"Immigration, Entrepreneurship and the Venture Start-Up Process"

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1. Introduction

Immigrants represent an important source of human capital, which is central to the development of an entrepreneurial base for many countries. Immigrants are indeed an entrepreneurial lot – with self-employment rates among many immigrant groups that are significantly higher than those of native workers. For example, Fairlie (Chapter 10 of this book) finds that all racial groups in the US, with the exception of Latino immigrants, have higher self-employment rates than natives. Similar results have been identified elsewhere in the literature for the US as well as other countries (Clark and Drinkwater, 1998 – UK, Borjas, 1986; Fairlie and Meyer, 1996; Fairlie and Woodruff, 2004 –US, and Schuetze, 2005 – Canada). The potential to invigorate entrepreneurship through immigration has not gone unnoticed by policy-makers. Several countries have implemented programs designed to attract immigrant entrepreneurs. Immigration policies in countries such as Australia, Canada and Germany include special visas and entry requirements that facilitate immigration by would-be entrepreneurs.

Perhaps because of the importance of self-employment among immigrants, a number of research studies have attempted to identify the reasons for the high incidence of this labor market activity among immigrants compared to natives. A number of researchers have suggested that cultural factors related to one's country of origin may play a role in determining immigrants' higher propensities towards self-employment. Light (1984) found significant heterogeneity in self-employment rates across country of origin and attributed it to diversity in traditions of commerce. Light and Rosenstein (1995) suggest that different ethnic groups are endowed with diverse "supply characteristics" that may provide a special advantage in entrepreneurship; such as the

ability to cook Chinese food among Chinese immigrants. Others have suggested that attitudes towards entrepreneurship may be related to one's religion (Carrol and Mosakowski, 1987; Rafiq, 1992; and Clark and Drinkwater, 2000). However, empirical support for the hypothesis that self-employment rates among immigrant groups are correlated with home-country self-employment rates has been mixed. While Yeungert (1995) found that immigrants from countries with high self-employment rates are more likely to become self-employed in the U.S., Fairlie and Meyer (1996) found no correlation.

One of the dominant explanations for the high rates of immigrant self-employment put forth early in the literature is blocked mobility. It has been argued that ethnic minorities faced with discrimination from employers in the wage and salary sector turn to self-employment as a way to advance in such segmented labor markets[1] (Light, 1972; Sowell, 1981; Moore, 1983, Min, 1984; Phizacklea, 1988; Metcalf, Modood and Virdee, 1996; Mata and Pendakur, 1998; Li, 1998; Wong and Ng, 2002). Examples include Min (1984) and Wong and Ng (2002), who found that among Korean entrepreneurs in Atlanta and Chinese self-employed in Vancouver, respectively, disadvantage in the non-ethnic market was a major reason for choosing self-employment.

Another leading hypothesis suggests that the presence of ethnic concentrations or "enclaves" in the host country create opportunities for potential immigrant entrepreneurs. It is argued that ethnic enclaves provide its members with greater access to capital through the pooling of investment resources (Light, 1972), a supply of local labor (Light and Bonacich, 1988), and consumers with tastes for goods that ethnic entrepreneurs are better positioned to provide (Aldrich et al., 1985). However, evidence for such an

enclave effect has also been mixed. As Parker (2004: 121-122) points out, while some studies find that the presence and size of ethnic enclaves positively impacts the probability of self-employment among its members (Le, 2000; Flota and Mora, 2001; and Lofstrom, 2002), many do not (Borjas and Bronars, 1989; Yuengert, 1995; Razin and Langlois, 1996; Clark and Drinkwater, 1998, 2000, and 2002). Even within studies there is not consensus. For example, Borjas (1986) and Boyd (1990) find support for an enclave effect among some ethnic groups but not others.

Despite the relatively large literature explaining differences in the *levels* of self-employment, however, few studies (only 3 to our knowledge: Borjas, 1986; Lofstrom, 2002; and Schuetze, 2005) have examined the *start-up process* and the factors that influence the early years of the business lifecycle among self-employed immigrants[2]. This gap in the literature is important to fill because characterizing the start-up process may provide important clues to how and why immigrant firms are formed and develop with years since migration in the host country. In addition, all previous studies focus on immigrant self-employment outcomes in a single country; limiting opportunities to examine the role that immigration policy plays in immigrant self-employment.

In this chapter we establish the key features of the venture start-up process among immigrants and attempt to identify factors that influence their decision to start a business. Primarily due to data limitations our working definition of entrepreneurs throughout this chapter includes all individuals who are "self-employed" and we use the terms interchangeably. Because our focus in this chapter is on the path into self-employment among immigrants, the primary outcome of interest is whether or not immigrants choose self-employment (the propensity towards self-employment). However, in an attempt to

determine the "quality" of immigrant entrepreneurial outcomes we also examine their weekly earnings. To help identify common traits across countries in the start-up process and the role that immigration policy and country-specific institutions/market factors play we analyze self-employment outcomes in three countries – Australia, Canada and the United States. The economies in these countries are quite similar in many respects, as has been documented in the literature, but (as we discuss in the next section) differ in important ways with respect to labor market institutions, broad immigration policy and policy focusing more specifically on immigrant entrepreneurship. All of this creates a good "natural experiment" in which to compare the immigrant experience[3].

The availability of high-quality census microdata from the three countries allows us to examine a comparable and detailed analysis of the start-up process. Because cross-section studies on immigrant outcomes confound secular changes in cohort outcomes with changes in the start-up patterns of self-employment within cohorts[4], we employ an empirical approach, similar to the relatively large number of studies examining immigrant outcomes in the wage sector, to examine the self-employment outcomes of immigrants. In particular, pairs of data files are used to perform an empirical decomposition that allows identification of start-up patterns (changes in self-employment incidence within an arrival cohort) for comparison across immigrant cohorts of different vintages. This method also allows for identification of the performance of self-employed immigrants relative to natives.

The remainder of this chapter is as follows. Section 2 highlights the immigration policy and other institutional/structural market differences relevant to immigrant self-employment outcomes across the three countries over the period examined. Section 3

depicts the empirical strategy used to identify the key elements of immigrants' self-employment experience. Section 4 describes the data and our primary estimation results (those focusing on business start-up), while Section 5 examines the "quality" of self-employment outcomes by examining earnings. Finally, Section 6 concludes the chapter.

2. Immigration Policy, Structural Market Characteristics and Self-Employment

Australia, Canada and the United States have a long tradition of immigration that, by international standards, has resulted in large immigrant population shares. The similarities and differences in the immigration experiences of these three countries are well known and have been exploited by a number of researchers to analyze the impacts of immigration policy and institutional/market factors on immigrant outcomes[5]. This section provides a comparison of the immigration policies, institutions, and structural market characteristics across these three countries[6]. Particular attention is given to those differences that are likely relevant to self-employment outcomes among immigrants and to the period in which cohort assimilation profiles can be determined from the data utilized (roughly 1956-1990). For a more exhaustive history of these countries' immigration policies see, for example, Antecol, Cobb-Clark and Trejo (2003) for Australia, Green (1995), Green and Green (1992; 1995) for Canada, and for a comparison between Canadian and US policy, see Borjas (1993).

To begin, we describe similarities and differences in immigration policy and their likely impacts on self-employment outcomes. Until the 1960's entry into the three countries was based primarily on national origin. In the United States the composition of visas distributed was set to match the national origin of the foreign-born population of the 1920 U.S. Census. Canadian policy gave preference to immigrants from Britain,

northwest Europe and the United States, while Australia's favoured British immigration (Antecol, Cobb-Clark, Trejo, 2003). In 1962 Canada moved away from national origin as the right to sponsor family members for immigration was extended to non-traditional source countries. The US also largely abandoned national origin (Briggs, 1984); a move that was later followed by Australia in 1973, which ended its "White Australia" policy. The policies that replaced national origin differed significantly across the three countries. The introduction of "points systems" in 1967 in Canada and in the late 1970's in Australia placed more weight on skilled migration. Under these points systems non-sponsored immigrants enter under the "skilled category" and are evaluated and obtain "points" based on observable skills, which are considered important to one's success in the labor market. Those obtaining enough points are permitted entry. In contrast, the US adopted an immigration policy that placed greater emphasis on family reunification.

The shift away from national origin led to a significant change in the source regions of immigrants to all three countries (see Green, 1995 for Canada, Borjas, 1993 for the US and Miller, 1999 for Australia). The composition of immigrants was increasingly comprised of immigrants from Asia, for example, as opposed to the more traditional regions of the United Kingdom and Western Europe. In addition, while there is considerable debate in the literature regarding the precise reason for the changes in skill composition[7], it has been shown that a shift in the relative skill levels of immigrants arriving across the three countries occurred subsequent to these policy changes. As is shown by Borjas (1993) who compares Canada and the United States and Chiswick (1987) who includes Australia in his comparison of immigrant outcomes, these shifts resulted in average education levels among immigrants arriving to Canada and Australia[8]

which were higher than those among immigrants to the United States following the changes in policy in the three countries.[9]

While these shifts in composition likely had differential impacts on the self-employment outcomes of immigrants to these countries, the precise nature of these impacts is unclear. Given that immigrant cohorts were increasingly comprised of ethnic minorities in all three countries the blocked mobility hypothesis suggests that self-employment propensities among cohorts arriving after the move away from national origin would have increased. However, as noted above, the probability of self-employment may also be affected by the level of self-employment in the source countries of immigrants and the presence of ethnic enclaves in the receiving country. Moreover, there are substantial differences in the ethnic composition of immigrants across the three countries (see Antecol, Cobb-Clark, and Trejo 2003a, 2003b), thus it is unclear what impact the move away from national origin likely had on relative self-employment outcomes in these three countries. In addition, previous research largely suggests that education or skill level is positively correlated with the probability of self-employment in the overall population[10]. Thus, increases in the skill level relative to the US among immigrants arriving in Canada and Australia may have led to increases in self-employment in these two countries.

The introduction of the skilled class of workers to Canada and Australia likely also had a more direct impact on self-employment among immigrants. In 1976, in Australia, and 1978, in Canada, a second category of skilled worker was added with the creation of a "business skills" class in both countries. The business immigrant programs introduced in Australia and Canada were similar in many respects but differed in a

number of important ways. During the period covered by this study both programs contained three sub-categories of business class immigrants; the "business owner", "senior executive" and "investor"[11] categories were introduced in Australia and the "entrepreneur", "self-employment", and (in 1986) "investor" categories in Canada. The primary differences between the business skills classes and the "standard" skilled worker class are the criteria used to assess workers' skills and the requirement to run a business subsequent to entry. Like the Canadian program, the Australian business skills program placed greater weight on previous experience (business experience) and the availability of investment funds[12] than the other skilled immigrant entry category. In addition, both countries' business skill programs required immigrants, by threat of visa cancellation, to enter into business within the first three years after arrival[13].

However, much like the other skilled immigrant categories[14], the criteria used to determine permanent residency under the business skills program was much more stringent in Australia than in Canada. Also unlike Canada's program, the criteria for entry through the business class in Australia were more difficult to satisfy than those of the other skilled classes. In general, in order to be eligible for permanent residence in Australia immigrants had to fulfil a more demanding set of requirements with respect to age, qualifications, experience and language ability than those intending to migrate to Canada. In particular with respect to business immigrants, the Australian program required that applicants had owned or operated a business for at least two of the four years prior to application. This was not required of business immigrants entering Canada.

This more stringent assessment of potential immigrant entrepreneurs is likely to result in fewer immigrants choosing self-employment upon entry to Australia, relative to Canada (and perhaps even the United States, which has no similar entry program), but increased longevity among permanent immigrants who do start businesses. On the other hand, the requirement to operate a business within the first few years after arrival may have resulted in higher rates of self-employment immediately after entry relative to the US. Thus, the impacts of the Australian business immigrant program on self-employment early after entry relative to Canada were likely negative while the impacts relative to US entry self-employment rates are ambiguous.

Indeed Figure 1, which illustrates the percent of total immigration that is comprised of business immigration in Australia (dashed line) and Canada (solid line) up until 1990, bears this out to a certain extent. While the percentages of total immigration comprised of business immigrants entering Australia and Canada annually had increased substantially by the late 1980's, these rates were lower in Australia in every year than those in Canada. Between 1980 and 1986 Canada received an annual inflow of nearly 6,000 business class immigrants; accounting for an average of 6 percent of overall immigration. By the late 1980's the number of business class immigrants had increased to over 15,000 annually or 9 percent of overall immigration. In comparison, in 1982, six years after the introduction of the program and the first year for which we have data, just over 1,000 immigrants or 1 percent of total immigrants entered under the business immigrant program in Australia. This number grew to 10,000 immigrants or 8.25 percent of the total number of Australian immigrants by 1989. These numbers likely reflect the more selective nature of the business immigrant program in Australia relative to Canada.

Aside from differences in immigration policy, structural and institutional differences across the three countries are also likely to influence the type of immigrants attracted to each destination and, therefore, their self-employment outcomes. More generous social programs (including national health insurance, unemployment insurance and welfare systems) in Australia and Canada are likely to attract workers at the lower end of the skill distribution. While the literature on the impacts of taxation is mixed (see Parker (2004) and Schuetze (2004) for reviews), this type of selection is likely reinforced by the fact that income tax rates in the United States are structured in such a way as to allow successful entrepreneurs to reap more of their benefits relative to those in Canada and Australia. The one cross-country study by Schuetze (2000), which examines differences in taxation between Canada and the US, supports this hypothesis. In addition the access to large markets in the United States may attract previously successful entrepreneurs from other countries. The availability and generosity of loan guarantee schemes, direct loans to small businesses and other government programs, such as those that encourage self-employment among the unemployed in Canada and the US, may result in differences in immigrant self-employment outcomes across the three countries. Our comparative analysis will help to shed light on the relative importance of the selection of immigrants based on structural/institutional factors and that of immigration policy.

3. Empirical Framework

We adopt the regression framework developed by Borjas (1986), as set out in Schuetze (2005), for estimating the effects of duration in destination country (number of years since migration) and year of arrival cohorts on self-employment propensities.

Focusing on the group of employed immigrants, the following cross-sectional self-employment probability equation can be estimated by probit for each country separately:

(1) $P_t = \Phi(X_t^{'}\beta_t + \sum_k^K \delta_{kt})$

where P_t is the probability of self-employment in year t, X_t is a vector of observable characteristics related to the self-employment decision, Φ is the normal cumulative distribution function, k indexes a series of five-year arrival cohorts identified by the earliest year of arrival among those in the cohort (for example the 1971-75 cohort is labelled 1971), and the $\delta_{k,t}$ are cohort-year specific intercepts.

One could estimate changes in the self-employment propensity of immigrants through time using the coefficient estimates of the $\delta_{k,t}$ from equation (1); looking across cohorts of different vintages. However, such estimates are unreliable if there exist time varying cohort specific fixed effects that impact the two sectors of employment differently. Borjas (1995) and Baker and Benjamin (1994) find that more recent cohorts of immigrants to the US and Canada, respectively, have poorer earnings outcomes in the wage sector than earlier cohorts. Thus, the use of a single cross-section is unlikely to be appropriate. Instead, estimates which are free of this potential fixed effect bias can be obtained using quasi-panel methods in which "synthetic cohorts" of immigrants are followed through time. Therefore, equation 1 is estimated at two points in time (1981 and 1991 in Australia and Canada, and 1980 and 1990 in the US).

With this estimation strategy a decomposition of the cross-section change in the probability of self-employment can be stated as follows. Consider the predicted

probability of self-employment for a cohort group k in 1991 evaluated at the average

values of immigrant characteristics in that year ($\overline{X}$). This probability is given by:

(2) $\hat{P}_{k,91} = \Phi(\overline{X}\hat{\beta}_{91} + \hat{\delta}_{k,91})$

The predicted probability of the cohort in 1991 that arrived ten years later than k, again

evaluated at $\overline{X}$, is:

(3) $\hat{P}_{k+10,91} = \Phi(\overline{X}\hat{\beta}_{91} + \hat{\delta}_{k+10,91})$

Given the definitions in equations 2 and 3 the cross section change in the self-

employment propensity over ten years for 1991 is equal to $\hat{P}_{k,91} - \hat{P}_{k+10,91}$. Following

Borjas (1985) this change can be decomposed into two components as follows:

(4) $\hat{P}_{k,91} - \hat{P}_{k+10,91} = (\hat{P}_{k,91} - \hat{P}_{k,81}) + (\hat{P}_{k,81} - \hat{P}_{k+10,91})$

where $\hat{P}_{k,81}$ is the predicted probability of self-employment for cohort k in 1981

evaluated at $\overline{X}$ (i.e., at the average values of immigrant characteristics in 1991). More

specifically, it is the following prediction:

(5) $\hat{P}_{k,81} = \Phi(\overline{X}\hat{\beta}_{81} + \hat{\delta}_{k,81})$

It is important to note that cohort k in 1981 has the same number of years since migration

as cohort k+10 in 1991.

Thus, the first term on the right-hand side of equation 4 gives the change in the

predicted percent of immigrants in cohort k experiencing self-employment over the ten

year period[15]. In other words, these estimates provide a measure of net self-employment

start-up for each of our immigrant cohort groups. Because we observe immigrant cohorts

of all vintages (from just after arrival onward) these estimates paint a picture of the entire

self-employment "start-up process" for immigrants[16]. The second term in equation 4

gives the difference in the probability of self-employment between two cohorts with the same number of years since migration. This difference provides an estimate of the impact of cohort fixed effects on the propensity to choose self-employment. It will be negative if more recent cohorts are more likely to choose self-employment (for example, if wage employment outcomes are worse relative to self-employment for more recent cohorts).

An additional concern arises when there are unobserved time effects (other than those arising from years in host country) that change over the ten year period. In this case the estimates in equation 4 are biased. A common solution to this problem in the literature is to normalize the changes in immigrant outcomes to some base group. Our base group is comprised of native workers. Thus, we also provide estimates of the within and across cohort changes in self-employment probabilities among immigrants that are net of changes in these predicted probabilities among native workers[17] with similar characteristics over the ten-year period (see Schuetze, 2005, for a more detailed account).

4. Estimation and Results

The data used in the analysis are drawn from the 1981 and 1991 (1 percent samples) Australian Censuses, the 1981 (2 percent sample) and 1991 (3 percent sample) Canadian Census Public Use Microdata Files[18], and the US Census, 5 percent public use A samples for 1980 and 1990. These data files are chosen because they are the most recent census pairs available covering the same period and for which sufficient comparable information is available to carry out the analysis.[19] The samples are restricted to males who are employed in the survey week (the week prior to the survey), who are not in the armed forces[20] and not in school at the time of the survey. To control

for aging within cohorts across the ten-year time frames the samples are restricted to individuals aged 18 to 54 in 1980/81 and to those aged 28 to 64 in 1990/91.[21] Because of the prevalence of self-employment in the agricultural sector among non-immigrants the samples are further restricted to individuals employed in non-agricultural industries[22]. Due to the large sample sizes of the US census data, 40 percent random samples of non-immigrants are taken. Weights are applied throughout the calculations to the US samples that account for the unbalanced samples taken and the fact that the 1990 Census is a non-random sample of the population. We also exclude individuals with missing values for any of the variables used in the analysis. Finally, the data files are pooled across pairs of Census files in each country.

The primary outcome variable of interest in the analysis is an indicator of self-employment activity. The self-employment indicator used is based on the class of worker variables in Canada and the United States and on occupational/labor force status in Australia. In both Canada and the United States, the definition of self-employed includes individuals who indicate that they work for themselves in incorporated or unincorporated businesses and those in professional practices. In Australia, the definition of self-employed includes individuals who indicate they are conducting their own business irrespective of whether they employ others. In all three countries, the self-employed definitions exclude unpaid family workers. Table 1 describes how self-employment varies with nativity and immigrant arrival cohort in the three countries[23]. Here, and throughout the chapter, the intervals listed for immigrant arrival cohorts are those defined in the Australian and Canadian data; the slightly different immigrant cohorts defined in the U.S. data are as follows: pre-1960, 1960-64, 1965-69, 1970-74, 1975-79, 1980-84,

and 1985-90.[24] The 1991 Australian census does not distinguish 1960s arrivals from earlier immigrants, and therefore "pre-1971" is the most precise arrival cohort that can be defined consistently across censuses for Australian immigrants. For Canada and the United States, however, immigrants arriving during these years are disaggregated into "1966-70," "1961-65," and "pre-1961" cohorts.

Table 1 shows that in the United States, immigrants as a group have average self-employment rates that are only slightly above those of native workers (with immigrant-native self-employment differentials of approximately 1 percentage point), whereas in Canada and Australia immigrant men tend to have considerably higher self-employment rates than their native-born counterparts (immigrant-native self-employment differentials of approximately 4 and 2 percentage points in both years, respectively). In Australia and Canada, male self-employment rates rose for both natives and immigrants between 1981 and 1991, although the increases were larger in Australia (increases of 4.3 and 5.1 percentage points for natives and immigrants, respectively) than in Canada (where increases for both groups were 1.8 percentage points). In the US, male rates of self-employment remained relatively stable over the 1980-90 period. The fact that the increases across nativity were quite similar within countries, despite differences across the three countries, might suggest that country-specific factors play a role in determining self-employment outcomes among immigrants. Finally, examining the raw self-employment rates across cohorts shows that more recent arrival cohorts in all years/countries have lower rates of self-employment than earlier arrivals and natives. However, within 5-10 years in Canada and slightly longer (10-15 years) in the US and Australia immigrants have completely closed the immigrant/native self-employment gap,

irrespective of the survey year. This might suggest that some immigrants require time in the destination country before starting up businesses and/or that more recent arrivals are less likely to become entrepreneurs. Distinguishing between these two explanations is only possible by identifying within cohort changes in self-employment separately from across cohort changes and controlling for differences in characteristics across groups.

As indicated above, such decompositions are given by equation 4 net of the outcomes of our base group. In order to derive these, we estimate probit models of the probability of self-employment, separately, for each country for immigrants and natives jointly using the pooled data files. In identifying demographic and economic characteristics that influence the relative returns in the two sectors for inclusion in the analysis we are guided by previous research on the determinants of self-employment[25] and immigrant outcomes in the wage and salary sector[26]. We include controls for age, level of education, marital status and source country of immigrants (see Appendix Table 1 for variable definitions).

To make the decomposition more tractable we place some constraints on the coefficients. In particular, we allow the impacts of the demographic and economic variables to differ across immigrants and natives but restrict them to be the same within these groups across the years examined; such that; $\beta_{81}=\beta_{91}=\beta$ and $\theta_{81}=\theta_{91}=\theta$. With these assumptions the decompositions for each country can be derived using the pooled data files through the estimation of a single probit equation and interacting the appropriate coefficients with indicator variables for survey year and immigration status to match the constraints imposed. To overcome the classic problem of distinguishing between cohort,

age and period effects we impose the common identifying restriction that the period effect is the same for immigrants and natives[27].

Table 2 highlights some of the trends in predicted outcomes derived from the coefficient estimates[28]. The first row provides the predicted probability of self-employment for each year and country for a native with the average characteristics of immigrants in 1990/91, in each country. Consistent with overall trends in self-employment in the three countries these results show secular growth in self-employment among these representative workers in Australia and Canada and little or no change in the United States. Much like the raw trends, self-employment grew most rapidly in Australia even after controlling for individual characteristics. Row 2 of the Table 2 gives the predicted self-employment rate gap between a representative immigrant from the most recent arrival cohorts in each year/country and a similar native. This gap is negative and statistically significant in all cases, which suggests that immigrants to all three countries initially enter with self-employment rates that are lower than those among similar native workers. Consistent with our expectations on the impacts of a more selective business immigrant program in Australia, the gaps in self-employment rates upon entry are greatest among immigrants to Australia. These gaps are lowest among immigrants to Canada, perhaps as a result of the requirement to own and operate a business early after entry to Canada (within the first three years) under the business skills program, although the Canada-US differences are not large. Finally, while the gap grew between 1980/81 and 1990/91 in all three countries, the gap grew most substantially (from 5 percentage points to 7 percentage points) in Australia while in Canada and the US it grew more modestly, from 2.2 (3.8) to 2.9 (4.5) percentage points in Canada (the US). To determine

whether or not these gaps persist over time in the destination country we turn next to the decompositions.

Table 3 presents decompositions of the cross-section self-employment propensity profiles into estimates of the "within" cohort increases in self-employment net of cohort effects, our measure of the self-employment start-up process, and estimates of the effects of changes in cohort propensities "across" cohorts with similar years since migration. The first column under each of the country headings gives the cross-section prediction of self-employment growth while the second and third columns provide the decompositions of these without adjusting for secular changes in self-employment over the period. The last two columns account for secular changes in self-employment in each of the countries using natives as the base group. The cross-section estimates show little growth in business start-up among immigrants beyond the first 10 to 15 years after arrival in all three countries. Most of the entries are statistically insignificant with the exception of those for the most recent arrivals. However, the "unadjusted" results of the decomposition show that, once across cohort effects are taken into account, immigrants in all three countries experience significant within cohort increases in business start-up that extend beyond the first 10 to 15 years in the destination country. The across cohort estimates, which are negative and generally statistically significant, suggest that secular changes in the composition of immigrant cohorts have led to increases in self-employment propensities among immigrants with similar years in all three countries. Thus, confirming that the cross-section self-employment growth estimates are biased.

Looking across countries (still focusing on the unadjusted results), an interesting pattern of self-employment growth is observed through time in the destination country.

In all countries, the within cohort increases in self-employment propensities are higher among the most recent arrival cohorts than among those with more potential labor market experience in the destination country. Thus, it appears that the business start-up process is accelerated in the first ten to fifteen years after arrival. In addition, the rate of growth within cohorts is much higher across all vintages of immigrants in Australia than in Canada or the US. This is interesting in light of the fact that the self-employment rate gap between immigrants and natives upon entry to Australia is much larger than those in Canada and the US (see Table 2). It also appears that the across cohort increases in self-employment were higher in Australia. These patterns may also reflect overall trends in employment compensation in the three countries that have made self-employment more attractive; a dominant feature of the Australian experience. Before deriving any conclusions, however, the analysis must control for general trends in self-employment outcomes.

The "adjusted" entries in each of the country panels account for these secular trends. The overall effect of normalizing the results is to dampen both the within and across cohort effects (albeit only very slightly in the US). In fact, a number of the entries in the "adjusted" column become small in magnitude and statistically insignificant. This suggests that some of the growth in self-employment within and across cohorts is explained by secular increases in the probability of self-employment within the three countries. Despite this, some of the entries remain significant after normalizing and interesting patterns of self-employment "assimilation" continue to emerge across the countries.

First, there is some evidence of increases in the propensity towards self-employment across cohorts that are consistent with the timing of changes in immigration policy that were implemented between the 1960's and the 1970's in all three countries. The move away from national origin occurred early in the United States; the effects of which were most noticeable by the early 1970's, in terms of source country composition. The statistically significant across cohort entries for the "61-71" and the "66-76" cohorts are consistent with the timing of these changes and with the shift in policy resulting in higher rates of self-employment among immigrants. As noted above, the move away from national origin occurred somewhat later in Australia and Canada. However, despite similar changes in policy with respect to national origin and the introduction of points systems there is only weak evidence of across cohort increases in self-employment around the time of these changes in Canada and Australia. Point estimates for the "66-76" and "71-81" across cohort changes indicate somewhat sizeable increases in the self-employment propensity for both countries; however they are not statistically significant at conventional levels.

Second, it appears that a number of immigrants require time in wage employment before starting self-employment ventures. Rates of self-employment within cohorts net of secular trends increase with years since migration among immigrants to all three countries. Like the patterns observed in the unadjusted results, much of this "assimilation" occurs in the first ten to fifteen years after arrival. The estimated within cohort increases among the most recent arrivals in each of the three countries are larger in magnitude and more likely to be statistically significant than those among earlier arrival cohorts. For example, the most recent arrivals to Australia in the 1981 census (the 1976-

1980 arrivals) experienced an increase of 9 percentage points over and above that predicted for similar natives in their first 10 to 15 years in that country, between 1981 and 1991. This compares to a less than 4 percentage point net increase over this period among those who arrived 5 years earlier (between 1971 and 1975) and zero net growth for those who arrived ten years earlier.

In addition, the magnitudes of the increases in self-employment propensities experienced among immigrant cohorts in their first 10 to 15 years in each country are substantial. Continuing with Australia as an example, the gap between the "76" cohort and natives upon entry in 1981 was just over five percentage points (see Table 2). As noted above this cohort experienced an estimated net increase in the self-employment rate of 9 percentage points and implies that by 1991 the rate of self-employment for this cohort was nearly 4 percentage points higher than a similar native. Similarly, the projected self-employment rate differentials between immigrants to Canada and the US and similar natives were 2.8 and 2.4 percentage points based on the gap from Table 2 and within growth for the "76" cohorts in Table 3. In all cases immigrant self-employment rates caught up to and overtook those of similar natives in the first 10 to 15 years after arrival. Interestingly, this "overtaking" occurred despite significant differences in the size of the entry gaps across the countries. Indeed, it appears that the amount of "assimilation" that occurred after entry, to a certain extent, coincided with the size of the entry gaps. The entry gap and the net increases in self-employment subsequent to entry were highest among immigrants to Australia, followed by those to the United States, and then those to Canada. However, consistent with our expectation of longer survival in self-employment due to the relatively more selective Australian skilled worker categories

(both business and standard skilled classes), the amount of "overtaking" was less among immigrants to Canada and the United States than among Australian immigrants.

The fact that immigrant self-employment rates rapidly overtook those of natives despite differences in the general level of self-employment across the three countries suggests that, regardless of differences in the institutional or country specific factors that influence rates of self-employment, immigrants adapt quite rapidly. That immigrant self-employment rates eventually exceed those of similarly skilled natives may suggest that workers who choose to immigrate are more "entrepreneurial" than non-migrants. On the other hand (as discussed earlier in the introduction to this chapter) immigrants may choose self-employment not because they possess strong business skills but because of blocked mobility in the wage sector and, thus, self-employment represents employment of last resort. We attempt to sort between these two possibilities in the next section.

5. Earnings Outcomes

The results in Section 4 highlight the differences in the numbers of immigrants who choose self-employment across the three countries but give little indication as to whether or not these are good business ventures. In this section we attempt to shed light on the relative "quality" of the self-employment experiences of immigrants to Australia, Canada and the United States by examining the earnings outcomes of the self-employed. Once again using these three countries as a "laboratory", by analyzing this measure of quality we hope to further our understanding of the impacts of immigrant policy and other institutional/market characteristics on immigrant self-employment outcomes.

The approach taken to examine earnings is similar to that outlined above in Section 3 to examine self-employment propensities, except for the following important

differences. First with respect to the sample, we continue to focus on males in the same age categories as above and who are not in agricultural industries or enrolled in school at the time of the survey. However, we now restrict attention to individuals who are self-employed and with a reasonable attachment to the labor force (worked 14 or more weeks in the previous year).[29] Because the class of worker variables in the Canadian and US census files refer to the type of employment during the survey week while the earnings data pertain to the previous year, we alter our definition of "self-employed" in the earnings analysis.[30] In particular, the data in these two countries contain information on the amount and source of income in the year prior to the survey, which we use to impute whether the individual was self-employed or not. For the vast majority of individuals in our samples, assigning self-employment status on the basis of this information is straight-forward: most respondents had only one source of labor market income (wage and salary earnings or self-employment income). For those with multiple sources of earnings we simply assigned individuals earning a substantial fraction[31] of their previous year's income from running a business to the "self-employed" category. Because income from the operation of an incorporated business is included in the wage and salary earnings of these individuals in these two surveys, unlike above, the definition of "self-employed" used in this section includes only those who operated unincorporated businesses. Given that most businesses in the early stages of development are likely to be unincorporated, this difference is likely not an issue.

The measure on which we concentrate our attention is the log of weekly earnings.[32] This measure was chosen, in part, because the hours worked variable in the Australian data is reported as a categorical variable; making hourly earnings infeasible to

calculate. In addition, the Canadian data on hours pertains to the survey week rather than the year prior to the survey. To examine the sensitivity of our results to possible variation in hours worked we redid the analysis restricting the sample to full-time workers. These results, which are available upon request from the authors, were substantively similar to those presented in the chapter. Finally, because the earnings measure is continuous, unlike above, the estimation equations in this section are linear and estimated using multiple regression analysis.[33]

Table 4 describes how log weekly earnings among the self-employed vary with nativity and immigrant arrival cohort in the three countries. To enable the reader to draw comparisons across years, within each country, we restrict attention to individuals aged 18-54 (20-54 in Australia) in all years and inflate the 1980/1981 earnings to 1990/91 values using the CPI from each of the countries. However, comparisons of the levels of earnings across countries are not meaningful as we did not adjust the figures for the rates of exchange between the various currencies. On average, it appears that self-employed immigrants earn approximately the same amount of income as natives in all three countries. In addition, immigrants and natives in all three countries experienced little growth in real log earnings over the period. One difference across the three countries of note is that the pattern across cohorts in average earnings appears to differ in the United States from those observed in Australia and Canada. There are generally no significant differences between the average earnings of more recent and earlier arrival cohorts in Australia and Canada, while raw average earnings increase with years in the United States.

The decomposition of the log weekly earnings of self-employed immigrants into within and across cohort changes presented in Table 5 allow us to control for possible changes in the "quality" of immigrants across cohorts, differences in labor market characteristics, and secular trends in earnings. The second and third columns in each of the country panels, which give the decomposition results without adjusting for secular trends among natives, indicate significant increases both within and across cohorts in all three countries. Most of these increases, as indicated by the "adjusted" results, are attributable to growth in nominal earnings and other secular trends. Controlling for these secular trends (columns 4 and 5), we find that an interesting pattern emerges across the countries. Male self-employed immigrants to Australia enter with average log weekly earnings that are about the same as a similar native (the estimated "gap" in 1981 is negative 3 percent but statistically insignificant) and earnings do not appear to increase relative to natives with time in the country. Looking across cohorts with the same number of years in Australia, there is no indication of changes in earnings outcomes; in other words, no indication of a change in quality across cohorts.

Compared to Australia, the outcomes among self-employed immigrants to Canada appear to be worse. The entry earnings gap between self-employed immigrants and natives (estimated at negative 21 percent and significant in 1981) suggests that an immigrant arriving in the late 1970's entered with earnings below those of similarly skilled natives. In addition, while earnings among earlier cohorts increased relative to natives between 1981 and 1991, those of immigrants arriving to Canada in the late 1970's did not. Neither the "71" or "76" arrival cohorts experienced significant within growth net of secular trends over the ten year period while the "61" and "66" arrival cohorts did.

Thus, it appears that either the self-employed immigrant earnings outcomes of more recent arrivals are poorer relative to earlier arrivals or that it takes several years in Canada for the earnings of self-employed immigrants to catch up to those of natives. Finally, evidence of a further deterioration in earnings outcomes among Canadian immigrants is reflected in the earnings gap, which fell to almost negative 40 percent in 1991.

In contrast to the earnings outcomes of self-employed immigrants to Canada, immigrants to the US performed quite well relative to natives in that country. While male self-employed immigrants to the US entered with earnings below those of similar natives (the gap is estimated at negative 18 percent in 1980), their earnings appear to catch-up to those of natives in the first number of years in the country. Earnings among the "76" cohort grew by 18.6 percentage points relative to natives in the first 10 to 15 years in the United States. In fact, cohorts of all vintages to the United States in our sample experienced significant increases in earnings net of secular trends. This suggests that average earnings among self-employed immigrants to this country eventually surpass those of natives.

The variation in the earnings outcomes among self-employed immigrants suggests that there is a great deal of heterogeneity in the quality of the self-employment experiences across the three countries. That self-employed immigrants did not experience earnings outcomes that exceeded those of natives in Australia and Canada suggests that the higher rates of self-employment experienced among immigrants to all three countries is not likely due to greater business skills among immigrants to all countries. Instead, it appears that immigrants, much like natives, enter self-employment

for varied reasons, which depend, in part, on country-specific factors. Lastly, the differences across countries suggest that immigration policy and other country specific factors likely influence the quality of immigrant self-employment outcomes (discussed in detail in the subsequent section).

6. Conclusions

Given the recent emphasis placed on immigrant entrepreneurship by government policy makers around the world it is important to understand the potential for immigration policy in attracting successful entrepreneurs. A central issue underlying the likely success of immigration policy in achieving these goals is the ability of such policies to overcome other institutional and market forces that make some countries more attractive to entrepreneurs than others. We characterize the business start-up process for immigrant men and look for clues to the likely impacts of immigration policies and other institutional/market frameworks on immigrant self-employment outcomes by examining the self-employment experiences of immigrants to three countries: Australia, Canada and the United States. These three countries are similar in many respects but differ substantially with respect to immigration policies, other institutions, and market characteristics, which impact self-employment outcomes.

First, with respect to the characteristics of the business start-up process among immigrant men we find that a number of interesting conclusions can be drawn from the observed self-employment patterns. The results in all three countries suggest that the process of starting a business for many immigrants involves a transition from wage employment to self-employment. Immigrants to all three countries had self-employment rates below those of similar natives at the time of entry to the destination country.

However, in all years/countries we find positive and statistically significant growth in the self-employment propensities of newly arriving immigrants, over and above that of similar natives. This may be because, relative to wage employment, self-employment typically requires bigger financial investment, the development of contacts and greater country-specific knowledge. Given that all of these typically take time to acquire, perhaps it is not surprising that a period of integration is required.

In addition, despite very different rates of self-employment across the three countries, we find that rates of self-employment catch up to and overtake those of similar natives within 10 to 20 years after arrival. This suggests that, regardless of differences in the institutional or country-specific factors that influence rates of self-employment, immigrants adapt to these conditions relatively quickly. This result also casts doubt on explanations for the observed higher rates of self-employment among immigrants, which suggest that immigrants do not assimilate but simply adopt their host-country self-employment propensities. While immigrant self-employment rates eventually exceed those of similarly skilled natives, an examination of the earnings outcomes in self-employment across the three countries reveals that these higher self-employment rates may not be associated with greater entrepreneurial skill levels among immigrants arriving to all countries. We find a great deal of heterogeneity across the three countries in the earnings outcomes of immigrants relative to natives. For example, while the relatively "good" earnings outcomes among immigrants to the United States are consistent with immigrants possessing higher levels of business skill, the poor earnings outcomes among immigrants to Canada are not.

Second, with respect to the relative impacts of policy and other country specific factors on self-employment outcomes, we find evidence that, while immigration policy may affect self-employment outcomes at the margin the most substantial determinants are likely other institutional/market structure forces that attract entrepreneurs. To see how we come to this conclusion, consider the differences in immigration policy and other market structures across the three countries. Australia and Canada are perhaps most alike among the three in terms of immigration policy, tax policy, size of local markets and other market factors. Unlike the United States, both of these countries have immigration policies that screen immigrants to a certain extent based on skill characteristics and formal business skill programs. There is, however, one primary difference between Australia and Canada's immigration policies. Australia's skills requirements for entry through both the business and other skill categories are relatively more stringent than those of Canada. Thus a comparison between the self-employment outcomes of immigrants across Australia and Canada allows us to isolate the impact of this policy difference. Comparing Australia and Canada to the United States, on the other hand, provides information not only on the impacts of immigration policy (in particular, the presence or absence of a "points" system) but also the effects of differences in institutional/market characteristics. The United States differs from Australia and Canada in terms of the size of the local market, tax policy and other institutional factors. In particular, while Canada and Australia have more generous social programs, the US has more favorable tax provisions for entrepreneurs under the income tax system and access to larger markets. These differences likely favor the United States relative to Canada and Australia as a destination of choice for the most skilled entrepreneurs.

As noted above, looking across countries we do indeed find evidence that suggests that immigration policy has an impact on self-employment outcomes. These impacts, perhaps not surprisingly, were most evident in the Australian results. For example, Australia's relatively rigorous "points" requirements for entry appear to have had the expected effects both in terms of self-employment business start-up and earnings outcomes. Consistent with our expectations, relative to those to Canada and the United States, immigrants to Australia entered with self-employment rates that were further below those of similarly skilled natives than those in the other two countries but experienced relatively high rates of self-employment with time in the destination country. Also consistent with a more selective points system, relative to those in Canada the earnings outcomes among male self-employed immigrants to Australia were more favorable. On the other hand, comparing immigrant self-employment rates in Canada to those in the US, we find little evidence that Canadian immigration policy has had a significant impact.

As a final point, our examination of the earnings outcomes among immigrants to the United States and comparison to those to Australia and Canada leads us to conclude that self-selection among immigrant entrepreneurs based on other market factors, such as market size and tax policy, are likely more important than immigration policy. Self-employed immigrants to the United States out-performed immigrants to Canada and Australia in terms of earnings outcomes relative to natives. These differences in the relative earnings outcomes among male immigrants between the United States and the other two countries were substantial, despite the fact that immigrants to the United States were not formally screened based on skills.

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<center>**Endnotes**</center>

[1] See Light and Rosenstein, 1995 and Parker, 2004, for a more thorough discussion of the literature.

[2] Borjas (1986) and Lofstrom (2002) examine data on the US. However, because these studies are limited to a single country over a limited period of time they do not provide much insight into the roles of immigration policy and other institutional/market factors in the start-up process – a topic of focus in this chapter. Schuetze (2005), which most closely resembles the current study, focuses on self-employment outcomes of immigrants through time in both Canada and the United States.

[3] A number of studies have made use of this setting. See, for example, Chiswick (1987), Antecol, Cobb-Clark, and Trejo (2003a) and (2003b), and Antecol, Kuhn and Trejo (2003).

[4] See, for example, Borjas (1985) or LaLonde and Topel (1992).

[5] Examples include Chiswick (1987), Duleep and Regets (1992), Borjas (1993), and Antecol, Cobb-Clark and Trejo (2003).

[6] Much of this section is based on previous work by Antecol, Cobb-Clark and Trejo (2003).

[7] The debate, (see Duleep and Sanders, 1992; Borjas, 1993; and Antecol, Cobb-Clark and Trejo, 1993), centers around the issue of whether or not it was the introduction of the points systems in Canada and Australia which led to the shift in observable skills (such as, education levels) of immigrants. The fact that the shifts in skill occurred, however, is of central interest to the current chapter, not the reason for the shift per se.

[8] Perhaps because of the more stringent evaluation of skilled immigrants to Australia, Chiswick (1987) finds the average levels of education highest among Australian immigrants.

[9] Antecol, Cobb-Clark, and Trejo (2003a, 2003b) find similar results using the 1990/91 censuses for Australia, Canada and the US. However, once immigrants from Central/South America are excluded, the skill levels of immigrants are similar across the three countries.

[10] See Parker (2004), pg. 73 for a review of this literature.

[11] Other categories are available to those who are sponsored by an Australian State/Territory. For more information go to www.immi.gov.au.

[12] A minimum amount of investment capital is required for those entering under the investor and entrepreneur categories.

[13] This is not the case for "investors" in either country.

[14] Lester and Richardson (2004) provide a good comparison of the two countries' immigration policies.

[15] For this estimate to be unbiased it must be assumed that cohort specific fixed effects are equal across time. This may not be true in this setting if, for example, the composition of the cohort changes through the remigration of immigrants based on skills.

[16] By "start-up" we mean not necessarily that the firm itself is newly created (we do not observe this) but that the immigrant owner is new to a given venture in the destination country.

[17] However, as in Schuetze (2005), the results here are similar when the base group is comprised of previous immigrants. These results are available from the authors upon request.

[18] Because detailed information on year of arrival for immigrants in regions determined to have too few observations to protect confidentiality are unavailable, data drawn from the Canadian census files is restricted to Quebec, Ontario and the Western Provinces.

[19] In particular, the year of arrival information in the 2001 Australian Census is not detailed enough to analyze using the empirical framework laid out in Section 3.

[20] Data limitations prohibit us from identifying individuals in the armed forces in Australia.

[21] In Australia, the samples are restricted to individuals aged 20 to 54 in 1981 and to those aged 30 to 64 in 1991 because of data limitations.

[22] Agricultural industries include agricultural production and services, forestry, fishing, hunting and trapping.

[23] To account for aging of the cohorts of workers, unlike in the regression data, we restrict attention to individuals aged 18-54 (20-54 in Australia) in all years.

[24] For ease of exposition, we will refer to particular immigrant cohorts using the year intervals that pertain to the Australian and Canadian data, with the implied understanding that in the U.S. data the actual cohort intervals begin and end one year earlier.

[25] See Aronson, 1991 and Parker, 2004, for reviews

[26] Examples include Chiswick, 1978; Borjas, 1985, 1995; Beach and Worswick, 1993; and Green and Green, 1995

[27] In essence, the period effect is estimated from natives, and this information is used to identify cohort and assimilation effects for immigrants.

[28] The full set of regression results are available from the authors upon request.

[29] In Australia, we restrict the sample to respondents who worked 16 (15) or more hours in their main job in the reference week in 1981 (1991).

[30] In Australia, all variables pertain to the reference week, therefore, we continue to define self-employment as described in Section 4.

[31] The results reported here include those with self-employment income comprising 25 percent or more of the previous year's earnings. However, the results are not sensitive to this cut-off – in part because the incidence of individuals with multiple sources of income is relatively rare.

[32] Unfortunately, the Australian census does not distinguish an individual's earnings from his other sources of income, so for Australia we are forced to use weekly personal income as our proxy for wages.

[33] While the income measure in Australia is categorical, we convert it into a continuous variable by assigning each individual the midpoint of his income category. To ensure this does not effect our results, we estimate the model using both interval and censored regression. The results are similar and available upon request.

Table 1. Self-Employment Rates of Men

	Australia		Canada		U.S.	
	1981	1991	1981	1991	1980	1990
Natives	0.136	0.179	0.099	0.117	0.102	0.110
	(0.343)	(0.384)	(0.299)	(0.321)	(0.302)	(0.312)
	[17389]	[21068]	[62379]	[104923]	[727852]	[788906]
Immigrants	0.153	0.204	0.145	0.163	0.114	0.117
	(0.360)	(0.403)	(0.352)	(0.369)	(0.318)	(0.321)
	[6344]	[7591]	[17016]	[26325]	[130510]	[221569]
Cohort						
Pre 1961			0.177	0.192	0.158	0.161
			(0.309)	(0.394)	(0.364)	(0.367)
			[68976]	[4459]	[32093]	[22925]
61-65			0.147	0.195	0.139	0.148
			(0.354)	(0.397)	(0.346)	(0.355)
			[1960]	[2150]	[17348]	[17561]
66-70	0.171	0.240	0.140	0.176	0.123	0.142
	(0.377)	(0.427)	(0.347)	(0.380)	(0.328)	(0.349)
	[4686]	[3430]	[3539]	[4792]	[22825]	[23476]
71-75	0.108	0.182	0.114	0.162	0.100	0.143
	(0.310)	(0.386)	(0.318)	(0.369)	(0.301)	(0.350)
	[837]	[1053]	[3100]	[5018]	[27351]	[30027]
76-80	0.094	0.247	0.087	0.158	0.061	0.129
	(0.292)	(0.432)	(0.282)	(0.365)	(0.239)	(0.335)
	[821]	[777]	[1820]	[3483]	[30893]	[36242]
81-85		0.174		0.148		0.101
		(0.379)		(0.355)		(0.301)
		[876]		[2675]		[45988]
86-91		0.129		0.108		0.059
		(0.336)		(0.310)		(0.236)
		[1455]		[3748]		[45350]

Notes:
• Samples in all years are restricted to men aged 18-54 (20-54 in Australia).
• Standard deviations in parentheses.
• Number of observations in brackets.

Table 2. Summary of Selected Trends in Predicted Values

	Australia		Canada		U.S.	
	1981	1991	1981	1991	1980	1990
Predicted Probability Natives*	0.182	0.235	0.136	0.148	0.122	0.127
	(0.004)	(0.003)	(0.002)	(0.001)	(0.000)	(0.000)
GAP**	-0.052	-0.071	-0.022	-0.029	-0.038	-0.045
	(0.014)	(0.013)	(0.009)	(0.006)	(0.002)	(0.002)

Notes:
* The predicted probability of self-employment for a native with similar characteristics as the average immigrant in 1990/91.
** The predicted probability "gap" in the self-employment rates between the most recent arrival cohort and a similar native.
• Standard errors derived from bootstrapping in parentheses.

Table 3. Decomposition of Changes in the Probability of Self-Employment

	Australia					Canada					U.S.				
	Cross-Section	Unadjusted		Adjusted		Cross-Section	Unadjusted		Adjusted		Cross-Section	Unadjusted		Adjusted	
		Within	Across	Within	Across		Within	Across	Within	Across		Within	Across	Within	Across
51-61						-0.015	0.009	-0.005	-0.002	0.007	-0.010	0.000	-0.011	-0.005	-0.006
						(0.009)	(0.007)	(0.007)	(0.007)	(0.007)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
61-71						0.020	0.034	-0.014	0.022	-0.002	-0.015	0.003	-0.018	-0.002	-0.013
						(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)
66-76	-0.030	0.061	-0.091	0.007	-0.037	-0.003	0.023	-0.026	0.011	-0.014	-0.008	0.018	-0.026	0.013	-0.021
	(0.019)	(0.010)	(0.019)	(0.011)	(0.020)	(0.008)	(0.009)	(0.010)	(0.009)	(0.010)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
71-81	0.020	0.092	-0.072	0.038	-0.018	0.012	0.039	-0.026	0.027	-0.015	0.024	0.036	-0.011	0.031	-0.006
	(0.022)	(0.021)	(0.020)	(0.021)	(0.021)	(0.010)	(0.009)	(0.010)	(0.009)	(0.010)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
76-86	0.110	0.144	-0.035	0.091	0.019	0.057	0.061	-0.004	0.049	0.008	0.069	0.067	0.002	0.062	0.007
	(0.021)	(0.022)	(0.018)	(0.023)	(0.019)	(0.029)	(0.011)	(0.010)	(0.011)	(0.010)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)

Notes:
• For a description of the decomposition see text.
• Standard errors derived from bootstrapping in parentheses.

Table 4. Average Log Weekly Earnings of Self-Employed Men

	Australia		Canada		U.S.	
	1981	1991	1981	1991	1980	1990
Natives	6.155	6.125	6.408	6.325	6.283	6.168
	(0.578)	(0.749)	(0.984)	(1.060)	(0.944)	(1.086)
	[2147]	[3298]	[4323]	[8133]	[55798]	[64674]
Immigrants	6.146	6.097	6.417	6.312	6.361	6.196
	(0.547)	(0.740)	(0.933)	(1.070)	(0.958)	(1.087)
	[863]	[1338]	[1392]	[2361]	[10347]	[17831]
Cohort						
Pre 1961			6.472	6.375	6.462	6.402
			(0.899)	(0.945)	(0.894)	(1.034)
			[649]	[440]	[3446]	[2466]
61-65			6.301	6.348	6.440	6.364
			(1.068)	(1.035)	(0.970)	(1.020)
			[175]	[213]	[1630]	[1747]
66-70	6.138	6.075	6.388	6.415	6.351	6.281
	(0.529)	(0.778)	(0.905)	(1.013)	(0.965)	(1.142)
	[708]	[712]	[288]	[440]	[1922]	[2178]
71-75	6.177	6.126	6.422	6.317	6.294	6.300
	(0.504)	(0.680)	(0.977)	(1.174)	(0.964)	(1.076)
	[84]	[166]	[191]	[473]	[1951]	[2875]
76-80	6.184	6.081	6.332	6.217	5.124	6.206
	(0.739)	(0.772)	(0.885)	(1.054)	(1.027)	(1.112)
	[71]	[174]	[89]	[325]	[1398]	[3219]
81-85		6.161		6.285		6.018
		(0.604)		(1.050)		(1.034)
		[126]		[258]		[3341]
86-91		6.134		6.094		5.836
		(0.693)		(1.232)		(1.080)
		[160]		[212]		[2005]

Notes:
- Samples in all years are restricted to men aged 18-54 (20-54 in Australia).
- Earnings values inflated to each countries 1990/91 level using CPI.
- Standard deviations in parentheses.
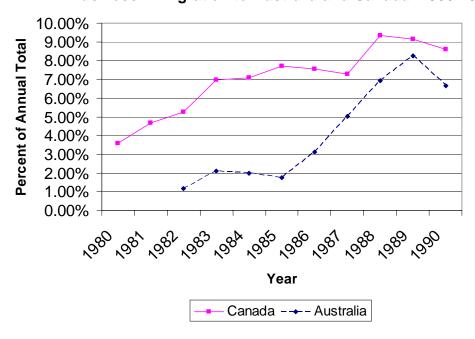- Number of observations in brackets.

Table 5. Earnings Regressions
Assimilation, Cohort and Period Effects

	Australia					Canada					U.S.				
	Cross-Section	Unadjusted		Adjusted		Cross-Section	Unadjusted		Adjusted		Cross-Section	Unadjusted		Adjusted	
		Within	Across	Within	Across		Within	Across	Within	Across		Within	Across	Within	Across
51-61						-0.024	0.441	-0.422	0.006	0.012	0.057	0.476	-0.506	0.058	-0.001
						(0.750)	(0.000)	(0.00)	(0.917)	(0.697)	(0.086)	(0.000)	(0.000)	(0.022)	(0.971)
61-71						0.122	0.667	-0.545	0.232	-0.110	0.059	0.486	-0.484	0.068	-0.009
						(0.594)	(0.000)	(0.000)	(0.023)	(0.230)	(0.053)	(0.000)	(0.000)	(0.041)	(0.775)
66-76	-0.010	0.671	-0.681	-0.008	-0.002	0.165	0.595	-0.430	0.160	0.005	0.066	0.488	-0.456	0.070	-0.003
	(0.873)	(0.000)	(0.000)	(0.834)	(0.974)	(0.219)	(0.000)	(0.000)	(0.029)	(0.951)	(0.059)	(0.000)	(0.000)	(0.000)	(0.905)
71-81	0.001	0.669	-0.668	-0.010	0.011	0.024	0.503	-0.479	0.068	-0.043	0.198	0.567	-0.417	0.149	0.048
	(0.994)	(0.000)	(0.000)	(0.900)	(0.890)	(0.232)	(0.000)	(0.000)	(0.416)	(0.642)	(0.000)	(0.000)	(0.000)	(0.000)	(0.087)
76-86	0.072	0.674	-0.602	-0.005	0.077	0.176	0.432	-0.256	-0.003	0.179	0.246	0.605	-0.389	0.186	0.059
	(0.392)	(0.000)	(0.000)	(0.961)	(0.474)	(0.098)	(0.000)	(0.036)	(0.973)	(0.147)	(0.000)	(0.000)	(0.000)	(0.000)	(0.134)

Note: P-values are reported in parentheses.

Figure 1:

Business Immigration to Australia and Canada: 1980-1990

Sources:

Canadian data – Citizenship and Immigration Canada (various years) "Citizenship and Immigration

Statistics," Cat. No. MP22-1: Minister of Public Works and Government Services Canada.

Australian data – Department of Immigration and Multicultural and Indigenous Affairs (various years),

"Population Flows: Immigration Aspects," Australian Bureau of Statistics.

Appendix Table

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Appendix Table 1.
Variable Definitions

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	Australia	Canada	U.S.
age	Age	Age	Age
agesq	Age Squared	Age Squared	Age Squared
Years of Education			
ed1	=1 if Less than 9 years	=1 if less than grd. 5	=1 if grade 8 or less
ed2	=1 if 10-13 years	=1 if grade 5-8	=1 if less than highschool
ed3	=1 if Some College	=1 if grade 9-13	=1 if highschool grad
ed4	=1 if BA+	=1 if sec. school grad	=1 if some college/bach.
ed5	NA	=1 if trade certificate	=1 if Masters/Ph.D.
ed6	NA	=1 if non-univ: no trade	NA
ed7	NA	=1 if non-univ: trade	NA
ed8	NA	=1 if non-univ: other	NA
ed9	NA	=1 if univ: no cert	NA
Ed10	NA	=1 if univ: cert<bach	NA
Ed11	NA	=1 if bachelors +	NA
Marital Status			
mstat1	=1 if Single	=1 if Divorced	=1 if Married
mstat2	=1 if Married	=1 if Married	=1 if Widowed
mstat3	=1 if Sep./Div./Widowed	=1 if Separated	=1 if Divorced
mstat4	NA	=1 if Never Married	=1 if Separated
mstat5	NA	=1 if Widowed	=1 if Never Married
Y91	=1 if 1991	=1 if 1991	=1 if 1990
Place of Birth			
pob2	=1 if North America and USA	=1 if USA	=1 if Africa
pob3	=1 if Germany	=1 if UK	=1 if Canada
pob4	=1 if Netherlands	=1 if Germany	=1 if Other North Am.
pob5	=1 if UK and Ireland	=1 if Italy	=1 if Mexico
pob6	=1 if Yugoslavia	=1 if Portugal	=1 if S. and Central Am.
pob7	=1 if Italy	=1 if Poland	=1 if East Asia
pob8	=1 if Southern Europe	=1 if USSR	=1 if South Asia
pob9	=1 if Poland	=1 if Other Europe	=1 if Middle East
pob10	=1 if USSR & Baltic States	=1 if Asia	=1 if Other Asia
pob11	=1 if Other Europe	=1 if Africa	=1 if Western Europe

Appendix Table 1. (Cont.)

	Australia	**Canada**	**U.S.**
pob12	=1 if Southeast Asia	=1 if Central./South America	=1 if Southern Europe
pob13	=1 if South Asia & India	=1 if Other	=1 if Eastern Europe
pob14	=1 if Mid East & North Africa	NA	=1 if Northern Europe
pob15	=1 if Africa	NA	=1 if Former USSR
pob16	=1 if South/Central America & Caribbean	NA	=1 if Oceania
pob17	=1 if Oceania, Antarctica, NZ	NA	=1 if Other
immig	=1 if Immigrant	=1 if Immigrant	=1 if Immigrant
Year of Arrival			
D56	NA	=1 if before 1961	=1 if before 1960
D61	NA	=1 if 1961-1965	=1 if 1960-1964
D66	=1 if before 1971*	=1 if 1966-1970	=1 if 1965-1969
D71	=1 if 1971-1975*	=1 if 1971-1975	=1 if 1970-1974
D76	=1 if 1976-1980*	=1 if 1976-1980	=1 if 1975-1979
D81	=1 if 1981-1985	=1 if 1981-1985	=1 if 1980-1984
D86	=1 if 1986-1991	=1 if 1986-1991	=1 if 1985-1990

*In 1981 these categories for Australia are before 1972, 1972-1976, and 1977-1981, respectively.