12
Language and Migration

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12.1 Introduction

Language proficiency is extremely important for international migrants. Better language proficiency means easier assimilation in the host country and greater returns to human capital as well as better job opportunities and job matches, among other things. In addition language skills surely influence a number of non-economic outcomes such as social integration, the size of the migrant's social network, his or her political participation and civic engagement, as well as educational attainment, health outcomes and family life. Familiarity with the destination language helps to minimize migration costs (both the direct out-of-pocket expenses and the psychological costs of leaving the home country) and serves as an informational channel to learn about other determinants of migration.

Even though language proficiency is clearly important, many immigrants have poor host language skills and struggle to acquire them. Insights on the role of language in international migration, and into the underlying processes and factors that determine migrants' proficiency, are crucial for the successful design of policy measures that address the hurdles of language acquisition. In this chapter, we review the economics of language with a focus on international migration. Research in the area focuses on (1) the role of language in migration decisions, (2) the determinants of language proficiency among migrants, and (3) the effects of immigrants' linguistic skills and language acquisition on their labour market and socio-economic outcomes.

12.2 The role of language in migration decisions

Earlier literature on the determinants of migration is based on gravity models derived from Newton's law of gravity. The main hypothesis is that migration is associated with the sizes of population in origin and destination countries

V. Ginsburgh et al. (eds.), *The Palgrave Handbook of Economics and Language*

and inversely related to distances to destinations. The basic gravity model has been further modified to include a number of additional variables that are expected to influence the decision to migrate. The more recent literature on the determinants of migration flows generally employs a model of human capital investment to motivate its econometric specifications (as in Clark et al., 2007; Ortega and Peri, 2009, 2013; Grogger and Hanson, 2011; Adserà and Pytliková, 2015). Potential migrants decide where to locate among a set of alternative destinations by searching the country with the highest expected net welfare. To do so they take into account their potential earnings and likelihood of employment in their destination as well as the costs they will have to bear to move to that location. The latter can include both a set of direct out-of-pocket expenditures and indirect costs such as psychological costs of leaving their country of birth, family and friends, as well as costs associated with the need to upgrade skills and behavioural norms at arrival to attain the economic benefits of the host country. Large differences between the culture and language of the source and destination countries may constitute barriers to migration.

12.2.1 Linguistic distances and migration flows

Better language proficiency is associated with easier assimilation in the host country and greater return of human capital from the source country, as well as better job matches, among other things. Language also serves as an informational channel to learn about other determinants of migration. For instance, knowing the destination language allows immigrants to acquire information about institutions such as formal labour market access and immigrants' rights (Palmer and Pytliková, 2015), or to learn about natives' attitudes towards immigrants (Gorinas and Pytliková, 2016). The significance of language for migration brings to mind the 'border' effect identified in trade models. In fact trade theorists such as Melitz and Toubal (2014) use a set of measures to estimate the impact of linguistic proximity in bilateral trade and find that a common language raises it by around 200 per cent.[1] The role of language on trade is reviewed in Chapter 9 in this volume.

As done by trade scholars, researchers on the determinants of migration typically estimate a gravity-type model that includes relative population sizes and distances to destinations. This basic macro-model is combined with variables that appear in the micro-human capital model to obtain an equation of the following form

$$\ln m_{ijt} = F(GDP_i, GDP_j, Unemp_i, Unemp_j, Stock_i, D_{ij}, X_{ijt}, \delta_i, \delta_j, \theta_t),$$

[1] See also Isphording and Otten (2013).

where the dependent variable m_{ijt} generally denotes gross flows of migrants from country *i* to country *j* divided by the population of the country of origin *i* at time *t*, though in some cases it is specified as either aggregate flows or change in stocks. Independent variables often include measures of income per capita in both origin (GDP_i) and destination (GDP_j), and, if available, unemployment rates (*Unemp*) in both countries as well as the stock of migrants ($Stock_i$) from each origin *i* who already live in a destination as a proxy for migrants' *diasporas*. In addition models often include origin (δ_i), destination (δ_j) (or pair-wise) fixed effects, time effects (θ_t) and a large set of controls X_{ijt} for physical distance, common border, common colonial past, genetic distance, political rights or institutions, etc. Finally, models include either an indicator for common language or a measure of the linguistic distance between origin and destination languages (D_{ij}).

Earlier findings on the role of language in determining migration flows are somewhat mixed. This is likely due to data restrictions and to the relative homogeneity of countries employed in some papers. More recent work that uses larger time spans and richer panel data, which are now available, and a broader set of linguistic distance unveils a stronger relationship. To discern if language constitutes a barrier to migration, the simplest specifications use an indicator of whether two countries share a common language. In a study of flows to the US from 81 source countries for the years 1971–1998, Clark et al. (2007) find that having English as the first official language increases flows from a source country. However, this finding is not robust to the introduction of the pre-existing number of immigrants from the same origin.

A set of later papers that employ panel datasets with varying numbers of origins, destinations and time periods, such as Pedersen et al. (2006, 2008), Grogger and Hanson (2011), Beine et al. (2011) and Ortega and Peri (2013, 2015), also find that sharing a common language increases migration flows. Surprisingly Mayda (2010) and Ortega and Peri (2009) do not. A likely explanation for this inconsistency is the size and composition of their sample of flows that includes only 14 OECD countries. A detailed summary of findings of the effect of language on international migration is presented in Table 12.1.

Most recent studies employ more sophisticated indices that aim to capture linguistic distances. Belot and Hatton (2012) use the number of common nodes in the encyclopedia of languages Ethnologue's linguistic tree that are shared between two languages to measure the importance of cultural differences in explaining the degree of educational selectivity of outmigration across source countries. They find a net positive effect of language on skill selectivity, indicating that a closer proximity between destination and origin languages facilitates the transferability of human capital.

Belot and Ederveen (2012) employ a linguistic lexical distance for Indo-European languages proposed by Dyen et al. (1992) that ranges from 0 to 1,000

Table 12.1 The role of language in the literature on determinants of migration

Paper	Countries studied	Time period	Form of language variable	Language affects the choice of destination?
Karemera et al. (2000)	Flows to US and Canada	1976–1986	English/English or French dummy	no
Pedersen et al. (2006)	Flows to 26 OECD countries from 129 countries	1990–2000	Common language dummy	yes
Clark et al. (2007)	Flows to US from 81 countries	1971–1998	English dummy	yes
Pedersen et al. (2008)	Flows to 22 OECD countries from 129 countries	1990–2000	Common language dummy	yes
Ortega and Peri (2009)	Flows to 14 OECD countries from 73 countries	1980–2005	Common language dummy	no
Keuntae and Cohen (2010)	Flows to 17 OECD countries from 230 countries	1950–2007	Common official language dummy	yes
Mayda (2010)	Flows to 14 OECD countries from 79 countries	1980–1995	Common language dummy	no
Beine et al. (2011)	Stocks in 30 OECD countries from 195 countries	1990 and 2000	Common language dummy	yes
Grogger and Hanson (2011)	Stocks in 15 high-income OECD countries	2000	Common language dummy	yes
Belot and Ederween (2012)	Flow to 22 OECD countries	1990–2003	Dyen lexicostat. distance	yes
Belot and Hatton (2012)	Stocks in 21 OECD countries from 70 countries	2000–2001	Ethnologue distance	yes
Beine and Salomone (2013)	Stocks in 30 OECD countries from 195 countries	1990 and 2000	Common language dummy	yes
Ortega and Peri (2013)	Flows to 15 OECD countries from 120 countries	1980–2006	Common language dummy	yes
Adserà and Pytliková (2015)	Flows to 30 OECD countries from 233 countries	1980–2010	Dyen, Ethnologue, and Levenshtein	yes
Gorinas and Pytliková (2016)	Flows to 30 OECD countries from all source countries	1980–2010	Ethnologue distance	yes
Kahanec et al. (2016)	Flows to 22 EU countries from 12 states that became members in 2004 and 2007		Ethnologue distance	yes
Ortega and Peri (2015)	Stocks in 194 countries from 194 countries	2010	Common language dummy	yes
Palmer and Pytliková (2015)	Flows to EU/EFTA from EU countries	2004–2010	Ethnologue distance	yes

Source: Chiswick and Miller (2014) and author's information.

and decreases with the similarity of words from each language for a sample of meanings. Belot and Ederveen show that cultural barriers explain patterns of migration flows within OECD countries better than economic opportunities do. Their results imply that a 1 s.d. decrease in linguistic distance raises migration flows by 56 per cent, an effect twice as large as that estimated for GDP per capita.

Adserà and Pytliková (2015) use the largest panel data to date of both migration flows and stocks for 30 OECD destinations and over 200 origins that span 1980–2010. They construct their own linguistic proximity measure, based on information from the encyclopedia of languages Ethnologue. The linguistic proximity index takes into account how many levels of the linguistic family tree the languages of both the destination and the source countries share. The index is calculated separately for the distance between first official languages, the minimum distance between any official language or the two most widely spoken languages in both countries and, finally, for the most widely spoken language in each country (which are not necessarily the official ones). For robustness, Adserà and Pytliková (2015) also employ two alternative measures of linguistic distance: the Dyen et al. (1992) and the Levenshtein (1966) distance based on phonetic dissimilarity and produced by the Max Planck Institute for Evolutionary Anthropology (see Dryer and Haspelmath, 2013). For more detail on linguistic distance measures, see the Ginsburgh and Weber chapter in this volume.

Compared to other traditional push and pull factors, the effect of linguistic proximity on migration flows as measured by the Ethnologue-base index is lower than that of ethnic networks or destination GDP per capita level, but much stronger than that of unemployment rates (Adserà and Pytliková, 2015). Emigration flows to a country with the same language as opposed to a country with a language that does not share any level in the linguistic tree are around 20 per cent higher.[2] As an example, emigration rates to France from Benin where French is the first official language should be around 18 per cent higher than those from Zambia's (whose language shares only one level of the tree with French) but only 6 per cent higher than those from Sao Tome (whose language shares up to four levels with French). A reason that may account for the relatively smaller impact of language found in Adserà and Pytliková (2015) compared with Belot and Ederveen (2012) is that the latter study is restricted to within-OECD migration, whereas the former employs a very comprehensive dataset with more heterogeneous source countries. A 1 s.d. decrease of linguistic proximity increases migration flows by roughly 0.02 s.d. only

[2] With Dyen et al. and Levenshtein linguistic distances, the implied increase in emigration rates to countries with similar language as opposed to linguistically distant countries ranges between 14 and 20 per cent (Adserà and Pytliková, 2015).

(a tenth of the impact of a similar change in GDP per capita but larger than for changes in unemployment). The implied size of the effect is similar when either the distance between the most commonly used language in each country or the minimum distance between any of the multiple official or widely spoken languages in both countries are used instead.

Adserà and Pytliková (2015) also show that linguistic proximity matters more for migration flows from source countries with better-educated populations, which is in line with results by Belot and Hatton (2012) who find a positive effect of language proximity on skill selectivity. A large need for skill transferability for highly skilled migrants may account for the findings. Beine and Salomone (2013) find that a common official language tends to raise the proportion of skilled migrants at the expense of less skilled ones, and this holds regardless of the gender of migrants.

Besides analysing the determinants of international migration flows, some papers focus on whether language plays a role in the choices of migrants within destinations. The location selection of migrants is particularly interesting in countries with distinct geographic, cultural or linguistic differences such as Quebec within Canada. The main papers on this topic focus on the US (Bauer et al., 2005) and Canada (McDonald, 2004; Hou, 2005).

12.2.2 English as a global language

A few languages (such as English, French or Spanish) have a prominent role in international transactions, television, the internet and the job market. As a result any individual is likely to be exposed to them regardless of his or her country of origin. Among them, English is currently the most global language, as discussed in Chapter 20 in this volume.

Countries whose major languages are among one of these 'widely-spoken' languages are bound to attract a larger flow of migrants than others. There are different forces that may account for these migration patterns. First, since schools often teach English as a second language in many source countries, immigrants are more likely to have some pre-migration basic knowledge of it and may prefer to move to English-speaking destinations to lower the costs associated with the transfer of their home skills to the receiving labour market. English is also widely available on the internet and the media, especially in countries where dubbing is not the norm. Second, foreign language proficiency is an important part of human capital in the labour market of the source country (see e.g. European Commission (2006) on language proficiency as an essential skill for finding a job in host countries). Toomet (2011) shows that, among Estonian workers, English proficiency increases wages by 15 per cent. Thus, learning and improving fluency in a global language in destination countries may be particularly attractive for temporary migrants who hope to use these skills when they return home.

The fact that English-speaking nations may attract an unusual share of migrants can account for the relatively weaker results of the relevance of a common language that some researchers find when the sample is restricted to English-speaking destinations, as discussed in the previous section. In order to analyse whether this regularity holds in a larger sample of countries and to understand better the distinctive role of English, Adserà and Pytliková (2015) estimate their models separately for English and non-English speaking destinations. They find that the estimated impact of linguistic proximity on migration flows is stronger for non-English than for English destinations when measuring linguistic distance with either the first official or the major language in origin and destination. Instead, when using any official language or the two most-widely spoken languages at either origin or destination, the influence of linguistic distance plays a significant role for all destination countries, though it still matters more for non-English countries. Since English and other colonial languages are often first, second or third official languages in many countries, the most generous index shortens the linguistic distance of these origins to English-speaking destinations. Overall, results imply that a likely higher pre-migration English proficiency of the average migrant reduces the importance of the actual linguistic distance between mother tongue and English and makes these destinations more attractive by decreasing costs.

12.2.3 Linguistic enclaves and migration flows

The migration literature shows that flows are larger towards destinations with a larger stock of individuals from the same origin (Munshi, 2003; Pedersen et al., 2006, 2008; Mayda, 2010; Beine et al., 2011; Belot and Ederveen, 2012; Adserà and Pytliková, 2015). Ethnic or linguistic communities that share a similar cultural background (such as 'Chinatown', 'Little Italy' or 'Germantown') result from migrants clustering in some geographic areas or neighbourhoods (Belot and Ederveen, 2012). In ethnic enclaves, and in general, in countries with large shares of individuals with similar ancestry, migrants find 'networks' (family members, friends and people of the same source country) that ease both their direct and psychological migration costs as well as the need to learn the local language. Through networks potential migrants receive information on the immigration country, on the likelihood of getting a job, on economic and social systems, immigration policy, people and culture (Bertrand et al., 2000; Munshi, 2003; Gorinas and Pytliková, 2016; Palmer and Pytliková, 2015). The community may also offer public services, language training and children's education provision better tailored to receive a newcomer and his or her family. Network effects also explain the persistence of migration flows (see Bauer et al., 2005; Clark et al., 2007; Adserà and Pytliková, 2015). Similarly, Pedersen et al. (2008), McKenzie and Rapoport (2010) and Beine et al. (2011) find that diasporas explain a large part of the variability and selection in migration flows.

The presence of large ethnic and linguistic communities in destination lowers the pressure to learn the local language immediately after arrival and decreases the relevance of the linguistic distance in migration decisions. Adserà and Pytliková (2015) find that linguistic proximity between a migrant's mother tongue and that of the destination country matters significantly less in the presence of a large share of individuals with a language similar (either the same or very close in terms of the Ethnologue linguistic tree) to that of the migrant in the destination country. Newcomers are able to live and work in a relatively closed community. These linguistic or cultural enclaves might constitute a mixed-blessing for migrants since they may slow down their (and most importantly, their children's) socio-economic assimilation to their new country of residence. Some immigrants even spend their whole lives working within these linguistic enclaves and do not learn the destination language (see Chiswick and Miller, 1995, 1996 for Australia, Israel and Canada; Boyd, 2009 for Canada; Dustmann and Fabri, 2003 for the UK; Beckhusen et al., 2013 for the US). However, as we discuss later, some papers show that the enclave may offer overall a positive balance even if the language fluency of migrants is poorer (Portes and Jensen, 1989; Edin et al., 2003; Damm, 2009).

12.2.4 Immigration and naturalization policies

The relevance of linguistic proximity in determining the direction and strength of migration flows is likely mediated by immigration policies that affect the selection of immigrants across destinations. Policies in countries such as Australia, Canada and New Zealand emphasize skills of candidates in their application decisions and award points for English language proficiency (and French in Canada), educational attainment and age at migration when issuing permanent resident visas.

In an attempt to measure the importance of such policies, Mayda (2010) investigates how changes in the strictness of entry requirements affect the size and direction of the flows to 14 OECD countries during the period 1980–1995. Stricter policies that require applicants to have high skills and some language knowledge (such as in Australia or Canada) may result in more positively selective pools of migrants and decrease the relevance of traditional pull and push factors (such as differences in income per capita) in explaining the extent of aggregate flows. Mayda's findings are mixed. Stricter immigration quotas seem to reduce the relevance of push factors but they do not affect much that of pull factors. As a result the role of cultural and most importantly linguistic differences may become more relevant. Belot and Hatton (2012) find that introducing a point system raises the share of high-skilled migrants by about 6 percentage points and probably results in an increase in fluency of newcomers in the local language. Belot and Ederveen (2012) find that language and

religion explain migration patterns within the OECD, even though cultural distance (as measured by values and norms) does not.

Whether naturalization policies involve language-proficiency tests may also affect migration decisions. Migrants are likely to be concerned not only by obtaining permanent residency but also by acquiring full citizenship rights, particularly in countries where some forms of labour market access or welfare programmes are restricted to nationals. Adserà and Pytliková (2015) code the existence of both formal and informal language requirements for naturalization for 30 OECD destinations for the period 1980–2010. They find that migration flows to countries with stricter language requirements are smaller, but linguistic proximity between origin and destination remains an independent determinant of migration.

12.3 Language proficiency among migrants

Being able to communicate in the host country's language plays a key role in the successful integration into labour markets and society. Language proficiency among migrants can be determined by the *exposure* to the host language, *efficiency* in language acquisition and *economic incentives* to learn a new language. The three determinants of proficiency have been conceptualized in the literature as the three Es of language proficiency (Chiswick, 1991; Chiswick and Miller, 1995, 2014).

12.3.1 Exposure of immigrants to language learning

Immigrants can be exposed to the host country language both prior to or after migrating. Pre-migration exposure takes place through for example foreign language classes and courses at schools. Some countries open special language classes for workers who are still at home; this is the case for classes in Swedish held in Poland provided to Polish medical personnel, who express an interest to work in Sweden. People can also be exposed to foreign language through the media or the internet, special software and games designed to teach languages, TV and books. Yet, empirical research on this type of home country foreign language exposure is scarce, simply because the information is not readily available to researchers. Existing research in the area concentrates on the role of former colonies, multiple official languages and neighbouring countries (Chiswick and Miller, 2001; Isphording, 2014). For instance, people coming from former British or US colonies (such as India, Nigeria or the Philippines) or from countries where English is among the official or main-spoken languages (e.g. Australia or Canada) tend to be proficient in English.

Most existing research, however, relates to post-migration exposure to the destination language. We know from the literature that the time elapsed since immigration affects destination language acquisition positively. This

'time' effect shows that language proficiency increases steeply in the first post-migration years, and slows down later (Espenshade and Fu, 1997; Chiswick and Miller, 2001, 2007; Isphording and Otten, 2013, 2014). Obviously, the speed of language acquisition depends on how intensively the time following migration is used to learn.

Intensity of exposure is however hard to measure. Some studies use data on enrollment of migrants into formal language education (Cohen-Goldner and Eckstein, 2008, 2010 for Israel; Andersson and Nekby, 2012 for Sweden; Clausen et al., 2009 and Heinesen et al., 2013 for Denmark; Sarvimäki and Hämäläinen, 2015 for Finland). Others use the percentage of population speaking the same language as the migrant as a measure of exposure (Chiswick and Miller, 1995).

Finally, intensity of exposure can be influenced by a number of aspects. For instance, the incentives to learn the language can be lower for those who reside in ethnic or linguistic enclaves. Research in this area shows a negative relationship between destination language acquisition and the density of ethno-linguistic enclaves (see Chiswick and Miller, 1995, 1996 for Australia, Israel and Canada; Dustmann and Fabbri, 2003 for the UK; Boyd, 2009 for Canada; Beckhusen et al., 2013 for the US). Migrants with no intention to stay permanently (temporary migrants and commuters) tend to have less incentive to invest in a language, in particular a language which is rather unimportant in their home country's labour market (Dustmann, 1993, 1999; Chiswick and Miller, 2001, 2007, 2008; Isphording and Otten, 2013; Dustmann and Gorlach, 2015). In his later work, using survey information on immigrants' intended migration duration and instrumenting this variable with unforeseen events (e.g. family deaths in the home country), Dustmann (1999) shows that those with non-permanent intentions do indeed invest less in learning. Moreover migrants are aware of the fact that host country language skills may depreciate during the periods of leave from the country.

Language used by family or household members also affects the migrant's exposure. The effect of fluent family members, however, depends on the role they are playing. If they act as translators they reduce incentives for language acquisition; if they act as teachers, they improve the language skills of immigrants (Chiswick and Miller, 2005; Meng and Gregory, 2005). Marriage before migration also tends to be less effective with respect to language learning compared to marriage after migration (Dustmann, 1994; Chiswick and Miller, 2005, 2007; Chiswick and Houseworth, 2011). Children affect their parents' proficiency as they can serve as teachers (Chiswick, 1998; Chiswick and Miller, 2005, 2007, 2008).

12.3.2 Efficiency in language learning

It is not equally easy for all newcomers to learn the language of their host country. One of the key factors in efficiency of learning is the age at immigration.

Learning is easy for children and much more difficult at later age: existing studies consistently find a negative relationship between age of arrival and language acquisition. There is a long-standing debate among linguists on the age range within which language learning is almost effortless and after which it becomes much more difficult to become fluent and have no foreign accent (Chiswick and Miller, 2001, 2008; Mayberry et al., 2001; Isphording and Otten, 2013).

It is also easier for immigrants to acquire a language if their own native language is linguistically closer to that to be learned (Chiswick and Miller, 2001, 2005; Isphording, 2014; Isphording and Otten, 2014). Isphording (2014) shows that immigrants drop behind native speakers in their literacy score as the distance between the language of origin and destination (as measured by the Levenshtein index which takes into account phonetics) increases. Although this gap improves over time, it takes years to close down. Isphording (2014) argues that linguistic distance interacts with the effect of age at arrival: immigrants who moved after age 11 and come from linguistically distant countries are the most disadvantaged. Those who moved as small children face only very small 'distance' problems. But according to the study, adults face a much steeper learning curve (Isphording, 2014). This has important consequences since estimates show that there is a relationship between better reading and writing abilities and employment possibilities. The cause for not performing well in the host country may thus eventually be due to linguistic (and cultural) distance.

Education is one of the factors influencing efficiency in language acquisition. Several studies document the fact that highly educated immigrants tend to be more proficient in the host country language and tend to be faster in learning a new language (Dustmann, 1994; Chiswick, 1998; Isphording and Otten, 2013, 2014).

In addition to age at arrival and linguistic distance, there are a number of usually non-observables such as motivation, psychological factors and cognitive abilities that influence efficiency. These differ according to whether migrants move for economic reasons, family reasons or whether they are refugees. Family migrants and refugees tend to be less favourably selected in terms of abilities than economic migrants (Chiswick, 1999). Refugees, in particular, would probably not move under normal conditions or peace. The literature confirms that economic migrants are more proficient in the host country language than refugees, while family-based migrants are somewhere in-between (Chiswick and Miller, 2006, 2007).

12.3.3 Economic incentives

Language acquisition depends also on economic incentives such as higher earnings (which will be detailed in Section 12.4) or better job prospects. Acquisition is also positively affected by the expected duration of the stay (Dustmann, 1999; Chiswick and Miller, 2006, 2007, 2008; Isphording and Otten, 2014).

12.3.4 Language-based policies of integration of immigrants

Although language skills generally improve with the duration of residence in the host country (Chiswick and Miller, 1994, 1995), a formal integration policy in the form of language training may accelerate integration. It is, however, not straightforward to evaluate the effects of language training. A problem may arise if language skills are unobserved or measured with considerable error, since immigrants may self-select into language training based on their language proficiency, which may in turn cause a bias in the estimated effects of participation. A number of recent papers evaluate the effects of language courses on immigrants' language proficiency and labour market outcomes while addressing those potential selection processes. The majority of studies find a significant positive effect of training programmes on language proficiency and on labour market outcomes (see Cohen-Goldner and Eckstein, 2008, 2010 for Israel; Andersson and Nekby, 2012 for Sweden; Clausen et al., 2009 and Heinesen et al., 2013 for Denmark; Sarvimäki and Hämäläinen, 2015 for Finland). Sarvimäki and Hämäläinen (2015) find large positive effects on employment and earnings from a reform of immigrant integration programs that re-allocate resources from traditional Active Labour Market Programmes (ALMPs) towards a training specifically designed for immigrants, in particular more language training. The authors claim that the effects come not only from language skills per se, but also from the match between immigrants' pre-migration skills and language training, thus improving skill transferability of immigrants into the host country labour market.

12.4 Language and the returns to human capital

In economic theory, language proficiency and foreign language command is viewed as part of human capital, and in the same way as formal education, it is productive and thus rewarded in the labour market (see Chiswick, 2008; Chiswick and Miller, 2007, 2014 for a general overview). Language proficiency like other forms of human capital is tied inevitably to a given person, and is both beneficial and costly to acquire. The benefits of good language command show up through better economic outcomes such as higher earnings, better employment possibilities, and occupations matching migrants' education and skills, as well as increased efficiency in search for goods and services.

In addition, language skills influence a number of non-economic outcomes such as social integration and the size of the social network, civil and political participation and engagement, education, health and family life, such as intermarriage and parenting. Costs of language skill acquisition come up in the form of effort and time spent on learning, costs of classes, as well as indirect costs of foregone earnings while learning.

A large part of the literature on the relation between language and returns to human capital concerns immigrants because the command of the host country's language is fundamental for their integration. Numerous studies find that lack of destination language proficiency has a large detrimental impact on economic assimilation as measured by earnings and employment (see e.g. Dustmann, 1994; Chiswick and Miller, 1995, 1996, 2001, 2002; Kossoudji, 1988; Leslie and Lindley, 2001; Schaafsma and Sweetman, 2001; Dustmann and van Soest, 2002; Lindley, 2002; Dustmann and Fabbri, 2003; Bleakley and Chin, 2004; Rooth and Saarela, 2007). In the next subsection, we review some of the key references related to immigrant language proficiency and returns to human capital.

The effects of language proficiency on labour market outcomes, particularly on earnings, have received the largest attention in the literature. One of the reasons for focusing on earnings is the greater availability of data on wages, or income in general, than on other outcomes.

In analyses of language and earnings, some type of 'Mincerian wage equation' is used, where the natural logarithm of wage is regressed on a number of explanatory variables. The choice of variables often depends on available data (such as register-based longitudinal data, longitudinal household surveys, linked employer–employee data). The equation typically includes human capital variables (education, labour market experience and tenure), demographic and household characteristics (age, gender, ethnicity, parental background, children, marital status and other household characteristics) and a number of other controls such as employer and regional characteristics as well as variables capturing information about immigrants themselves (years since migration, destination language proficiency, characteristics of ethnic concentration in the region in which they live, as a proxy for ethno-linguistic enclaves and networks).

The main findings suggest that fluency in the host-country language can increase earnings of immigrants in a range of 5–35 per cent. Work in this area is surveyed in greater detail below.

12.4.1 Methodological problems

One of the main concerns that arise when trying to estimate the effect of language proficiency on earnings and other socio-economic outcomes is that proficiency itself might be affected by the outcomes, and therefore reverse causality may be an issue. Additionally, the fluency of an immigrant in the destination language is likely to be correlated with other unobserved factors that may also impact on earnings such as openness to new surroundings, exchanges with natives, extent of the migrant's networks, his or her ability or attitudes towards preserving the culture of his or her country of origin, among others. Finally, there might be a problem of measurement error stemming

from self-reported language proficiency. Those errors could be either random or persistent over time, if individuals have the tendency consistently to over or under-report their true language skills (Dustmann and van Soest, 2001). As a result, ordinary least squares (OLS) estimates of the effect of proficiency of the destination language on earnings and other outcomes are likely to be biased and do not produce causal estimates. The problems of endogeneity of language proficiency, measurement errors and unobserved heterogeneity pose considerable challenges.

The literature has adopted different strategies to tackle the problems. Most empirical studies rely on an instrumental variable (IV) approach, in which a predicted language proficiency variable enters the Mincerian equation. A number of instruments have been used to address endogeneity issues (see Shields and Wheatley Price, 2002; Chiswick and Miller, 2014 for a summary on which we will rely). Some popular instruments are veteran status, foreign inter-marriage, children and minority languages concentration measures (e.g. in Chiswick and Miller, 1994; Chiswick, 1998), father's education (Dustmann and van Soest, 2002), language of the interview used in the survey (Shields and Wheatley, 2002) and age of arrival (Bleakley and Chin, 2004, 2010). The coefficients obtained by IV estimation are usually larger than those obtained by OLS, which suggests that the potential upward bias from reverse causality and unobserved heterogeneity overweighs the downward bias from misreporting (Dustmann and van Soest, 2002; Dustmann and Fabbri, 2003; Bleakley and Chin, 2004).

One of the most popular instrumental-variables strategy has focused on the sample of migrants who arrive at the destination country as children. A reason to focus on such individuals and on their age at immigration is that there seem to be critical ages at which people acquire certain particular skills, such as proficiency in the local language. An ample literature shows that fluency in the language of the destination decreases with age at immigration (Chiswick, 1991; Stevens, 1992, 1999; Espenshade and Fu, 1997; Massey and Espinosa, 1997; Akresh et al., 2007).

Bleakley and Chin (2004) show that outcomes of immigrants from non-English speaking countries systematically differ from those of other migrants only among those arriving after the *critical period* for language acquisition (11 years old). They use individual-level data from the US Census of 1990 to study how earnings of immigrants who arrived before age 18, and were 25–38 years old in 1990, were related to their age at arrival. Consistent with the existence of a critical period of language acquisition, they show that there are no significant differences in adult English proficiency among immigrants from English and non-English speaking countries who migrated very early in life. Moreover, while the relation between age at arrival and English proficiency is flat for migrants from English-speaking countries, proficiency decreases almost linearly with age at arrival for those from non-English speaking countries who

arrived after that age. Bleakley and Chin (2004) provide an identification strategy for the causal impact of language proficiency on earnings by exploiting these differences between younger and older arrivals on English language skills to construct an instrumental variable for English proficiency. Age at migration on its own is likely to affect socio-economic outcomes of migrants through channels other than language (such as better networks or knowledge of local norms) and, as a result, it may fail the exclusion restriction as an instrumental variable. They use immigrants from English-speaking countries to control for the impact of age at migration, which is unrelated to English fluency.

Bleakley and Chin (2004) estimate a first stage equation by OLS for English proficiency ENG_{ija} for an individual i born in country j who arrived in the US at age a:

$$ENG_{ija} = \alpha_1 + \pi_1 k_{ija} + \gamma_{1j} + \delta_{1a} + X_{ija}\rho + \varepsilon_{ija}, \tag{1}$$

where γ_{1j} is fixed country of birth effects, δ_{1a} is fixed age at arrival effects, and X_{ija} is a vector of exogenous explanatory variables which characterize immigrants (sex, race, age). Noting that the outcomes obtained by immigrants arriving from English and non-English speaking countries start to diverge after the age of arrival of 11, they use as instrument for language proficiency a variable constructed by interacting a, the age at arrival (beyond the critical age of 11) and where $I(j)$ takes the value one when the country of origin j is non-English speaking:

$$k_{ija} = \max(0, a - 11) \times I(j). \tag{2}$$

Results point to a strong negative relationship between English proficiency and the instrument k_{ija} in (2). Using fitted values for English proficiency from (1), they estimate a second stage equation where the dependent variable is the annual wage rate:

$$\ln W_{ija} = \alpha + \beta ENG^*_{ija} + \gamma_j + \delta_a + X_{ija} + \eta_{ija}, \tag{3}$$

where ENG^*_{ija} are the fitted values obtained from regression (1). The estimated impact of language proficiency on earnings is higher in IV than OLS estimates. They explain those somewhat surprising differences by arguing that even though OLS should be upward biased by ability, measurement errors in language skills are likely to be responsible for the downward bias of the OLS coefficient. Results are robust to different specifications and to the exclusion of migrants from Canada.

A key finding of the paper is that higher educational attainment appears to be the mechanism behind the effect of language on earnings. Overall, a one unit increase of English ability (a variable that ranges from 0 to 3) implies an increase of about 0.33 (log) wages in very basic models. In specifications that

also include education as an exogenous variable, the estimated impact of proficiency decreases by a factor of 3 and then by a factor of 10 when returns to schooling are also accounted for in the model. Higher educational attainment seems to be responsible for about 90 per cent of the impact of language fluency on earnings. As we discuss later, the same mechanism may be at play in other socio-economic spheres of migrants' lives.

12.4.2 Language and migrants' earnings

The rich literature on the role of language proficiency on earnings covers a range of languages, countries and time periods. There is a consensus in the literature that language proficiency has a positive effect on earnings, although the size of the effect varies. In particular, research in this area suggests that fluency in the host-country language can increase earnings of immigrants in a range of 5–35 per cent (Chiswick and Miller, 2014 for a summary; Dustmann 1994; Chiswick and Miller, 1995, 1996, 2003; Dustmann and van Soest, 2001, 2002; Leslie and Lindley, 2001; Lindley, 2002; Bleakley and Chin, 2004, 2008; Rooth and Saarela, 2007). We now review a couple of key studies in different countries.

In the US, a number of studies have been conducted on returns to English. Chiswick and Miller (1995) are among the first to use an IV approach to account for potential endogeneity of language. They find that the language premium for male immigrants' earnings is larger than 20 per cent. By exploiting differences on adult English proficiency between immigrants from non-English speaking countries who arrive as young children versus others, Bleakley and Chin (2004, 2010) find that linguistic competence is a key variable to explain disparities in terms of educational attainment, earnings and social outcomes.

Dustmann (1994) analyses the effect of German language proficiency on earnings in Germany, using cross-sectional data of immigrants from the German Socio-Economical Panel survey. Applying OLS with a Heckman selection correction, he finds that there is a 7 per cent earnings premium for both men and women due to speaking proficiency, and 7 and 15 per cent for writing proficiency for men and women, respectively. Dustmann and van Soest (2002) exploit the same panel to address the potential endogeneity of language as well as potential misreporting errors. Using the father's education and leads and lags of language skills as an exogenous variation in their IV regressions, they find a 12–14 per cent earnings premium for those who speak fluent German.

Using UK cross-sectional data from Fourth National Survey on Ethnic Minorities (FNSEM) and Family and Working Lives Survey (FWLS) surveys, Dustmann and Fabbri (2003) evaluate effects of English language command on earnings and employment probabilities of immigrants in the UK. They use a propensity score estimator with ethnic minority concentrations and number of children as instruments to deal with unobserved heterogeneity and endogeneity. They

show that the effect of English proficiency on earnings ranges between 10 and 36 per cent depending on the empirical method used. Miranda and Zhu (2013) study the language effects on the immigrant–native wage gap in the UK. Using the critical age-based instrument, they find a 23–25 per cent wage premium to speaking English as an additional language.

Adserà and Chiswick (2007) employ the European Community Household Panel (1994–2000) to study the earnings of immigrants by gender across Europe. Controlling for countries of destination, they find that the earnings of migrants whose mother tongue belongs to the same language group as that of the country of destination (Romance, English, Nordic or German/Dutch) are 11 and 14.5 per cent higher for women and men, compared to those coming from a different linguistic group. Results are fairly close if a dummy for common language is included. They also find that a large proportion of migrants move to European countries with similar languages since, other things being equal, adjustment costs are lower (Chiswick and Miller, 1995, 1998; Chiswick, 1998; Adserà and Pytliková, 2015).

For Israel, Chiswick (1998) uses an IV approach with age at arrival as instrument. He finds that using Hebrew as the primary language increases male immigrants' earnings by as much as 35 per cent.[3]

A recent study by Budría and Swedberg (2012) examines the effect of Spanish proficiency on earnings in Spain. Using a dummy variable for arrival in Spain before age ten as instrument, they find that Spanish proficiency raises wages by some 27 per cent. Di Paolo and Raymond (2012) find an 18 per cent premium to Catalan proficiency. In addition to the critical age instrument, they also use the following as alternative instruments: owing a library with more than 100 books at home, reading frequently, speaking Catalan at home, watching Catalan news and reading newspapers, and ethnic composition of regions.

Adserà and Ferrer (2014b) assess whether language plays a different role for immigrants and native-born in Canada. They combine large samples of four Canadian censuses (1991–2006), the linguistic proximity of the immigrant's mother tongue to English or French, and information of the occupational skills of the job the immigrant holds. They find that the wages of migrants whose mother tongues have little connection to English (or French) do not converge to similar levels as those whose languages are closer to English (or French). In addition their jobs tend to require more physical strength and lower analytical requirements than those of native speakers.

Finally, Yao and van Ours (2015) analyse the role of language played on labour market performance of immigrants in the Netherlands. They find

[3] Note that among later studies, age at arrival in host countries will become a commonly used instrument for language skills.

that women with low Dutch proficiency have 48 per cent lower wages than Dutch-proficient females with similar characteristics, whereas for males Dutch language skills seem to be less important. In fact, and contrary to all previous studies, the authors find no Dutch wage premium for male immigrants. They argue that this may be a consequence of the fact that many immigrants are fluent in English, which makes communication between natives and immigrants easier. Given that they had no information on English proficiency in their data, they could not dig deeper into this issue.

12.4.3 The premium of foreign language knowledge

A growing number of papers report significant returns to foreign language skills among natives in developed countries. Saiz and Zoido (2005) study the returns to foreign languages among US college graduates. Their results suggest a 2%–3% wage premium for college graduates who can speak a second language. Williams (2011) reports significant earnings premia for foreign language usage at work in 12 European countries. Ginsburgh and Prieto-Rodriguez (2011) confirm the substantial return to English proficiency in several European countries. Lang and Siniver (2009) show significantly important returns to English in Israel (as well as Hebrew among immigrants from Russia), although the return to English appears heterogeneous for different groups of workers. Sizable returns to English were found in Germany for both native Germans and immigrants; returns are particularly large for immigrants in part because they tend to work in the service sector which is linked to higher trade (Stöhr, 2015).

The return to foreign language proficiency has been analysed as well in a few other countries: Latvia and Estonia, South Africa, India and Turkey. Toomet (2011) finds that local languages do not pay off in Latvia and Estonia, while English proficiency produces a significant premium. Levinsohn (2007) and Casale and Posel (2011) report high returns to English in South Africa. So do Azam et al. (2013) for English in India. Di Paolo and Tansel (2015) find positive and significant returns to English and Russian in Turkey, which increase with the level of competence. Isphording (2013) detects high returns to English, German and French on the Spanish labour market. Thus, the evidence confirms that foreign language proficiency is a valuable asset both in developed and developing countries.

12.4.4 Language as a mediator of skill and knowledge transfer

As should be clear from the previous sections, numerous studies have shown that language plays a significant role in mediating the rate of return to formal education and labour market skills. Immigrants with a good command of the host country's language have much higher returns to human capital than those with poor language command. Thus learning the host country language is a key factor to acquiring educational and labour market skills.

Language is also an important mediator of knowledge transfer. A recent strand of literature focuses for instance on the effects of ethnic diversity on the host country's economy. In particular, ethnic diversity may bring substantial benefits in terms of firm innovation, productivity and exports (Parrotta et al., 2014a). Employees of different cultural backgrounds can provide diverse perspectives, valuable ideas and problem-solving abilities; they also facilitate achieving optimal creative solutions and stimulate innovation (Hong and Page, 2004). Employees of different ethnic backgrounds may stimulate firms to improve or develop new products sold abroad as they also possess knowledge about other markets and customers' tastes (Osborne, 2000; Kerr and Lincoln, 2010). However, ethnic diversity may also create communication barriers, reduce workforce cohesion and prevent cooperative participation in production activities, which in turn may hinder knowledge spillovers and exchange among employees and workers (Lazear, 1999). Thus, benefits of ethnically diverse workforces in firms can materialize best when the costs of cross-cultural dealings are minimized. Recent studies show that language skills play an important role in reducing communication barriers and create a bridge for knowledge transfer (Parrotta et al., 2014a,b).

12.4.5 The impact of language-based immigration policies

As noted before, migration policies are likely to affect the characteristics of newcomers to a country. To understand differences in human capital among Canadian migrants, Aydemir (2011) employs the Longitudinal Survey of Immigrants to Canada, which offers information on short-run labour market outcomes of migrants after arrival. The study focuses more on the effect of different visa types that signal the immigrant skills. Aydemir distinguishes two different types of migrants: skilled workers and those who arrive for family reunification reasons. He finds that immigrants under the skilled workers programme have much higher levels of educational attainment than family-reunited immigrants. Even spouses of main applicants under the skilled workers programme have more years of schooling than people under other immigration policy. Such positive educational selection is, however, not always accompanied by positive effects on labour outcomes such as labour force participation, employment and earnings. To analyse these effects, the author uses selection across visa categories. Results show that males under both immigration programmes have similar labour market results, but females from the skilled workers group enjoy a higher level of labour participation than those coming through family reunification. The author explains that this may be due to the fact that men are investing in local human capital in the beginning, and women temporarily enter the labour force to support the family. Therefore,

in the short run, women earn more and enjoy a larger labour force participation and a lower unemployment rate. Cobb-Clark et al. (2005) find similar results.[4]

Another interesting outcome discussed by Aydemir (2011) is that schooling and experience have no or even a negative effect on the participation in the labour force and employment, and a small positive effect on earnings for men, but not for women. Regression estimates show that ability in speaking the local language has significant and positive effects on labour market outcomes, whereas linguistic skills in reading and writing have no effect. Overall, the author argues that in countries with point systems, in which education, experience and language abilities increase the likelihood of obtaining entry, labour market returns among new migrants are not significantly different in the short run than in countries without such point policies. Family class migrants can enjoy higher labour participation rates, as well as earnings, because they have probably much better access to local information than other migrants. They can use their family networks, while those who arrive as skilled workers are less likely to have access to a network during the first years after migration.

12.5 Language and migrants' socio-economic assimilation

As noted in the previous section, language proficiency is not only expected to affect earnings but also an array of other socio-economic outcomes such as fertility, health, marriage patterns and residential choice.

12.5.1 Fertility

The role of language in the fertility behaviour of migrants is perhaps the most widely studied in different contexts (especially in the US) and with different methods. Existing analyses find greater English fluency to be associated with lower fertility in the US (Sorenson, 1988; Swicegood et al., 1988; Bleakley and Chin, 2010) and Canada (Adserà and Ferrer, 2014a). Some early papers on the subject focus on Mexican immigrants in the US. Sorensen (1988) employs a set of new questions on language use and English proficiency introduced for the first time in the 1980 US Census. She studies fertility patterns of 40–44-year-old women in endogamous Mexican American and non-Hispanic white couples living in Texas, New Mexico and Arizona. Results show that the likelihood of having an additional child at any parity level decreases with English use at home by both the wife and the husband even after educational attainment and

[4] Adserà and Ferrer (2014c) show that recent women migrants to Canada do not drop out of the labour force after the first years but rather their participation continues to increase with the number of years spent in the country.

English proficiency of the couple is taken into account. Among non-Hispanic couples, the likelihood to transit to parity five or more is also higher among those with low English proficiency who do not speak English at home, even after controlling for educational attainment and place of birth.

In a closely related paper, Swicegood et al. (1988) study the impact of English proficiency on fertility outcomes among ever-married Mexican–American women aged 15–44 in the 5 per cent Public Use Microdata Sample from the 1980 US Census. They find that the total number of children ever born to a woman and the presence of children under three in the household decreases with English proficiency and that the impact of proficiency is larger among the most educated and younger women in the sample. Swicegood et al. (1988) note that those behavioural patterns seem to be more related to opportunity cost calculations than to cultural differences.

A problem with the use of language proficiency in econometric models is its potential endogeneity. Individuals with better language skills may have other unobservable characteristics closer to natives that are also related to other social outcomes. In addition, migrant selectivity may imply that the fertility plans of new immigrants may resemble more those of natives in the destination country than the fertility behaviour of their peers in the source country, even before they arrive at their new location. Certain migration policies in destination countries may bolster this selection process. In the 1990s, Canadian immigration policies, for example, targeted educated immigrants and instituted a point system that rewards knowledge of English or French. As a result, recent waves of Canadian immigrants are relatively more educated and closer to Canadian natives than elsewhere. Similar policies are also in place in Australia. Taking selectivity into account is always a data challenge since it is generally necessary to have information from both destination and source countries to ascertain the degree of selection. In her analysis of fertility among immigrants in the US, Kahn (1988) conducts one of the first attempts in the literature. She uses country-level information on fertility in source countries as well as characteristics of the immigrants themselves compared to those of their countries of origin to check whether they play a role in the fertility adaptation of migrants to US patterns. She finds that the fertility behaviour of those who are more assimilated (duration of the stay in the US, intermarriage or language proficiency) is closer to US norms than to source-country norms.

As explained when discussing the effect of language on earnings, restricting the analysis to migrants who arrived as children may address some of the endogeneity concerns since researchers can exploit differences in age at arrival that are associated with critical learning periods. In the case of fertility, if cultural norms regarding reproductive behaviour that are formed at a particular age (for instance, the onset of puberty) are difficult to adjust later in life (Ryder, 1973), age at migration can have an additional meaning. A mother tongue that

is not one of the official languages at destination may make it difficult for a child to access local cultural cues through school and peers to form his or her fertility preferences.

Bleakley and Chin (2010) rely on the same instrument as in their earlier work to show that the outcomes of immigrants from non-English speaking countries systematically differ from those of other migrants only among those arriving after the critical period for language acquisition of nine years of age. Among other socio-economic outcomes, they study fertility patterns of migrants who arrived before age 15 and are currently between ages 25 and 55 in the 2000 US census. In their first stage regression they find a sizable effect of age at arrival on language proficiency among those arriving from a non-English speaking country. English proficiency (measured on a scale of 0 to 3) decreases by 0.1 for each arrival year after age nine. The second stage regression on fertility outcomes is fitted for all individuals in the sample as well as separately by gender. The number of children present in the household of immigrants with higher English fluency is smaller than for others, even though English-proficient women are not significantly more likely to be childless. Differences at the extensive margin also account for the lower number of children among more English-proficient men, though they disappear when the sample is restricted to married men. Single parenthood or out-of-wedlock births are not significantly associated with English proficiency. These findings are robust to controlling for the interaction between age at arrival with either the fertility rate or GDP per capita in their country of origin as well as to dropping either Canada or Mexico from the sample of migrants.

Though they do not use an IV strategy, Adserà and Ferrer (2014a) estimate the fertility of Canadian migrants who arrived before adulthood at different ages, relative to that of natives. They estimate these models separately for two groups of migrants depending on whether or not their mother tongue is an official language in their Canadian province of residence (either English or French). They find no sharp discontinuity around age nine, as do Bleakley and Chin (2010), but rather an increasing relative fertility for later arrival ages for both groups. Nonetheless fertility is lower among immigrants with English or French as their official mother tongue than among others for every age at arrival.

Even though they do not employ linguistic proficiency directly, a set of papers highlight cultural differences in explaining the diversity of fertility patterns across origins (Fernandez and Fogli, 2006; Georgiadis and Manning, 2011).

12.5.2 Other social outcomes

Most relevant studies on migrants' marriage literature include some indicator of language ability as a control in the regressions that estimate the probability of intermarriage. In general they find that higher proficiency in the language

of the country of destination reduces the probability of endogamous marriages (Stevens and Swicegood, 1987 for the US; Meng and Gregory, 2005 for Australia, among others). Consistent with this finding, Duncan and Trejo (2007) show that Mexican Americans who intermarry tend to be more fluent in English (besides being more educated and enjoying larger earnings) than those who marry other Mexicans (both immigrants and US born). Bleakley and Chin (2010) show that the positive effect of language ability on the probability of marrying someone of the same ancestry is robust to endogeneity considerations and that spousal quality (in terms of education and earnings) increases with fluency. In addition they find that English proficiency decreases the probability of being married, both by decreasing the probability of ever having married and increasing the probability of being divorced (Bleakley and Chin, 2010). Results by Dávila and Mora (2001) are somewhat mixed. English proficiency decreases the probability of being married among women, but increases it for men.

Language proficiency is shown to affect health outcomes among immigrants. Clark and Isphording (2015) focus on the impact of language proficiency on the health of children who migrated to Australia. Using instrumental variable techniques similar to those of Bleakley and Chin (2004), they discover a large negative effect of English deficiency on physical health.

Finally a couple of papers study the influence of language ability on residential choice. Language is often considered the dependent variable, such as in Lazear (2007) who looks at the role of linguistic enclaves on proficiency. Otherwise the literature finds that individuals with poorer language skills tend to live in neighbourhoods with large shares of individuals from their country of origin (Funkhouser and Ramos, 1993 for Dominicans and Cubans in the US; Toussaint-Comeau and Rhine, 2004 for Mexicans in Chicago; Bleakley and Chin, 2010 across Public Use Microdata Areas in the US). Bertrand et al. (2000) use the density of linguistic enclaves to study whether it independently influences an individual's welfare participation by facilitating the transmission of knowledge and attitudes toward welfare in their community.

12.5.3 Second generation

Some researchers analyse the impact of language use at home and linguistic background of the parents to explain outcomes of the second generation (see for example, Grogger and Trejo, 2002; White and Glick, 2009). Leon (2003) employs ability to read/write with English fluency to estimate the impact of parental human capital on second-generation school enrolment in the 1910 and 1920 censuses. Bleakley and Chin (2008) use a similar instrumental variable strategy as in their other works to analyse whether the impact of the difference in linguistic proficiency of parents carries on to second-generation educational outcomes. They rely on the 2000 US Census to find that English proficiency by immigrant parents has a significant impact on their US-born

children's proficiency while they are young, but it does not explain fluency differences later in life. Further, they find that parental English proficiency has a positive impact on pre-school attendance and that the poorer English proficiency at the time of school entry of children of less fluent immigrants increases their chances of dropping out of high school or being held back.

Using a comprehensive longitudinal dataset on immigrants and their children, Casey and Dustmann (2008) investigate the intergenerational transmission of language skills among immigrants, and the effect of language skills on the economic performance of second-generation immigrants. There is a positive association between parents' and children's fluency, conditional on parental and family characteristics. Parental fluency through the ultimate language proficiency of their children affects female labour market outcomes.

12.6 Conclusion

This chapter has provided a summary of research on the importance of language for immigrants in their decision to move and for their successful assimilation and integration in their host countries. We have also discussed research on factors which influence language learning and language proficiency.

We first reviewed the literature on determinants of migration with a special focus on language. Migrants take their language skills into consideration when deciding whether and where to migrate. Knowing the host country language or speaking a language that is closer to the host-country language means lower costs of migration and adaptation in comparison to moving to a country where the migrant must learn a distant language. Almost all empirical studies confirm that language and linguistic distances play an important role on migrants' decisions to migrate and on their choice of destination.

We also provided a summary of research on the determinants of language proficiency among migrants. It is very important to know which factors affect language acquisition, since being able to communicate is crucial to the successful integration into the host country's labour market and society. Research in this area focuses on pre- and post-migration exposure to the host country's language, and on efficiency and economic incentives to language acquisition.

Finally, we have provided an overview of the returns to language acquisition. Migrants with a good language command experience better economic outcomes such as higher earnings, larger employment probabilities and better occupational matches. In addition, the benefits of language acquisition show up in a number of non-economic outcomes such as social integration and size of social network, civil and political participation and engagement, education, health and family life. Yet, language learning also generates some costs such as effort and time spent on language learning, direct costs on language classes, as well as indirect costs of foregone earnings while learning. There are

important policy implications that can be derived from the existing research on returns to language skills. Encouraging immigrants to invest in language acquisition and proficiency through, for instance, language classes and training programmes would make their assimilation easier, benefiting both immigrants and host economies. There is also some new research on the effect of language on other social outcomes, such as fertility, intermarriage and health. Although the area is rather under-researched, it still provides some important insights for policy-makers and migrants as well.

Acknowledgements

The authors would like to thank Ingo Isphording for his comments on an earlier version of the chapter. Pytliková's research was funded in part by the Operational Programme Education for Competitiveness (No. CZ.1.07/2.3.00/20.0296) by a Czech Science Foundation grant (No. GA15-23177S) and by an SGS Research grant (No. SP2015/120).

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