Entry Earnings of Immigrant Men in Canada: The Roles of Labour Market Entry Effects and Returns to Foreign Experience

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We investigate the sources of declines in entry earnings for Canadian immigrants in the 1980s, 1990s and early 2000s. We find that these declines are not unique to immigrants: native born new entrants also faced declines in entry earnings. Differencing immigrant entry earnings relative to those of native born workers entering the labour market at the same time provides a means of removing the effects of changes in the Canadian economy that are not specific to immigrants. After doing this, we find that substantial declines in returns to foreign experience play an important role in declines in entry earnings across immigrant cohorts. The declining return to foreign experience is strongly related to shifts in the source country composition of immigration. In the end, we can account for 74% of the decline in entry earnings between the 1980-82 immigrant cohort and the 2000-02 cohort with a combination of general new entrant effects (39%), shifts in the source country composition (16%), and flattening of the foreign experience profile (24%). The substantial increase in the 1990s in the points allocated to immigrant applicants with university education actually worked in the opposite direction meaning that immigrant entry earnings would have been even lower in the absence of the resulting shift in educational composition (equivalent to 5% of the decline in entry earnings).

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Policy concern has once again become concentrated on issues relating to immigrant adaptation to Canadian society. Recent research indicates that one can account for all of the increase in Canada's low-income rate over the last 20 years by increases in poverty among immigrants (Picot and Hou(2003)). This raises issues relating to the impact of immigrants on the public purse but, perhaps more importantly, points to increasing difficulties for immigrants in finding a place in Canadian society. Those difficulties, as measured by the low income rate, are particularly acute just after immigrants arrive in Canada. Not surprisingly, very similar patterns are observed in immigrant earnings. Extensive research shows that average immigrant earnings in the first year after arrival fell by over 20% in the 1980s (Baker and Benjamin(1994), Bloom, Grenier and Gunderson(1995), Grant(1999), Reitz(2001)). But as large as those declines were, the drops in entry earnings in the 1990s were even larger (Li(2003), Aydemir and Skuterud(2005), and Sweetman and Warman(2008)). Our goal in this paper is to investigate the source of the declines in immigrant entry earnings in the 1980s, 1990s and early 2000s in Canada. While the earnings patterns for Canadian immigrants in the 1980s are well documented, we know little about why the outcomes have been so much worse in the 1990s and worse still in the 2000s. Moreover, data limitations in earlier papers mean that there is more to be learned about the 1980s declines.

One key possible explanation for falling immigrant entry earnings in the 1980s and 1990s is that it is not unique to the immigrant experience: that it reflects declines in labour market outcomes among all new entrants to the labour market. Beaudry and Green(2000) show that there have been substantial declines in weekly earnings for more recent cohorts of all labour market entrants (the native born and immigrants). The poor immigrant performance may just reflect the same forces underlying the poor outcomes for young Canadian-born workers. In this paper, we adopt an approach in which we compare cohorts of immigrants to native-born workers entering the labour market at the same time in order to evaluate this possibility. To do this, we use both a unique dataset that links immigrant landing and tax records (the Immigrant Database, or IMDB, for the

years 1981 through 2003) to get immigrant data and a series of representative surveys to get native-born data (the Surveys of Consumer Finance, or SCFs, for the years 1981 through 1997 and the Survey of Labour and Income Dynamics, or SLID, for the years 1996 through 2003). We carry out our entire investigation for males broken down by broad educational class.

Our findings indicate that the native born do experience substantial declines in entry earnings across entry cohorts. However, the cross-cohort declines for immigrants are substantially larger. Thus, we need to look for explanations beyond general problems in gaining entrance to the Canadian labour market. We find that a key feature of earnings patterns for immigrants is the evaporation of earnings differentials by years of foreign experience between the early 1980s and through the 1990s and early 2000s. Thus, for the 1980-82 entry cohort, immigrants in all education groups have earnings patterns reflecting substantial "returns" to foreign experience. By the 1990-92 entry cohort, however, there is no evidence of any differential in entry earnings by years of foreign experience. The finding of a flat foreign experience profile fits with Friedberg(2000)'s results for Israel, but in Canada's case this represents a dramatic shift from earlier periods. The shift is largely, though not completely, explained by shifts in the source country composition of immigration toward countries from which one would expect that it is more difficult to transfer human capital. In the end, we can account for 74% of the decline in entry earnings between the immigrant cohort entering in the 1980-82 period and the cohort entering in 2000-02 with a combination of general new entrant effects (39%), shifts in the source country composition (16%), and the flattening of the foreign experience profile (24%). However, the change in educational composition of new immigrant arrival cohorts actually moved in the opposite direction indicating that immigrant entry earnings would have fallen even more (-5%) in the absence of this compositional shift.

Thus, declines in immigrant earnings over the last two decades, in part, point to more general problems for new entrants to the labour market, whether immigrants or not. They also indicate a need for concern over the ability of immigrants - particularly immigrants from non-European and non-English speaking countries - to transfer human capital acquired in the source country labour market to Canada. This is a concern over and above more standard discussions about transferability of credentials and formal education.

While we focus almost exclusively on entry earnings in this paper, they, of course, only constitute part of the picture of how immigrants adapt to the Canadian economy. The sharply worse entry earnings in the 1990s were accompanied by strong increases in earnings growth after arrival, implying that immigrants might have been able to overcome initial disadvantages. This is in contrast to the 1980s where successive cohorts of immigrant entrants faced lower entry earnings without offsetting increases in post-arrival growth rates (Baker and Benjamin(1994)). We argue that focusing on entry earnings is useful for two reasons. First, politicians and policy makers may, reasonably, heavily discount later parts of the immigrant earnings profile, worrying more about high levels of hardship just after arrival. Entry earnings are also of interest because they reflect, to some extent, initial transferability of the human capital an immigrant brings to Canada. This transferability is generally seen as an issue of particular concern in understanding immigrant adaptation (e.g., Reitz(2001)).

The paper proceeds in seven sections, with the first being the introduction. In the second section, we describe our data, set out the main patterns we are seeking to explain and make a case that the data provides results that are similar to those from more commonly used datasets such as the Census. In section three, we describe our empirical specification, with the results from implementing that specification presented in the fourth section. In the fifth section, we investigate various potential explanations for the sharp declines in returns to foreign experience, which, as we mentioned earlier, is one of the dominant patterns in the data. The sixth section contains the results of a decomposition exercise in which we apportion the decline in entry earnings to components related to the general decline in earnings for all new entrants, shifts in the source country composition of the immigrant inflow, and declines in returns to foreign experience. The seventh section contains conclusions.

II Overall Data Patterns

II.1 Data Description

We examine earnings patterns using three datasets. For immigrants, we use a special dataset based on immigrant administrative data and tax data called the Immigrant Database (IMDB). For the native born, we use both the Survey of Consumer Finances (SCF) and the Survey of Labour and Income Dynamics (SLID). Both are large nationally representative household surveys which can be

used to generate statistics representative of the Canadian-born population. We use all available years for the individual level files from the SCF, 1981, 1982, 1984-1997, and use the SLID for the period 1997 through 2003 (using the overlapping years of 1996 and 1997 to account for possible differences in design across the two Statistics Canada surveys). We also use the IMDB tax year samples for the years 1981, 1982, 1984-2003, dropping the 1983 tax year data to improve comparability with the SCF, for which the 1983 data does not exist.

The IMDB consists of a linkage of the landing records for all the immigrants arriving in Canada after 1980 to their tax records in subsequent years. The landing records consist mainly of the information taken by immigration officials as part of processing the immigrant application. From this we know their source country, gender, and their education level and age at time of arrival. Immigrant applicants are placed in one of three broad assessment categories, information on which forms part of our data: independents (applicants who are assessed based only on their skills - education, experience, language ability, etc); family class (applicants who enter based on family relationships to people living in Canada); and refugees. This information from the landing records is linked to the individual tax records for subsequent years. This means, in part, that we do not observe individuals who do not file tax forms, though since we focus on individuals with positive earnings, this is unlikely to cause problems. We also do not know if immigrants obtain extra education or training after arriving in Canada since education is not reported on the tax form and, thus, we classify immigrants based on education at time of arrival.

The SCF is a survey conducted annually up to 1997 as an add-on to the Labour Force Survey. From the SCF, we obtain data on annual earnings, age, education and gender for native born Canadians in order to generate a benchmark for the immigrant data. The SLID is a longitudinal survey; however, it is used in this paper to generate cross-sections of data that are representative of the native-born population for the relevant survey year. We use it in this way so as to match the cross-sectional information available in the SCF data. Ideally, we would use the SCF over the entire time period of interest. However, the SCF ceased to be collected after the 1997 survey year.

The earnings measure upon which we focus is real annual earnings, deflated using the CPI. We have no way of pro-rating immigrant earnings according to how long they were in the country

in their landing year. In response, we do not use earnings data from the landing year. Thus, our entry earnings measure corresponds to the first full year after landing in Canada. Given that we are using annual earnings, our dependent variable will reflect variation in hours and weeks worked as well as wages, which is worth noting for immigrants, who tend to have high unemployment rates just after arrival (Reitz(2001)). For immigrants, earnings patterns for a given education at arrival group may also reflect educational upgrading, which we view as part of immigrant assimilation.

We divide the immigrant sample into cohorts defined by year of landing in Canada. Even though the IMDB is a true panel, in order to match with the SCF, we carry out our analysis by forming synthetic cohorts. That is, we treat the data as a series of cross-sections. In each year, we identify the individuals who entered Canada in a given period and calculate their average earnings. The set of these averages across years constitutes the annual earnings path for the cohort. As we will see below, an educational break-down is crucial for understanding movements in overall earnings. Thus, we define cohorts by both landing year of entry and education level. This is only reasonable if individual values for the education variable do not change over the period the cohort is followed. For immigrants, this condition is met because their education at arrival is linked to their earnings in each year in our data. For the native born, this requirement is more problematic. To ensure that education status is unlikely to change over time for given native born cohorts, we focus our analysis on individuals (either native born or immigrant) whose age is greater than or equal to 25 (which we will call the age of entering the mature labour market). Given this, we assume year of landing is the same as the year of labour market entry in our comparisons to native born earnings. We also specify a maximum age for our samples of 64. We focus only on men in this analysis, addressing the very different patterns for females in another paper.

Immigrants are assigned to a given cohort according to the year of obtaining landed immigrant status in Canada. We define 7 cohorts: 1980-82, 1983-86, 1987-89, 1990-92, 1993-1996, 1997-1999 and 2000-2002. The cohort groupings are chosen to reflect a combination of immigration policy regimes and cyclical conditions. Thus, 1980-82 contains the beginning of a recession and a period in which immigration inflows were relatively large. The period 1983-86 contains a period of economic recovery but is also a period in which the immigration door was basically shut to independents: applicants could only enter the country through the family or

refugee classes or if they had already arranged employment. In 1986, the arranged employment restriction was removed and the proportion of the inflow accounted for by independents increased again. However, the inflows in the next 5 to 8 years are still dominated by family and refugee class immigrants. Thus, the 1987-89 cohort covers a period with this type of immigration policy in an economic boom and the period 1990-93 is a period with similar policy but a recession. The period 1993-96 exhibits no strong trends in the labour market, and in policy is marked by a move toward giving greater priority to independent class immigrants. The period 1997-99 reflects a period of strong labour market conditions while the period 2000-02 represents a period of turbulent macroeconomic conditions. In our interpretations, we do not try to relate our results directly to policy regimes, but we do feel it is useful to organize the cohorts so that they are not a muddle of policies and labour market conditions.[i] We also organize the native born by cohort, in this case defined by their year of labour market entry, with cohorts defined using the same year groups as for immigrants. We define the year of labour market entry as the year in which they turn 25.

Due to access restrictions to the confidential IMDB data, we carried out our estimation in two steps. First, we estimated a log earnings model over the individual data of the IMDB that contained provincial dummy variables as well as dummy variables for each year-of- arrival/ education/survey year combination.[ii] Three separate models were estimated for the three education groups. Next, the synthetic cohort sample was generated by predicting the log earnings for each cell holding the province of residence effect at the default value (Ontario). Therefore, provincial variation in earnings was removed from the synthetic cohort sample. For immigrants, we carried this exercise out separately for four separate age-at-arrival categories: 25-29, 30-34, 35-39 and 40-44. The end result was an immigrant synthetic cohort sample containing predicted log earnings for approximately 2900 cells (year of arrival/education/survey year/age-at-arrival combinations). It is this sample we use in subsequent estimation. We also make use, later in the paper, of data created in the same way but broken down by country of origin. Weighted least squares regression is employed throughout the analysis with the weights based upon the estimates of the standard errors of the predicted log earnings from the first stage regression analysis.

II.2 The Overall Pattern in Male Immigrant Earnings

We begin by establishing the broad patterns in immigrant earnings in the last two decades

using our data. Thus, Figure 1 contains separate, earnings-Canadian experience profiles for each immigrant cohort with cycle effects removed. The plots correspond to fitted average earnings from a regression of average log earnings on a set of cohort dummy variables, spline function in years since entering the Canadian labour market (YSE) variable with a linear segment over the range 1 to 9 years and a second linear segment over the range 10 and more years, interactions of the 1 to 9 YSE spline segment and the cohort dummy variables, education dummy variables, and a de-trended unemployment rate variable. We use the acronym YSE rather than the more conventional YSM (for years-since-migration) since we also use an equivalent definition for the native born where YSE represents years since entering the Canadian labour market for the native born. The spline approach to the specification of YSE effects is unconventional in the immigration literature. However, we investigated a number of different parameterizations of the YSE profiles and found that this spline approach appeared to best represent the underlying patterns in the data. The de-trended unemployment rate variable was included in an attempt to strip out cyclical variation and focus on long term patterns. We normalize the plots relative to the entry earnings for the 1980-82 cohort.

The most striking pattern in figure 1, and the point of emphasis in this paper, is the dramatic fall in real earnings at time of arrival across cohorts. Relative to the 1980-82 entry cohort, earnings at arrival are .6 log points lower for the 1993-96 cohort and this trend of deteriorating entry earnings accelerates further for the 1997-99 cohort at .8 log points lower and 1.14 log points lower for the 2000-02 cohort. However, the cohorts with the lowest starting earnings also have the highest earnings growth rates after arrival. The overall pattern can be roughly divided into two periods: 1) the cohorts entering in the mid and late 1980s earn approximately .35 log points lower earnings at arrival than the 1980-82 cohort and do not fully catch up to them within the 20 year window; 2) the cohorts entering in the 1990s have much lower entry earnings which accelerated through the late 1990s but the cohorts since 1997 have also seen larger post-arrival earnings growth. The fact that the 1980s cohorts fell behind earlier cohorts (and the native born) and do not catch back up has been the source of considerable investigation (e.g., Baker and Benjamin (1994), Bloom et. al. (1995), McDonald and Worswick(1998), and Grant(1999)). The fact that the 1990s entry cohorts have even lower entry earnings is also known (Li(2003), Frenette and Morissette (2003), and Aydemir and Skuterud (2005)) but has not previously been subjected to an in-depth

investigation. The results also match those for the US, where declines in entry earnings across cohorts has been extensively debated since it was first identified by Borjas(1987).

II.3 Patterns in Entry Earnings by Education

Figure 2 presents average entry earnings by cohort and education level. Since our emphasis in the analysis that follows is on entry earnings and is broken down by education, this figure reveals the basic data patterns we are seeking to investigate. The points in these plots are obtained as the coefficients on cohort dummy variables in log earnings regressions (for immigrants only) which includes a complete set of cohort dummy variables, the same spline function in YSE as in Figure 1, full interactions of the cohort dummies and the 1 to 9 YSE spline segment, and a detrended unemployment rate. The regressions were run separately for each education group (high school graduate or lower, post-secondary below a BA, and BA or higher university degree). Thus, the plotted points for a given education level correspond to average entry earnings after controlling for cyclical effects.

The plots in Figure 2 reveal patterns for each education group that are similar to the intercepts of the profiles for immigrants as a whole in Figure 1. Specifically, they reveal substantial drops in entry earnings in the 1980s followed by even more dramatic drops in the 1990s and into the early 2000s. As we will discuss later, the larger declines in the 1990s are offset by higher post-arrival growth rates for each group. This may mitigate concerns about the post 1990 immigrants to some extent but if policy makers are worried about immigrant outcomes just after arrival then Figure 2 reveals a disturbing pattern. Finally, note that the declines in entry earnings are worse for the post-secondary-below-BA and university educated immigrants than those with high school or less education.

Figure 3 contains the same type of plot as Figure 2 but for native born workers. As we will discuss below, we believe that organizing native born workers by cohort, while not standard, is very useful when forming a comparison group for immigrant cohorts. The figure also reveals a decline in entry earnings across native born cohorts.[iii] For the high school educated, the decline across the 1980s is similar in magnitude to that experienced by high school educated immigrants. The declines for more educated native born workers are decidedly less than their immigrant

counterparts in both decades. Also, for native-born workers, there was a rebound in the 2000 to 2002 cohort. This is especially pronounced for the post-secondary-below-BA group and the early 1997-99 cohort for this educational grouping also shows a recovery in terms of entry earnings when compared with the 1993-96 cohort. This improvement in the entry earnings for native born near the end of our sample period is not present for immigrants. It is worth emphasizing that the declines across native born cohorts do not look large because we have purposefully plotted them on the same scale as we used for immigrants. However, the native born declines are still substantial: on the order of 20 to 35% real declines between the 1980-82 cohort and the 1993-96 cohorts. This fits with the results in Beaudry and Green(2000) and Green and Townsend(forthcoming) who focus specifically on cohort patterns in Canadian earnings.

III Estimation Approach

III.1 General Specification

In classic immigrant earnings decompositions (e.g., Lalonde and Topel(1992)), the average earnings in period *t* for an immigrant in education category *s* who entered the Canadian labour market in period *j* is specified as:

$$1)\quad y^{I}_{jts} = \mu^{I}_{js} + a^{I}_{jts} + b^{I}_{jts}$$

where *y* corresponds to annual earnings and the *I* superscript refers to immigrants. In this specification, average earnings levels are determined by three processes: μ_{js} (often called cohort effects) represents differences across entry cohorts in their average level of earnings; a_{jts} represents the effects of post-schooling human capital accumulation (the part of earnings generation that is usually captured in a polynomial in years of experience) plus any assimilation of immigrants into the host economy; and b_{jts} represents the impact of macro-economic events on the given cohort. This specification allows for macro events to have different impacts on different vintages of human capital and for the experience profile to vary by cohort. Typically, researchers search for a comparison group which is used to identify the effects of macro events and the experience profile. The difference between immigrant earnings and those of the comparison group then are interpreted as identifying a combination of the cohort effect (μ_{js}) and the part of the a_{jts} term that corresponds

to immigrant assimilation. Perhaps the most common comparison group is native-born workers with the same levels of education and total experience as a given immigrant.

While this framework has typically been applied to analyses of immigrant earnings, one could equally well use it in examining native born earnings. Papers by Beaudry and Green(2000) for Canada and MaCurdy and Mroz(1995) for the US arrange native born data by labour market entry cohort. Beaudry and Green(2000) find approximately 20% declines in real weekly wages between the 1981 and 1993 cohorts. MaCurdy and Mroz(1995) find similar results using US CPS data. Card and Lemieux(2001) examine skill differentials by cohort for the US, the UK and Canada and argue that the relative size of skill groups within cohorts have impacts on those differentials. Taken together, these papers suggest that earnings outcomes have been quite different across successive generations of new labour market entrants. The implication is that different generations are not perfect substitutes in production and experience macro events such as the passage of the baby boom through the age structure and technology shocks differently. This might reasonably be predicted in a simple human capital model where cohorts "lock in" to a specific set of skills (i.e., cease to make further investments) early on in their lives and make investment decisions based on the specific skill price paths they anticipate. In that situation, the most natural comparison group for immigrants is the set of people who are facing the same anticipated paths of prices and the same types of skill investment decisions: other new labour market entrants. We construct a specification based on using native-born workers entering the labour market at the same time as a given immigrant cohort as the comparison group intended to capture general macro movements in the economy.[iv]

The amount and type of source country human capital an immigrant brings to the host country plays a key role in any examination of immigrant human capital investment and earnings after migration. Indeed, work by Friedberg(2000) for Israel indicates that much of the shortfall in earnings for immigrants relative to observationally similar native-born workers in that country can be accounted for by very low valuation of foreign acquired experience in Israel (see also Schaafsma and Sweetman (2001) for similar results for Canada). For this reason, we use a specification that permits considerable flexibility in the earnings profile based on education and foreign experience. More specifically, we perform all of our estimation separately by education groups, effectively

defining cohorts by a combination of year of entry into the labour market (or, more properly, landing year) and education. We also allow earnings at arrival and post-arrival earnings growth to vary with years of foreign experience for immigrants.

Based on this discussion, we adopt a regression specification for the year *t* log earnings of an individual from cohort, *j*, and schooling level, *s*, given by (suppressing the individual specific index for simplicity):

$$2)\ y_{jts} = \alpha^N_{0js} + \alpha^N_{1js}YSE_{jts} + \alpha^N_{2js}YSE^2_{jts\alpha^N_{2js}} + \alpha^N_{3s}UNEMP_t + DIMIG * (\delta^I_{0js} + \delta^I_{1js}YSE_{jts} + \delta^I_{2js}YSE^2_{jts} + \delta^I_{3s}UNEMP_t + \beta^I_{1js}FEXP_{jts} + \beta^I_{2js}FEXP^2_{jts} + \gamma^I_S FEXP_{jts}YSE_{jts}) + u_{jts}$$

where, the *N* superscripts correspond to parameters relevant for native born workers, *I* superscripts correspond to immigrant parameters, DIMIG is a dummy variable equal to one for immigrants and zero for the native born, YSE is years since entry to the labour market, UNEMP is a de-trended annual unemployment rate, and FEXP equals years of foreign experience. YSE is calculated as age minus 25 (the age we use as denoting entry into the mature labour market) for the native born and years since landing in Canada for immigrants. FEXP is calculated as age at arrival minus an assumed school leaving age that differs by level of schooling. We include the UNEMP variable in order to focus attention on long run, as opposed to cyclical, patterns. Notice that the pattern of subscripts and superscripts implies that: each native born cohort (defined both by the year in which workers turned 25 and their schooling) has its own spline function in YSE; each immigrant cohort also has its own spline function in YSE; the intercepts of the immigrant profiles are allowed to vary with years of foreign experience, with this foreign experience profile being allowed to be different for each cohort; and the slope of the immigrant earnings-profile is allowed to vary with FEXP in a way that differs across schooling groups but not by year of arrival. In earlier estimations, we allowed the FEXP*YSE interaction effect to vary by year of arrival as well as schooling level but found that this made the results harder to interpret with little pay-off in terms of results. Thus, we adopt the simpler specification here.

In the remainder of the paper, we refer to variation in entry earnings with years of foreign experience as "returns to foreign experience". This phrase should be interpreted cautiously,

however. Immigrants who arrive with different numbers of years of foreign experience will face different selection processes both in terms of the point system and their own motivation. Thus, the derivative of earnings with respect to FEXP might not reflect a simple return on foreign acquired human capital. This should be kept in mind in the discussion that follows.

While the specification given in 2) involves the estimation of complete earnings-Canadian experience profiles, we focus our attention on entry earnings patterns as captured in the intercept terms (α_{0js}^{N} and δ_{0js}^{I}) and on the FEXP parameters (β_{1js}^{I} and β_{2js}^{I}). We do this for two reasons. First, it focuses attention on the period just after arrival when immigrants face considerable adjustment and hardship. Picot and Hou(2003)'s work suggests that immigrants are particularly likely to endure poverty just after arrival. Second, given these early problems, politicians and policy makers are likely to pay particular attention to outcomes for immigrants just after arrival: falling entry earnings are likely to be viewed with concern even if they are ultimately offset by higher post-arrival earnings growth.

IV Estimation Results

We turn now to our estimates of regression 2). In implementing 2), we actually run separate regressions for each of the three education groups. In each case, the immigrant data is pooled with data from native born workers with the same education level who are in one of the five cohorts defined earlier (i.e., we do not use native born workers who entered the labour market before 1981). We implement a specification with complete flexibility by education group because we believe human capital considerations are likely to play a significant role in understanding changes in entry earnings over time. As we will see, immigrant entry earnings patterns are quite different for the least educated (high school graduate or less) group compared to their counterparts with at least some post-secondary education.

The Native Born

Table 1 contains the estimates of the α_{0js}^{N}, α_{1js}^{N}, α_{2js}^{N} and α_{3s}^{N} parameters. The first column shows the results for the high school educated. The coefficients denoted as Cohort Dummies correspond to estimates of the intercepts of the cohort profiles (i.e., the entry earnings) measured relative to the intercept of the first (1980-82) entry cohort. With the exception of the last cohort, successive cohorts have declining entry earnings. This is the pattern depicted in Figure 3. The

combination of these intercept effects with the cohort-YSE interactions indicate that the 1990s cohorts enter at lower earnings than their 1980s counter-parts but they are at least partially compensated for this by their higher earnings growth rates (although the coefficients on the YSE interaction with the 2000-02 cohort is not statistically significant and of the opposite sign).[v] Thus, (again, with the exception of the last cohort) the pattern is similar to that portrayed for immigrants in Figure 1. Finally, the de-trended unemployment rate effect shows that earnings fall in high unemployment periods.

The second column of Table 1 presents results for native-born workers with a post-secondary-below-BA education. The patterns are somewhat similar to those for the high school educated with declining entry earnings through the mid 1990s. However, a small rebound is present for the 1997-99 cohort and in particular for the 2000-02 cohort. The initial earnings for the post-secondary-below-BA educated in the first cohort are similar to those for the high school educated but the growth rate for the post-secondary-below-Ba educated workers is 50 percent higher than for the high school educated. Finally, the results for the university educated in the third column are more like the high school educated - with the 1990s cohorts and the early 2000s following a different path from the 1980s cohorts. However, the size of the coefficients on the more recent arrival cohorts are larger in absolute value than for the high school group indicating very large earnings disadvantages at entry. The university educated have much larger lifetime earnings growth rates and, in contrast to both the other groups, appear impervious to cyclical variation.

The patterns for the native born in Table 1 are similar to those generated for males in Beaudry and Green(2000), again using SCF data, in their discussion of issues of the impact of technological change on the Canadian labour market. As described earlier, Beaudry and Green(2000) find approximately 20% falls in real wages for both the high school and university educated between the 1981 and 1993 entry cohorts, where cohorts are defined in a similar way to here.[vi] MaCurdy and Mroz(1995) find similar patterns for male US workers using CPS data from 1976 to 1993. This points to the possibility that what we observed for immigrants in Figure 1 is not just immigrant specific: that it reflects general declines for new labour market entrants of all kinds.

High School or Less Educated Immigrants

The first column of Table 2 contains the estimates of the δ, β, and γ parameters from specification 2), i.e., the YSE and FEXP related coefficients measured relative to the effects for the native born from the same cohort. Thus, the cohort dummy coefficients reported in this table represent movements in entry earnings (for someone with FEXP = 0) across cohorts relative to the movements for the native born seen in Table 1.

Based on Figures 2 and 3, high school immigrant entry earnings fall much more than those for native born new entrants over the period. Immigrant entry earnings fall by .43 log points between the 1980-82 cohort and the 1990-92 cohort and .89 log points between the first and last cohorts. In contrast, native born entry earnings fall by .28 and .30 log points between the same pairs of cohorts, respectively. This is strikingly different from what is seen in the cohort dummy coefficients in Table 2. Those coefficients indicate that the 1990-92, 1993-96 and 1997-99 immigrant cohorts have significantly higher earnings than the matching native born cohorts.

The source of the contrast between Tables 1 and 2 and the figures can be found in the inclusion of the FEXP variables in the specification underlying the tables. Indeed, Figure 3 is constructed precisely from the cohort dummy coefficients in Table 1 and the cohort dummy coefficients in Table 2 would show the difference between the immigrant and native born effects presented in Figures 2 and 3 if the FEXP variables were not included.

These FEXP differentials change across cohorts and bear an interesting relationship to returns to Canadian experience obtained by the native born. To make this latter comparison, we need to make an adjustment since the FEXP and FEXP squared variables are defined relative to school leaving age while YSE and YSE squared variables are defined relative to age 25. Thus, the YSE coefficients in Table 1 (which represent native born returns to experience) refer to a later, flatter part of the experience profile. Comparing the relative values of foreign experience for a high school educated immigrant in the 1980-82 cohort who migrated at age 33 and the Canadian experience of a native born immigrant of the same age, cohort and education (i.e., FEXP = 14 in Table 2 and YSE = 8 in Table 1), yields an estimated 1.9% increase in earnings for an added year of foreign experience for the immigrant and a 2.2% increase from an extra year of experience for the native born worker. Thus, a year of foreign experience is valued at about 87% of a year of Canadian experience. However, for the 1993-96 and later cohorts, the returns to experience for the

immigrant drop to near zero or negative (-0.6 percent for 1993-96 and -2 percent for 2000-02). To ease interpretation, we use the estimated foreign experience coefficients to plot entry earnings-foreign experience profiles for the first and last cohorts for each education group in figure 4. An examination of the high school profiles indicates that the fall in returns to foreign experience has very substantial consequences for earnings: because of it, the average entry earnings of an immigrant with 15 years of foreign experience falls by .7 log points between the first and last cohorts.

Friedberg(2000) finds that returns to foreign experience are near zero for some immigrants to Israel and that this fully explains differences between average immigrant and native born earnings (there is no evidence of cohort effects in the Israeli data). Schaafsma and Sweetman(2001) also find that foreign work experience in the host country yields virtually no return in the Canadian labour market. High school educated immigrants to Canada also face a near zero return to foreign experience, but this is a pattern that has arisen relatively recently. In the case of Canada, the low returns to foreign experience and the fact that this represents a change from earlier cohorts can account for the cross-cohort decline in immigrant earnings relative to matched native born cohorts. The difference between the patterns in Figures 2 and 3 and the results in Table 2 arises because the entry earnings results in Figure 2 correspond to immigrants who are age 25 or older at time of arrival in Canada. In the specification in Table 2, in contrast, the coefficients on the cohort dummy variables correspond to earnings just after leaving school (i.e., at FEXP = 0). The declines in entry earnings in Figure 2 then turn out to be accounted for by a combination of declines facing all new entrants to the Canadian labour market (as reflected in Figure 3) and the fact that immigrants in later cohorts receive lower returns for the years of experience they accumulated after leaving school but before migrating to Canada.

The coefficient on the interaction between FEXP and YSE in Table 2 indicates that added years of foreign experience imply a flatter YSE-earnings profile. Further, the cohorts with the lowest returns to foreign experience have the highest post-arrival earnings growth rates. Both of these observations fit with the type of human capital investment model discussed in Duleep and Regets(1996) where lower initial earnings for a cohort-FEXP group may both reflect a lower inital transferability of skills and extra time spent investing in order to overcome that problem. More

investment just after arrival, in turn, implies a steeper YSE-earnings profile both because more time is dedicated to earning as the initial investment is reduced and because of returns to that investment.

Finally, the significant negative coefficient on the unemployment rate variable suggests that immigrants are more cyclically sensitive than native born workers who enter the labour market at the same time with the same education.[vii] This supports claims that a defining feature of immigrants is their greater variability in reaction to labour market conditions (e.g., Green(1999), McDonald and Worswick (1998)).

Post-Secondary-Below-BA Educated Immigrants

We present the estimates for post-secondary-below-BA educated immigrants (relative to post-secondary-below-BA educated native-born workers) in the second column of Table 2. As with the high school educated, controlling for years of foreign experience reduces the measured decline in earnings across cohorts. However, the pattern of this effect is more complicated than for the high school educated. The fact that the coefficient on the 1987-89 dummy in Table 2 is positive and not statistically significantly different from zero indicates that the combination of general new entrant declines and controlling for foreign experience completely accounts for the 0.41 log point decline between the 1980-82 and 1987-89 cohorts observed in Figure 2. However, these two factors do not fully explain the pattern of immigrant entry earnings in the 1990s. According to Figure 2, the 2000-02 immigrant entry cohort had entry earnings that were almost 1.16 log points below those of the 1980-82 cohort. Native born entry earnings fell approximately .09 log points across the same pair of cohorts, implying that the immigrant cross-cohort decline was 1.05 log points greater. The Table 2 coefficients indicate that the 2000-02 immigrant cohort had entry earnings that were .38 log points lower than those of the native-born cohort entering the labour market at the same time once one controls for foreign experience. Thus, .65 log points of the overall 1.16 log point decline is left unexplained by either general new entrant effects or declining returns to foreign experience.

The coefficients related to foreign experience again indicate that returns to foreign experience declined across cohorts. An added year of foreign experience would add 1.9% to average annual earnings for an immigrant who is 33 at arrival and in the 1980-82 cohort. This compares to a 2.6% effect of an extra year of Canadian experience for a 35 year old native born

worker with a post-secondary-below-BA education. By the 1993-96 cohort, the foreign experience differential for that 35 year old entrant had fallen to 0.1 % and to -0.1% for the 2000-02 cohort. Also as with the high school educated, the YSE-earnings profile is flatter the more foreign experience an immigrant has, fitting with the simple investment model of immigrant earnings paths.

University Educated Immigrants

The last column in Table 2 contains the results for university educated immigrants. The patterns in this column are most similar to those for the post-secondary-below-BA educated. The changes in average entry earnings for the last cohort relative to the first are relatively similar to those for the post-secondary-below-BA educated for both immigrants and the native born. Thus, as with the post-secondary-below-BA educated, university immigrants experience a cross-cohort decline in entry earnings that is on the order of .5 log points greater than that experienced by the native born. The cohort dummy coefficients in Table 2, however, indicate that immigrant entry earnings decline by .27 log points more than those for the native born once we control for foreign experience. Thus, as with the post-secondary educated immigrants, a combination of general declines for all new entrants and foreign experience effects can account for some of the cross-cohort drop in immigrant entry earnings but about 18% (the 0.27 log point relative decline from the first to the last cohort reported in Table 2 compared to the overall 1.46 log point drop displayed in Figure 2) is still unaccounted for.

As with the other two education groups, the university-educated witnessed a sizeable fall in returns to foreign experience across cohorts; however, the returns to foreign experience (relative to the native born) are generally lower for all cohorts. Considering first the 1980-82 cohort, a 35 year old university educated immigrant had a return to a year of foreign work experience that was only 23 percent of the return to a year of work experience of a native born worker of the same age and cohort. However, the estimates from Table 2 indicate that a 35 year old university educated immigrant in the 2000-03 cohort faced a negative return to foreign work experience (of -2.16 percent). As with the high school educated, earnings implications of the drop in returns to foreign experience are substantial: an approximately .8 log point drop in average entry earnings for an immigrant with 15 years of foreign experience between the first and last cohorts. This is shown

graphically in Figure 4.

Finally, earnings for university educated immigrants are cyclically sensitive. Their overall level of sensitivity is lower than that for less educated immigrants but is significantly higher than that for the university educated native born, whose earnings show no substantial (or statistically significant) relationship to the cycle.

Overall, the results in the first tables and figures indicate that we can account for much if not all of the fall in immigrant entry earnings in both the 1980s and 1990s for the high school educated and in the 1980s for the post-secondary-below-BA educated with a combination of general declines for all new entrants and declining returns to foreign experience. For the post-secondary-below-BA educated in the 1990s and the university educated in both decades, these two factors appear to account for approximately 60% of the overall decline. We turn, now, to investigating potential sources of the decline in returns to foreign experience and of the unexplained portions of the decline for the more educated immigrants and to generating a more formal decomposition of cross-cohort declines in immigrant entry earnings.

V The Role of Shifts in the Country of Origin Composition

In this section, we investigate the role of changes in the source country composition of immigration as a possible explanation for the declining entry earnings across immigrant arrival cohorts. Recall that accompanying the decline in the returns to foreign experience has been a move toward lower initial earnings and higher earnings growth rates among the most recent cohorts. All of this could arise if the composition of immigrant source countries has shifted away from countries from which it is easy to transfer human capital to the Canadian economy (e.g., the US, UK and Europe) and toward countries where the skills acquired in the labour market are either less well matched to the Canadian labour market or come from sources that are not as well known in Canada (perhaps including much of Asia and Africa). Thus, changes in the source country composition are a potential candidate for explaining the patterns described earlier.

To investigate this explanation, we re-estimated our main specification separately for each of three source country groups: the US, the UK, Australia and New Zealand (what we call our English group); France, Germany, Holland, Denmark, Belgium, Switzerland, Sweden, Norway (our Northwestern European group); and the rest of the world. In each case, we again use native

born new entrants as a benchmark. The results of this exercise are presented in Tables 3-5.[viii] We do not intend to discuss these results in detail, but a few summary comments can be made. The cohort and immigrant dummy variable coefficients in the tables indicate that in the first cohort, English country immigrants have superior earnings compared to native born new entrants with the same level of education. This superiority is maintained across cohorts, though it declines to some extent. . In contrast, both Northwestern European immigrants and those from the rest of the world face substantial earnings deficits relative to the native born in the first cohort, and this deficit either gets worse or improves only slightly across cohorts.

Of greatest interest to us are differences in returns to foreign experience and changes in those returns across cohorts for immigrants from different source countries. To aid in discussion of these patterns, we present fitted earnings-foreign experience profiles (based on Tables 3-5) for the first and last cohorts of university educated immigrants from the three source country groups in Figure 5. Canada experienced a dramatic shift in the source country composition of immigration over our period (Baker and Benjamin(1994)). The proportion of high school educated immigrants in the English and Northwestern European source country groups fell from .23 and .04, respectively, in the first cohort to .07 and .03 in the last cohort in our data. Based on the estimates in Tables 3-5, such a shift would imply lower average entry earnings and flatter returns to foreign experience for immigrants as a whole. Thus, shifts in the source country composition can account for some of the patterns we observe. However, the fact that the earnings-foreign experience profiles depicted in Figure 5 become flatter over time for all source country groups suggests that changes in the source country composition (at least at the level of aggregation we employ) is not the sole explanation for overall declining returns to foreign experience.

VI Decomposing the Decline in Entry Earnings

To this point we have argued that both general new entrant effects and declines in the return to foreign experience (partly caused by shifts in source country composition) are major causes of the declines in entry earnings witnessed for immigrant cohorts in the 1980s and 1990s. We now turn to using an Oaxaca-type decomposition to assess the magnitude of the contribution of each force. In this decomposition exercise, we first use estimates in Table 1 and Tables 3-5 to form fitted entry earnings for a set of cohort×foreign-experience×source-country groups. We do this separately

for each education level. We combine these estimated earnings according to the proportion of a given cohort accounted for by a given experience group from a given source country then combine the results according to the proportion from each source country group in the given cohort. This creates fitted versions of actual entry earnings for each cohort which we normalize in order to express the movements relative to the first cohort in our sample. In the first stage of the decomposition, we subtract from each of these relative immigrant cohort entry earnings numbers the decline in entry earnings for the matching native born cohort (again measured relative to the first cohort). The resulting counterfactual series shows the decline in immigrant earnings that would have happened if the general worsening in outcomes for all new labour market entrants had not occurred. In the second stage, we recreate the counterfactual but use only the source country proportions from the first cohort in creating the fitted earnings for all cohorts. Since we again subtract the native born cohort effects, the resulting counterfactual series shows what would have happened to immigrant entry earnings if neither the general decline in new entrant conditions nor the changes in source country composition had occurred. In the third stage, we recreate the fitted earnings for each cohort-experience group but use the returns to foreign experience estimated for the first cohort for all cohorts to effectively eliminate the decline in returns to foreign experience. Because we again eliminate general new entrant effects and hold source country composition constant, a comparison between the counterfactual earnings at this third stage and those created at the second stage show the impact of declines in returns to foreign experience over and above the declines that are accounted for by changes in the source country composition.

We present the results from the decomposition exercise conducted for each education level separately in Tables 6a-c. The results in Table 6a indicate that general new entrant effects explain roughly half of the declines across the 1980s cohorts (between the 1980-82 and 1987-89 cohorts), which fits with the patterns discussed earlier. The shift in the country composition away from the English and Northwest European countries pushes the results further in the same direction, so that if the new entrant effect had not occurred and the source country composition had not changed, immigrant new entrant earnings would have only declined by 30% of the amount of the actual decline over the 1980s. The changes in returns to foreign experience after controlling for source country changes work in the same direction, reinforcing the role of the new entrant effect and the

country composition effect. The combined effect of these factors explains 79% of the fall in immigrant high school earnings over this decade. Over the 1990s (1987-89 cohort through the 1997-99 cohort), new entrant effects explain 52% of the decline, source country composition changes actually move in the wrong direction to explain any of the decline but the return to foreign experience alone can explain the entire decline. Taking these three factors together, we can in fact over-explain the decline in entry earnings over the decade indicating that entry earnings of the immigrant arrival cohort (1997-99) would in fact have been higher than that of the 1987-89 cohort in the absence of new labour market entrant effects, changes in the source country composition and changes in the return to foreign experience. For the whole period (i.e., from the 1980-82 to the 2000-02 cohorts), the three components together account for 90% of the decline, with general new entrant effects explaining 33% and the decline in the return to foreign experience explaining 55%.

For the post-secondary-below-BA educated in Table 6b, we again explain roughly half (59%) of the decline in the 1980s through new entrant effects. In the 1990s, the role of the decline in returns to foreign experience once again emerges as the dominant effect explaining 90% of the overall decline in entry earnings or immigrants. As in the high school case, when all three factors are combined, they over-explain the decline in entry earnings for immigrants across the 1990s. Over the entire period, the new entrant effect only explains 10% of the decline in immigrant entry earnings, the country composition effect accounts for 14% while the return to foreign experience effect can account for 35%.

The university educated results in Table 6c are similar to the results for both the high school and the post-secondary-below-BA educated. We can explain over 80% of the declines across the whole period with the three effects. General new entrant effects (39%) and declines in the returns to foreign experience (27%) are particularly important in terms of explaining the overall decline.

In Table 6d, we create a decomposition for all of the education groups combined. Thus, we combine the results from Tables 6a-c using the proportion of immigrants in each education category in each cohort. We also add a final line to the decomposition showing the effects of holding the education composition constant at the proportions from the first cohort. We can explain 93% of the 1980s declines in entry earnings, more than 100% of the 1990s declines and 74% of the declines across the whole period. These results are similar to what was found in each of the

education-specific decompositions of Tables 6a-c. New entrant (56%), country composition (27%) and education composition (37%) effects are all important factors in terms of explaining the decline in entry earnings of new immigrants in the 1980s. Returns to foreign experience become relatively more important in the 1990s; and over the entire period, general new entrant effects account for 39% of the decline while the changing country composition accounts for 16% and declining returns to foreign experience (after controlling for country composition) for 24%.

A striking result is the changing role of educational composition in the 1990s. The sign of this effect switches from being negative in the 1980s indicating that the education composition had changed over the period towards immigrants with lower entry earnings to being positive (and large in magnitude at 73%) in the 1990s indicating that the education composition had switched to favouring immigrants who would be expected to have higher entry earnings due to their education. This is consistent with the changes in the immigrant selection system in August of 1993 which greatly increased the points allocated for post-secondary education for principal applicants evaluated under the points system (McWhinney(1998)).

It is worth noting that in a similar decomposition done without controlling for country composition effects, the returns to foreign experience effects for the whole period for all education groups combined accounted 34% of the decline. Thus, roughly half of the total effect of declining returns to foreign experience arises because of the changes in source country composition within our crude categorization. The portion attributed to declining returns to foreign experience net of country composition shifts is somewhat unsatisfactory since we do not have a convincing explanation for its source.

VI Conclusions

We examine movements in entry earnings across cohorts of Canadian immigrants, trying to understand the sources of those movements. We argue that focussing on entry earnings is of interest if, for example, policy makers have very high discount rates when it comes to concerns over how immigrants fare in the Canadian economy. We make use of a unique dataset (the IMDB) in which immigrant landing records are linked to subsequent tax records. Comparing that data to survey data for the native born, we find the same general patterns described in other papers (e.g.,

Li(2003)): large declines in entry earnings over the 1980s are followed by even larger declines in the 1990s and early 2000s. Our goal is to try to understand why immigrants have consistently fared worse in terms of earnings just after arrival since the early 1980s.

One possible explanation for the immigrant entry earning pattern is that it is not unique to the immigrant experience. We argue that native-born workers entering the Canadian labour market at the same time as a given cohort of immigrants provide a good benchmark for capturing the effects of general movements in the economy. Following those workers allows for the possibility that economic events affect young workers differently from those already established in their jobs, partly because, like newly arrived immigrants, those workers are involved in investing in new human capital. As in Beaudry and Green(2000) and Green and Townsend(forthcoming), we find that successive cohorts of native-born labour market entrants are also faring worse in terms of their entry earnings although entry earnings are found to have improved somewhat in the late 1990s and into the early 2000s. Defining earnings movements for these workers as general new entrant effects, we find that such effects account for roughly 40% of the total decline in immigrant entry earnings between the early 1980s and into the early 2000s. These general new entrant effects explain roughly 50% of the declines in entry earnings of immigrants in the 1980s.

The strongest pattern in the decline in immigrant earnings over and above those experienced by other new entrants is the decline in returns to foreign experience. While immigrants obtained returns to foreign experience that were on par with the returns obtained by native-born workers for their Canadian experience in the early 1980s, by the 1990s immigrants were effectively receiving a zero return on their foreign experience. This decline can account for one quarter of the overall decline in immigrant entry earnings between the early 1980s and the early 2000s. Further investigation of this phenomenon reveals that we can account for about half of it as arising from shifts in the source country composition of immigration toward countries from which one would expect it is harder to transfer human capital to Canada. Some of the decline in returns to foreign experience still remains after controlling for source country composition changes, however (enough to account for 24% of the overall decline in entry earnings over our period).

We can break the movements in immigrant entry earnings into three periods. In the 1980s, a substantial decline in these earnings was most strongly related to the fact that earnings were

declining for all new labour market entrants (immigrants and non-immigrants). Thus, movements in the macro economy affecting all new workers was the dominant force shaping the experience of new immigrants. In the 1990s, these macro effects continued to be important but the single most important factor in the ongoing decline in immigrant earnings was the virtual eradication of returns to foreign experience. By the mid-1990s, an immigrant just out of school and another immigrant with the same level of schooling but 20 years of experience outside of Canada could expect to have the same average entry earnings in Canada. This arose at a time when shifts in immigration policy resulted in a strong increase in the average education level of new immigrants. Without this shift, average entry earnings would have fallen a further 20% in the 1990s according to our calculations. On the other hand, in the early 2000s (the third period) Picot and Feng(2009) argue that highly educated immigrants were particularly negatively affected by the IT bust. Our results suggest that general macro movements played less of a role in explaining entry earnings movements in this period but that returns to foreign acquired experience continued to be low.

Overall, our results point to two main areas of policy concern. The first is why new labour market entrants in general have been doing so much worse over the past two decades. This is not necessarily an issue that would be directly addressed through immigration policy but it does have ramifications for how immigrants are faring in the Canadian labour market. The second area of concern is the very low rates of return that immigrants from countries other than the UK, the US and Europe have been receiving for labour market experience acquired before migrating. While more focus has previously been placed on issues relating to recognition of foreign educational credentials[ix], problems related to transferring human capital acquired through experience also appear to be of substantial importance.

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Table 1
Cohort Based Regression Estimates of Average Log Annual Earnings:
Native Born Men by Education Group

Variables	**High School or Less Educated**	**Post Secondary-Below-BA Educated**	**University Educated**
Constant	10.15 (.022)*	10.25 (.031)*	10.27 (.048)*
Cohort Dummies:			
1983-86 Cohort	-.10 (.030)*	-.029 (.044)	-.21 (.070)*
1987-89 Cohort	-.17 (.031)*	-.16 (.050)*	-.15 (.075)
1990-92 Cohort	-.28 (.035)*	-.20 (.038)*	-.29 (.064)*
1993-96 Cohort	-.22 (.039)*	-.29 (.055)*	-.28 (.060)*
1997-99 Cohort	-.36 (.058)*	-.23 (.071)*	-.49 (.18)*
2000-02 Cohort	-.30 (.046)*	-.093 (.080)	-.46 (.13)*
Years Since Labour Market Entry (YSE) spline for 0 to 9 years	.022 (.0034)*	.032 (.0043)*	.061 (.007)*
YSE spline for 10 or more years	.0098 (.0028)*	.0067 (.0029)*	.011 (.0043)*
Cohort/YSE 0-9 spline interactions			
1983-86 Cohort	.0050 (.0044)	-.0031 (.0055)	.020 (.0091)*
1987-89 Cohort	.011 (.0052)*	.014 (.0071)*	.013 (.011)
1990-92 Cohort	.013 (.0065)*	.016 (.0066)	.029 (.010)*
1993-96 Cohort	.018 (.0079)*	.034 (.010)*	.034 (.011)*
1997-99 Cohort	.021 (.018)	.015 (.019)	.10 (.044)*
2000-02 Cohort	-.012 (.026)	-.054 (.045)	.073 (.062)
Detrended Unemploy. Rate	-.022 (.0039)*	-.021 (.0045)*	-.010 (.0087)
R^2	0.8	0.82	0.85

Notes: * (+) significantly different from zero at the 5 (10) % level of significance.

Table 2
Immigrant Effects Using Foreign Experience Variables

Variables	High School or Less Education	Post-Secondary-Below-BA Education	University Education
Immigrant Dummy	-.64 (.073)*	-.70 (.064)*	-.39 (.061)*
Cohort Dummies:			
1983-86 Cohort	.019 (.10)	-.18 (.085)*	-.16 (.089)^
1987-89 Cohort	-.044 (.10)	.13 (.086)	.044 (.090)
1990-92 Cohort	.28 (.12)*	-.12 (.091)	-.16 (.083)*
1993-96 Cohort	.26 (.11)*	.0012 (.094)	-.11 (.093)
1997-99 Cohort	.35 (.14)*	.045 (.12)	.28 (.20)
2000-02 Cohort	.16 (.15)	-.38 (.18)*	-.27 (.24)
Years Since Labour Market Entry (YSE) spline for 0 to 9 years	.017 (.0047)*	.017 (.0053)*	.0062 (.0075)
YSE spline for 10 or more years	.0048 (.0040)	.016 (.0040)*	.018 (.0049)*
Cohort - YSE 0 to 9 spline Interactions			
1983-86 Cohort	.0068 (.0052)	.015 (.0063)*	-.0069 (.010)
1987-89 Cohort	-.0054 (.0062)	-.0059 (.0078)	-.0092 (.011)
1990-92 Cohort	-.016 (.0076)*	.0035 (.0076)	-.0011 (.011)
1993-96 Cohort	-.027 (.0087)*	-.015 (.011)	.0054 (.013)
1997-99 Cohort	-.019 (.019)	.019 (.020)	-.036 (.045)
2000-02 Cohort	.10 (032)*	.20 (.050)*	.14 (.068)*
Foreign Experience (FEXP)	.050 (.0083)*	.088 (.0075)*	.073 (.0058)*
FEXP Squared	-.0011 (.00024)*	-.0022 (.00024)*	-.0021 (.00023)*
FEXP-YSE Interaction	-.0015 (.00014)*	-.0020 (.00014)*	-.0025 (.00015)*
Cohort-FEXP Interactions			
1983-86 Cohort	-.024 (.012)*	-.035 (.010)*	.0054 (.0084)
1987-89 Cohort	-.0073 (.012)	-.050 (.010)*	-.031 (.0083)*
1990-92 Cohort	-.048 (.015)*	-.042 (.012)*	-.034 (.0088)*
1993-96 Cohort	-.048 (.014)*	-.041 (.011)*	-.033 (.013)*
1997-99 Cohort	-.053 (.016)*	-.067 (.013)*	-.084 (.014)*
2000-02 Cohort	-.060 (.019)*	-.069 (.023)*	-.089 (.029)*
Cohort - FEXP Squared Interactions			
1983-86 Cohort	.00061 (.00035)	.0010 (.00034)*	-.00008 (.00032)
1987-89 Cohort	.00017 (.00036)	.0014 (.00031)*	.00074 (.00033)*
1990-92 Cohort	.0012 (.00043)*	.00095 (.00039)*	.00074 (.00035)*
1993-96 Cohort	.00079 (.00040)^	.00056 (.00036)	.00020 (.00049)

1997-99 Cohort	.00062 (.00045)	.0011 (.00042)*	.0016 (.00054)*
2000-02 Cohort	.00070 (.00054)	.0012 (.00080)	.0020 (.0011)^
Detrended Unemployment Rate	-.015 (.0045)*	-.014 (.0050)*	-.012 (.0088)
R^2	0.91	0.90	0.94

Notes: * (+) significantly different from zero at the 5 (10) % level of significance.
The reported coefficients correspond to interactions between the relevant variables and an immigrant dummy variable.

Table 3: Immigrant Effects Using Foreign Experience Variables
Northwestern European Source Countries

Variables	High School or Less Education	Post-Secondary-Below-BA Education	University Education
Immigrant Dummy	-1.84 (.19)*	-.35 (.083)*	-.17 (.085)*
Cohort Dummies:			
1983-86 Cohort	.058 (.13)	-.021 (.081)	-.0006 (.010)
1987-89 Cohort	.099 (.12)	.21 (.083)*	.22 (.10)*
1990-92 Cohort	.55 (.16)*	.11 (.073)	.24 (.11)*
1993-96 Cohort	.27 (.14)*	.26 (.083)*	-.16 (.097)
1997-99 Cohort	.61 (.16)*	.19 (.10)^	.41 (.20)*
2000-02 Cohort	.21 (.28)	-.069 (.14)	.10 (.21)
Years Since Labour Market Entry (YSE) spline for 0 to 9 years	.0076 (.013)	.0088 (.0081)	-.0044 (.0097)
YSE spline for 10 or more years	-.011 (.012)	-.0039 (.0083)	.024 (.0095)*
Cohort - YSE 0 to 9 spline Interactions			
1983-86 Cohort	.0034 (.011)	-.013 (.0090)	-.0099 (.012)
1987-89 Cohort	-.0019 (.011)	-.051 (.0095)*	-.0095 (.014)
1990-92 Cohort	.0006 (.014)	-.0088 (.0095)	.0044 (.013)
1993-96 Cohort	.019 (.014)	-.0019 (.012)	.042 (.015)*
1997-99 Cohort	.062 (.024)*	.032 (.024)	-.0087 (.046)
2000-02 Cohort	.17 (070)*	.20 (.059)*	.12 (.077)*
Foreign Experience (FEXP)	.21 (.019)*	.042 (.0093)*	.052 (.0091)*
FEXP Squared	-.0058 (.00052)*	-.00057 (.00028)*	-.00068 (.00031)*
FEXP-YSE Interaction	-.00053 (.00052)	-.0025 (.00037)*	-.0027 (.00039)*
Cohort-FEXP Interactions			
1983-86 Cohort	-.0079 (.0059)	-.012 (.0040)*	-.0014 (.0042)
1987-89 Cohort	-.010 (.0058)^	-.015 (.0041)*	-.025 (.0046)*
1990-92 Cohort	-.047 (.0072)*	-.030 (.0041)*	-.037 (.0044)*
1993-96 Cohort	-.038 (.0065)*	-.044 (.0038)*	-.047 (.0045)*
1997-99 Cohort	-.064 (.0084)*	-.042 (.0052)*	-.047 (.0049)*
2000-02 Cohort	-.061 (.013)*	-.048 (.0069)*	-.054 (.0080)*
Detrended Unemployment Rate	-.016 (.0088)^	-.012 (.0067)^	.0031 (.011)
R^2	0.56	0.74	0.72

Notes: * (+) significantly different from zero at the 5 (10) % level of significance.
The reported coefficients correspond to interactions between the relevant variables and an immigrant dummy variable.

Table 4: Immigrant Effects Using Foreign Experience Variables
English Source Countries

Variables	High School or Less Education	Post-Secondary-Below-BA Education	University Education
Immigrant Dummy	.47 (.077)*	-.17 (.057)*	-.024 (.059)
Cohort Dummies:			
1983-86 Cohort	-.20 (.059)*	-.20 (.058)*	-.047 (.076)
1987-89 Cohort	-.055 (.062)	-.068 (.063)	.034 (.081)
1990-92 Cohort	-.045 (.066)	-.13 (.059)*	.075 (.074)
1993-96 Cohort	.27 (.090)*	.055 (.073)	.064 (.074)
1997-99 Cohort	.17 (.17)	-.23 (.11)*	.35 (.19)^
2000-02 Cohort	-.24 (.17)	-.66 (.16)*	-.079 (.17)
Years Since Labour Market Entry (YSE) spline for 0 to 9 years	.018 (.0068)*	-.0091 (.0059)	-.0062 (.0077)
YSE spline for 10 or more years	.0027 (.0061)	.0091 (.0051)^	.035 (.0054)*
Cohort - YSE 0 to 9 spline Interactions			
1983-86 Cohort	.0045 (.0068)	.011 (.0068)^	-.0094 (.0097)
1987-89 Cohort	.0034 (.0075)	.00018 (.0079)	-.0014 (.011)
1990-92 Cohort	.014 (.0091)	.0111 (.0078)	-.0021 (.011)
1993-96 Cohort	-.016 (.012)	-.0074 (.012)	.0044 (.013)
1997-99 Cohort	.021 (.031)	.029 (.023)	-.060 (.045)
2000-02 Cohort	.15 (057)*	.19 (.058)*	.125 (.071)^
Foreign Experience (FEXP)	-.063 (.008)*	.057 (.0048)*	.056 (.0043)*
FEXP Squared	.0026 (.00021)*	-.0011 (.00014)*	-.00082 (.00015)*
FEXP-YSE Interaction	-.0016 (.00025)*	-.00061 (.00018)*	-.0033 (.00020)*
Cohort-FEXP Interactions			
1983-86 Cohort	.00015 (.0024)	-.0071 (.0020)*	.0061 (.0020)*
1987-89 Cohort	-.0041 (.0024)^	-.0035 (.0018)*	-.0081 (.0022)*
1990-92 Cohort	-.0073 (.0028)*	-.0078 (.0020)*	-.011 (.0025)*
1993-96 Cohort	-.029 (.0039)*	-.015 (.0024)*	-.021 (.0027)*
1997-99 Cohort	-.030 (.0075)*	-.0060 (.0040)	-.032 (.0037)*
2000-02 Cohort	-.025 (.0065)*	-.0083 (.0057)	-.026 (.0066)*
Detrended Unemployment Rate	-.0077 (.0052)	-.0044 (.0052)	.0010 (.0090)
R^2	0.65	0.78	0.80

Notes: * (+) significantly different from zero at the 5 (10) % level of significance.
The reported coefficients correspond to interactions between the relevant variables and an immigrant dummy variable.

Table 5: Immigrant Effects Using Foreign Experience Variables
Other Source Countries

Variables	High School or Less Education	Post-Secondary-Below-BA Education	University Education
Immigrant Dummy	-.52 (.053)*	-.71 (.048)*	-.50 (.058)*
Cohort Dummies:			
1983-86 Cohort	-.13 (.048)*	-.25 (.054)*	-.067 (.078)
1987-89 Cohort	-.080 (.052)	-.054 (.060)	.074 (.081)
1990-92 Cohort	-.0040 (.058)	-.17 (.054)*	-.13 (.073)^
1993-96 Cohort	.039 (.053)	-.036 (.063)	-.026 (.072)
1997-99 Cohort	.16 (.073)*	-.12 (.081)	.13 (.19)
2000-02 Cohort	-.0037 (.064)	-.53 (.11)*	-.46 (.17)*
Years Since Labour Market Entry (YSE) spline for 0 to 9 years	.016 (.0050)*	.025 (.0054)*	.018 (.0076)*
YSE spline for 10 or more years	.0042 (.0042)	.014 (.0042)*	.0094 (.0051)^
Cohort - YSE 0 to 9 spline Interactions			
1983-86 Cohort	.0063 (.0054)	.011 (.0064)^	-.011 (.0097)
1987-89 Cohort	-.0076 (.0063)	-.011 (.0078)	-.023 (.011)*
1990-92 Cohort	-.018 (.0078)*	-.0063 (.0078)	-.016 (.011)
1993-96 Cohort	-.029 (.0088)*	-.024 (.011)*	-.010 (.013)
1997-99 Cohort	-.022 (.019)	.016 (.020)	-.047 (.045)
2000-02 Cohort	.10 (033)*	.19 (.058)*	.125 (.069)^
Foreign Experience (FEXP)	-.030 (.0049)*	.058 (.0039)*	.059 (.0038)*
FEXP Squared	-.00067 (.00013)*	-.0014 (.00012)*	-.0018 (.00013)*
FEXP-YSE Interaction	-.0014 (.00016)*	-.0019 (.00015)*	-.0020 (.00016)*
Cohort-FEXP Interactions			
1983-86 Cohort	-.0019 (.0018)	-.0034 (.0016)*	-.00022 (.0018)
1987-89 Cohort	.00079 (.0018)	-.0039 (.0015)*	-.0098 (.0015)*
1990-92 Cohort	-.0064 (.0021)*	-.0095 (.0018)*	-.013 (.0018)*
1993-96 Cohort	-.017 (.0020)*	-.017 (.0017)*	-.023 (.0022)*
1997-99 Cohort	-.027 (.0021)*	-.028 (.0021)*	-.035 (.0026)*
2000-02 Cohort	-.036 (.0029)*	-.030 (.0040)*	-.031 (.0052)*
Detrended Unemployment Rate	-.016 (.0046)*	-.019 (.0050)*	-.019 (.0090)*
R^2	0.90	0.94	0.93

Notes: * (+) significantly different from zero at the 5 (10) % level of significance.
The reported coefficients correspond to interactions between the relevant variables and an immigrant dummy variable

Table 6a
Counterfactual Results, High School or Less

Component	1980s (1980-82 to 1987-89 Cohort)	1990s (1987-89 to 1997-99 Cohort)	Whole Period (1980-82 to 2000-02 Cohort)
Total	-.34 (1.0)	-.38 (1.0)	-.91 (1.0)
New Entrant Effect	-.17 (.49)	-.19 (.52)	-.30 (.33)
Country Composition Effect	-.070 (.21)	.015 (-.042)	-.020 (.022)
Return to Foreign Experience Effect	-.031 (.09)	-.38 (1.02)	-.50 (.55)
Sum of Counterfactual Effects	-.27 (.79)	-.55 (1.52)	-.82 (.90)

Number in parentheses is proportion of the total decline accounted for by the given component.

Table 6b
Counterfactual Results, Post-Secondary-Below-BA

Component	1980s (1980-82 to 1987-89 Cohorts)	1990s (1987-89 to 1997-99 Cohorts)	Whole Period (1980-82 to 2000-02 Cohorts)
Total	-.27 (1.0)	-.35 (1.0)	-.92 (1.0)
New Entrant Effect	-.16 (.59)	-.07 (.20)	-.093 (.10)
Country Composition Effect	-.098 (.36)	-.031 (.09)	-.13 (.14)
Return to Foreign Experience Effect	.021 (-.077)	-.32 (.90)	-.32 (.35)
Sum of Counterfactual Effects	-.24 (.87)	-.42 (1.19)	-.55 (.59)

Number in parentheses is proportion of the total decline accounted for by the given component.

Table 6c
Counterfactual Results, University

Component	1980s (1980-82 to 1987-89 Cohorts)	1990s (1987-89 to 1997-99 Cohorts)	Whole Period (1980-82 to 2000-02 Cohorts)
Total	-.15 (1.0)	-.51 (1.0)	-1.17 (1.0)
New Entrant Effect	-.15 (1.02)	-.34 (.67)	-.46 (.39)
Country Composition Effect	-.061 (.41)	-.073 (.14)	-.18 (.16)
Return to Foreign Experience Effect	-.007 (.044)	-.35 (.68)	-.32 (.27)
Sum of Counterfactual Effects	-.21 (1.47)	-.86 (1.49)	-0.96 (.82)

Number in parentheses is proportion of the total decline accounted for by the given component.

Table 6d
Counterfactual Results, All Education Groups

Component	1980s (1980-82 to 1987-89 Cohorts)	1990s (1987-89 to 1997-99 Cohorts)	Whole Period (1980-82 to 2000-02 Cohorts)
Total	-.28 (1.0)	-.26 (1.0)	-.92 (1.0)
New Entrant Effect	-.16 (.56)	-.24 (.92)	-.36 (.39)
Country Composition Effect	-.078 (.27)	-.04 (.15)	-.15 (.16)
Return to Foreign Experience Effect	.075 (-.26)	-.32 (1.26)	-.22 (.24)
Education Composition Effect	-.11 (.37)	.19 (-.73)	.049 (-.05)
Sum of Counterfactual Effects	-.27 (.93)	-.41 (1.61)	-.68 (.74)

Number in parentheses is proportion of the total decline accounted for by the given component.

Figure 1
Predicted Differences in log Earnings
Relative to 1980-82 Immigrant Arrival Cohort
Immigrant Men

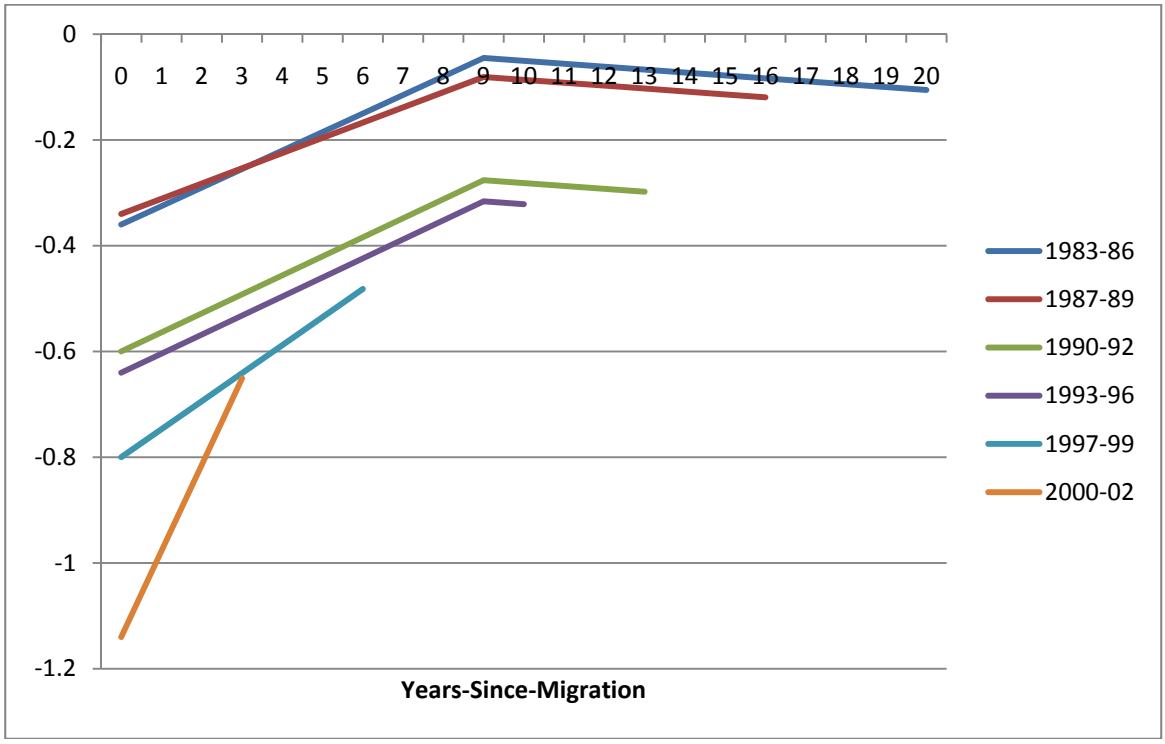


Figure 2

Log Differences in Entry Earnings of Immigrant Arrival Cohorts

Relative to 1980-82 Cohort

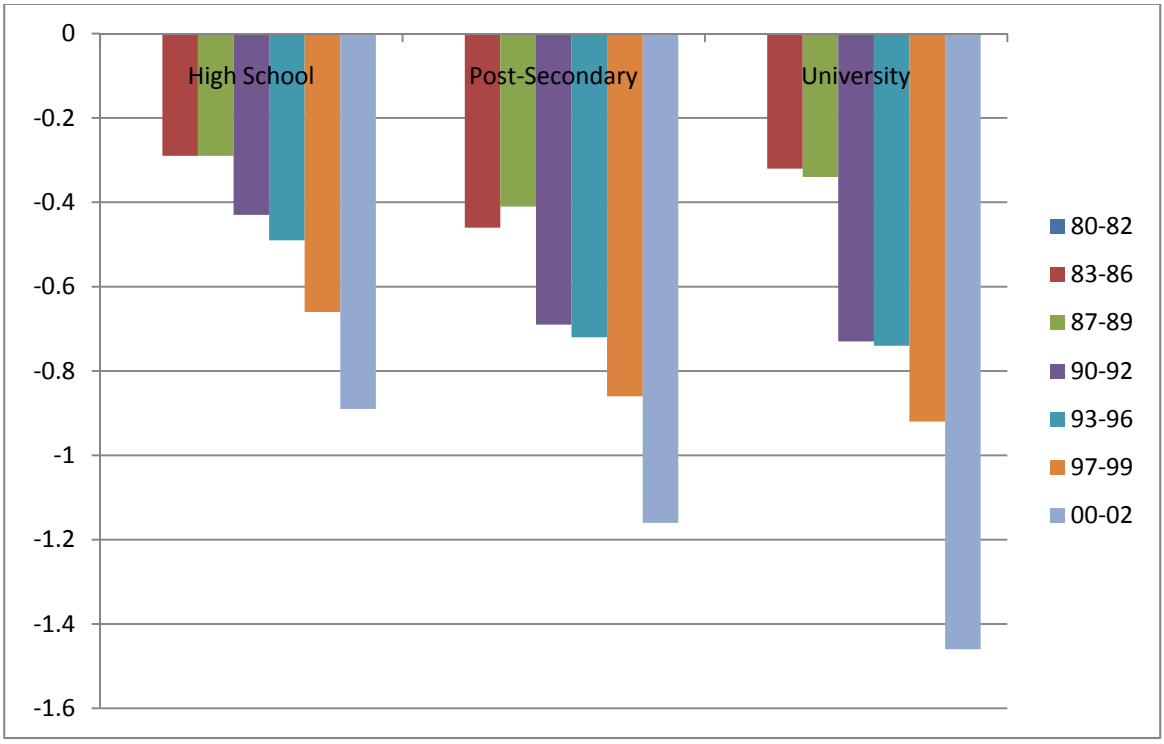


Figure 3

Log Differences in Entry Earnings of Canadian-Born Arrival Cohorts

Relative to 1980-82 Cohort

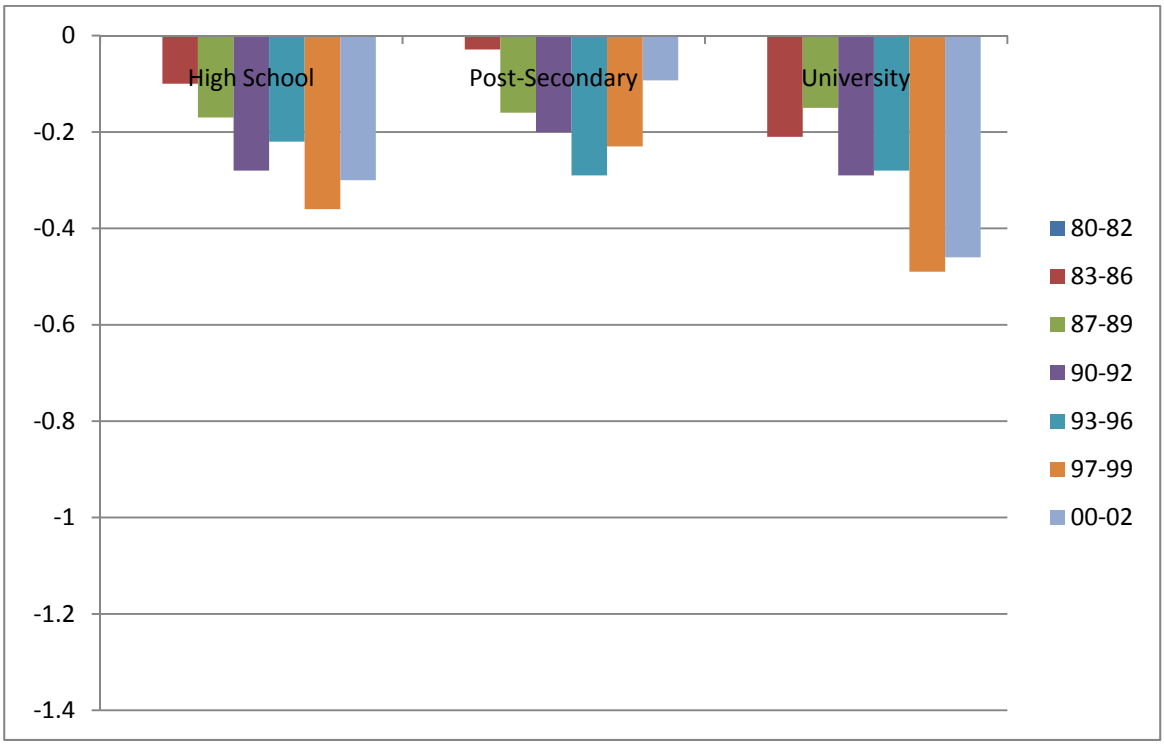


Figure 4
Returns to Foreign Experience at Arrival by Education Group:
1980-82 and 2000-02 Cohorts

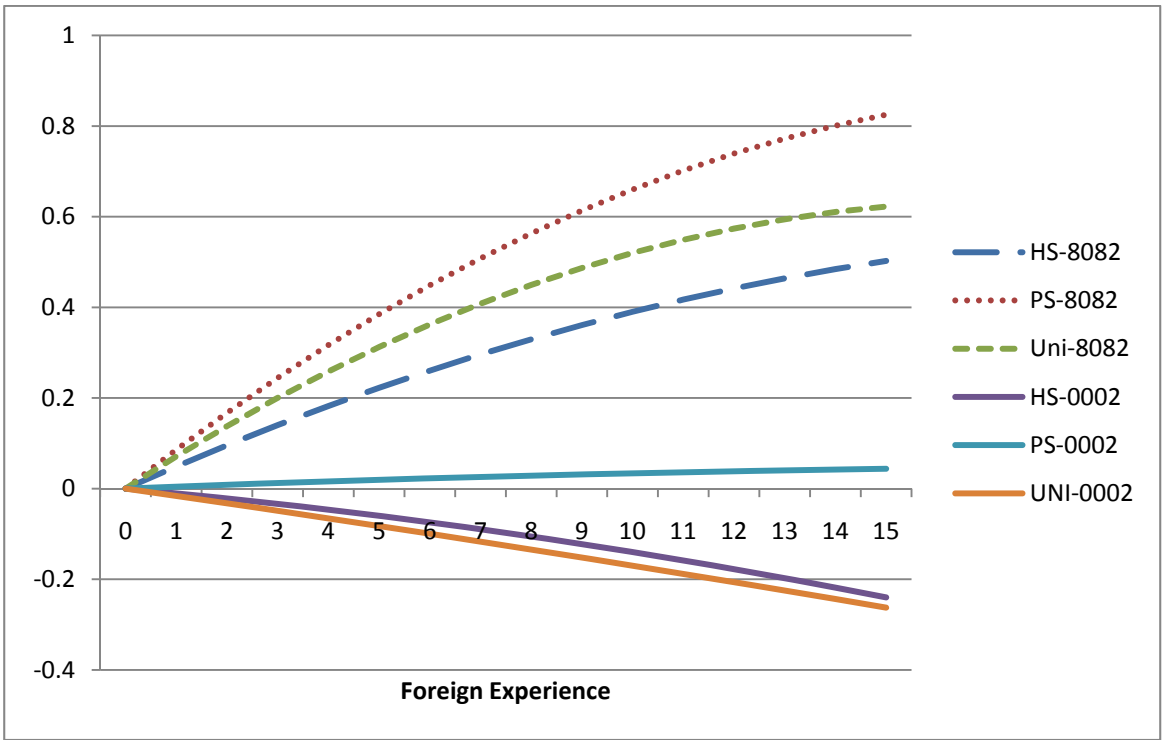
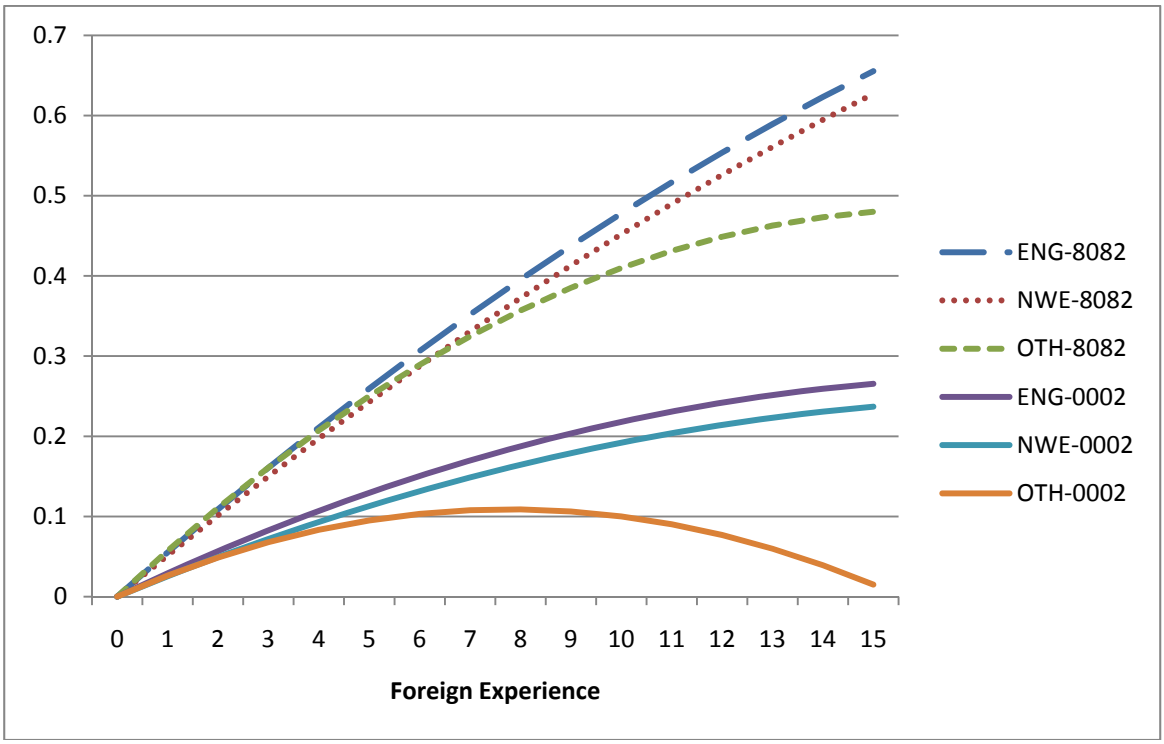


Figure 5
Returns to Foreign Experience at Arrival by Source Region:
University education, 1980-82 and 2000-02 Cohorts



Endnotes

i.Antecol et. al (2003) analyse the relationship between differences in immigration policy and differences in immigrant outcomes across countries.

ii. The SCF is not perfectly representative and the survey weights were used in all regressions.

iii. Recall that we define time of entry for native born cohorts by the year they turn 25.

iv. In a companion piece, Green and Worswick(2004), we provide further discussion of using native born new entrants to control for macro effects. That paper focuses on making comparisons across cohorts in present value terms. The decline in returns to foreign experience, which is the focus of this paper, is evident in some of the results in that paper but was not investigated there.

[v] Green and Townsend (forthcoming) provide and extensive investigation of this pattern, arguing it fits with an implicit contract model.

vi. In contrast to the point estimates in Table 1, Beaudry and Green(2000) find that the experience-earnings profiles are parallel across cohorts. This difference arises because Beaudry and Green(2000) use weekly earnings while the need to match the IMDB dictates that we must examine annual earnings.

vii. Aydemir(2003) provides a thorough examination of the effect of business cycles on immigrant outcomes.

viii. We do not include interactions of the FEXP squared variable and the cohort dummies in this specification because their inclusion made the estimates less stable, probably because of the smaller underlying samples.

[ix] Ferrer et al(2006) argue that lower returns to foreign acquired education may actually reflect lower literacy skills in English and French.