



Language skills are critical for workers' human capital transferability among labor markets

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LANGUAGE SKILLS ARE CRITICAL FOR WORKERS' HUMAN CAPITAL TRANSFERABILITY AMONG LABOR MARKETS

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Prof Dr Belton M Fleisher received his B.A., M.A., and Ph.D. degrees in Economics from Stanford University. He joined the faculty of the University of Chicago in 1961-65 and moved to the Ohio State University in 1965, where he is a Professor of Economics. He spent the year 1963-64 at the London School of Economics and went to China for the first time in spring, 1989, where he taught in the "Ford Class" at Renmin University of China. He taught there again in 1990, and since then, his research has focused on the Chinese economy.

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Our empirical investigation of the quantitative importance of language barriers in evaluating cross-country differences in both worker productivity and human capital transferability in United States labor market has policy implications for the importance of language skills for international migrants in the EU. We report the degree to which English-language proficiency (EP) determines earnings among immigrants to the United States using a more nuanced measure of EP than employed in previous studies. We obtain direct and indirect (through human-capital transfer) estimates of the impact of EP on earnings using nonlinear least squares (NLS) to estimate an earnings function with separate arguments for both schooling and experience obtained before and after immigration to the United States. We find that immigrants with the highest level of EP earn on average over 26.1% more than those with the lowest proficiency level. The increment in earnings associated with attainment of a higher education level is higher the greater is English proficiency. Thus, destination language proficiency will raise the international transferability of human capital. The earnings gain from additional education acquired after immigration and English proficiency is ambiguous in our results, but there is a complementary relationship between English proficiency and post-immigration working experience.

Introduction

Why is investigating language skills for immigrants so important?

The issue whether human capital produced in one country is transferable across regional or national boundaries is of great interest, especially for studies of how migrants affect, and are affected by, the movement over labor-market boundaries.

The hypothesis that immigrants' human capital accumulated in their home country is not equally productive in their adopted labor markets has an established history in the literatures (e.g. Chiswick 1978a; Mincer and Ofek, 1982; Borjas, 1992b; Friedberg 1996). Discussion of this hypothesis includes issues of disparity in the quality of formal education, cultural and socioeconomic issues, and differences in industrial structure. A very important aspect of human capital transferability arises when source and destination areas use different languages.

Obviously, difficulty in communication through common language can seriously impact a migrant's labor market success (Kossoudji, 1988; Leslie & Lindley, 2001; Rooth&Saarela, 2007; Chiswick & Miller, 2010).

Although it is close to a truism that destination language proficiency provides access to better-paying jobs, understanding the magnitude of the impact of language proficiency on earnings is still incomplete.

Moreover, knowledge of the quantitative importance of language barriers in evaluating cross-country differences in worker productivity is critical in evaluating the causes of international differences in earnings. For example, Hendricks (2002), using migrant earnings in their destination countries to infer the magnitude of human capital in their home countries and then calculates a residual, unexplained cross-country income gap attributable to total factor productivity (TFP). To the extent that the impact of language barriers on earnings in the destination country are not measured (which they are not in Hendricks, 2002), the importance of international TFP differences in “accounting” for international income differences is understated.

We study how English language proficiency affects migrants’ earnings in the US labor market. The research framework is a human-capital earnings function that includes a measure of English-language skills—a weighted index of English proficiency in speaking, writing, and reading. The earnings function is further augmented to include separate measures of schooling and experience accumulated in the country of origin and country of destination (the United States).



Key Observations

English language skills among immigrants from non-English speaking Countries in the US

In the United States, English language skills among immigrants are measured in three categories (based on immigrants sample in PSID 1997 micro dataset):

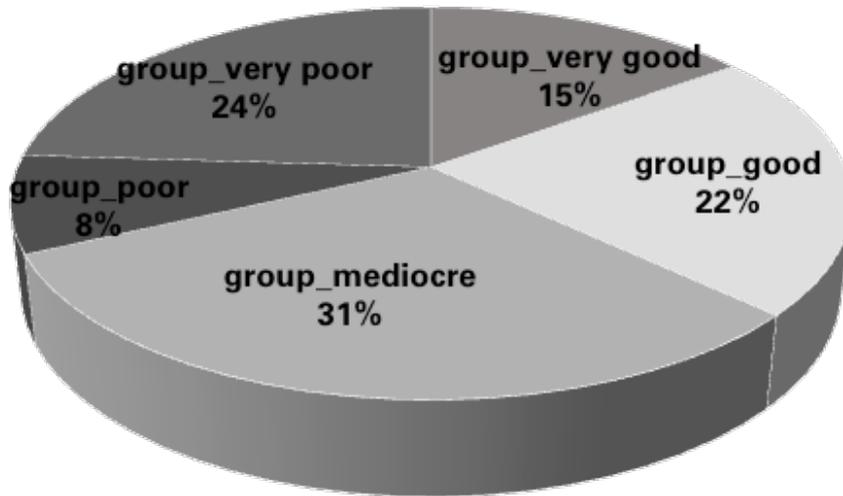
- English reading (How well do “you” read newspapers and books in English?)
- English writing (How well do “you” write letters in English?)
- English speaking (To what extent do “you” speak English to “your” family members, relatives and colleague?)

These three categories cover different aspects of English language abilities. One comprehensive index that captures all the aspects (reading, writing and speaking, etc.) needs to be established to evaluate English language skills for immigrations from non-English Countries.

What is the human capital endowment including education and language skills among immigrants from non-English speaking Countries?

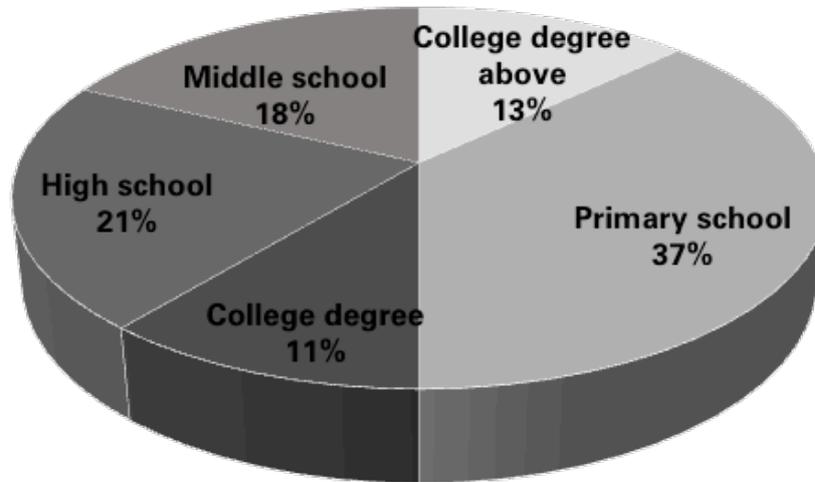
Generally, immigrants the United States have low level of English language skills. The proportion of immigrants with a high level of English proficiency is significantly lower than that with a low level. Most of immigrants acquired a low level of education before emigration. Those immigrants who continue to receive education in the destination country (the United States) typically completed a Middle or High school degree.

Figure 1: language skills distribution among immigrants



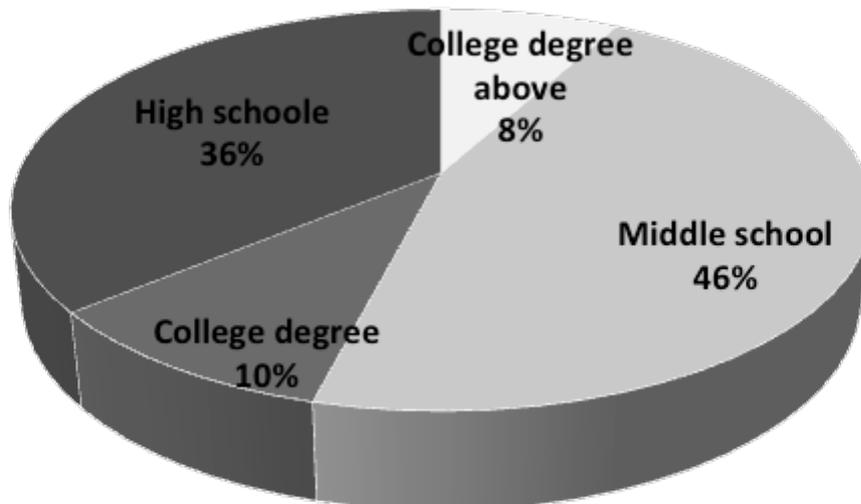
English Proficiency as used in the United States is referred to the different degree of fluency in English language. It is a comprehensive measurement covering English reading, writing, speaking, and comprehension. Immigrants with the highest level of English proficiency account for almost 15%, and those with the lowest level account for 24% of the total; percentages of the “intermediate” proficiency categories make up 22%, 31% and 8% of the total, respectively (Figure 1).

Figure 2: The distribution of education for home countries among immigrants



More than 90% of the sample received schooling outside of the United States, and of these 37% completed at most primary school before emigration,, approximately 18% completed middle school, 22% high school, and approximately 23% four or more years of college or university education (Figure 2).

Figure 3: The distribution of education received in United States among immigrants



Approximately 20% of the immigrants obtained some education in the United States after arrival. Of these approximately 46% completed middle school, 36% completed high school, and approximately 18% completed four or more years of college or university education (Figure 3).

How large is the earnings gap attributable to language skills among immigrants?

Language skills significantly influence labor market earnings. Higher destination language proficiency for immigrants increases their earnings directly through higher productivity on the job.

The coefficient for the variable representing the “direct effect of language skill” indicates that the earning gap between an individual with the highest level of EP and the one in the least proficient EP group. The estimation results show that,

- Immigrants with higher English language skills have a significant 26.1% higher earnings than the benchmark groups of immigrants who have very poor language skills, *ceteris paribus*.
- Whereas an individual in “group_good”, “group_mediocre” and “group_poor” would earn about 14.7% ($26.1\% * 56.4\%$), 10% ($26.1\% * 38.1\%$) and 3% ($26.1\% * 10.9\%$) more than immigrants with very poor English proficiency, separately.
- Similarly, the earning gap between “group_good” and “group_mediocre” categories would be approximately 4.7% ($26.1\% * 56.4\% - 26.1\% * 38.1\%$).

Figure 4: the direct effects of language skills and human capital on $\ln(\text{Earnings})$

Ln Yearly income		
	Coefficients	Std. Dev
Direct effect of language skills	0.261**	0.116
Distance parameters among language groups (coefficients of weights in English Proficiency groups)		
EP_group_very good ($\mu_1 = 1$)	1.000	—
EP_group_good (μ_2)	0.564**	0.230
EP_group_mediocre (μ_3)	0.381**	0.147
EP_group_poor (μ_4)	0.109	0.168
EP_group_very poor ($\mu_5 = 0$)	0.000	—
Obs	910	

How do language skills impact on earnings indirectly through the impact on the transferability of human capital?

English language skills also affect the transferability of origin human capital for immigrants. The earning differentials between each of pre-emigration education degree and no schooling is magnified significantly when English language proficiency is greater.

We estimated the impact of EP on returns to schooling, and it is substantial. The return to a higher pre-emigration education degree increases significantly with the language skills improvement.

- Immigrants with a pre-emigration degree at or above the college level earn 11.6% ($11.6\% * 1$), 5.65% ($11.6\% * 48.7\%$), 3.81% ($11.6\% * 32.8\%$) and 1.84% ($11.6\% * 15.9\%$) more than those with the lowest proficiency
- Immigrants with original college degree have 7.15% ($7.15\% * 1$), 3.4% ($7.15\% * 48.7\%$), 2.3% ($7.15\% * 32.8\%$) and 1.1% ($7.15\% * 15.9\%$) higher earnings.
- Immigrants with a pre-emigration high school degree have 4.7% ($4.73\% * 1$), 2.3% ($4.73\% * 48.7\%$) and 1.55% ($4.73\% * 32.8\%$) and 0.7% ($4.73\% * 15.9\%$) higher earnings.

Figure 5: the effects of transferability of human capital on $\ln(\text{Earnings})$

	Ln Yearly income	
	coefficients	Std. Dev
coefficients of pre-education that interacted with EP		
Middle school	0.0253	0.0176
High school	0.0473*	0.0238
College degree	0.0715***	0.0302
College degree above	0.116*	0.071
Distance parameters among language groups (coefficients of weights in English Proficiency groups)		
EP_group_very good ($\mu_1 = 1$)	1.000	—
EP_group_good (μ_2)	0.487***	0.104
EP_group_mediocre (μ_3)	0.328***	0.0789
EP_group_poor (μ_4)	0.159*	0.0685
EP_group_very poor ($\mu_5 = 0$)	0.000	—
obs	910	

Human capital acquired before emigration is transferable to the destination country to a greater degree, the higher is English-language proficiency.

Recommendations for Policy-Markers

European and national - level

- Clarify issues concerning language skills for immigration within EU.
- Given the large number of immigrants in the EU, it is important to encourage immigrants to acquire further human capital, especially investing in language skills, to promote individual earnings.
- Support language skill training in formal education institutions in the EU.
- Support to establish informal schools that focus on improving language skills in the EU.

Research Parameters

Objective

The main objectives of the project were to:

- Investigate the quantitative importance of language barriers in evaluating cross-country differences in worker productivity. We treat language as a basic human capital skill influencing labor productivity.
- Study how the destination language skills impact on the earnings directly.
- Investigate how human capital transferability varies when source and destination areas use different languages. Treat language as a “channel” to impact on the transferability of origin human capital, and estimate how language skills impact earnings indirectly through the return to pre-emigration human capital.

Methodology

To measure language skills for immigrants from non-English speaking Countries we develop a normalized linear combination index called English Proficiency (EP) to capture subtle variations based on several attributes of three categories of English skills. We specify the EP index as a scalar of five groups.

$$EP = \mu_1 group_{very_good} + \mu_2 group_{good} + \mu_3 group_{mediocre} + \mu_4 group_{poor}$$

The English proficiency index is ordered from highest to lowest level of English proficiency in five groups. Each of these five groups is set as a dummy variable respectively. The group *very_good* which we called “verygood” group, is specified as the highest English proficiency. The weight of this group is scale ($\mu_1=1$). We called group *very_poor* as “verypoor” group is specified as the lowest level of English proficiency and its weight is set to the origin ($\mu_5=0$). group *good*, group *mediocre*, and group *poor* are “intermediate” English proficiency groups. The value of the weights of the groups, μ_2 , μ_3 , and μ_4 are between zero and one, and they will be estimated with the data.

We use multivariate regression analysis to estimate how English language proficiency as a defined human capital skill affects earnings of immigrants to the US labor market. Our formal model is a variation of a standard human capital earnings function.

Because we need to know the specific expression of English Proficiency, the weight of each EP groups need to be estimated. We adopted nonlinear least squares (NLS) in empirical analysis. By using NLS method, we can get the value of the distance among the five English proficiency groups (the coefficients of weights of EP groups). Meanwhile, we can also estimate the coefficients of the return to different pre-human capital that interacted with specific EP.

The estimation was carried out in three stages:

Stage 1: Establish the English proficiency Index. Combine various measurements of English skills as a comprehensive index to measure English proficiency based on the PSID dataset which includes English reading, writing and speaking.

Stage 2: Included the English Proficiency Index to a standard human-capital-current earnings model (Mincer model). Investigate the effect of language skills on earnings directly based on this model.

Stage 3: An analysis of whether English language proficiency raise the return to education acquired in the source country is based on the human capital current earnings model described above. We then estimate the increase of original human capital transferability with the language skills improvement.

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Project Identity

LLLight'in'Europe is an FP7 research project supported by the European Union, which has investigated the relevance and impact of lifelong learning and 21st century skills on innovation, productivity and employability. Against the background of increasingly complex tasks and jobs, understanding which skills impact individuals and organizations, and how such skills can be supported, has important policy implications. LLLight'in'Europe pioneered the use of an instrument to test complex problem solving skills of adults in their work environment. This allowed for the first time insights into the development of professional and learning paths of employed individuals and entrepreneurs and the role that problem solving skills play. Additionally, LLLight'in'Europe draws on a series of databases on adult competences from across the world to conduct rich analyses of skills and their impact.

These analyses were conducted in concert with different disciplines. Economists have been analyzing the impact of cognitive skills on wages and growth; sociologists have been investigating how public policies can support the development of such skills and lifelong learning; innovation researchers have been tracking the relationships between problem solving skills, lifelong learning and entrepreneurship at the organizational level; educational scientists have investigated how successful enterprises support their workforce's competences; cognitive psychologists have researched on the development and implications of cognitive skills relevant for modern occupations and tasks; and an analysis from the perspective of business ethics has clarified the role and scope of employers' responsibility in fostering skills acquisition in their workforce. The team has carried out its research and analyses on the value of skills and lifelong learning in EU countries, USA, China, Latin America and Africa.

The result is a multi-disciplinary analysis of the process of adult learning and problem solving in its different nuances, and of the levers which can support the development of these skills for both those who are already in jobs, and for those who are (re)entering the labor market, as well as the development of effective HR strategies and public policy schemes to support them.

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This policy brief is part of the publication suite of the FP7 Project LLLight'in'Europe. The publication suite consists of 21 policy briefs, 6 thematic reports and 1 synthesis report. The 21 policy briefs discuss findings and policy implications proceeding from the project's research; they are organized along three level of analyses (persons; enterprise; country) and seven topics.

01	Resources of society for learning
02	Institutions of learning
03	Circumstances of learning
04	Role of transversal skills
05	Role of job-specific skills
06	Productivity of skills
07	Outcomes of skills

This policy brief discusses findings related to **Role of job-specific skills** at the analysis level **country**. For further publications and multimedia material related to the project, please visit www.lllightineurope.com