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E-BRIEF

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DEMOGRAPHICS AND IMMIGRATION

Education Quality and Immigrants' Success in the Canadian Labour Market

by
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- One key feature of a well-functioning immigration system is the ability for new arrivals to successfully find well-paid jobs according to their level of education.
- This E-Brief shows that the earnings of foreign-trained immigrants in Canada, however, are likely linked to the *quality* as well as the level of education.
- Because educational quality impacts the ability of new arrivals to find well-paid jobs and immigration screening, rightly, goes to great lengths to avoid potential discrimination, incremental measures to assess education quality, like those explicit in Educational Credential Assessments and implicit in the Express Entry selection process, are good steps forward. These could be complemented by greater efforts to bolster language skills and literacy among new arrivals to Canada.

A critical metric to judge the effectiveness of a country's immigration selection and settlement policy is the relative success of new arrivals in labour markets. Large wage and employment gaps between immigrant and non-immigrant workers mean policymakers could do better in selecting or facilitating the arrival of new immigrants.

In Canada, immigrants earn less than non-immigrant workers with the same amount of education and work experience (Baker and Benjamin 1994). A recent study from Statistics Canada showed wage gaps substantially widened from 1980 to 2005 (Morissette and Sultan 2013).

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Furthermore, new immigrants who landed within the previous five years were almost twice as likely to be unemployed as native-born Canadians in 2015.[1] There is, therefore, room to improve immigrant outcomes in Canada.

The wage differentials between immigrants and Canadian-born workers should, in theory, reflect the differences in human capital and skills. Without a good measure of human capital, people frequently attribute the wage differential to discrimination (i.e., a lower wage paid to an immigrant worker than to an equally productive native-born worker). Notwithstanding discrimination in the labour market, economists have observed the gap in the value of education and hypothesized that educational quality could be a potentially key factor (Chiswick 1978). While an immigrant worker's credentials or skills may not be easily recognized in Canada, it could also be that skill quality developed through education cannot be directly transferred to Canada.

The federal government's points system selects immigrants according to human capital criteria, assigning points based on one's education, language skills, work experience, age, arranged employment in Canada and adaptability. This selection screen was designed to open an equitable door for immigrants to come to Canada based on their quality of human capital, yet some labour-market inequitable outcomes raise questions as to whether the points system screening system misses some factors that drive immigrants' success in Canada.

I argue that while the education level is an imperfect measure of one's skills, the quality of education immigrants received matters. I show the value of education for foreign-trained immigrants in Canada is linked to the quality of education in source countries, using the proxy of standardized test scores.[2] The challenge for policymakers is that Canada's points system treats all education as equal, because including measures of education quality into screening is fraught with logistical and political complications. Incremental measures seem like better solutions, as do efforts to identify other factors that may be influencing the employment and wage outcomes of new arrivals to Canada.

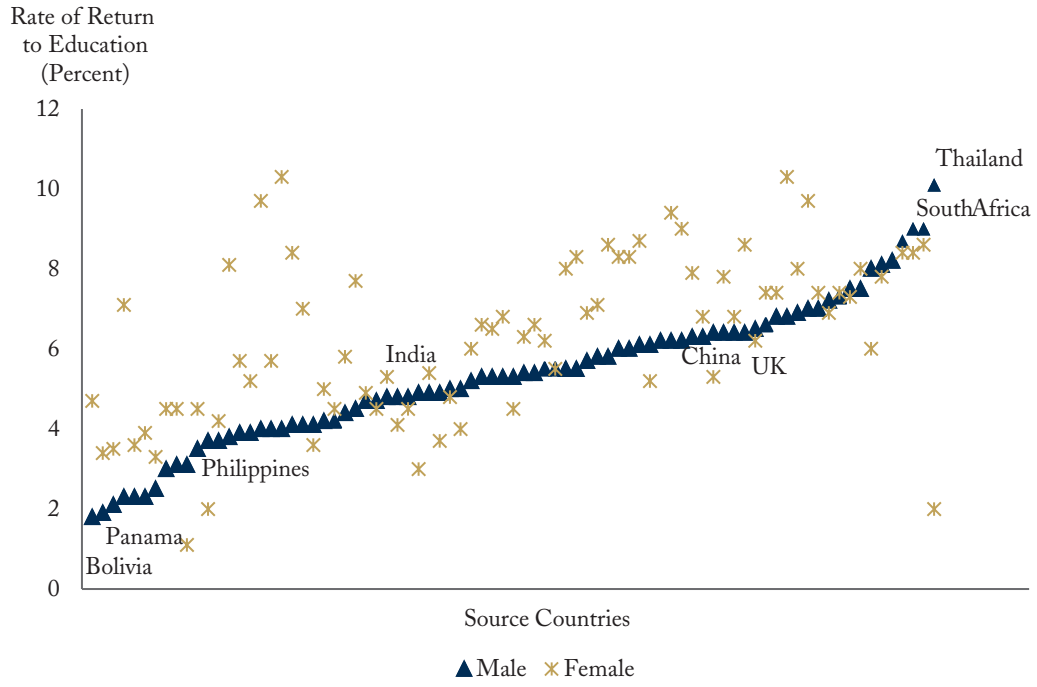
How Much does Foreign Education Matter in the Canadian Labour Market?

I estimate a rate of return to foreign education as the percentage increase in earnings that accompanies an additional year of schooling from an immigrant's country of origin. Figure 1 plots the estimated rates of return to education by sex. When examining the impact of education on earnings, a straightforward analysis finds that an additional year of schooling allows a male immigrant from, for example, India to have an approximately 4.8 percent increase in his annual earnings in Canada (see Appendix for how these results are derived). The range of rates of return to education is quite wide. It can be as high as 10.1 percent for male immigrants from Thailand, and also as low as 1.8 percent for male immigrants from Bolivia.

1 Statistics Canada, CANSIM table 282-0104 (see http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labor91a-eng.htm).

2 Measures of educational quality generally come from one of two sources: schooling system resource inputs such as pupil-teacher ratio (Card and Krueger 1992); and educational achievements such as levels of cognitive skills measured by literacy and numeracy test scores (Ferrer et al. 2006). The overall evidence using the first measure is mixed and conflicting (Hanushek 1986). Rather than using individual-level literacy test scores to evaluate the value of education (Green and Riddell 2003), I use an aggregate-level index from Hanushek and Kimko (2000) as a measure of educational quality by immigrants' countries of origin.

Figure 1: Estimated Rates of Return to Education by Source Countries (countries ordered by rate of return for male population)



Source: Author's calculations.

There are substantial differences between the sexes. In Canada, female immigrants have a higher average return to education (6.3 percent) than that of male immigrants (5.3 percent). Yet, there are some source countries, such as Iceland, in which the estimated return to education for females is quite high (9.7 percent), while that for males is quite low (4.0 percent).

What Explains the Variation in the Estimated Rates of Return to Education?

Using a measure of education quality derived from six rounds of the international tests in math and science between 1965 and 1991,[3] I test whether wages are related to this measure of education quality. The effect of test scores on the estimated rates of return to education show that:[4] immigrants who completed their education

3 Four tests were administered by the International Association for the Evaluation of Educational Achievement and two by International Assessment of Educational Progress. These tests were not influenced by English proficiency differences between immigrants since they were administered in the local language in each country. As such, they are able to effectively capture the quality of source-country education. Using these test scores as a base, Hanushek and Kimko (2000) use information regarding each country's education system and demographics to generate their QL2, which is adopted as the measure of educational quality outcome in this E-Brief.

Table 1: Effect of Test Scores on the Estimated Rates of Return to Education

	Male Immigrants		Female Immigrants			
	All Males		All Females		Female without Children	
Control Variables (see Appendix)	No	Yes	No	Yes	No	Yes
All Sample	✓	✓	✓	–	✓	✓
Selected Subsamples						
No Canadian Education	✓	✓	✓	–	✓	✓
Mixed Education	–	–	✓	✓	–	–
Arrival Before Age 10	–	–	–	–	–	–

✓ = Significant effect.

Source: Extract from Tables 4-6 of Li and Sweetman (2014).

before moving to Canada are strongly influenced by the quality of their source-country educational outcome (Table 1). However, those who had some education in Canada or completed all education in Canada are not affected by the source-country test scores at all.

Increasing the quality of source-country educational outcomes, i.e., test scores, appears to substantially augment the accumulation of skills that are relevant for earnings across years of schooling. Given two immigrants who come from two countries with a different quality of education, the average gap in earnings between the two immigrants becomes larger with more years of schooling obtained from their source countries. After taking into account the full set of country-level variables, including GDP per capita, the magnitude of the quality of the educational outcome is slightly reduced, but remains statistically significant.

What to do?

Refining the points system to fully take into consideration education quality is a complicated task. Although the evidence suggests that immigrants' quality of foreign education affects their labour market outcomes in Canada, attributing quality of education to one's source country is fraught with principled concerns. The points system, rightly, goes to great lengths to avoid any explicit association with source country. Ideally, education quality would be based on the quality of universities or educational institutions, but again creating a metric to assess the quality of global postsecondary institutions is a complicated task.

4 The details of the model identification and the data used are described in Appendix.

5 The organizations designated by Immigration, Refugee and Citizenship Canada (IRCC) that provide an Educational Assessment Report for the immigration process include World Education Services (WES), International Credential Assessment Service of Canada (ICAS), Service, and International Credential Evaluation Service.

Despite education quality explaining large amounts of labour market outcomes for new arrivals to Canada, our points system treats the quality of pre-immigration education as equal: points are awarded to immigrants based only on their education level. However, it would be beneficial to differentiate between both the level and the quality of education, where possible.

The immigration points system has made modest progress on this score. Specifically, points awarded for education from abroad are based on an Educational Credential Assessment (ECA)[5] to validate Canadian equivalency of foreign educational credentials in both the Federal Skilled Worker program and the comprehensive ranking system under the Express Entry system, which selects eligible candidates for immigration to Canada according to their skills and qualifications. Although this assessment seems like an ideal tool to screen for education quality and comparability to Canadian education, there is no detailed information on how degrees are assessed nor how the ECA is applied in screening decisions.

For regulated occupations, education quality is also being addressed by bringing regulators and employers into the selection process under the Express Entry system to, in a sense, validate the applicability of foreign credentials in Canada.

Because one's education level is not a complete measure of one's skills, there may be other factors at play here other than educational quality that influence immigrant's ability to find a job and earn a good wage upon arrival. For instance, language skills can prevent one's educational ability from translating into employment success, so putting more emphasis on language may be a better avenue to improve the link between one's education and employment success upon arrival to Canada (Mahboubi *forthcoming*).

Conclusion

When economists consider human capital, they often recognize that education quality is roughly as important as quantity (Schoellman 2012). The evidence shows that the rate of return to education for foreign-trained immigrants in Canada is related to the quality of educational outcomes in the source country as measured by test scores (Li and Sweetman 2014). In contrast to those who completed their education prior to immigration, immigrants who obtained a mixed education in Canada and abroad, or arrived at a very young age, are not influenced by this educational quality measure. Because our current points system, to a large degree, treats education attainment as equal regardless of quality, policymakers must find innovative ways to ensure a screening process for potential immigrants that is both non-discriminatory and enables a greater likelihood of employment – at good wages – upon arrival to Canada. Futher, better language and literacy skills among immigrants would be another key front to focus policy efforts.

Appendix:

The results in Figure 1 are estimated for immigrants using the pool from the 1986, 1991, 1996 and 2001 Canadian censuses. The selection criteria include immigrants born after 1945, who were at least 25 years old when surveyed, and who worked at least one week during the year. The annual earnings are converted to 2001 dollars using the all-goods CPI and capped at $150,000.

Our first stage regression is used to calculate the rates of return to years of schooling in the source country:

$$\ln(w_{ij}) = a' X_i + \sum_j \beta_j C_{ij} S_i + \sum_j \gamma_j C_{ij} + \varepsilon_{ij}$$

In this specification, a, β and γ are sets of coefficients to be estimated; (w_{ij}) denotes the natural logarithm of annual earnings for immigrant i born in country j; C_{ij} is an indicator which is set to unity if immigrant i is born in country j; S_i is immigrant i's years of schoolings, so $C_{ij}S_i$ is a set of country-specific measures of years of schooling (elements of $C_{ij}S_i = 0$ for observations from source countries other than j); and γ_j captures the country-specific fixed effect. The control variables, comprising the vector X, are the natural logarithms of weeks and hours, an indicator for zero hours, marital status, a quartic in post-immigration potential labor-market experience, three census indicators, up to nine age-at-immigration indicators (for certain subsamples some of the age indicators are not relevant), three indicators of mother tongue (English, French, and both, with neither English nor French omitted),[6] nine provincial indicators, and an urban indicator. Statistics Canada's composite weight is used in the estimation.

The interpretation of the coefficient β is the semi-elasticity of earning with respect to years of schooling; that is, when the year of schooling increases by one, earning increases by approximately 100*coef percent. For example, an additional year of schooling allows a male immigrant from India to have an approximately 4.80 percent increase in his annual earnings because the coefficient β for males from India is 4.8. This rough estimation may result in slightly underestimating the effect. More precise estimates can be calculated as

$$100 \cdot [e^{coef \cdot \Delta schooling}] - 1$$

Note $\Delta schooling$ denotes change in years of schooling. Then an additional year of schooling allows a male immigrant from India to have an approximately 4.92 percent increase in his annual earnings.

The results in Table 1 are estimated using the second stage regression as follows:

$$\beta_j = b_0 + b_1 \text{ Quality}_j + b' Z_j + \mu_j$$

6 In the absence of information on individual-level English proficiency, mother tongue is a powerful variable to some degree in explaining the difference in wages.

The return to schooling coefficients from the first-stage regression serve as the dependent variable and *Quality,* Hanushek and Kimko's (2000) QL2, is an estimate of mean national educational outcomes. National-level average test scores are proved to have substantial impacts on national labour productivity and economic growth (Barro 2001). It might be argued that the school quality indicators are proxying for source-country characteristics, and particular its level of income, which may affect both educational outcomes and immigration patterns. To explore this possibility I employ Z_i, a set of country-specific characteristics including particularly source country GDP per capita from data in the Penn World Trade tables. I use purchasing power parity GDP per capita at 2005 constant prices and calculate the average of GDP per capita by country from 1970 to 1991 (in $US adjusted for inflation) converted into an index with the US equal to 100. Other country-level variables include an indicator for the language of education in the source country commonly being English or French; Gini coefficients obtained from the World Bank database; and continent-level indicator variables for Asia and Africa. The generalized least squares method is employed to control the heteroscedasticity. Weights are generated for each countries using Dickens (1990).

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