



Pergamon

Economics of Education Review 22 (2003) 469–480

Economics of
Education Review

www.elsevier.com/locate/econedurev

The complementarity of language and other human capital: immigrant earnings in Canada

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Abstract

This paper analyzes the effects of language practice on earnings among adult male immigrants in Canada using the 1991 census. Earnings are shown to increase with schooling, pre-immigration experience and duration in Canada, as well as with proficiency in the official languages (English and French). Using selectivity correction techniques, it is shown that there is complementarity between language skills and both schooling and pre-immigration experience. That is, greater proficiency in the official languages enhances the effects on earnings of schooling and pre-immigration labor market experience. Language proficiency and post-migration experience appear to be substitutes, that is, those with greater proficiency have a smaller effect of time in Canada on earnings.

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JEL classification: I21; J24; J31; J61

Keywords: Immigrants; Human capital; Language skills; Schooling; Earnings; Canada

1. Introduction

Language skills are a form of human capital. As with other forms of human capital, language skills are created at a sacrifice of time and other resources, are embodied in the person and are productive. Previous research has shown for several immigrant receiving countries that greater proficiency in the destination language enhances labor market earnings and that this investment provides a high rate of return (see, for example, Chiswick & Miller, 1995). Destination language proficiency is presumably also productive in consumption activities, although we do not know of empirical research on this issue.

The purpose of this paper is to extend the analysis of destination language skills among immigrants. It does this in two ways. First, it extends the theoretical work by hypothesizing and then testing for whether destination

language skills appear to be complements or substitutes in generating earnings with respect to other kinds of human capital, namely schooling and pre- and post-migration labor market experience. Second, it uses data from the 1991 Census of Canada to estimate the effect of language usage on earnings among immigrants in Canada. Previous studies for Canada relied primarily on the 1981 census. The analysis of earnings uses the now standard human capital earnings function adjusted to account for immigrant assimilation. The earnings function is estimated overall and using selectivity correction techniques separately by language use categories.

Section 2 outlines the model of the relation between destination language skills and other forms of human capital. Section 3 describes the data used in the analysis, the 1991 Census of Canada. Section 4 presents the human capital earnings function that forms the basis of the empirical analysis and reports the findings of the analysis. Section 5 is the summary and conclusion.

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2. The model

This study is concerned with the impact on earnings of the destination language proficiency of immigrants. Greater proficiency in the destination language can enhance earnings by enabling the immigrants to find a better labor market match between their skills and the requirements of employers (more efficient job search). Language proficiency can also have a direct impact on productivity through more efficient communication, orally and in writing, with supervisors, subordinates, peers, suppliers and customers (higher productivity on the job). This greater efficiency in communication raises the productivity of labor.¹ Hence, earnings among immigrants are expected to be a rising function of the immigrant's proficiency in the destination language.

Destination language proficiency can have indirect impacts on labor market earnings through the effect on the productivity of other forms of human capital. For example, greater destination language proficiency may increase the returns from schooling and labor market experience. Schooling and pre-immigration labor market experience may be of little, if any, value to an immigrant with no knowledge of the destination language. In spite of a high level of schooling and job training this person may be little different from an unskilled worker as far as the destination labor market is concerned. As this immigrant's destination language skills improve, the productivity of the schooling and pre-immigration experience in the destination labor market increases. Hence, it would be hypothesized that destination language skills have a complementary relationship in the labor market with respect to schooling and pre-immigration labor market experience.

There are various forms of destination-specific human capital, only one of which is destination language skills. Those making greater investments in destination language skills may also make greater (or lesser) investments in other forms of destination-specific human capital. These other forms of human capital are not measured directly, but are reflected in the empirical analysis by the variable for duration of residence or length of stay in the destination. If there is a lesser intensity of investment in post-migration human capital other than language skills the effect of duration on earnings is lowered (flattened) for two reasons. One is that foregone earnings are lower if there is less investment, and this mitigates the reduction in earnings in the investment period. The other

is that there is a smaller increase in earnings from the post-migration investments. Then, if language proficiency and other forms of post-migration investments are substitute forms of investment, those with greater destination language proficiency will have a smaller increase in earnings with duration, holding language skills constant. On the other hand, if these investments are complementary, that is, if those who invest more in language skills also invest more in other forms of post-migration human capital, those with greater destination language proficiency will have a steeper rise in earnings with duration, other things being the same.

For a fixed level of post-migration investment, greater investments in language skills imply less investment in other forms of human capital. Yet those with a lower discount rate or a higher level of ability may invest more in all kinds of post-migration human capital. Moreover, if there is complementarity in the labor market between language and other post-migration investments, immigrants who invest more in one form may invest more in both forms of human capital.²

As a result, it is hypothesized that among immigrants greater proficiency in the destination language enhances earnings and enhances the partial effect on earnings of schooling and pre-immigration labor market experience. The effect of greater investments in destination language skills on the partial effect of post-immigration experience is, however, ambiguous. It depends on whether the 'expansion effect' (greater investment in all types of post-migration human capital) exceeds the 'substitution effect' (substitution among sub-types for a given amount of post-migration investment).

3. Data

This study uses the data from the 1991 Census of Canada, Public Use Microdata File (Individuals), 3% sample of the population. The microdata file released from the census contains information on knowledge of the official languages (English and French), knowledge of unofficial languages, the language usually used at home, and mother tongue.³ The information on knowledge of the official languages and home language is used to construct the language proficiency explanatory variables that are the focus of the analysis. Information on mother tongue is used to construct several exogenous variables that serve as identifying instruments in some models (see Appendix).

¹ The Biblical story of the Tower of Babel is relevant here (Genesis, Chapter 11). To thwart the efforts of people to work together to build a tower that would reach Heaven, God inflicted on the populous a multitude of languages. As a result of the increased costs of communication, as the story goes, the tower was never completed.

² This is analogous to the observation that those who invest in more schooling also appear to make greater investments in on-the-job training.

³ For an analysis of these language questions and recommendations for improvements, see Chiswick and Miller (1998).

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