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Foreign human capital and the earnings gap between immigrants and Canadian-born workers[☆]

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HIGHLIGHTS

- More than half of young adult immigrants obtain their highest degree in Canada.
- Imputation method underestimates Canadian education for young adult immigrants.
- Country of highest education degree is the most important for immigrant earnings.
- Actual location of study reduces wage penalties associated with countries of birth.
- Portability of foreign human capital is heterogeneous across fields of study.

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ABSTRACT

We use new information on the location of study of immigrants available in the 2006 Canadian Census to estimate returns to Canadian and foreign human capital. We find that controlling for the source of human capital (Canadian versus foreign) helps account for a large share of the immigrant/native-born wage gap. We show that commonly-used imputation procedures (e.g. Friedberg, 2000) that assign domestic and foreign education based on age at arrival tend to overestimate the returns to foreign education and underestimate the returns to foreign work experience. We also find that the immigrant/native-born wage gap is highly heterogeneous across places of birth even after including location of study fixed effects, although this inclusion markedly reduces the negative country of origin effects for countries like China, Pakistan, and India. Finally, we note substantial heterogeneity in the portability of human capital across fields of study.

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1. Introduction

Immigrants have not fared well in the Canadian labour market recently. Over the last three decades a number of studies have documented a steady decline in their earnings relative to those of the Canadian born (see for instance Grant, 1999; Green and Worswick, 2012; Frenette and Morissette, 2005 and Aydemir and Skuterud, 2005).¹ Immigrants to Canada in the 1990s earned around 30 to 40 percent less than Canadian-born workers upon arrival. By contrast,

¹ Baker and Benjamin (1994) and Bloom et al. (1995) are among the first to show the deterioration of immigrant earnings in Canada.

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cohorts arriving in the late 1970s faced an initial wage gap of 13 to 20%.² This paper draws on the 2006 Canadian Census and uses explicit information on the location of study of the highest post-secondary degree attained to better understand the sources of the current immigrant/native-born wage gap.

Starting with *Chiswick (1978)*, studies have suggested that the lack of transferability of human capital is a key reason why immigrants tend to earn less than the native born. *Borjas (1985, 1995)* argues that in the case of the United States, these findings could reflect changes in the skill levels or ability of recent immigrant cohorts from new source countries. Indeed, while most immigrants in the 1960s were from countries culturally similar to Canada (Western Europe and the United States), about two thirds of immigrants arriving in the 1980s and 1990s were from Asia, Africa, and Central and South America. *Friedberg (2000)* uses the 1983 Israeli Census to analyze how differences in the returns to foreign and native schooling, and to work experience contribute to the immigrant/native-born wage gap. The study also highlights the level of heterogeneity of the returns to foreign schooling by source country; returns to education abroad are higher for immigrants from Europe and the Western Hemisphere, compared to those from Asia and Africa.³

The Canadian literature (*Ferrer and Riddell, 2008; Ferrer et al., 2006; Aydemir and Skuterud, 2005* among others) also suggests that years of schooling and experience accumulated prior to arrival are much less valued than those acquired in the host country. *Ferrer and Riddell (2008)* focus on the effect of credentials (degrees and diplomas) on the earnings of immigrants to Canada, holding constant the number of years of education. Using public-use Census files from 1981 to 2001, they find substantially lower returns to foreign education and experience compared to Canadian education and experience. *Aydemir and Skuterud (2005)* also use the Canadian Census files (1981–2001) to analyze the decline in entry earnings of recent immigrants. Their analysis assesses the relative importance of previous explanations suggested in the literature. The results suggest that about a third of the decline in immigrants' entry earnings is due to the decrease in the return to foreign work experience.⁴

To explore the potential skill gaps behind the lower returns to foreign education, *Ferrer et al. (2006)* combine data from the 1994 International Adult Literacy Survey (IALS) and the 1998 Ontario Immigrant Literacy Survey (OILS) to compare the (usable) cognitive levels of male immigrants and the Canadian born, and analyze any differences in returns. They do not find any difference in the returns to literacy between immigrants and the Canadian born, but because the native-born literacy distribution dominates that of immigrants, literacy skills are found to be a significant factor explaining the immigrant wage gap. For example, among the university educated, the inclusion of literacy skills helps explain about two thirds of the earnings differential between immigrants and the Canadian born.

In Census data more generally, estimating the contribution of foreign education and experience to the immigrants/native-born wage gap presents a substantial challenge given that the information on the country where the highest degree was obtained is typically unavailable. Researchers have, thus, attempted to infer the location of study by comparing the age at which an immigrant should have

completed the highest degree she reported to her age upon entering the country.⁵ For example, *Friedberg (2000)* imputes immigrants' years of schooling in the home country based on the assumption that children begin schooling at age 7 and attend school without interruption until their departure. *Bratsberg and Ragan (2002)* follow a similar strategy using the 1990 U.S. Census to estimate differences in the returns to education for immigrants with and without U.S. schooling.⁶ Their principal findings are similar to *Friedberg's* findings for Israel.⁷ This approach may fail, however, to correctly identify the country where education was acquired. Immigrants may have worked in Canada for a number of years before starting to study for their final degree. For instance, a 40-year-old immigrant with a MBA who arrived in Canada at age 25 may very well have completed that degree at a Canadian university after the age of 25.

Additionally, in the case of Canada, foreign-born individuals may complete their studies prior to being officially classified as immigrants. In the Canadian Census, age at immigration is the age at which an individual becomes a permanent resident of Canada. Foreign students who attend university in Canada and become permanent residents after finishing school would, therefore, be misleadingly classified as recipients of a foreign degree.

Fortunately, the long form of the 2006 Canadian Census included a question asking where the respondent's highest degree was obtained. The location is recorded either as a country, in the case of those who studied abroad, or as a province, in the case of those who studied in Canada.⁸ While direct information on location of study has been used in other studies, here we can perform a much more detailed analysis (by country of origin, age at arrival, and gender) owing to the large sample available in the master files of the 2006 Canadian Census (covering 20% of the Canadian population). *Ferrer et al. (2006)* also have information on immigrants' level of education achieved before coming to Canada and their highest level of schooling completed. Nonetheless, the statistical power of their analysis is limited by the size of their sample (2015 observations, mostly from Ontario). This makes it difficult, for instance, to estimate country of origin effects, or differences in the returns to foreign human capital by country of origin. As a result, *Ferrer et al. (2006)* only include two country of origin dummies (for immigrants born in the US/UK, and in continental Europe, respectively) in their analysis.⁹ Furthermore, they still need to impute the precise location of study for immigrants arriving with more than a secondary education.¹⁰

In addition, the 2006 Canadian Census also includes information on field of study, which enables us to investigate whether education in some fields (e.g. math and computer science) is more portable than

⁵ For instance, one may assume that an immigrant with a BA degree who came to Canada at age 30 completed her degree abroad prior to immigrating.

⁶ *Bratsberg and Ragan (2002)* determine the age of graduation based on the reported years of education and the assumption that schooling begins at age 6. Immigrants arriving at an age younger than the presumed age at graduation (years of completed schooling plus six) are classified as having U.S. schooling.

⁷ *Bratsberg and Ragan (2002)* find that immigrants with U.S. schooling earn higher wages than immigrants without U.S. schooling. Their results also indicate that returns to foreign schooling are significantly higher for immigrants who completed some of their studies in the United States. However, this last finding is based on the National Longitudinal Survey of Youth, a small (351 immigrants) and not representative survey of U.S. immigrants.

⁸ Consider an immigrant with a high school diploma who comes to Canada at age 25 and then completes a two-year community college program. Since one would normally complete such a program at age 20, the imputation procedure would suggest that the immigrant received all her schooling abroad despite the fact the two-year community college program was actually completed in Canada. With the new information available we can distinguish both sources of human capital and correspondingly recalculate years of work experience abroad and in Canada.

⁹ No statistical difference was found for the other country of origin dummies.

¹⁰ The OILS has direct information regarding the highest level of schooling attained before arriving to Canada, but not where it was obtained. It only has a question on the precise location of study for secondary education.

² *Frenette and Morissette (2005)* used Canadian Census data from 1980 to 2000 to calculate these figures. They also show that the wages of immigrants who arrived in the 1970s had almost converged to those of their native-born counterparts fifteen years after their arrival. For cohorts arriving in subsequent years, such a convergence did not happen.

³ The paper also suggests that acquiring further education in the host country may increase the overall return to education.

⁴ They also find that changes in knowledge of Canada's official languages (English and French) and regions of origin can explain at most a third of the deterioration in earnings.

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