

**Are Immigrants' Human Capital Skills
Discounted in Canada?**

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Abstract

This study assesses the economic value of immigrants' human capital. Labour market experience and education obtained in foreign countries are significantly discounted in Canada. The economic return to a year of foreign experience is about one-third the value of a year of domestic experience, and the return to foreign education, while positive, is worth about twenty-five percent less than a year of education for a native-born Canadian. The differences in incomes between native and foreign-born Canadians can be fully explained by different returns to human capital.

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I. INTRODUCTION

The income differences between native and foreign-born Canadians have been studied a great deal over the last couple of decades. Do immigrants earn less than those born in this country? If so, by how much, and what are the factors which seem to underlie this gap? Do they catch up over time? Have these relationships changed for more recent arrivals?

The answers to these and other questions are interesting not just for academic reasons, but also for their policy implications regarding the economic, social and political integration of immigrants into the Canadian mainstream. And this especially at a time when the numbers of immigrants entering the country remains high and the character of the immigrant population in terms of racial make-up and country of origin has been changing.

One general finding in this literature is that after controlling for various related factors (including years of education and labour market experience), immigrants appear to start at a distinct earnings disadvantage relative to native-born Canadians when they enter the country, but narrow this gap over time. It is open to debate whether or not the earnings differences between the two groups is ever fully eliminated (Baker and Benjamin [1994]), but there seems to be general agreement that the initial earnings gap has widened and the catch-up rate has slowed for non-white immigrants who have arrived in Canada since the 1980s.

Since Chiswick's [1978] seminal article, another wide-spread finding is that the economic returns to human capital, especially education, appears to be lower for immigrants than the native-born. Specifically, even though the levels of human capital of immigrants, such as years of schooling, degrees held, and years of experience, are often higher than for similar native-born Canadians, the economic rewards that the foreign-born receive for these skills is lower.

This apparent discounting of foreign credentials, especially for those of non-European origins, could occur for a number of reasons. One possibility is pure racial discrimination. A second is that immigrants' English and French language skills prevent them from fully utilising – and thus fully receiving the benefits of – their educational qualifications. The quality of the foreign education and experience credentials held by immigrants might, on average, be lower than those of native-born Canadians. Alternatively, perhaps the particular *type* of immigrants' education or work experience is not as well suited for the Canadian economy as those of the native born (Reitz [2000], Murnane, et. al. [1995]). Another possibility is that Canadian employers lack the information

required to evaluate, and thus fully remunerate, immigrants' labour market and education experiences. Finally, certain types of skilled trade workers and professionals might have difficulty in obtaining Canadian accreditation for the standing they held in their countries of origin.

The contribution of this paper is to report the results of an empirical examination exploit of the returns to foreign-obtained education and labour market experience for male immigrants to Canada, and to compare these returns to those received by native-born Canadians, as well as to the returns immigrants receive for these same skills when they are obtained in Canada. The analysis is facilitated by a relatively unique data set which allows us to control for not only immigration status, race, and other standard variables, but also tested level of literacy and, most importantly, the country in which the individual's education and work experience were gained (i.e., Canada or in the country of origin). The goal of this research is to see to what degree immigrants' human capital skills are transferable from their home countries to Canada, and to then discuss the policy implications of these findings.

II. PREVIOUS RESEARCH

Studies on the economic status of immigrants abound, and many of these focus on their initial earnings disadvantages relative to native-born Canadians and the degree to which they close that gap in the years following their arrival, and there is little need to review that literature here.¹ Our focus is on the educational attainment and work experience of immigrants and how these skills contribute to their earnings levels in Canada.

¹ See Borjas [1999] for a comprehensive survey of the literature, and Baker and Benjamin [1994, 1997] and Bloom Grenier and Gunderson [1995] for recent treatments. The earlier Baker and Benjamin piece and the Bloom, Grenier and Gunderson article paint a particularly bleak picture of the immigrant assimilation process. Both studies indicate a serious decline in the economic status of immigrants in Canada. Bloom, et. al., for instance, find that the 1981-85 immigrant cohort group start at a 34 percent earnings disadvantage compared to native-born Canadians, while the 1976-80 cohort started at a 19 percent disadvantage.

Pendakur and Pendakur (1998) use 1991 Census data to find significant earnings gaps between whites and non-whites not explained by differences in the usual standard human capital measures, and then

examine the importance of the non-recognition of foreign academic credentials to these gaps. For males, they find that individuals from the United States and United Kingdom who are assumed to have been educated in their country of origin actually earn significantly more than immigrants from those countries who finished their education in Canada. In contrast, degree holders from central Europe face a definite earnings penalty (13.5 percent) compared to those who finished their schooling in Canada. Somewhat surprisingly, they find no earnings disadvantage for men who finished their schooling in Southern Europe, Asia or Africa. Given these findings, the country in which the individual finished his degree does little to help explain the native-immigrant earnings gap. In the case of women, individuals who obtained their degrees in the US, UK, Asia, and Africa earn less than comparable immigrants who obtained their degrees in Canada. [*****

Ron: role in explaining the gap? Skip that because it's women?]

*

What's wrong with the stuff I put together from the preceding draft? I will, in the absence of seeing anything on those articles, splice it in here. Now, I wrote that as best I could based on what you had in your draft, without reading the papers myself, so I do not attest to the accuracy in what I have written. Still, these seem to be articles which address this issue of where the human capital was obtained, and should thus be included, if perhaps more briefly. Edit it from there? This selection stops at the next line of stars below.

Hum and Simpson [1999] use the Survey of Labour and Income Dynamics (SLID) also examine the earnings of a variety of minority groups, and in doing so control for the amount of foreign education. They find that being educated primarily outside Canada has little effect on the earnings of men or women for either visible minorities or others. While their identification of foreign education is explicit, rather than an imputation based on age at immigration [****Ron: true?], they include only a single indicator variable of this type, thus covering all groups and all experiences together.

Using 1996 census data, Li [2001] compares the market worth of foreign and domestic degrees – again based on imputations of where the individual finished his or her schooling.² Controlling for gender and visible minority status in a standard human capital earnings function, he finds foreign credentials to have only a minor effect on the earnings of immigrants.

In a slightly different vein, Reitz (2000) attributes the recent declines in employment rates and earnings levels of newly-arrived immigrants, including skilled immigrants (degree holders) and whites along with visible minorities, to increased native-born educational levels, especially in those areas where immigrants have traditionally had an advantage and where a degree is essential, such as the professions. More specifically, during most of the period under investigation (1971-1996), native-born educational levels rose more rapidly than those of immigrants, and native-born Canadians were moving into areas of education more suited to a knowledge based information economy than were immigrants.

² Li uses a topology of four kinds of degree holders. Native-born Canadians were assumed to have obtained their degrees in Canada. Immigrants who arrived in the country before the age of 13 were assumed to have obtained a Canadian degree. Individuals who immigrated to Canada after the age of 24 were assumed to have a foreign degree. Those who immigrated between the ages of 13 and 24 were classified as “mixed education degree-holders”. See also Li [2000, 2001] and Satzewich and Li [1987]).

Of probably greatest pertinence to this paper, however – certainly in terms of methodology – is a recent piece by Friedberg [2000]. She explicitly models the different returns to human capital skills acquired inside and outside the host country, and then estimates that model using data from the 1983 Israeli Census of Population and Housing. The returns to education obtained outside Israel are lowest for men from Africa and Asia, while the highest returns are for immigrants from Western Europe and North America. [*****Ron: A word or two on experience effects?] Estimating a “conventional” model similar to the ones which characterise the Canadian literature, immigrants are at a 25 percent earnings disadvantage upon entering Israel [*****Ron: and then catch up with a YSM term?], but this gap [these dynamics?] are fully explained by the lower returns to human capital obtained in the immigrants’ countries of origin which are found when the model is expanded to allow for these effects.

In a similar vein, but using a different approach better suited to their data (which does not explicitly identify the country in which the individual’s schooling or work experience was obtained) Schaafsma and Sweetman [2001] use the 1986, 1991 and 1996 Canadian census micro data files to examine the relationship between age at immigration and earnings in Canada. They find that foreign work experience seems to have little impact on immigrants’ earnings in Canada. They also find that individuals arriving at an early age – and who may thus be presumed to have obtained more of their schooling in this country – have a return to education similar to the native born, whereas those who arrived later have increasingly reduced returns to education. [*****Ron: I think it would help if we could relate our model and findings more directly to S and S.]

NOTE THAT THE MARGINS GET SCREWED UP IN THE NEXT FEW LINES. YOU WILL HAVE TO FIX THIS. FUCKING WORDPERFECT!!! YOU SHOULD ALSO TRY TO

GET MORE OF EACH EQUATIONS ON A GIVEN LINE SO THEY AREN'T SO SPREAD OUT.

III. MODEL AND DATA

The standard specification for the earnings function used in the immigration literature is:

(1)

where y is the log of earnings (or income), ED is years of education, EXP is experience or some equivalent proxy, YSM is years since migration, IM is a dummy variable identifying an immigrant, and μ is the error term. Most importantly, equation (1) assumes homogeneity of the returns to education and experience for immigrants and the native-born.

If, however, the returns to foreign education or work experience differ from those obtained in the host country, Equation (1) will yield biased results – or rather, it does not explain the underlying factors which generate the observed patterns. That is, the traditional specification does not explain the initial immigrant earnings gap and subsequent catch-up to the native born in terms of the levels of, and returns to, the different types of human capital they possess.

We thus follow Friedberg [2000] in specifying education as $ED = ED_F + ED_C$ and experience as $EXP = EXP_F + EXP_C$, where the subscripts stand for foreign (F) and Canadian (C). That is, immigrants can have been educated or worked abroad, in Canada, or a combination of the two. Returns are allowed to differ for all three “types” of human capital: the education and experience gained by immigrants in their countries of origin, the human capital they obtain in

Canada after arriving, and the return to native-born Canadians' investments (assumed to have occurred in this country).³ Ignoring the non-linear experience and YSM terms for the moment, we thus write:

(2)

[*****Ron: The following paragraph is new. It responds to questions I have had from the beginning, and a couple of good questions posed after my Toronto presentation by Chris Worswick and Jeffrey Reitz. I think it is right, and does the job. But please check.]

The original model (Equation (1)) can now be seen as imposing the restrictions that $\alpha_2=\alpha_3=\alpha_4=\beta_1$ and $\alpha_5=\alpha_6=\alpha_7=\beta_2$, with β_0 then picking up the correlations of any of these constrained effects with the IM (“initital gap”) variable. In particular, it will pick up the effects of any discounting of immigrant’s human capital in Canada – without identifying these effects as such or properly separating them out. Another way to look at the difference between the two specifications is to recognise that $EX_C=YSM$ for all those who immigrate after they have finished their schooling, meaning that we would expect the coefficients on these two variables to be the same in the two specifications (i.e., $\beta_5=\alpha_7$ – again ignoring the non linearities) if the simpler model holds. In short, Equation (2) essentially has Equation (1) embedded within it, and thus tests the restrictions it imposes. If Equation (2) fits better, it provides a fuller, more detailed perspective of immigrants’ earnings experiences in Canada.

³ The YSM term is now dropped because for most individuals it is equal to experience in Canada.

Our analysis uses the Survey of Literacy Skills Used in Daily Activities (LSUDA) database, which has previously been used by researchers to link individuals' incomes to their literacy levels.⁴ For our purposes, the LSUDA has several distinct advantages over other well known databases such as Canadian Census. First, it contains information on individuals' reading skills, scored from 0 to 500, as tested in the language of choice (English or French). This is particularly useful for our analysis, since in many cases immigrants' first language is not English or French and any deficiency in their language skills could get picked up by the foreign education and experience variables in the absence of such an explicit measure of literacy. Second, individuals' ethnic background is identified, thus enabling us to identify individuals of white (European) and visible minority (non-European) backgrounds.

Probably the most important advantage of the LSUDA, however, is that we can identify where individuals obtained their education – inside or outside Canada. Individuals were asked if they were born in Canada and, if the answer was no, they were asked the highest level of education obtained outside the country and in a number of cases [*****RON?] their actual years of education abroad. All individuals, both immigrants and non-immigrants, were also asked their level of education obtained in Canada. From this information it is possible to determine an immigrants' foreign education (ED_F) and Canadian education (ED_C). The LSUDA also contains information on an individual's age, year of immigration, and age at immigration for the foreign-born, and unlike many other data sources, such as the Canadian Census, this information is given precisely in the master file used in this analysis, and we are thus not restricted to using coded categories of these variables. From this information we can, using Mincer's identity, calculate foreign experience (EX_F)

⁴ For a discussion of the LSUDA file see Statistics Canada (1991a, 1991b). For a more critical discussion of the data base, see Charette and Meng (1998).

for immigrants and Canadian experience (EX_C) for both populations.⁵ [*****RON: I AM NOT SURE I UNDERSTAND THIS FOOTNOTE.]

The LSUDA file comprises a weighted survey of 9,455 people, 16 to 69 years old, living in Canada in 1989. Our sample is restricted to individuals aged 21 to 64 who can be identified as being an immigrant or native-born. They were not in school at the time of the survey, not self-employed, and worked at least 26 weeks in the previous 12 months. Since we use Mincer's identity to proxy experience, we restrict our analysis to the male population. One drawback of the LSUDA file is that we are forced to use annual income, rather than earnings, as the dependent variable. Earnings comprise most of total income for prime age men, though, so our analysis is not likely to be suffer greatly from this restriction. Our final sample consists of 2,102 men, 1,851 of them native-born, 251 being immigrants.

Table 1 lists the sample means of the variables which enter the analysis. Immigrants are, on average, five years older than native Canadians (42 versus 37). They also have more years of education (13.4 years versus 12.4), with 74 percent of it obtained before immigrating, and more experience (23.7 versus 19.6), 70 percent gained abroad. They have been in Canada an average of 20 years, having arrived at an average age of 22. Immigrants are more likely to live in larger cities, and are more concentrated in Ontario and British Columbia than the non-immigrant population. Average (log) incomes for the two groups are almost the same (10.35 versus 10.31). Immigrants are less fluent in English or French, as indicated by their literacy test scores – perhaps not surprising given that over one-third of them are visible minorities (Statistics Canada definition).

⁵ In order to avoid double counting of either education or experience or logic errors, before and after immigration, we used Friedberg's model (2000, eq. (2)-(8)). The only difference in the methodologies is that she had to assume that if foreign experience is greater than zero, domestic education equals zero (fn. 9). We do not have to make this assumption.

**** SAME MARGIN PROBLEMS. USE STYLES!!! MUCH EASIER TO WORK WITH IN EVERY WAY.

IV. EMPIRICAL RESULTS

IV.1 Pooled Estimates

Table 2 presents our basic results for the combined native-born and immigrant samples. Column (1) lists the estimates for a simple human capital earnings function similar to that found in most of the immigration literature – that is, it does not take account of where the immigrant obtained his education and experience, and includes a years-since-immigration variable (YSM).⁶ Upon entering the country, immigrants' incomes are approximately 24 percent less than those of the native-born, after which their incomes appear to catch-up by 0.64 percent for each year in the country. The overall return to an additional year of education is approximately 7.7 percent, and the return to experience is 1.5 percent per year.

Column (2) includes both pre and post immigration experience and education. The returns to domestic experience (EX_C) and education (ED_C) are still constrained to be equal for both groups. The results clearly indicate that the standard specification listed in column (1) yields biased estimates and an unrealistic picture of immigrant assimilation. The immigrant coefficient is statistically insignificant, implying that modelling human capital before and after arrival in Canada explains virtually the entire income gap between the two groups. The rate of return to schooling for immigrants and the native-born inside Canada (ED_C) is 7.75%, while it is 7.54% for foreign years

⁶ Including a squared YSM variable does not change the qualitative nature of the results.

of schooling for immigrants. The return to foreign experience is only 0.94% per year and it is 1.6% per year for domestic experience.⁷

Equation (2) above includes interaction terms for differences in returns to domestic experience and education for natives and immigrants. These results appear in column (3). The immigrant coefficient is insignificant, and the return to foreign human capital is still less than domestic human capital. The return to foreign education is 6.3%, while native-born Canadians receive approximately 8.0%. Immigrants educated in Canada also receive a lower return to domestic education than do the native-born by about 1.9%. Interestingly, the return to pre and post immigration is about the same for the foreign-born. Foreign experience is insignificant and the size of the coefficient is half of what it is for natives. One important additional result emerges from equation (3), immigrants return to domestic experience actually exceeds the native-borns' by about 0.6% a year.

The estimates presented in column (4) control for possible non-linearities in life-cycle incomes, something that was omitted in Friedberg's (2000) analysis. The coefficients for the squared terms are significant and the equation does explain more of the variation in incomes

than equation (2). The return to foreign education is 6.5% and the return to domestic education is 7.0%. While both coefficients drop in size the gap between them widens. The returns

⁷ We re-estimated the basic equation seen in column (2) but only allowing for one of either the foreign education or experience variables to vary with the following results:

$$\begin{aligned} \ln y = & 9.049 - 0.0672 \text{ IM} + 0.0771 \text{ ED} + 0.0090 \text{ EX}_F + 0.059 \text{ EX}_C, \text{ and} \\ & (1.82) \quad (19.72) \quad (2.68) \quad (15.44) \\ \ln y = & 9.024 - 0.0695 \text{ IM} + 0.0158 \text{ EX} + 0.074 \text{ ED}_F + 0.0793 \text{ ED}_C \\ & (1.30) \quad (15.00) \quad (13.53) \quad (19.74) \end{aligned}$$

to different types of experience also widens. As an example, the benefit of 4 years of foreign experience yields a total return of 7.6%, while four years of domestic experience yields a total return of 19.3%. In other words, one year of domestic experience generates the same return as two and one-half years of foreign experience. Unlike Friedberg (2000) and Schaafsma and Sweetman (2001) we do find that foreign experience does contribute to current income, although the net effect is noticeably smaller than domestic experience.

Given the superior explanatory power of the non-linear estimates we primarily focus on these equations. Columns (5) and (6) repeat the estimates reported in (4) controlling for ethnicity (Vismin), tested literacy (Lit), region and city size and the interaction of immigration and race. Inclusion of these variables does not change the insignificance of the immigrant variable. With the inclusion of literacy, the return to both foreign and domestic education, not surprisingly, falls. If literacy is a distinct measure of human capital, and if it is omitted from an income specification model, as it usually is, then the parameter estimates on education should be biased upward. This results from the expected positive coefficient on literacy and the positive correlations between literacy and education ($\rho=0.50$). The overall discounting of a foreign education relative to a Canadian education (Col. (5) and (6)) and a Canadian education for an immigrant relative to the native-born (Col. (6)) remains the same.

Column (5) indicates that minority incomes are significantly less than whites by an average of 10%. Residents of Ontario and those who live in large cities usually have greater incomes than others. Finally, literacy has a very strong influence on incomes. Using the estimates

In both cases, the entry effect falls significantly, indicating that both foreign education and experience contribute to explaining the income gap between immigrants and native-born Canadians.

in column (5) as a reference, and evaluated at the sample mean, a 15% increase in the literacy score leads to a 6.8% increase in annual income.

The inclusion of interaction terms for immigrant domestic education and immigrant minorities (Col. (6)) does affect our overall results. Visible minority immigrants earn substantially less than white immigrants, but native-born minorities' incomes actually exceed Canadian born whites by almost 15 percent.

IV.2 Separate Estimates

The results for separate native and immigrant estimates are shown in Table 3. The return to education is lower for immigrants than for those born in Canada. Using our baseline estimates, columns (1) and (4), the results for the native-born population indicate the return to education, is about 7.4% and the return to an additional year of experience is 5%. The return to education for immigrants is 5.3%, while the return to pre-migration experience is 1.5% and post-migration experience is 5%. The estimates presented in columns (2) and (5) also control for regions and city size. Finally, the last set of estimates, (3) and (6), include the ethnicity and literacy variables. When controlling for other exogeneous factors some interesting results emerge. First, in the native equations, visible minorities have greater incomes than do whites. This finding is similar to Finnie and Meng's (forthcoming).⁸ Second, language skills have an especially strong impact on the incomes of native-born Canadians. Inclusion of the literacy term also helps to reduce the return to education and increase the return to work experience.

⁸ Finnie and Meng (forthcoming) find that native-born Chinese-Canadian men have particularly high incomes relative to whites.

The income equations for immigrants indicate that visible minorities make about 23% less than white immigrants, a result similar to Hum and Simpson's (1999) and Finnie and Meng's (forthcoming). Literacy skills do not apparently have an independent impact on incomes, although like Table 2 inclusion of both terms does increase the size and significance of foreign experience and reduce the education coefficients. The return to foreign experience is still significantly less than domestic experience. A one year return to domestic experience is worth about 2.8 years of foreign experience.

The results presented in Table 3 demonstrate that visible minorities born in Canada have greater incomes than native-born whites, while the opposite is true for the immigrant sample. The estimates presented so far may yield an inaccurate picture of the discounting of immigrant human capital because of the possibility of discrimination against minorities. If immigrants of colour make up over one-third of the entire immigrant population the returns to human capital will be lower, which will not be accounted for by a single minority dummy variable.

The first three columns of Table 4 repeat some of our earlier regression equations for immigrants along with variables interacting visible minority status with human capital accumulation. Column (1) replicates our baseline linear immigrant income equation with $Vismin$ times ED_F , $Vismin$ times ED_C , $Vismin$ times EX_F , $Vismin$ times EX_C and $Vismin$ as independent variables. Column (2) repeats our baseline non-linear estimates with the $Vismin$ interaction terms, while column (3) adds the other explanatory variables used in our model.

Our results can be summarized succinctly. Except in one or two cases, the interaction terms in the three equations are statistically insignificant, indicating no differences between whites and minorities in the return to human capital. Our estimates imply there is little evidence that the large fraction of visible minority immigrants biases our results.

Many immigrants complete their schooling in Canada, although they may have started their education in their country of origin. There is a possible interaction between foreign and domestic education, as well as between foreign and domestic work experience. Columns (4) and (5) of Table 4 include four interaction terms between domestic and foreign human capital. In the case of education completing school in Canada raises immigrants' incomes by about an additional one half of one percent a year ($ED_F \times ED_C$). In general the education and work experience interaction terms are significant, although the cross effects are not ($ED \times EX$). The results indicate that additional education after immigration ($ED_F \times ED_C$) as well as work experience ($EX_F \times EX_C$) does positively contribute to current incomes. Accumulated human capital in Canada does help some immigrants to convert human capital brought into the country. While EX_F has no direct impact on current incomes, as indicated by the t-statistics, the interaction of foreign and domestic experience does have effect.

Some of the differences seen so far concerning the return to education maybe suspect because of the inclusion of a single variable measuring years of education. Even for immigrants where ED_F and ED_C are controlled for problems can still emerge if the return to education is non-linear. Suppose there are decreasing returns to education, and further suppose that an immigrant finishes his high school equivalency in his country of origin and then comes to Canada and eventually obtains a Canadian degree. If native-born Canadians, on average have fewer years of education than immigrants the latter's return to years of schooling will be lower than the former's'.

In order to control for this possibility we divide years of education into three categories; less than high school (LTHS, years 1-11), secondary school graduate and up to and including some university (SEUN, years 12-14) and university graduate (GRAD, years 15+). If a

person has a university degree they would have $LTHS = 11$, $SEUN = 14$ and $GRAD = 15$. If he dropped out after grade 10, $LTHS = 10$ and $SEUN = GRAD = 0$.

The estimates appear in Table 5. The results for both populations indicate that the return to education is non-linear. For natives less than high school has the highest return, followed by university graduates and then the intermediate group.

For immigrants the results are quite different. Immigrants still receive a lower return to education, except for those with a Canadian degree (2.3%). Column (4) indicates that the differential between a foreign degree and domestic one is 1.3%. Clearly foreign degrees are discounted when compared to a Canadian degree. Interestingly, immigrants with less than a high school education abroad earn slightly more than their fellow immigrants with the same credentials obtained in Canada.

Overall, native-born Canadians receive a significantly higher return for lower levels of education than do immigrants. The point estimates for $LTHS_C$ are less than half the size for immigrants compared to native Canadians. The t-statistics are also statistically insignificant. Only at higher levels of education does the relative return to education improve for immigrants and then only if they obtain a Canadian degree.

IV.3 Foreign vs. Domestic Degrees

Finally, we examine the returns to a foreign degree and a degree obtained in Canada for both groups. Since there is a strong correlation between a foreign degree and years of foreign education we cannot use the model employed above. Instead, we created a series of dummy variables for an individual's highest level of education in Canada or abroad. The LSUDA data file is particularly useful here because we can identify whether an immigrant only has a foreign

degree(s) (FORDG), only has a Canadian degree(s) (ICANDG), or has at least one degree from a Canadian university and one from abroad (BOTHDG). It is assumed that native-born Canadians obtained their degree(s) in Canada (NBDG). Because of the structure of the LSUDA questionnaire, we cannot identify native-born multiple degree holders, while we can only identify immigrants' with more than one degree if they obtained at least one degree abroad and at least one in Canada..

Our results appear in Table 6. The independent variables control for the highest level of education in Canada or elsewhere. The omitted category is high school diploma or less.⁹ In addition to the degree variables we include whether the person has obtained or attended a trade or vocational school (TRADE) or has a diploma or certificate below a university degree (DIP). The native-born would have obtained their education in Canada (NB), while immigrants could have either had their highest level of training in a foreign country (F) or in Canada (IC). Finally, we control for education up to the end of high school (EDHS). If a respondent has more education than a high school diploma, then EDHS=12. If they did not complete high school, their actual years of education was used. For immigrants we interact EDHS with where they obtained their high school education (Fored or Caned). (Ross: give argument).*

Since our primary interest lies in the return to education we will focus on these results. Having a trade indicates that immigrants who obtained their skills abroad ($TRADE_F$) earn more than the reference group or those who learned their skills in Canada ($TRADE_{IC}$). Meanwhile, there is a significant return for the native-born ($TRADE_{NB}$). Given the heterogeneity of this group one should be careful in interpreting these results too closely. The return for a diploma below a

⁹ The reference group, of course, includes both immigrants and non-immigrants so the results are not directly comparable to those presented in Table 5.

university degree is, once again, the highest for native Canadians, followed by (surprisingly), immigrants who obtained their certificate from abroad, and lowest return is for immigrants who obtained their diploma in Canada.

Concerning the four degree variables, column (1) indicates the highest return is for individuals who have at least two degrees, one in Canada and one from abroad. On average their incomes are 57% higher than those with a high school diploma or less. We also find very little difference between the native-born (NBDG) and immigrants who obtained their degrees in Canada (ICANDG). *Ceteris paribus*, the return to a foreign degree is essentially zero. Column (2) includes the other explanatory variables in our model. The return to foreign education below a degree is still essentially zero. Meanwhile the highest return for degree holders in BOTHDG (53%), followed by ICANDG (39%), and NBDG (31%).

Finally, one last question emerges concerning foreign and domestic degrees. Does ethnicity and race influence the return to a degree? In order to see if this is true, we interacted *Vismin* with the four degree variables in our full non-linear model. These results appear in column (3). Statistically, there are no differences in the rates of return for native-born minorities and whites and immigrant minorities and whites who obtained a Canadian degree. However, the incomes of minorities with only a foreign degree are substantially less than white immigrants with a foreign degree. The return to a white immigrant is now 23% above the reference group, while minorities make slightly less than the reference group. (Is this correct?) Interestingly, minorities who have at least one degree from Canada and abroad have a very significant income premium compared to whites with the same credentials.

Column (4) lists all the variables used in our model. Again, the overall pattern of the return to a degree holds. Minorities with multiple degrees do exceptionally well, while those

with only a foreign degree do very poorly compared to whites and there is little differences between whites and minorities with a Canadian degree. Finally, it is worth pointing out that the coefficient for the *Vismin* variable is now insignificant.

What conclusions do we draw from our results in Table 6? First, it is evident that a foreign degree, especially for minorities, carries little or no weight in the Canadian labour market. Discrimination cannot be the only reason to help explain the income gap as white immigrants with a foreign degree still have lower incomes than the other groups examined. Second, while race is clearly a factor in explaining incomes for university graduates obtaining a Canadian degree is probably more important since native-born and immigrant minorities do at least as well or better than whites. Finally, literacy and the different returns to a foreign degree help explain a significant portion of the white-minority income gap, as the statistically insignificant coefficient for minority status indicates.

V. CONCLUSIONS AND POLICY IMPLICATIONS

The implications of our research fall into two general categories. First, given that returns to education and experience explain virtually all of the immigrant-native income gap, what does this mean for research in this area. Second, the discounting of foreign experience and education has significant policy implications.

Using the master file of the LSUDA data base, we find upon arrival immigrants to Canada incomes are about twenty four percent less than native-born Canadians. This income gap is fully explained by the low return that immigrants receive for their human capital. Foreign education and especially work experience receive low returns in the Canadian labour market. Immigrants also receive a lower returns to domestic education than do native-Canadians. This is

particularly noticeable at the lower levels of schooling. The skills of immigrant degree holders educated in Canada are not penalized, however, the same cannot be said for those who may have obtained their degrees from another country.

Non-white immigrants incomes are about twenty-four percent below white immigrants, while non-white natives have an income advantage over their counterparts by about thirteen percent. The most economically disadvantaged group examined in this study are visible minority immigrants. Besides their overall lower incomes, minorities receive almost no benefit for a foreign degree. Their lower returns to foreign education explains a significant portion of the white/non-white immigrant income gap.

What do these findings imply for public policy? In general, it is clear that immigrants' credentials and skills are being discounted and naturally this adversely influences their incomes. While it is always difficult to separate the influences of race, skill quality and information costs governments should actively pursue policies to eliminate barriers to allow for the recognition of immigrants' skills. Policies designed to recognize foreign skills and make them comparable to Canadian are warranted. One example might be fast-tracking testing procedures so immigrants' credentials have a Canadian equivalent.

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