on supply (skill endowment of the population) and demand of employers.

On the demand side, the value of languages for employers is given by the enhanced communication ability in business needs, international trade, or tourism (Fidrmuc and Fidrmuc, 2009; Tucci and Wagner, 2004; Leslie et al., 2002). The value of a language is crucially connected to the relative importance of this language to a country (Grin, 2003), which stems from the trade potential delivered by a language, its applicability in the direct face-to-face communication with customers, or in the reduction of search and information costs when dealing with foreign information.

In Spain, the demand for foreign language skills is severe, as numbers from the EU ELAN study on language skill shortages in small and medium size companies in Europe indicate. Almost two-thirds of participating Spanish enterprises state that they will need to acquire additional expertise in languages. This is the highest share in the EU (Hagen et al., 2006). Hagen et al. (2006) and Fidrmuc and Fidrmuc (2009) highlight the importance of foreign language knowledge in allowing for business opportunities and increasing trade potential. The main part of Spain's international trade takes place within the EU, with France and Germany being the main trading partners. The relative importance of

French and German, induced by the geographical closeness and further enhanced by the large number of German travellers affecting the Spanish tourism industry, gives reason to expect a strong demand for foreign language skills. Apart from French and German, English possesses a general importance - independent of a specific country context - due to its common role as lingua franca in international trade (Ku and Zussman, 2010).

Despite the importance of foreign languages for the Spanish economy, the endowment of foreign language skills in the native population is rather low. Table 1 summarizes some key figures from the “Eurobarometer 64.3”, a Europe-wide survey including information on foreign languages. Although 45% of respondents in the survey believe that the knowledge of foreign languages is useful (ranking Spain as 25th of 32 countries in sample), only 15% intend to improve their foreign language proficiency. This number is significantly lower than the EU average of 21.7%. The stock of the population reporting “good” or “very good” proficiency in the most important languages also remains distinctively below the EU average. Only 14.9% report a good or very good command of English (EU average: 23.5%, rank 25), and only 1.2% have a good or very good command of German (EU average: 6.5%, rank 28). The numbers look better for France (rank 6).

The scarcity of English language skills is backed up by different sources. In a recent representative survey by the Centro de Investigaciones Sociológicas 63% of Spaniards reported that they can neither speak, read nor write in English (Centro de Investigaciones Sociológicas, 2010). The EF English Proficiency Index by EF English First, and international education company, shows that Spain is only followed by Russia and Turkey in terms of English proficiency.

A reason for the low interest in learning foreign languages may be the large number of Spanish-speakers worldwide. Despite a dominance of English in international trade and communication, there are currently more native Spanish-speakers than native English-speakers worldwide. A large number of speakers of a language reduces incentives for native speakers of this language to invest in a second language, due to lower network externalities (Church and King, 1993; Ginsburgh, 2005). The prevalence of the Spanish language decreases the exposure of Spanish native speakers to foreign languages and the usefulness of foreign languages in everyday life. This decreases the attractiveness of and the incentives for learning foreign languages for native Spaniards.

Taken together, the Spanish economy experiences a high demand for foreign languages, especially for French, German, and English, while facing the low endowment of the Spanish native population. The resulting excess demand may lead to a high market value of foreign language skills, which may in turn be a pull factor for immigrants.

The endowment in language skills can be expected to be higher for immigrants by a number of reasons. Foreign languages might simply be the mother tongue of an immi-

grant. Selection processes might lead to a positive selection (Borjas, 1987) in terms of cognitive skills or a general affinity for learning languages. To assess the endowment of the immigrant population in Spain, I use the National Immigrant Survey of Spain (see Section 3 for a description) to estimate proficiency rates. The NISS questionnaire includes questions on the individual ability to understand, speak, read, and write certain languages. I define high language proficiency as answering all four questions regarding a certain language with “yes”. Following this definition, the language skill endowments seem to be larger for the immigrant population than for the natives. The share of high English proficiency accounts for 25%, followed by 15% reporting good French proficiency, and 5% reporting good German proficiency. Given the scarcity of foreign language skills in Spain, this comparative advantage in language skill endowment is likely to turn immigrants into a relevant complementary source of labor, especially in communication-intensive sectors and occupations.

### 3 Data and Descriptives

The data used in this study are taken from the National Immigrant Survey of Spain (NISS), conducted in 2007. It offers comprehensive and representative cross-sectional information on the socio-economic characteristics and migration history of 15,456 immigrants in Spain who were 16 years and older, and who have been to Spain for at least one year. For further information about the NISS see Reher and Requena (2009). The sample is restricted to immigrants aged between 18 and 65 years. Additionally, individuals in the highest and lowest two percentiles of the wage distribution are ignored to reduce the power of outliers. The final sample covers 6,129 individuals after deleting observations containing missing information.

The dependent variable is the log. hourly net wage rate, which is computed from information on net monthly labor income and weekly hours. As a fraction of the sample used the option to answer in income classes instead of actual numbers these income classes are recoded according to their class center.

To evaluate the language proficiency, participants are asked what different languages they know and whether they can write, read, speak, and comprehend this language. From this information, language proficiency indicators for Spanish, English, German and French are derived. The proficiency indicators are coded as 1 if a participant answers to be proficient in all four ways. Native speakers of a respective language are also coded as 1<sup>4</sup>. Using the dichotomization instead of the full information available avoids dealing

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<sup>4</sup>A second measure of Spanish skills results from the question “*Considering your needs in the workplace, at the bank, with the authorities, how well do you speak Spanish?*”. To ensure comparability between the

with cardinality assumptions across different categories. For reasons of clarity, it will be referred to those reporting higher language skills as having “High” proficiency skills throughout the following discussion.

Figure 1 displays the wage distribution of the sample and differences with respect to proficiency in specific languages. This first descriptive evidence already hints at wage differences by language fluency in the case of English, German and French proficiency, whereas the distributions are quite similar in the case of Spanish proficiency. The arising wage differences are concentrated in the upper parts of the distribution.

The control variables consist of the gender, age and years of residence as a squared function, indicator variables for educational level<sup>5</sup>, marital status, the number of children and a full set of country-of-origin indicator variables to control for origin-fixed unobserved heterogeneity. Further specifications include occupation indicators for 10 different occupational categories. Means and standard deviations of dependent and explanatory variables are summarized in Table 2. The sample does not display any significant gender differences in characteristics.

## 4 Empirical Strategy

The empirical analysis aims at estimating the returns to a language skill indicator  $L_i$ , represented by its coefficient  $\beta_1$  in the following wage equation

$$y = \beta_0 + \beta_1 L_i + X' \phi + \varepsilon. \quad (1)$$

with  $y$  as log. hourly wages,  $X$  as a set of control variables and  $\varepsilon$  as the error term.

Uncorrected linear regressions will lead to inconsistent estimates of the parameter of interest. As the estimations rely on self-reported proficiency of languages, the language skill indicators are likely to be effected by measurement error (Dustmann and van Soest, 2002; Bleakley and Chin, 2004). Measurement error in language skills can either arise in form of unsystematic “white noise” error or in form of a systematic unwillingness or inability of individuals to adequately rate their language skills (Dustmann and van Soest, 2002). In either case, the OLS coefficients are negatively biased.

Additionally, the estimated returns might be upward-biased by an ability bias, analogous to the omitted variable bias. In the case of language proficiency indicators, this question has been ignored. Still, repeated estimations with the direct question on Spanish ability produced similar results.

<sup>5</sup>The education indicators compare completed *Secondary Education (1st Cycle)*, *Secondary Education (2st Cycle)* or *Tertiary Education* to the reference category of having no schooling or only primarily schooling completed.

gously to the problematic estimation of returns to education. This ability bias would lead to a overestimation of the true returns to language skills in the OLS case, as the coefficient would be a composite of language skill and ability returns. A similar upward bias could arise by selection issues, when those already in well-paid occupations would tend to acquire further language skills. Due to these ambiguous biases, it can not be a priori stated in which direction the OLS coefficients differ from the true returns. Both factors, the measurement error and the ability bias, introduce a potential correlation  $E[L_i \varepsilon | X] \neq 0$  between the language skill indicator and the error term.

To address both sources of endogeneity, I utilize the negative relation between the linguistic distance between the mother tongue of an immigrant and an acquired language as source of exogenous variation in an IV framework. The linguistic distance between mother tongue and host country language is the dissimilarity of languages in terms of grammar, vocabularies, phonetic inventories, pronunciation, or script. It constitutes an initial disadvantage in the host country language acquisition for those coming from a more distant linguistic origin and also negatively affects the efficiency of the language acquisition (Chiswick and Miller, 1999; Isphording and Otten, 2012).

Case studies and experimental studies from the linguistic literature show that the more distant a second language is, especially in terms of pronunciation, the more difficult it becomes to differentiate between different words and vowels, making it difficult (and costly) to acquire the language. A recent overview on the linguistic literature covering the relationship of language background and language acquisition is offered by Llach and Pilar (2010).

This study uses a so-called lexicostatistical measurement of linguistic distance comparing word lists across languages according to their pronunciation, following the basic idea that phonetic similarity indicates a closer common ancestor language. This operationalization of the linguistic distance is based on the Automatic Similarity Judgment Program, undertaken by the German Max Planck Institute of Evolutionary Anthropology. This program was originally developed to explain geographic diversity and historical development of languages. The approach uses a vocabulary list of basic culturally independent meanings, the so-called Swadesh list (Swadesh, 1952). For each word pair expressed in phonetic script, the minimum number of changes of sounds is calculated which is needed to transfer one word into the other. The used 40-items list is shown in Table 3, along with some computational examples. From the word-by-word distances, a cardinal measure of phonetic distance is derived by averaging and normalizing to take into account potential similarities in phonetic inventories, that might induce a certain similarity by chance. For computational details see Brown et al. (2008).

This measure performs very well when compared to expert opinions concerning the

family affiliation of languages (Wichmann et al., 2010). The idea behind this good performance of this rather simple measure of linguistic distance is the measurement of cognates between languages. Cognates denote in linguistics common ancestries of words. While focusing only on pronunciation, languages with a lower distance measured by cognates also have a higher probability of sharing e.g. grammatical features, as they share a more closer common ancestry.

Table 4 lists the closest and furthest languages to Spanish, English, German and French in the sample. Closest distances typically occur within the same language family, the Romance languages in the Spanish and French case and the Germanic languages in the English and German case. The most frequent languages, and their respective linguistic distance towards Spanish, English, German and French are listed in Table 5. The majority of immigrants in Spain speaks Spanish as the mother tongue, followed by Romanian- and Arabic-speaking immigrants. This resembles the structure of immigrants described earlier, with a majority of immigrants from South America, Eastern Europe and the Maghreb.

The negative correlation between linguistic distance and language ability deals as basis for a set of instrumental variables. In the case of foreign language skills in English, German and French, the simple linguistic distance between the respective language and the mother tongue of an individual can be excluded from the second stage estimations. The existing strong negative relationship provides the necessary correlation to identify the effect of language skills. In a first stage, language skills are explained by the respective linguistic distance towards the mother tongue and a set of control variables ( $X$ ):

$$L_i = \delta_0 + \delta_1 LD_i + X'\gamma + \varepsilon. \quad (2)$$

$L_i$  is the individual language proficiency indicator derived from the information on the ability to speak, understand, read and write in the respective language.  $LD_i$  is the respective linguistic distance,  $X$  a set of control variables including country of origin fixed effects. The predicted values  $\hat{L}_i$  from this first stage are used to explain log. wages in a second stage, while the linguistic distance is excluded:

$$y = \beta_0 + \beta_1 \hat{L}_i + X'\phi + \xi. \quad (3)$$

Reasonably assuming that the linguistic distance between mother tongue and a foreign language has no direct effect on any labour market outcome in Spain apart from the channel of language acquisition, the predicted language skill indicator will be uncorrelated

with the error term,  $E[\widehat{L}_i\xi|X] = 0$ . This allows the identification of the returns to Foreign language proficiency on the earnings.

This assumption is unlikely to hold in the case of local Spanish language skills. The linguistic distance between Spanish and the mother tongue is potentially correlated with other cultural or institutional differences between the home country and Spain that have a direct wage effect. These might be similarities in institutions or education systems (Chiswick and Miller (2012) even use linguistic distance as a proxy for the degree of portability of human capital), or additional unobservable cultural (dis-)similarities. Additionally, immigrants might select themselves into migration (or will be selected by immigration policies) according to the linguistic barriers they will face in the receiving country. These conditions will violate the assumption of orthogonality between linguistic distance and individual earnings.

To derive valid instruments for Spanish language proficiency, these non-linguistic factors of language acquisition have to be partialled out of the overall acquisition pattern. This is done by introducing interaction effects between the linguistic distance and the years of residence in the host country. These interaction effects are used as instruments of Spanish language proficiency, while the main effect of linguistic distance remains in the second stage equations. By doing so, non-linguistic factors are partialled out of the instruments, and only linguistic factors affecting only the language proficiency, but not the labor market integration in general, are excluded from the second stage. In this case, the first stage reads:

$$\begin{aligned} L_{sp} = & \delta_0 + \delta_1 LD_{sp} + \delta_2 YSM + \delta_3 YSM^2 + \\ & + \delta_4 LD \times YSM + \delta_5 LD \times YSM^2 + \\ & + X'\gamma + \varepsilon. \end{aligned} \tag{4}$$

Again, the predicted level of Spanish proficiency  $\widehat{L}_{sp}$  is used to explain log wages. Main effects of years since migration and the main effect of linguistic distance remain in the equation, while  $LD \times YSM$  and  $LD \times YSM^2$  are excluded from this second stage:

$$y = \beta_0 + \beta_1 \widehat{L}_{sp} + \beta_2 LD_{sp} + \beta_3 YSM + \beta_4 YSM^2 + X'\gamma + \xi. \tag{5}$$

This identification strategy is based on the assumption that all non-linguistic differences in language acquisition profiles are time-invariant and country-specific and thereby captured by the country-of-origin fixed effects. The remaining differences in slopes result

solely from differences in linguistic origin and are not related to the labor market success with exception through the channel of language proficiency. Formally, this assumption again ensures that  $E[\widehat{L}_i\xi|X] = 0$  then allows the identification of the parameter of interest  $\beta_1$ .<sup>6</sup>

Two different specifications are estimated, including and excluding occupation indicators to control for occupation-fixed effects. The inclusion of the occupation-fixed effects raises some issues in the interpretation of the coefficients. The interaction of occupational choice of immigrants and their individual language skills has been extensively discussed by Chiswick and Miller (2010) for the U.S., who state that language proficiency can have a direct effect as well as an indirect effect on wages via the channel of occupational choice. Without explicitly modeling the occupational choice in the present model, the returns to language proficiency represent a composite effect of both the occupational choice and the direct wage premium for skills. Excluding occupation indicators, it is not clear which fraction of the effect belongs to the direct wage premium for language proficiency, and which fraction is due to a sorting into specific occupations.

Holding the occupational choice constant by including occupational dummies makes it difficult to interpret the coefficients causally. Using occupational fixed effects assumes implicitly that the occupational choice is exogenous and unrelated to the language skills. This approach ignores that the occupational choice is a function of the language skills itself and determined “past treatment”. This leads to a potential under-estimation of the returns. Still, the change in coefficients between both specifications gives insights in the magnitude the occupational choice influences the returns to language skills.

## 5 Results

First descriptive evidence from OLS regressions on the returns to language proficiency are reported in Table 6. Confirming the descriptive results by Swedberg (2010), there is no significant partial correlation between Spanish skills and wages with the exception of a weak correlation for the male subsample by 2.8%. The OLS results further indicate a moderate partial correlation of about 9% for English proficiency and 9.7% for German proficiency. French proficiency is only weakly correlated with wages in the female subsample. The partial correlations are lower when it is controlled for occupation-fixed effects.

The results of the IV regressions are reported in Table 7. The results exceed the OLS results for foreign languages, while the general pattern remains the same.<sup>7</sup> The F-tests

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<sup>6</sup>I wish to thank Christian Dustmann for pointing out this potential way of identification. The estimations are carried out using the stata-ado *ivreg2*. See Baum et al. (2002).

<sup>7</sup>In the estimations for foreign proficiency, the sample is restricted to individuals with good Spanish



for the excluded instruments indicate no weak identification problem. Rows (1) to (3) of Table 7 summarize the results of estimations without occupation-fixed effects. Good French proficiency is rewarded on average by a wage premium of 45.3%, the coefficient of English language proficiency indicates an average wage premium of 38.3% while the return to German proficiency only lies by 25.3%. All point estimates are significantly different from zero. Generally, the returns appear to be higher for women than for men.<sup>8</sup>

The introduction of additional controls for occupation-fixed effects (specification (1) to (3)) decreases the returns to foreign language proficiency strongly, and they even become insignificantly different from zero in the case of English proficiency. This decrease of coefficients by included occupation indicators points at the importance of the channel of occupational choice. Conditional on occupation, French language proficiency is on average rewarded by 34.8%, German proficiency by 17.7%. In the case of English proficiency it seems that the beneficial effect of wages mainly acts through the channel of occupational choice, the respective coefficient becomes insignificant conditional on occupation.

The results for Spanish language proficiency show no patterns of a systematic wage premium. This finding is contrary to the mainstream literature on positive returns to native language proficiency in Anglophone countries (e.g., Chiswick and Miller (1995), Bleakley and Chin (2004)), Germany (Dustmann and van Soest (2002)) and recent results by Budría and Swedberg (2012) for Spain using the same dataset. A similar pattern has only been reported by Toomet (2011) for Russian immigrants to the Baltic states: in presence of significant returns to English language proficiency, the returns to the local language remained insignificant.

A potential driving factor for these results are the differences in fluency rates. Chiswick and Miller (1995) reports a fluency rate in the host country language of 58% for the US and of 76% for all immigrants in Australia. Dustmann and van Soest (2002) report descriptive statistics that show that the fraction of immigrants in Germany with less than good or very good speaking fluency is at about roughly 50% in the sample for men and even lower for women. Contrary, in the NISS sample, the fraction of individuals having a good proficiency in the local language lies by 85% for men and 90% for women. The comparably few individuals with low proficiency in the present sample might be able to find a job where a wage penalty for insufficient command of the local language does not occur. With this very low variation in Spanish proficiency, potentially existing premia for proficiency. The sample size decreases to 5,355 individuals.

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<sup>8</sup>One might be concerned that the results are solely driven by the differences between native and non-native speakers of a foreign language. Therefore, the estimations were repeated excluding individuals with zero linguistic distance between the respective foreign language and the mother tongue (i.e., native speakers). The results are summarized in Table A.1. and remain robust for Spanish, English and German proficiency. The significant loss in variation due to this restriction renders the estimates for French proficiency insignificant.

local language proficiency might be not identifiable.

## 6 Conclusion

The proficiency in foreign languages constitutes an important part of an individuals' human capital. The importance of foreign language proficiency is likely to be increasing with the ongoing globalisation in economic exchanges and communication. Yet, some countries already struggle to maintain a sufficient level of endowment of foreign language proficiency. Against this background, the transformation of Spain from a traditional emigration country to a major receiver of immigrant flows in the EU offers an interesting setting in which immigrants might serve as an additional short run supplier of demanded foreign language skills.

To analyze the size of returns to foreign language proficiency of immigrants in Spain, the study aims at estimating causal estimates of returns to foreign (English, German and French as the most important languages in the European context) language proficiency of immigrants using data from the National Immigrant Survey of Spain (*Encuesta Nacional de Inmigrantes*). Besides, also potential wage premia for local language skills are addressed. Estimation of language skill returns is prone to endogeneity bias due to measurement error problems and a potential ability bias. These endogeneity problems are overcome by deriving instrument variables from linguistic information on the distance between mother tongue and host country language (Bakker et al., 2009). The negative relationship between linguistic distance and language proficiency has been analyzed previously by Ispording and Otten (2012).

The IV results for foreign proficiency, which exceed the uncorrected OLS results, indicate significant wage premia for foreign language proficiency. Controlling for country-of-origin fixed effects, high premia are paid for English, French and German proficiency. The returns are higher for females than for males and appear to be largely mediated through the channel of occupational choice. The results indicate no systematic returns to Spanish proficiency of immigrants in Spain.

Given the comparably low endowment of foreign language proficiency of the native population, these high returns display a potential pull factor for high-skilled immigration towards Spain. Immigrants play the role as the “grease in the wheels of the Spanish Economy” (Amuedo-Dorantes and de la Rica, 2007), and might act as an additional short-run supplier of scarce skills. Thus, immigration might ease the skill shortages, which gives Spain the opportunity and time to adjust the foreign language education in the long run to the needs of a increasingly globalized world.

## References

- Amuedo-Dorantes, C. and Rica, S. de la (2007). Labour market assimilation of recent immigrants in Spain. *British Journal of Industrial Relations* 45: 257–284.
- Bakker, D., Müller, A., Velupillai, V., Wichmann, S., Brown, C. H., Brown, P., Egorov, D., Mailhammer, R., Grant, A. and Holman, E. W. (2009). Adding typology to lexicostatistics: A combined approach to language classification. *Linguistic Typology* 13: 169–181.
- Baum, C. F., Schaffer, M. E. and Stillman, S. (2002). Iyreg2: Stata module for extended instrumental variables/2sls and gmm estimation. Statistical Software Components, Boston College Department of Economics.
- Bleakley, H. and Chin, A. (2004). Language skills and earnings: Evidence from childhood immigrants. *The Review of Economics and Statistics* 86: 481–496.
- Borjas, G. J. (1987). Self-selection and the earnings of immigrants. *American Economic Review* 77: 531–553.
- Brown, C. H., Holman, E. W., Wichmann, S. and Velupillai, V. (2008). Automated classification of the world’s languages: a description of the method and preliminary results. *STUF-Language Typology and Universals* 61: 285–308.
- Budría, S. and Swedberg, P. (2012). The Impact of Language Proficiency on Immigrants’ Earnings in Spain. IZA Discussion Papers 6957, Institute for the Study of Labor (IZA).
- Canal-Domínguez, J. and Rodríguez-Gutiérrez, C. (2008). Analysis of wage differences between native and immigrant workers in Spain. *Spanish Economic Review* 10: 109–134.
- Carliner, G. (1981). Wage differences by language group and the market for language skills in Canada. *Journal of Human Resources* 16: 384–399.
- Centro de Investigaciones Sociológicas (2010). Barómetro de febrero.
- Chiswick, B. R. and Miller, P. W. (1995). The endogeneity between language and earnings: International analyses. *Journal of Labor Economics* 13: 246–288.
- Chiswick, B. R. and Miller, P. W. (1999). English language fluency among immigrants in the United States. In Polachek, S. W. (ed.), *Research in Labor Economics*. Oxford: JAI Press, 17, 151–200.

- Chiswick, B. R. and Miller, P. W. (2010). Occupational language requirements and the value of english in the us labor market. *Journal of Population Economics* 23: 353–372.
- Chiswick, B. R. and Miller, P. W. (2012). Negative and positive assimilation, skill transferability, and linguistic distance. *Journal of Human Capital* 6: 35 – 55.
- Church, J. and King, I. (1993). Bilingualism and network externalities. *Canadian Journal of Economics* 26: 337–345.
- Crystal, D. (2010). *The Cambridge Encyclopedia of Language*. Cambridge University Press, third edition ed.
- Dustmann, C. and van Soest, A. (2002). Language and the earnings of immigrants. *Industrial and Labor Relations Review* 55: 473–492.
- Fidrmuc, J. and Fidrmuc, J. (2009). Foreign Languages and Trade. CEDI Discussion Paper Series 09-03, Centre for Economic Development and Institutions(CEDI), Brunel University.
- Garrouste, C. (2008). Language skills and economic returns. *Policy Futures in Education* Volume 6, Issue 2: pp. 187–202.
- Ginsburgh, V. (2005). Languages, genes, and cultures. *Journal of Cultural Economics* 29: 1–17.
- Ginsburgh, V. and Prieto-Rodriguez, J. (2007). Returns to foreign languages of native workers in the EU. CORE Discussion Papers 2007021, Université catholique de Louvain, Center for Operations Research and Econometrics (CORE).
- Grin, F. (2003). Language planning and economics. *Current Issues in Language Planning* 4: 1–66.
- Hagen, S., Foreman-Peck, J. and Davila-Philippon, S. (2006). ELAN: Effects on the European Economy of Shortages of Foreign Language Skills in Enterprise. Tech. rep., Brussels.
- Isphording, I. E. and Otten, S. (2012). The Costs of Babylon - Linguistic Distance in Applied Economics. Ruhr Economic Papers 0337, Rheinisch-Westfälisches Institut für Wirtschaftsforschung, Ruhr-Universität Bochum, Universität Dortmund, Universität Duisburg-Essen.
- Ku, H. and Zussman, A. (2010). Lingua franca: The role of english in international trade. *Journal of Economic Behavior & Organization* 75: 250–260.

- Lang, K. and Siniver, E. (2009). The return to english in a non-english speaking country: Russian immigrants and native israelis in israel. *The B.E. Journal of Economic Analysis & Policy* 9: 50.
- Leslie, D., Russell, H. and Forbes, A. (2002). Foreign language skills and tourism management courses in the uk. *Industry and Higher Education* Volume 16, Number 6: 403–414.
- Llach, A. and Pilar, M. (2010). An overview of variables affecting lexical transfer in writing: A review study. *International Journal of Linguistics* 2.
- McManus, W., Gould, W. and Welch, F. (1983). Earnings of hispanic men: The role of english language proficiency. *Journal of Labor Economics* 1: 101–30.
- OECD (2000). Literacy in the Information Age. Final Report of the International Adult Literacy Survey. Tech. rep.
- Reher, D. and Requena, M. (2009). The national immigrant survey of spain: A new data source for migration studies in europe. *Demographic Research* 20: 253–278.
- Selten, R. and Pool, J. (1991). The distribution of foreign language skills as a game equilibrium. In Selten, R. (ed.), *Game Equilibrium Models, vol. 4, Social and Political Interaction*. Springer, 64–87.
- Swadesh, M. (1952). Lexico-statistic dating of prehistoric ethnic contacts: With special reference to north american indians and eskimos. *Proceedings of the American Philosophical Society* 96: 452–463.
- Swedberg, P. (2010). The impact of education and host language skills on the labor market outcomes of immigrants in spain. In Mancebón-Torrubia, M. J., Embún, D. P. X. de, Gómez-Sancho, J. M. and Greg (eds), *Investigaciones de Economía de la Educación*. Asociación de Economía de la Educación, 5, chap. 41, 798–824.
- Toomet, O. (2011). Learn english, not the local language! ethnic russians in the baltic states. *American Economic Review* 101: 526–531.
- Tucci, I. and Wagner, G. G. (2004). Foreign language skills - an important additional qualification in the services sector. *Economic Bulletin* 41: 43–46.
- Wichmann, S., Holman, E. W., Bakker, D. and Brown, C. H. (2010). Evaluating linguistic distance measures. *Physica A: Statistical Mechanics and its Applications* 389: 3632–3639.
- Williams, D. R. (2006). The Economic Returns to Multiple Language Usage in Western Europe. IRISS Working Paper Series 2006-07, IRISS at CEPS/INSTEAD.

## 7 Figures & Tables

Table 1: LANGUAGES IN SPAIN – EUROPEAN COMPARISON

|                                        | Spain |       | EU    |       | Rank<br>(out of 32) |
|----------------------------------------|-------|-------|-------|-------|---------------------|
|                                        | Mean  | sd    | Mean  | sd    |                     |
| Intention to improve foreign languages | 0.150 | 0.012 | 0.217 | 0.004 | 27                  |
| Foreign language knowledge useful      | 0.458 | 0.016 | 0.570 | 0.005 | 26                  |
| English Good/Very Good                 | 0.149 | 0.012 | 0.235 | 0.004 | 25                  |
| German Good/Very Good                  | 0.012 | 0.003 | 0.065 | 0.002 | 28                  |
| French Good/Very Good                  | 0.021 | 0.005 | 0.016 | 0.001 | 6                   |
| Russian Good/Very Good                 | 0.002 | 0.002 | 0.030 | 0.001 | 19                  |

*Source: Author's calculations based on Eurobarometer 64.3 by Eurostat.*

Figure 1: KERNEL DENSITIES OF LOG. HOURLY WAGES BY LOW (SOLID LINE) AND HIGH PROFICIENCY (DASHED LINE)

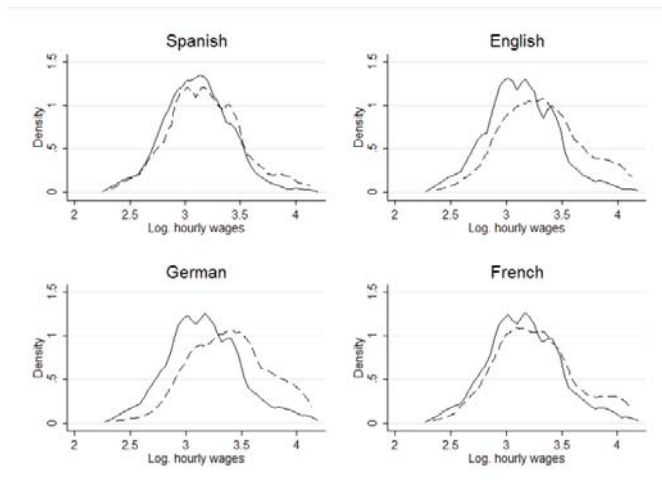


Table 2: DESCRIPTIVE STATISTICS

|                                   | Full Sample      | Males            | Females          |
|-----------------------------------|------------------|------------------|------------------|
| Spanish Proficiency               | 0.87<br>( 0.33)  | 0.85<br>( 0.36)  | 0.90<br>( 0.30)  |
| English Proficiency               | 0.24<br>( 0.43)  | 0.25<br>( 0.43)  | 0.24<br>( 0.43)  |
| French Proficiency                | 0.14<br>( 0.35)  | 0.16<br>( 0.37)  | 0.12<br>( 0.32)  |
| German Proficiency                | 0.05<br>( 0.21)  | 0.04<br>( 0.21)  | 0.05<br>( 0.21)  |
| Female                            | 0.50<br>( 0.50)  | 0.00<br>( 0.00)  | 1.00<br>( 0.00)  |
| Age                               | 36.67<br>( 9.39) | 36.61<br>( 9.18) | 36.73<br>( 9.61) |
| Married                           | 0.52<br>( 0.50)  | 0.55<br>( 0.50)  | 0.49<br>( 0.50)  |
| Number of children                | 1.24<br>( 1.28)  | 1.19<br>( 1.30)  | 1.29<br>( 1.25)  |
| Secondary education: First Cycle  | 0.17<br>( 0.37)  | 0.17<br>( 0.38)  | 0.16<br>( 0.37)  |
| Secondary education: Second Cycle | 0.39<br>( 0.49)  | 0.38<br>( 0.48)  | 0.41<br>( 0.49)  |
| Tertiary education                | 0.20<br>( 0.40)  | 0.18<br>( 0.38)  | 0.22<br>( 0.41)  |
| Years since migration             | 9.91<br>( 9.80)  | 9.97<br>( 9.80)  | 9.85<br>( 9.79)  |
| Observations                      | 6129             | 3074             | 3055             |

– *Weighted means reported. – Standard deviations in parentheses.*

Table 3: SWADESH 40-ITEM LIST WITH COMPUTATIONAL EXAMPLES

|       |        |        |          |
|-------|--------|--------|----------|
| I     | You    | We     | One      |
| Two   | Person | Fish   | Dog      |
| Louse | Tree   | Leaf   | Skin     |
| Blood | Bone   | Horn   | Ear      |
| Eye   | Nose   | Tooth  | Tongue   |
| Knee  | Hand   | Breast | Liver    |
| Drink | See    | Hear   | Die      |
| Come  | Sun    | Star   | Water    |
| Stone | Fire   | Path   | Mountain |
| Night | Full   | New    | Name     |

| Word     | Spanish        | English | Distance |
|----------|----------------|---------|----------|
| you      | <i>tu</i>      | yu      | 1        |
| not      | <i>no</i>      | nat     | 2        |
| Person   | <i>persona</i> | pers3n  | 2        |
| Night    | <i>noCe</i>    | nEit    | 3        |
| Mountain | <i>monta5a</i> | maunt3n | 5        |

*Source: Brown (2008).*



Table 4: CLOSEST AND FURTHEST LANGUAGES

| Spanish         |                 |                 |                 | English           |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|-------------------|-----------------|-----------------|-----------------|
| Closest         |                 | Furthest        |                 | Closest           |                 | Furthest        |                 |
| <i>Language</i> | <i>Distance</i> | <i>Language</i> | <i>Distance</i> | <i>Language</i>   | <i>Distance</i> | <i>Language</i> | <i>Distance</i> |
| Galician        | 54.82           | Serer Sine      | 102.35          | Dutch             | 63.22           | Duala           | 102.52          |
| Italian         | 56.51           | Dangme          | 102.44          | Norwegian Bokmaal | 64.12           | A. Tuareg       | 102.86          |
| Portuguese      | 64.21           | Igbo Onitsha    | 102.84          | Swedish           | 64.4            | Warao           | 103.33          |
| Romanian        | 64.92           | Wolof           | 103.02          | Westvlaams        | 66.54           | Tiv             | 103.6           |
| French          | 72.25           | Twi Fante       | 105.53          | Danish            | 69.93           | Twi Fante       | 104.7           |

| German            |                 |                 |                 | French          |                 |                 |                 |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Closest           |                 | Furthest        |                 | Closest         |                 | Furthest        |                 |
| <i>Language</i>   | <i>Distance</i> | <i>Language</i> | <i>Distance</i> | <i>Language</i> | <i>Distance</i> | <i>Language</i> | <i>Distance</i> |
| Luxembourgish     | 42.12           | Fula            | 103.25          | Italian         | 73.89           | Duala           | 102.35          |
| Dutch             | 51.5            | Tarift Guelaia  | 103.56          | Portuguese      | 74.36           | Korean          | 102.74          |
| Westvlaams        | 57.86           | Serer Sine      | 103.57          | Romanian        | 74.39           | Tagalog         | 102.75          |
| Norwegian Bokmaal | 64.92           | Yoruba          | 103.58          | Galician        | 74.56           | Twi Fante       | 103.27          |
| Swedish           | 66.56           | Korean          | 104.3           | Spanish         | 81.07           | Dangme          | 104.74          |

*Source: Author's own calculations using programs for calculating ASJP distance matrices (Version 2.1), see <http://email.eva.mpg.de/~wichmann/software.htm>*

Table 5: MOST FREQUENT MOTHER  
TONGUES IN THE SAMPLE

| <i>Language</i> | <i>Obs.</i> | <i>LD<sub>sp</sub></i> | <i>LD<sub>en</sub></i> | <i>LD<sub>fr</sub></i> | <i>LD<sub>ge</sub></i> |
|-----------------|-------------|------------------------|------------------------|------------------------|------------------------|
| Spanish         | 2784        | 0.00                   | 93.08                  | 81.07                  | 94.69                  |
| Romanian        | 826         | 72.25                  | 85.55                  | 74.39                  | 87.66                  |
| Arabic          | 645         | 98.69                  | 97.95                  | 97.2                   | 98.96                  |
| Portuguese      | 264         | 64.21                  | 95.18                  | 74.36                  | 93.59                  |
| English         | 222         | 93.08                  | 0.00                   | 91.02                  | 72.21                  |
| Bulgarian       | 209         | 93.65                  | 90.52                  | 91.94                  | 91.36                  |
| French          | 156         | 81.07                  | 91.02                  | 0.00                   | 95.87                  |
| German          | 121         | 94.69                  | 72.21                  | 95.87                  | 0.00                   |
| Ukrainian       | 107         | 90.86                  | 97.35                  | 95.41                  | 94.00                  |
| Russian         | 94          | 94.54                  | 94.02                  | 92.83                  | 94.41                  |
| Polish          | 76          | 91.68                  | 93.80                  | 92.89                  | 96.09                  |
| Italian         | 73          | 56.51                  | 89.23                  | 73.89                  | 87.89                  |

*Source: Observation numbers from NISS sample, linguistic distance calculated using programs for calculating ASJP distance matrices (Version 2.1), see <http://email.eva.mpg.de/~wichmann/software.htm>*

Table 6: RETURNS TO LANGUAGE PROFICIENCY - OLS RESULTS

|                                      | Without occupation-<br>fixed effects |                              |                              | With occupation-<br>fixed effects |                              |                              |
|--------------------------------------|--------------------------------------|------------------------------|------------------------------|-----------------------------------|------------------------------|------------------------------|
|                                      | Full                                 | Males                        | Females                      | Full                              | Males                        | Females                      |
| Spanish Proficiency                  | 0.017<br>(0.01)                      | 0.036*<br>(0.02)             | -0.012<br>(0.02)             | 0.013<br>(0.01)                   | 0.028 <sup>†</sup><br>(0.02) | -0.011<br>(0.02)             |
| English Proficiency                  | 0.090***<br>(0.01)                   | 0.089***<br>(0.02)           | 0.085***<br>(0.02)           | 0.062***<br>(0.01)                | 0.062***<br>(0.02)           | 0.056***<br>(0.02)           |
| German Proficiency                   | 0.097***<br>(0.03)                   | 0.043<br>(0.03)              | 0.160***<br>(0.04)           | 0.083***<br>(0.02)                | 0.022<br>(0.03)              | 0.150***<br>(0.03)           |
| French Proficiency                   | 0.018<br>(0.02)                      | -0.012<br>(0.02)             | 0.051*<br>(0.02)             | 0.011<br>(0.01)                   | -0.011<br>(0.02)             | 0.034<br>(0.02)              |
| Female                               | -0.064***<br>(0.01)                  |                              |                              | -0.041***<br>(0.01)               |                              |                              |
| Age                                  | 0.010***<br>(0.00)                   | 0.017***<br>(0.00)           | 0.004<br>(0.00)              | 0.008**<br>(0.00)                 | 0.016***<br>(0.00)           | 0.001<br>(0.00)              |
| Married                              | 0.036***<br>(0.01)                   | 0.020<br>(0.01)              | 0.045***<br>(0.01)           | 0.023**<br>(0.01)                 | 0.014<br>(0.01)              | 0.028*<br>(0.01)             |
| No. of Children                      | -0.001<br>(0.00)                     | 0.004<br>(0.00)              | -0.006<br>(0.01)             | 0.002<br>(0.00)                   | 0.005<br>(0.00)              | 0.000<br>(0.00)              |
| Second. Education 1st Cycle          | -0.010<br>(0.01)                     | -0.014<br>(0.02)             | -0.008<br>(0.02)             | -0.012<br>(0.01)                  | -0.019<br>(0.02)             | -0.005<br>(0.02)             |
| Second. Education 1st Cycle          | 0.023*<br>(0.01)                     | 0.016<br>(0.01)              | 0.030 <sup>†</sup><br>(0.02) | 0.018 <sup>†</sup><br>(0.01)      | 0.009<br>(0.01)              | 0.026 <sup>†</sup><br>(0.02) |
| Tert. Education                      | 0.129***<br>(0.01)                   | 0.145***<br>(0.02)           | 0.119***<br>(0.02)           | 0.060***<br>(0.01)                | 0.072***<br>(0.02)           | 0.053**<br>(0.02)            |
| Years of Residence                   | 0.005**<br>(0.00)                    | 0.004 <sup>†</sup><br>(0.00) | 0.007**<br>(0.00)            | 0.004**<br>(0.00)                 | 0.002<br>(0.00)              | 0.007**<br>(0.00)            |
| Years of Residence <sup>2</sup> /100 | 0.003<br>(0.00)                      | 0.006<br>(0.01)              | -0.002<br>(0.01)             | 0.002<br>(0.00)                   | 0.007<br>(0.00)              | -0.003<br>(0.01)             |
| Country-of-Origin-fixed effects      | yes                                  | yes                          | yes                          | yes                               | yes                          | yes                          |
| R <sup>2</sup>                       | 0.193                                | 0.219                        | 0.184                        | 0.287                             | 0.305                        | 0.284                        |
| N                                    | 6129                                 | 3074                         | 3055                         | 6117                              | 3065                         | 3052                         |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; <sup>†</sup>10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages

Table 7: RETURNS TO LOCAL AND FOREIGN LANGUAGES - SUMMARY

| A. Spanish Language Proficiency |                                  |                   |                    |                               |                  |                   |
|---------------------------------|----------------------------------|-------------------|--------------------|-------------------------------|------------------|-------------------|
| Sample                          | Without occupation-fixed effects |                   |                    | With occupation-fixed effects |                  |                   |
|                                 | Full<br>(1)                      | Males<br>(2)      | Females<br>(3)     | Full<br>(4)                   | Males<br>(5)     | Females<br>(6)    |
| Spanish Proficiency             | -0.029<br>(0.12)                 | 0.067<br>(0.14)   | -0.081<br>(0.24)   | -0.019<br>(0.11)              | 0.073<br>(0.13)  | -0.062<br>(0.23)  |
| F-Test of Excluded Instruments  | 42.50                            | 33.16             | 10.23              | 41.44                         | 31.73            | 9.97              |
| Observations                    | 6129                             | 3074              | 3055               | 6117                          | 3065             | 3052              |
| B. Foreign Language Proficiency |                                  |                   |                    |                               |                  |                   |
| Sample                          | Without occupation-fixed effects |                   |                    | With occupation-fixed effects |                  |                   |
|                                 | Full<br>(1)                      | Males<br>(2)      | Females<br>(3)     | Full<br>(4)                   | Males<br>(5)     | Females<br>(6)    |
| English Proficiency             | 0.383**<br>(0.12)                | 0.411*<br>(0.18)  | 0.474**<br>(0.18)  | 0.143<br>(0.13)               | 0.130<br>(0.20)  | 0.290<br>(0.19)   |
| F-Test of Excluded Instruments  | 53.23                            | 22.12             | 26.04              | 34.85                         | 13.68            | 18.58             |
| French Proficiency              | 0.453***<br>(0.10)               | 0.396**<br>(0.14) | 0.483***<br>(0.14) | 0.348***<br>(0.09)            | 0.312*<br>(0.12) | 0.370**<br>(0.13) |
| F-Test of Excluded Instruments  | 122.24                           | 51.26             | 67.55              | 116.14                        | 51.16            | 60.59             |
| German Proficiency              | 0.253***<br>(0.07)               | 0.197*<br>(0.09)  | 0.325**<br>(0.10)  | 0.177**<br>(0.06)             | 0.115<br>(0.08)  | 0.255**<br>(0.10) |
| F-Test of Excluded Instruments  | 319.82                           | 189.46            | 123.75             | 314.92                        | 188.52           | 120.53            |
| Observations                    | 5355                             | 2602              | 2753               | 5343                          | 2593             | 2750              |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; †10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages – Control variables omitted. – Full regression tables and first stages in the appendix. – Sample in Panel B (Foreign Language Proficiency) conditional on good Spanish proficiency. –

## 8 Appendix

Table A.1: RETURNS TO LOCAL AND FOREIGN LANGUAGES - ESTIMATIONS  
EXCLUDING NATIVE SPEAKERS

| A. Spanish Language Proficiency |                                      |                   |                    |                                   |                  |                   |
|---------------------------------|--------------------------------------|-------------------|--------------------|-----------------------------------|------------------|-------------------|
| Sample                          | Without occupation-<br>fixed effects |                   |                    | With occupation-<br>fixed effects |                  |                   |
|                                 | Full<br>(1)                          | Males<br>(2)      | Females<br>(3)     | Full<br>(4)                       | Males<br>(5)     | Females<br>(6)    |
| Spanish Proficiency             | -0.189<br>(0.24)                     | -0.506<br>(0.47)  | 0.132<br>(0.21)    | -0.130<br>(0.22)                  | -0.538<br>(0.45) | 0.223<br>(0.20)   |
| F-Test of Excluded Instruments  | 7.41                                 | 2.18              | 7.52               | 7.22                              | 2.10             | 7.69              |
| Observations                    | 3023                                 | 1670              | 1353               | 3020                              | 1667             | 1353              |
| B. Foreign Language Proficiency |                                      |                   |                    |                                   |                  |                   |
| Sample                          | Without occupation-<br>fixed effects |                   |                    | With occupation-<br>fixed effects |                  |                   |
|                                 | Full<br>(1)                          | Males<br>(2)      | Females<br>(3)     | Full<br>(4)                       | Males<br>(5)     | Females<br>(6)    |
| English Proficiency             | 0.553***<br>(0.11)                   | 0.431**<br>(0.15) | 0.681***<br>(0.16) | 0.519***<br>(0.13)                | 0.361*<br>(0.18) | 0.290<br>(0.19)   |
| F-Test of Excluded Instruments  | 67.70                                | 27.26             | 37.77              | 45.75                             | 16.76            | 18.58             |
| Observations                    | 5254                                 | 2549              | 2705               | 5242                              | 2540             | 2750              |
| French Proficiency              | -0.009<br>(0.16)                     | 0.023<br>(0.19)   | -0.063<br>(0.31)   | -0.006<br>(0.15)                  | 0.004<br>(0.17)  | 0.370**<br>(0.13) |
| F-Test of Excluded Instruments  | 24.99                                | 17.49             | 7.21               | 24.80                             | 17.49            | 60.59             |
| Observations                    | 5210                                 | 2534              | 2676               | 5198                              | 2525             | 2750              |
| German Proficiency              | 0.380**<br>(0.15)                    | 0.329<br>(0.20)   | 0.477*<br>(0.23)   | 0.206<br>(0.13)                   | 0.089<br>(0.18)  | 0.255**<br>(0.10) |
| F-Test of Excluded Instruments  | 39.97                                | 15.67             | 19.66              | 37.77                             | 14.82            | 120.53            |
| Observations                    | 5269                                 | 2563              | 2706               | 5257                              | 2554             | 2750              |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; †10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages – Control variables omitted. – Full regression tables and first stages in the appendix. – Sample in Panel B (Foreign Language Proficiency) conditional on good Spanish proficiency. –

Table A.2: RETURNS TO SPANISH PROFICIENCY - FULL ESTIMATES

| Sample                               | Without occupation-<br>fixed effects |                    |                               | With occupation-<br>fixed effects |                    |                              |
|--------------------------------------|--------------------------------------|--------------------|-------------------------------|-----------------------------------|--------------------|------------------------------|
|                                      | Full<br>(1)                          | Males<br>(2)       | Females<br>(3)                | Full<br>(4)                       | Males<br>(5)       | Females<br>(6)               |
| Spanish Proficiency                  | -0.029<br>(0.12)                     | 0.067<br>(0.14)    | -0.081<br>(0.24)              | -0.019<br>(0.11)                  | 0.073<br>(0.13)    | -0.062<br>(0.23)             |
| Female                               | -0.065***<br>(0.01)                  |                    |                               | -0.042***<br>(0.01)               |                    |                              |
| Age                                  | 0.009**<br>(0.00)                    | 0.017***<br>(0.00) | 0.002<br>(0.00)               | 0.007**<br>(0.00)                 | 0.015***<br>(0.00) | 0.000<br>(0.00)              |
| Married                              | 0.035***<br>(0.01)                   | 0.019<br>(0.01)    | 0.043***<br>(0.01)            | 0.022**<br>(0.01)                 | 0.012<br>(0.01)    | 0.026*<br>(0.01)             |
| No.of Children                       | -0.004<br>(0.00)                     | 0.003<br>(0.00)    | -0.010 <sup>†</sup><br>(0.01) | 0.000<br>(0.00)                   | 0.004<br>(0.00)    | -0.002<br>(0.00)             |
| Second. Education 1st Cycle          | 0.003<br>(0.02)                      | -0.012<br>(0.02)   | 0.006<br>(0.03)               | -0.004<br>(0.02)                  | -0.021<br>(0.02)   | 0.003<br>(0.03)              |
| Second. Education 1st Cycle          | 0.048**<br>(0.02)                    | 0.026<br>(0.02)    | 0.056*<br>(0.03)              | 0.033*<br>(0.02)                  | 0.011<br>(0.02)    | 0.042 <sup>†</sup><br>(0.02) |
| Tert. Education                      | 0.176***<br>(0.02)                   | 0.175***<br>(0.03) | 0.167***<br>(0.03)            | 0.085***<br>(0.02)                | 0.082**<br>(0.03)  | 0.078**<br>(0.03)            |
| Years of Residence                   | 0.006*<br>(0.00)                     | 0.003<br>(0.00)    | 0.008*<br>(0.00)              | 0.004*<br>(0.00)                  | 0.001<br>(0.00)    | 0.007*<br>(0.00)             |
| Years of Residence <sup>2</sup> /100 | 0.002<br>(0.00)                      | 0.007<br>(0.01)    | -0.005<br>(0.01)              | 0.002<br>(0.00)                   | 0.008<br>(0.01)    | -0.005<br>(0.01)             |
| Linguistic Distance (Spanish)        | 0.000<br>(0.00)                      | 0.000<br>(0.00)    | 0.001<br>(0.00)               | 0.000<br>(0.00)                   | 0.000<br>(0.00)    | 0.000<br>(0.00)              |
| Country-of-Origin-fixed effects      | yes                                  | yes                | yes                           | yes                               | yes                | yes                          |
| F-Test of Excluded Instruments       | 42.50                                | 33.16              | 10.23                         | 41.44                             | 31.73              | 9.97                         |
| Observations                         | 6129                                 | 3074               | 3055                          | 6117                              | 3065               | 3052                         |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; <sup>†</sup>10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages

Table A.3: RETURNS TO ENGLISH PROFICIENCY - FULL ESTIMATES

| Sample                               | Without occupation-<br>fixed effects |                    |                    | With occupation-<br>fixed effects |                    |                    |
|--------------------------------------|--------------------------------------|--------------------|--------------------|-----------------------------------|--------------------|--------------------|
|                                      | Full<br>(1)                          | Males<br>(2)       | Females<br>(3)     | Full<br>(4)                       | Males<br>(5)       | Females<br>(6)     |
| English Proficiency                  | 0.383**<br>(0.12)                    | 0.411*<br>(0.18)   | 0.474**<br>(0.18)  | 0.143<br>(0.13)                   | 0.130<br>(0.20)    | 0.290<br>(0.19)    |
| Female                               | -0.069***<br>(0.01)                  |                    |                    | -0.047***<br>(0.01)               |                    |                    |
| Age                                  | 0.011**<br>(0.00)                    | 0.019***<br>(0.00) | 0.005<br>(0.01)    | 0.007*<br>(0.00)                  | 0.016***<br>(0.00) | 0.001<br>(0.00)    |
| Married                              | 0.036***<br>(0.01)                   | 0.019<br>(0.01)    | 0.045**<br>(0.01)  | 0.024**<br>(0.01)                 | 0.010<br>(0.01)    | 0.029*<br>(0.01)   |
| No.of Children                       | 0.011*<br>(0.01)                     | 0.018**<br>(0.01)  | 0.009<br>(0.01)    | 0.007<br>(0.00)                   | 0.012*<br>(0.01)   | 0.008<br>(0.01)    |
| Second. Education 1st Cycle          | -0.027<br>(0.02)                     | -0.026<br>(0.02)   | -0.039<br>(0.02)   | -0.011<br>(0.02)                  | -0.011<br>(0.02)   | -0.021<br>(0.02)   |
| Second. Education 1st Cycle          | -0.021<br>(0.02)                     | -0.033<br>(0.03)   | -0.031<br>(0.03)   | 0.012<br>(0.02)                   | 0.008<br>(0.03)    | -0.005<br>(0.03)   |
| Tert. Education                      | 0.032<br>(0.05)                      | 0.019<br>(0.08)    | -0.003<br>(0.06)   | 0.046<br>(0.04)                   | 0.060<br>(0.07)    | -0.002<br>(0.05)   |
| Years of Residence                   | 0.007***<br>(0.00)                   | 0.006*<br>(0.00)   | 0.010***<br>(0.00) | 0.005*<br>(0.00)                  | 0.002<br>(0.00)    | 0.009***<br>(0.00) |
| Years of Residence <sup>2</sup> /100 | 0.001<br>(0.00)                      | 0.003<br>(0.01)    | -0.006<br>(0.01)   | 0.001<br>(0.00)                   | 0.007<br>(0.00)    | -0.006<br>(0.01)   |
| Country-of-Origin-fixed effects      | yes                                  | yes                | yes                | yes                               | yes                | yes                |
| F-Test of Excluded Instruments       | 53.23                                | 22.12              | 26.04              | 34.85                             | 13.68              | 18.58              |
| Observations                         | 5355                                 | 2602               | 2753               | 5343                              | 2593               | 2750               |

Notes: – Significant at: \*\*\* 0.1% level; \*\* 1% level; \* 5% level; † 10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages

Table A.4: RETURNS TO FRENCH PROFICIENCY - FULL ESTIMATES

| Sample                               | Without occupation-<br>fixed effects |                              |                    | With occupation-<br>fixed effects |                    |                   |
|--------------------------------------|--------------------------------------|------------------------------|--------------------|-----------------------------------|--------------------|-------------------|
|                                      | Full<br>(1)                          | Males<br>(2)                 | Females<br>(3)     | Full<br>(4)                       | Males<br>(5)       | Females<br>(6)    |
| French Proficiency                   | 0.453***<br>(0.10)                   | 0.396**<br>(0.14)            | 0.483***<br>(0.14) | 0.348***<br>(0.09)                | 0.312*<br>(0.12)   | 0.370**<br>(0.13) |
| Female                               | -0.073***<br>(0.01)                  |                              |                    | -0.049***<br>(0.01)               |                    |                   |
| Age                                  | 0.010**<br>(0.00)                    | 0.019***<br>(0.00)           | 0.002<br>(0.00)    | 0.007*<br>(0.00)                  | 0.017***<br>(0.00) | -0.001<br>(0.00)  |
| Married                              | 0.037***<br>(0.01)                   | 0.010<br>(0.01)              | 0.053***<br>(0.01) | 0.025**<br>(0.01)                 | 0.006<br>(0.01)    | 0.034**<br>(0.01) |
| No.of Children                       | 0.000<br>(0.00)                      | 0.010 <sup>†</sup><br>(0.01) | -0.007<br>(0.01)   | 0.004<br>(0.00)                   | 0.011*<br>(0.01)   | 0.000<br>(0.01)   |
| Second. Education 1st Cycle          | -0.031 <sup>†</sup><br>(0.02)        | -0.032<br>(0.02)             | -0.032<br>(0.02)   | -0.025<br>(0.02)                  | -0.028<br>(0.02)   | -0.023<br>(0.02)  |
| Second. Education 1st Cycle          | -0.001<br>(0.02)                     | -0.015<br>(0.02)             | 0.012<br>(0.02)    | 0.001<br>(0.01)                   | -0.011<br>(0.02)   | 0.012<br>(0.02)   |
| Tert. Education                      | 0.097***<br>(0.02)                   | 0.107**<br>(0.04)            | 0.094***<br>(0.03) | 0.037 <sup>†</sup><br>(0.02)      | 0.041<br>(0.03)    | 0.036<br>(0.02)   |
| Years of Residence                   | 0.006**<br>(0.00)                    | 0.005*<br>(0.00)             | 0.006*<br>(0.00)   | 0.004*<br>(0.00)                  | 0.003<br>(0.00)    | 0.006*<br>(0.00)  |
| Years of Residence <sup>2</sup> /100 | 0.005<br>(0.00)                      | 0.006<br>(0.01)              | 0.003<br>(0.01)    | 0.005<br>(0.00)                   | 0.008<br>(0.01)    | 0.001<br>(0.01)   |
| Country-of-Origin-fixed effects      | yes                                  | yes                          | yes                | yes                               | yes                | yes               |
| F-Test of Excluded Instruments       | 122.24                               | 51.26                        | 67.55              | 116.14                            | 51.16              | 60.59             |
| Observations                         | 5355                                 | 2602                         | 2753               | 5343                              | 2593               | 2750              |

Notes: – Significant at: \*\*\* 0.1% level; \*\* 1% level; \* 5% level; <sup>†</sup> 10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages

Table A.5: RETURNS TO GERMAN PROFICIENCY - FULL ESTIMATES

| Sample                               | Without occupation-<br>fixed effects |                              |                               | With occupation-<br>fixed effects |                              |                              |
|--------------------------------------|--------------------------------------|------------------------------|-------------------------------|-----------------------------------|------------------------------|------------------------------|
|                                      | Full<br>(1)                          | Males<br>(2)                 | Females<br>(3)                | Full<br>(4)                       | Males<br>(5)                 | Females<br>(6)               |
| German Proficiency                   | 0.253***<br>(0.07)                   | 0.197*<br>(0.09)             | 0.325**<br>(0.10)             | 0.177**<br>(0.06)                 | 0.115<br>(0.08)              | 0.255**<br>(0.10)            |
| Female                               | -0.073***<br>(0.01)                  |                              |                               | -0.049***<br>(0.01)               |                              |                              |
| Age                                  | 0.009**<br>(0.00)                    | 0.019***<br>(0.00)           | 0.001<br>(0.00)               | 0.006*<br>(0.00)                  | 0.016***<br>(0.00)           | -0.002<br>(0.00)             |
| Married                              | 0.036***<br>(0.01)                   | 0.013<br>(0.01)              | 0.048***<br>(0.01)            | 0.024**<br>(0.01)                 | 0.008<br>(0.01)              | 0.031*<br>(0.01)             |
| No.of Children                       | -0.002<br>(0.00)                     | 0.007<br>(0.01)              | -0.010 <sup>†</sup><br>(0.01) | 0.003<br>(0.00)                   | 0.009 <sup>†</sup><br>(0.00) | -0.001<br>(0.01)             |
| Second. Education 1st Cycle          | -0.000<br>(0.01)                     | -0.000<br>(0.02)             | -0.006<br>(0.02)              | -0.002<br>(0.01)                  | -0.003<br>(0.02)             | -0.004<br>(0.02)             |
| Second. Education 1st Cycle          | 0.037**<br>(0.01)                    | 0.031 <sup>†</sup><br>(0.02) | 0.037*<br>(0.02)              | 0.028*<br>(0.01)                  | 0.024<br>(0.02)              | 0.029 <sup>†</sup><br>(0.02) |
| Tert. Education                      | 0.167***<br>(0.02)                   | 0.183***<br>(0.02)           | 0.151***<br>(0.02)            | 0.084***<br>(0.01)                | 0.099***<br>(0.02)           | 0.069***<br>(0.02)           |
| Years of Residence                   | 0.006**<br>(0.00)                    | 0.004<br>(0.00)              | 0.009***<br>(0.00)            | 0.004*<br>(0.00)                  | 0.002<br>(0.00)              | 0.008**<br>(0.00)            |
| Years of Residence <sup>2</sup> /100 | 0.002<br>(0.00)                      | 0.006<br>(0.01)              | -0.005<br>(0.01)              | 0.002<br>(0.00)                   | 0.008<br>(0.00)              | -0.006<br>(0.01)             |
| Country-of-Origin-fixed effects      | yes                                  | yes                          | yes                           | yes                               | yes                          | yes                          |
| F-Test of Excluded Instruments       | 319.82                               | 189.46                       | 123.75                        | 314.92                            | 188.52                       | 120.53                       |
| Observations                         | 5355                                 | 2602                         | 2753                          | 5343                              | 2593                         | 2750                         |

Notes: – Significant at: \*\*\* 0.1% level; \*\* 1% level; \* 5% level; <sup>†</sup> 10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Log. hourly wages



Table A.6: RETURNS TO SPANISH PROFICIENCY - FIRST STAGE

| Sample                               | Without occupation-<br>fixed effects |                                 |                       | With occupation-<br>fixed effects |                                 |                       |
|--------------------------------------|--------------------------------------|---------------------------------|-----------------------|-----------------------------------|---------------------------------|-----------------------|
|                                      | Full<br>(1)                          | Males<br>(2)                    | Females<br>(3)        | Full<br>(4)                       | Males<br>(5)                    | Females<br>(6)        |
| Female                               | 0.0145<br>(0.91)                     |                                 |                       | 0.0150<br>(0.93)                  |                                 |                       |
| Age                                  | -0.0009<br>(-0.16)                   | 0.0015<br>(0.20)                | -0.0015<br>(-0.18)    | -0.0009<br>(-0.16)                | 0.0015<br>(0.20)                | -0.0020<br>(-0.24)    |
| Married                              | 0.0116<br>(0.68)                     | 0.0148<br>(0.59)                | -0.0056<br>(-0.23)    | 0.0097<br>(0.57)                  | 0.0118<br>(0.47)                | -0.0076<br>(-0.31)    |
| No.of Children                       | -0.0164*<br>(-2.13)                  | -0.0212 <sup>†</sup><br>(-1.93) | -0.0112<br>(-0.99)    | -0.0157*<br>(-2.03)               | -0.0203 <sup>†</sup><br>(-1.85) | -0.0100<br>(-0.87)    |
| Second. Education 1st Cycle          | 0.1880***<br>(7.27)                  | 0.1802***<br>(5.18)             | 0.1953***<br>(4.87)   | 0.1778***<br>(6.84)               | 0.1707***<br>(4.88)             | 0.1817***<br>(4.48)   |
| Second. Education 1st Cycle          | 0.2176***<br>(9.69)                  | 0.2336***<br>(7.88)             | 0.1959***<br>(5.52)   | 0.2065***<br>(9.04)               | 0.2219***<br>(7.35)             | 0.1811***<br>(5.02)   |
| Tert. Education                      | 0.2990***<br>(12.26)                 | 0.3435***<br>(10.60)            | 0.2498***<br>(6.49)   | 0.2835***<br>(10.81)              | 0.3315***<br>(9.28)             | 0.2347***<br>(5.81)   |
| Years of Residence                   | 0.0913***<br>(5.05)                  | 0.0796**<br>(3.12)              | 0.1273***<br>(4.47)   | 0.0899***<br>(4.98)               | 0.0787**<br>(3.08)              | 0.1285***<br>(4.51)   |
| Years of Residence <sup>2</sup> /100 | -0.2075***<br>(-4.55)                | -0.1759**<br>(-2.69)            | -0.2947***<br>(-4.18) | -0.2036***<br>(-4.46)             | -0.1733**<br>(-2.61)            | -0.2974***<br>(-4.19) |
| Linguistic Distance (Spanish)        | 0.0044*<br>(2.12)                    | 0.0047<br>(1.63)                | 0.0073*<br>(2.10)     | 0.0048*<br>(2.29)                 | 0.0053 <sup>†</sup><br>(1.83)   | 0.0074*<br>(2.17)     |
| Ling. Dist. × YSM                    | -0.0008***<br>(-3.75)                | -0.0006*<br>(-2.03)             | -0.0013***<br>(-3.83) | -0.0008***<br>(-3.72)             | -0.0006*<br>(-2.03)             | -0.0013***<br>(-3.89) |
| Ling. Dist. × YSM <sup>2</sup> /100  | 0.0020***<br>(3.83)                  | 0.0015*<br>(2.08)               | 0.0031***<br>(3.81)   | 0.0019***<br>(3.77)               | 0.0015*<br>(2.03)               | 0.0032***<br>(3.83)   |
| Country-of-Origin-fixed effects      | yes                                  | yes                             | yes                   | yes                               | yes                             | yes                   |
| Observations                         | 3023                                 | 1670                            | 1353                  | 3020                              | 1667                            | 1353                  |
| R <sup>2</sup>                       | 0.16                                 | 0.19                            | 0.16                  | 0.17                              | 0.19                            | 0.17                  |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; <sup>†</sup>10% level. – Robust standard errors are reported in parentheses. – The dependent variable: Spanish Proficiency Indicator

Table A.7: RETURNS TO ENGLISH PROFICIENCY - FIRST STAGE

| Sample                               | Without occupation-<br>fixed effects |                               |                               | With occupation-<br>fixed effects |                     |                               |
|--------------------------------------|--------------------------------------|-------------------------------|-------------------------------|-----------------------------------|---------------------|-------------------------------|
|                                      | Full<br>(1)                          | Males<br>(2)                  | Females<br>(3)                | Full<br>(4)                       | Males<br>(5)        | Females<br>(6)                |
| Female                               | -0.010<br>(0.01)                     |                               |                               | -0.016<br>(0.01)                  |                     |                               |
| Age                                  | -0.006<br>(0.00)                     | -0.003<br>(0.01)              | -0.008 <sup>†</sup><br>(0.01) | -0.006 <sup>†</sup><br>(0.00)     | -0.002<br>(0.01)    | -0.009 <sup>†</sup><br>(0.00) |
| Married                              | -0.006<br>(0.01)                     | -0.017<br>(0.02)              | -0.002<br>(0.01)              | -0.008<br>(0.01)                  | -0.022<br>(0.02)    | -0.002<br>(0.01)              |
| No.of Children                       | -0.033***<br>(0.00)                  | -0.023***<br>(0.01)           | -0.040***<br>(0.01)           | -0.028***<br>(0.00)               | -0.019**<br>(0.01)  | -0.035***<br>(0.01)           |
| Second. Education 1st Cycle          | 0.061***<br>(0.01)                   | 0.054**<br>(0.02)             | 0.063***<br>(0.02)            | 0.053***<br>(0.01)                | 0.048*<br>(0.02)    | 0.053**<br>(0.02)             |
| Second. Education 1st Cycle          | 0.163***<br>(0.01)                   | 0.163***<br>(0.02)            | 0.159***<br>(0.01)            | 0.134***<br>(0.01)                | 0.134***<br>(0.02)  | 0.130***<br>(0.01)            |
| Tert. Education                      | 0.371***<br>(0.02)                   | 0.413***<br>(0.03)            | 0.339***<br>(0.02)            | 0.278***<br>(0.02)                | 0.316***<br>(0.03)  | 0.250***<br>(0.02)            |
| Years of Residence                   | -0.004 <sup>†</sup><br>(0.00)        | -0.005 <sup>†</sup><br>(0.00) | -0.003<br>(0.00)              | -0.005*<br>(0.00)                 | -0.006*<br>(0.00)   | -0.005<br>(0.00)              |
| Years of Residence <sup>2</sup> /100 | 0.002<br>(0.00)                      | 0.006<br>(0.01)               | -0.002<br>(0.01)              | 0.002<br>(0.00)                   | 0.005<br>(0.01)     | -0.001<br>(0.01)              |
| Linguistic Distance (Spanish)        | -0.005***<br>(0.00)                  | -0.004***<br>(0.00)           | -0.006***<br>(0.00)           | -0.004***<br>(0.00)               | -0.003***<br>(0.00) | -0.004***<br>(0.00)           |
| Country-of-Origin-fixed effects      | yes                                  | yes                           | yes                           | yes                               | yes                 | yes                           |
| Observations                         | 5355                                 | 2602                          | 2753                          | 5343                              | 2593                | 2750                          |
| R <sup>2</sup>                       | 0.31                                 | 0.32                          | 0.32                          | 0.34                              | 0.35                | 0.35                          |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; <sup>†</sup>10% level. – Robust standard errors are reported in parentheses. – The dependent variable: English language proficiency indicator.

Table A.8: RETURNS TO FRENCH PROFICIENCY - FIRST STAGE

| Sample                               | Without occupation-<br>fixed effects |                     |                               | With occupation-<br>fixed effects |                     |                              |
|--------------------------------------|--------------------------------------|---------------------|-------------------------------|-----------------------------------|---------------------|------------------------------|
|                                      | Full<br>(1)                          | Males<br>(2)        | Females<br>(3)                | Full<br>(4)                       | Males<br>(5)        | Females<br>(6)               |
| Female                               | 0.000<br>(0.01)                      |                     |                               | -0.003<br>(0.01)                  |                     |                              |
| Age                                  | -0.002<br>(0.00)                     | -0.002<br>(0.00)    | -0.002<br>(0.00)              | -0.002<br>(0.00)                  | -0.002<br>(0.00)    | -0.003<br>(0.00)             |
| Married                              | -0.001<br>(0.01)                     | 0.012<br>(0.01)     | -0.011<br>(0.01)              | -0.002<br>(0.01)                  | 0.010<br>(0.01)     | -0.010<br>(0.01)             |
| No.of Children                       | -0.006 <sup>†</sup><br>(0.00)        | -0.006<br>(0.00)    | -0.008 <sup>†</sup><br>(0.00) | -0.004<br>(0.00)                  | -0.005<br>(0.00)    | -0.006<br>(0.00)             |
| Second. Education 1st Cycle          | 0.063***<br>(0.01)                   | 0.078***<br>(0.02)  | 0.046**<br>(0.02)             | 0.062***<br>(0.01)                | 0.077***<br>(0.02)  | 0.044**<br>(0.02)            |
| Second. Education 1st Cycle          | 0.096***<br>(0.01)                   | 0.123***<br>(0.02)  | 0.065***<br>(0.01)            | 0.088***<br>(0.01)                | 0.118***<br>(0.02)  | 0.055***<br>(0.01)           |
| Tert. Education                      | 0.164***<br>(0.01)                   | 0.201***<br>(0.02)  | 0.124***<br>(0.02)            | 0.137***<br>(0.01)                | 0.186***<br>(0.02)  | 0.089***<br>(0.02)           |
| Years of Residence                   | -0.000<br>(0.00)                     | -0.004<br>(0.00)    | 0.005*<br>(0.00)              | -0.001<br>(0.00)                  | -0.004<br>(0.00)    | 0.004 <sup>†</sup><br>(0.00) |
| Years of Residence <sup>2</sup> /100 | -0.010*<br>(0.00)                    | -0.002<br>(0.01)    | -0.022***<br>(0.01)           | -0.010*<br>(0.00)                 | -0.002<br>(0.01)    | -0.021***<br>(0.01)          |
| Linguistic Distance (Spanish)        | -0.004***<br>(0.00)                  | -0.004***<br>(0.00) | -0.005***<br>(0.00)           | -0.004***<br>(0.00)               | -0.004***<br>(0.00) | -0.004***<br>(0.00)          |
| Country-of-Origin-fixed effects      | yes                                  | yes                 | yes                           | yes                               | yes                 | yes                          |
| Observations                         | 5355                                 | 2602                | 2753                          | 5343                              | 2593                | 2750                         |
| R <sup>2</sup>                       | 0.46                                 | 0.47                | 0.46                          | 0.46                              | 0.47                | 0.46                         |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; <sup>†</sup>10% level. – Robust standard errors are reported in parentheses. – The dependent variable: French language proficiency indicator.

Table A.9: RETURNS TO GERMAN PROFICIENCY - FIRST STAGE

| Sample                               | Without occupation-<br>fixed effects |                     |                               | With occupation-<br>fixed effects |                              |                               |
|--------------------------------------|--------------------------------------|---------------------|-------------------------------|-----------------------------------|------------------------------|-------------------------------|
|                                      | Full<br>(1)                          | Males<br>(2)        | Females<br>(3)                | Full<br>(4)                       | Males<br>(5)                 | Females<br>(6)                |
| Female                               | -0.002<br>(0.00)                     |                     |                               | -0.002<br>(0.00)                  |                              |                               |
| Age                                  | -0.001<br>(0.00)                     | -0.001<br>(0.00)    | -0.000<br>(0.00)              | -0.001<br>(0.00)                  | -0.001<br>(0.00)             | -0.000<br>(0.00)              |
| Married                              | -0.005<br>(0.00)                     | -0.000<br>(0.01)    | -0.010<br>(0.01)              | -0.005<br>(0.00)                  | -0.000<br>(0.01)             | -0.009<br>(0.01)              |
| No.of Children                       | 0.001<br>(0.00)                      | 0.006*<br>(0.00)    | -0.002<br>(0.00)              | 0.002<br>(0.00)                   | 0.006*<br>(0.00)             | -0.001<br>(0.00)              |
| Second. Education 1st Cycle          | -0.010*<br>(0.00)                    | -0.016*<br>(0.01)   | -0.005<br>(0.01)              | -0.011*<br>(0.00)                 | -0.018*<br>(0.01)            | -0.006<br>(0.01)              |
| Second. Education 1st Cycle          | 0.017***<br>(0.00)                   | 0.016*<br>(0.01)    | 0.017**<br>(0.01)             | 0.014**<br>(0.00)                 | 0.013 <sup>†</sup><br>(0.01) | 0.014*<br>(0.01)              |
| Tert. Education                      | 0.027***<br>(0.01)                   | 0.038**<br>(0.01)   | 0.017*<br>(0.01)              | 0.015*<br>(0.01)                  | 0.026*<br>(0.01)             | 0.004<br>(0.01)               |
| Years of Residence                   | 0.000<br>(0.00)                      | -0.001<br>(0.00)    | 0.001<br>(0.00)               | 0.000<br>(0.00)                   | -0.001<br>(0.00)             | 0.001<br>(0.00)               |
| Years of Residence <sup>2</sup> /100 | -0.003<br>(0.00)                     | -0.001<br>(0.00)    | -0.005 <sup>†</sup><br>(0.00) | -0.003<br>(0.00)                  | -0.001<br>(0.00)             | -0.005 <sup>†</sup><br>(0.00) |
| Linguistic Distance (Spanish)        | -0.008***<br>(0.00)                  | -0.008***<br>(0.00) | -0.007***<br>(0.00)           | -0.008***<br>(0.00)               | -0.008***<br>(0.00)          | -0.007***<br>(0.00)           |
| Country-of-Origin-fixed effects      | yes                                  | yes                 | yes                           | yes                               | yes                          | yes                           |
| Observations                         | 5355                                 | 2602                | 2753                          | 5343                              | 2593                         | 2750                          |
| R <sup>2</sup>                       | 0.46                                 | 0.44                | 0.50                          | 0.47                              | 0.44                         | 0.51                          |

Notes: – Significant at: \*\*\*0.1% level; \*\*1% level; \*5% level; <sup>†</sup>10% level. – Robust standard errors are reported in parentheses. – The dependent variable: German language proficiency indicator.