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# Effects of Business Cycles on the Labour Market

## Assimilation of Immigrants\*

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## Abstract

This study addresses the effects of macroeconomic conditions on labour market outcomes of immigrants. Immigration literature tries to explain differences in labour market outcomes of different immigrant arrival cohorts by differences in observable characteristics and by cohort effects. Cohort effects refer to unobserved characteristics and in a Canadian context may be driven by changes in country of origin mix of immigrants, by changing composition of immigrants in terms of visa category among other factors. Within this context immigrant arrival cohorts may also differ from each other by the phase of the business cycle they face at the time of arrival and this may affect their labor market prospects in the host country. Previous studies in the literature focus on macro conditions at the time of arrival, however, they assume there are no cohort effects. Other studies in the literature show importance of controlling macro conditions at the time of survey while comparing different arrival cohorts. This paper simultaneously identifies the separate effects of macro conditions at the time of entry to the labour market and at the time of survey on labour market outcomes of immigrants, while allowing for cohort effects. Also, for the first time in the literature this paper explores the impacts at labour force participation (LFP) margin. Using 19 annual cross-sections of Survey of Consumer Finances (SCF) covering the period 1979 to 1997 it is shown that estimates of cohort effects are very sensitive to the inclusion of controls for macroeconomic conditions. Without controls for macroeconomic conditions there are significant negative cohort effects for the latter immigrant cohorts suggesting that they are doing worse than the earlier immigrant cohorts. Controlling for macro conditions and allowing the effects to vary between immigrants and native-born results in all cohort effects becoming insignificant. This result suggests that the deterioration in assimilation of recent immigrants is due to the adverse economic conditions rather than a decline in quality of immigrants. Macro conditions at the time of entry to the labour market have adverse impacts on LFP but no significant effect on Employment probability. A higher unemployment rate at the survey year is, however, found to have an adverse effect on both. With the inclusion of controls for macro conditions the significance and magnitude of the coefficient measuring assimilation (coefficient on *years since migration*) increases. Therefore, not only the estimated cohort effects but also the assimilation profiles are sensitive to the inclusion of controls for business cycles.

**Key Words:** Immigration, Business Cycle, Cohort Effects, Economic Assimilation, Labour Force Participation, Employment

**JEL Classification:** J61, J21, E32

# **1 Introduction**

Labour market success of immigrants is the subject of considerable research in the economics literature, receiving a lot of attention in recent years with the reported decline in performance of recent immigrant cohorts. Identifying the factors that cause this deterioration is crucial from a policy perspective since different factors call for different policy prescriptions.

The immigration literature tries to explain differences in labour market outcomes of different immigrant arrival cohorts by differences in observable characteristics and by cohort effects. In standard earnings regression observed characteristics refer to such characteristics as schooling and experience, while cohort effects are generally interpreted as other unobserved “quality” differences. Accounting for the phase of the business cycle that immigrants face both at the time of arrival and during the survey year is important since this may affect their labour market prospects in the host country. If these macro conditions are not controlled for, one may conclude that there are significant cohort effects and interpret them as “quality” differences across cohorts, when in fact they are due to the business cycle.

The goal of this study is to explore the role of macroeconomic conditions in determining the labour market success of immigrants. Allowing for cohort effects, both effects of macro conditions at the time of arrival and at the time of survey year are explored. Previous studies in the literature, however, study either the effects of macro conditions at arrival by assuming away the cohort effects or the effects of macro conditions at the time of the survey allowing for cohort effects. In this second approach

cohort effects also embody the effects of macro conditions at the time of arrival, therefore, separate identification of the effects of macro conditions at entry is not possible<sup>1</sup>. This study identifies separate effects of all three factors simultaneously, that is cohort effects, effects of macro conditions at arrival, and effects of macro conditions in the survey year. The importance of controlling for macroeconomic conditions in interpreting cohort effects is discussed by exploring the sensitivity of the estimated cohort coefficients to the inclusion of controls for the business cycle.

This study differs from the previous literature also in terms of how labour market assimilation is captured. Job market opportunities and the opportunity cost of not working as measured by wages varies by the phase of the business cycle. Therefore, macroeconomic conditions are likely to have an impact on Labour Force Participation (LFP) decisions, as well as, whether an immigrant will be able to secure a job conditional on participation and how good the fit will be between the job and the skills of the immigrant. Existing studies focus on the effects of macro conditions on assimilation of immigrants by exploring effects either on earnings or the incidence of employment (unemployment). For the first time in literature, this paper explores the effects of macro conditions on labour force participation (LFP), along with a measure of employment and positive earnings. Studies that focus on incidence of employment (unemployment) and earnings are examining a selected group of individuals, those who participate in the labour force, and those who are successful enough to get a job and report positive earnings. For a new immigrant, however, the first challenge is to decide when to enter to the labour force. This decision is likely to be affected by macroeconomic conditions among others and it is important to understand the selection mechanism that shapes the

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<sup>1</sup> The only exception to this is McDonald and Worswick (1998) which is discussed below.

pool of individuals that are in the labour force. Identifying difficulties that immigrants may be facing in this dimension also helps in determining the best policy to help them. Therefore, the results in terms of LFP complement the results found in the previous literature that looks at employment and earnings. By estimating the effects of macro conditions on LFP, employment and earnings I explore the impacts along an immigrant's transition path to the labour market.

Previous literature has uncovered several facts on the impact of macro conditions. Stewart and Hyclak (1984), using 1970 US Census found that a higher annual growth rate in real GNP in the period of *entry* was associated with higher immigrant earnings among the foreign-born. Nakamura and Nakamura (1992), using 1980 US Census and 1981 Canadian Census, found that for both immigrants and the native born a higher unemployment rate in the year of labour market *entry* was significantly associated with a lower current hourly wage. The results also showed that the effect of unemployment rate at the time of *entry* is stronger for immigrants than natives. Chiswick, Cohen and Zach (1997) use Current Population Survey and show that poor labour market conditions at the time of *survey* have an adverse effect on employment probability and there is weak support for the hypothesis that immigrants are more cyclically sensitive to the current macroeconomic conditions than the native born. However, poor macro conditions at the time of *entry* are found to have no adverse effect on employment opportunities or the incidence of unemployment among immigrants. Using 1990 US Census, Chiswick and Miller (1999) find that earnings are lower among those who enter the US labour market in a period of high unemployment. By interacting the unemployment rate at labour market entry with duration in the US, they test whether the effects of macro conditions at

entry varies by duration of residence in the destination and they find that this effect is temporary. These studies test the effect of macro conditions at entry and at the survey year on employment and earnings, however, they do not allow for cohort effects.

Using eleven cross-sectional surveys of Survey of Consumer Finances (SCF), McDonald and Worswick (1997) find that immigrants from recent arrival cohorts have higher unemployment probabilities than similar non-immigrants in survey years corresponding to a recessionary period. However, this differential disappears as the number of years of residence increases. Using the same data, McDonald and Worswick (1998) report a significant impact of the current macroeconomic conditions (at the time of survey) on the earnings of immigrants. They also note that controlling for the unemployment rate at the time of entry to the labour market is found to have a negative but insignificant impact on earnings, but these results are not presented in the paper.

This paper shares a methodology similar to McDonald and Worswick (1998). Both studies allow for cohort effects and control for the effect of current macro conditions (at the time of survey). McDonald and Worswick use public-use files of SCF's where immigrant arrival cohorts can only be identified over an extended period such as 1956-65. It is not possible to identify in which year over this period an immigrant has arrived. Therefore, in order to control for entry macro conditions either the average unemployment rate over this ten-year period or unemployment rate in a specific year within this period has to be used. Chiswick et al. (1997) discuss in their study that using an average unemployment rate over a period of three years after an immigrant's arrival is less appropriate as a measure of labour market conditions at entry than is the unemployment rate at the year of arrival. The macroeconomic environment can change

substantially even over a three-year time frame. Therefore, in a rapidly changing macroeconomic environment, measures other than the unemployment rate at the year of arrival will be a poor measure of macro conditions at entry. McDonald and Worswick's (1998) finding that entry macro conditions have no significant impact may be partly because the measure used does not adequately reflect the conditions at entry. This paper uses master files of SCF's and is able to identify the year of immigration for immigrants consistently across all survey years. This provides a better measure of macro conditions at entry.

Secondly, McDonald and Worswick (1998) use survey years 1981-92 and due to data problems the latest immigrant cohort they can identify using the public use files is the 1976-80 immigrant arrival cohort. In this study immigrants who arrived until 1996 are identified using survey years covering 1979-97. This allows studying the experiences of immigrant cohorts, including the recent arrival cohorts, over a longer period of time that covers the boom that followed the severe recession of early 1990's. The declining performance of recent immigrant cohorts has attracted a lot of attention and I address their performance relative to earlier cohorts and explore the role macro economic conditions played in creating differences between recent and earlier immigrant cohorts.

Finally, McDonald and Worswick's (1998) focus is on earnings. I focus on LFP, employment and earnings. This allows an exploration of the impacts of macro conditions at different stages of transition to the labour market.

Given the reported decline the in performance of recent immigrants, the interesting questions in this context are whether the timing of immigration has a permanent effect (a 'scarring effect' as it is sometimes called) on how well immigrants

assimilate, and if a permanent effect exists what are the appropriate policy tools to address the issue. In the Canadian context, before the early 1990s, the government cut the level of immigration during recessions when the “absorptive capacity” of the economy was believed to be low. The screening process was used to adjust the level and composition of immigrants. As an example, during 1983-85 all independent immigrants were required to have arranged employment to get admission. This resulted in a sharp decline in the number of individuals accepted under independent class (see tables 3.1 and 3.2 for changes in class composition of immigrants over 1980 to 1998). Starting with the early 1990’s recession and the following boom the Canadian government moved away from its time honored pattern. The effect of macro conditions on immigrants is a concern for other immigrant receiving countries as well and several other countries have immigration policies tailored to take into account the stage of the business cycle. Australia changes the annual immigration quotas on the basis of the state of the economy. The United States may implicitly do so through administrative tightening of criteria for labour market visas, although this constitutes a small portion of total migration to the US (Chiswick, Barry R. and Y. Cohen and T. Zach (1997)). Israel, on the other hand, doesn’t tie its immigration policies to the short-term labour market conditions. Given the different practices of major immigrant receiving countries, it is interesting to compare relative performance of immigrant cohorts arriving over different phases of the business cycle.

The results so far using the SCF master files show that cohort effects are very sensitive to the inclusion of controls for macroeconomic conditions. Without controls for macroeconomic conditions there are significant negative cohort effects for the latter

immigrant cohorts suggesting that they are doing worse than the earlier immigrant cohorts. Controlling for macro conditions and allowing the effects to vary between immigrants and native-born results in all cohort effects becoming insignificant. This result suggests that the deterioration in assimilation of recent immigrants is due to the adverse economic conditions rather than a decline in quality of immigrants. Macro conditions at the time of entry to the labour market have adverse impacts on LFP but no significant effect on employment probability. A higher unemployment rate at the survey year is, however, found to have an adverse effect on both. With the inclusion of controls for macro conditions the significance and magnitude of the coefficient measuring assimilation (coefficient on *years since migration*) increases. Therefore, not only the estimated cohort effects but also the assimilation profiles are sensitive to the inclusion of controls for business cycles.

## **2 Data**

The data used in this study come from the Survey of Consumer Finances (SCF) master files titled *Individuals Age 15 and Over, With or Without Income*. The SCF was carried out in a two-week period in each April between 1980 to 1998. The individuals are a weighted sample of all individuals 15 years of age and older in Canada at the time of the survey. A set of sample weights are provided and used in the estimation to enable generalizations of results to the Canadian population. Immigrants are identified by their year of arrival in the master files. This makes it possible to identify immigrant cohorts by each year of arrival compared to the public use files where immigrants are identified as multi year arrival cohorts that are overlapping for years after 1990. The SCF, however,

doesn't provide information on visa category or country of origin for immigrants. The SCF yearly files complement the yearly Labour Force Survey (LFS) where in addition to the questions asked in the LFS for the *reference week*, the SCF asks additional detailed income questions about the previous year (*reference year*). Therefore, for example, in the 1990 survey year questions regarding the reference week refer to the activity in the 2-week period in April of 1990, whereas questions for the reference year refer to 1989. Using SCF files it is possible to explore several dimensions of labour market activity, such as LFP, employment and earnings.

I restrict the SCF sample to males who were between the ages of 25 and 55 in the survey year. The native-born sample is a 15 % random sample of all non-immigrant men age 25 to 55 in the survey year. Immigrants are restricted to those whose age at migration was over 17. The former age restriction is intended to focus on men that are likely to have finished their education and are not yet at the mandatory retirement age. The latter restriction on age at migration is intended to focus on the effect of business cycles on immigrants who come in as adults and are less likely to have host country specific education. The experiences of the immigrants who arrive at the host country at younger ages and the effects of the business cycles on them can be quite different, more like the effect of business cycles on Canadian-born. Also excluded are those migrants whose year of arrival is the same as the reference year. These individuals spend less than one full year during the reference year in the host country after their arrival. Therefore, measures of LFP, earnings and employment for the reference year that this study focuses on refer to a shorter period of time for these individuals compared to others who arrived prior to the reference year.

Using samples of immigrant and Canadian-born individuals drawn from SCF's I study the role of macro economic conditions on LFP, employment and incidence of positive earnings (IPE). The study focuses on immigrants who arrived from 1966 to 1996. In the SCFs it is possible to identify immigrants who migrated prior to 1966, however, due to small sample sizes (especially in the later survey years) these immigrants are left out of the analysis. In existing literature cohort definitions are dictated by the information available in data on year of immigration. For example public use files of SCF identifies only the multi-year period over which an immigrant has arrived, such as 1976 to 1980, which leads to a cohort definition of 1976-80. In the master files exact year of immigration is identified. The cohort definitions in this paper are motivated by important shifts in immigration policy regime, business cycle dates and the trends in the country of origin and class composition of immigrants over years (as discussed in section 3.1.3 and presented in tables 3, 3.1 and 3.2). Cohorts are defined as 5-year arrival cohorts between 1966 and 1970, 1971 and 1975, and 4-year arrival cohort between 1976 and 1979. Over 1966-79 period country of origin of immigrants shifted from Western Europe to Eastern Europe and Asia. This was a result of the regulatory changes in immigration policy in early 1960s that abolished the policy that gave preference to British, French and American citizens and set limits on immigrants from Asiatic countries. The cohorts that arrived after this period are defined by shorter periods reflecting the important changes in immigration policy and business cycle dates. The 1980-82 cohort arrived during early 1980's recession. The 1983-85 cohort arrived during a period when immigration under the skilled-worker category required an arranged employment (this restriction significantly altered the composition of immigrants by visa category). The 1986-89

cohort arrived during the following boom, while the 1990-92 cohort arrived during the 1990's recession. Finally, the 1993-96 cohort arrived in the boom following the severe recession of early 1990s. Furthermore, 1990 marks the year when the immigration policy that tailored the immigration levels to the macro conditions was abandoned and this resulted in a significant increase in the level of immigration.

The outcome variables are *LFP*, *Employed* and *IPE*. *LFP* is a dichotomous variable equal to one if the male respondent was in the labour force any time during the reference year, zero if he was not employed and didn't look for work for the whole year. *Employed* is a dichotomous variable equal to one if respondent was a labour force participant and had positive earnings during the reference year; zero if he was a labour force participant but didn't have any positive earnings.<sup>2</sup> Finally, *IPE* is a dichotomous variable equal to one if respondent had positive earnings in the reference year and zero otherwise. *IPE* can be zero either because the individual was unemployed or out of labour force all year, hence didn't have any positive earnings.<sup>3</sup>

*LFP* is an indicator of the first stage of transition to the labour market, the labour force participation decision; *Employed* is an indicator of success in finding a job given the respondent decides to participate in the labour force. *IPE*, on the other hand, is a summary measure of the previous two indicators. For *IPE* to be equal to one, the individual must have decided to participate in the labour force and then must be successful in finding a job. *IPE* equal to zero indicates a difficulty either at the labour force participation stage or finding a job given participation.

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<sup>2</sup> This measure of employment is compared below to the employment rate obtained from information on the number of weeks worked conditional on labour force participation.

### 3 Analysis

This section first summarizes the trends in LFP, Employment and IPE in figures 1-3 over the 1979-97 period using the SCF data. Figure 1 presents the LFP rates for immigrants and Canadian-born which shows a downward trend for both groups over the sample period. The adverse effects of early 1980's and 1990's recessions on participation rates are evident. The decline in LFP rates for immigrants during recessions is higher than that for the Canadian-born. Immigrants have slightly higher participation rates in early 1980's relative to Canadian-born, however, after 1990's recession this pattern reverses and immigrants have relatively lower participation rates. The gap remains between the two groups until the end of the sample period. Figure 2 presents the employment rates for labour force participants.<sup>4</sup> Employment rates are similar for both groups until 1990's and again a drop in employment rates of immigrants relative to Canadian-born is observed starting with the 1990's recession. The gap closes between the two groups to some extent in the following boom. The effects of business cycles are evident on both groups with a fall in employment rates during recessions and a recovery after each recession. Finally figure 3 presents IPE for immigrants and Canadian-born regardless of LFP status, and as such, it is a summation of the trends observed in figures 1 and 2. Immigrants are

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<sup>3</sup> It is also possible for the individual to be self-employed and report negative earnings, hence the outcome variable IPE to be equal to zero. However, only about 0.5 % of individuals report negative earnings in a given survey year and this rate is quite stable across survey years.

<sup>4</sup> Figure 2 presents the incidence of positive earnings (IPE) for labour force participants. In figure 4, for the immigrants who are labour force participants the trend in IPE is compared to employment rates obtained using the information on number of weeks worked in the reference year. The two series are very close to each other. Employment rates using information on number of weeks worked is slightly higher since some individuals might have worked but reported negative earnings. In the rest of the paper the IPE for participants is referred to as employment rate.

performing relatively better until late 1980's and doing worse after the 1990's recession.<sup>5</sup> The sharp decline in performance of immigrants in early 1990's recession in terms all three measures of LFP, Employment and IPE is especially notable.<sup>6</sup>

The deterioration in the performance of immigrants may be due to the differences in observed and unobserved characteristics of different immigrant cohorts. Also, the phase of the business cycle and the severity of the 1990's recession might have played a role in this outcome.

Table 1 shows that immigrant arrival cohorts prior to 1980 are older than Canadian born in the survey year whereas more recent migrants are younger. More recent immigrant arrival cohorts are more educated than their predecessors and also relative to the native born. For example, 61.3% of 1993-96 cohort has a post secondary certificate/diploma, or a university degree, compared to only 38% of the native-born. Immigrants are over represented in Ontario and BC and the fraction of immigrants that choose to live in large urban areas increased with more recent arrival cohorts. There is also a shift in the mother tongue of immigrants from English and French to other mother tongues. This observation is consistent with the shift in the country of origin of immigrants from West Europe to Asia and other non-European countries over this period.<sup>7</sup> In the next section first the differences between immigrants and native-born are

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<sup>5</sup> Differences between immigrants and Canadian-born in percentage points in terms of the three measures in figures 1-3 are presented in table 2 that shows the trend over 1979-97 period in an alternative way.

<sup>6</sup> The early 1990's recession was very severe relative to previous ones. Bodman and Crosby (2000) give the number of quarters it takes the economy to surpass its previous peak after the contraction has ended. After the 1981-82 recession the recovery duration to previous peak was 3 quarters. After the 1990-91 recession the recovery duration to previous peak was 9 quarters. The longest recovery period observed after a recession from 1947 to 1980 was that after the 1947-48 recession that took 3 quarters to reach the previous peak.

<sup>7</sup> There is no information in the SCF's on the country of birth except the information whether or not an individual was born in Canada. Therefore changes in the distribution of the country of birth over time can not be addressed with this data.

explored controlling for observable characteristics using a “flexible form”. Then, using a fixed-effects specification the effects of macro conditions on immigrants’ assimilation are explored.

### 3.1 Multivariate Analysis of LFP, Employment and IPE

#### 3.1.1 Flexible Form Specification

The differences between immigrants and Canadian-born in figures 1-3 could be caused by the differences in the observed characteristics. In order to identify the differences between the two groups holding observed characteristics constant, a binary choice model (BCM) is utilized. BCM is used to model differences in LFP, Employment and IPE using a “flexible form” that imposes no particular functional form on the relationship between years-since migration and the probability of observed outcome. In this specification:

$$I_i(t) = X_i(t)\beta(t) + \sum_{j=1}^J \sum_{t=1}^T \alpha^j(t)C_i^j Y(t) + u_i(t) \quad (1)$$

In the case when  $I_i(t)$  refers to the LFP, individual  $i$  is in the labour force in period  $t$  if  $I_i(t) \geq 0$ , out of labour force otherwise. Probit estimation of above equation generates the probability that each individual  $i$  will be in the labour force in period  $t$  given his personal characteristics. The BCM is similarly defined for Employment and IPE outcomes. The vector  $X$  is the vector of characteristics of individual  $i$  at time  $t$  and controls for the following:

$$X_i(t) = \{\text{education, region of residence, size of the centre of residence, mother tongue, marital status, age}\}^8$$

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<sup>8</sup> See table 9 in appendix for variable definitions used in multivariate analysis.

A different set of coefficients  $\beta(t)$  is estimated for each survey year, allowing the effect of characteristics in  $X$  to be different in each survey year. For example, the effect of having low level of education on probability of employment may be stronger during recessions if those with less skills are more adversely affected by an economic downturn.

The cohort effects for immigrants are captured by  $C_i^j$  dummies that identify each immigrant arrival cohort ( $j=1, \dots, J$ ). The interaction of  $C_i^j$  with survey year dummy variables  $Y(t)$  gives a different estimate of cohort effects  $\delta^j(t)$  for each survey year.  $\delta^j(t)$  shifts the intercept of the index for immigrants in each cohort in each year allowing the differences between immigrants and native-born to be sensitive to the phase of the business cycle. Cohort effects in this context may be driven by differences across cohorts in terms of years of residence in the host country, macro conditions at the time of entry and survey year and differences in unobserved quality.

Results based on probit estimation of the model using specification (1) are presented in table 4 for LFP, table 5 for Employment and table 6 for IPE. Rather than presenting parameter estimates from 19 survey years, these tables present the estimates of differences in probability of observed outcome (such as LFP) between immigrant cohorts and the Canadian-born. For example, in table 4 for the 1976-79 cohort in survey year 1982, a coefficient of 0.019 means that an immigrant from that cohort was 1.9% more likely to be a labour force participant compared to a Canadian-born, controlling for other observable characteristics. In this table each row for a given survey year gives the cross-sectional profile of immigrant cohorts and should be comparable to results from a single cross-sectional study. A column, on the other hand, shows the experience of a given

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cohort over years 1979 to 1997. Similar results are presented by McDonald and Worswick (1997) analyzing unemployment probabilities using SCF files from 1982 to 1993.<sup>9</sup>

Results from table 4 show the difficulties experienced by recent immigrant cohorts. For immigrant cohorts that arrived before 1985 the differences between immigrants and Canadian-born that are significant are all positive (except for 1984 and 1988 for the 1976-79 cohort) whereas, for post 1985 cohorts all statistically significant differences between immigrants and Canadian-born are negative. These results show that immigrants arriving prior to 1985 have higher participation rates whereas post 1985 cohorts have lower participation rates. For example the 1986-89 cohort had a 16.3% lower participation rate in 1988 compared to the Canadian-born in the same year. The difference between pre-1985 and post-1985 may be due to the fact that earlier arrival cohorts have spent more time in the host country. However, when the experiences of 1976-79 and the 1986-89 cohorts in the first few years after arrival are compared to that of the latter arrival cohorts at similar points after their arrival there are still negative differences for the latter cohorts but not for the earlier ones. There is also evidence of assimilation for these latter cohorts. For the 1986-89 cohort, for example, 16.3 % lower participation rate in 1988 falls to 8.6% in 1990 and no significant difference is observed for the rest of the period. Previous literature studies only the unemployment experience and earnings of immigrants. The differences found in this study among different

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<sup>9</sup> Note that there are some differences in selection of samples between this study and the study by McDonald and Worswick (1997). In this study individuals who are 25-55 in the survey year are studied and the sample of immigrants are restricted to those who were at least 18 when they arrived to Canada. Age at migration restriction doesn't exist in the McDonald and Worswick study and also they restrict their sample to those who were 24 to 53 in 1982, i.e. they follow a birth cohort. Finally, the measure used by McDonald and Worswick refers to the reference week, whereas, the measures used in this study refer to the reference year.

immigrant cohorts in terms of labour force participation shows that problems with economic assimilation may start as early as at the participation stage.

Another observation from table 4 is that although for some survey years (such as 1993 and 1994) immigrants from earlier cohorts are doing better than later cohorts this cannot be generalized to all survey years. Also, following a cohort across survey years shows that differences between a given immigrant cohort and Canadian-born can be different from one year to another. The 1976-79 cohort, for example, have 1.9% higher participation rate in 1982, but 6.2% lower in 1984. This may be due to higher sensitivity of immigrant outcomes to the changing macro conditions.

The next table, table 5, presents results for the probability of being employed for those in the labour force. Patterns similar to those in table 4 are also seen here, suggesting that more recent immigrants are having harder times at the employment margin as well. For example, the 1983-85 cohort had 19.5% lower employment rate in 1984 and the 1990-92 cohort had 18.2% lower employment rate in 1991. Table 5 illustrates that the 1986-89 cohort never had a negative employment differential that is statistically significant over these survey years. On the contrary, they had 2% higher employment in 1990 and 2.6% higher employment in 1996. Judging from these figures one would conclude that this cohort is doing relatively well. The conclusion would be quite different if the same cohort's LFP experience is assessed using information in table 4. The same cohort had 16.3 % lower participation rate in 1988 and 8.6 % lower participation rate in 1990. These figures suggest substantially lower rate of entry to the labour market, however, those who entered the labour market did relatively well. If only the most successful are entering the labour market then their employment rates and earnings rates

can paint a favorable picture for the performance of that cohort. Yet, there may be substantial difficulties in the short term preventing labour market participation in the first place.

Table 6 presents the results from an estimation of the binary choice model for the IPE. As discussed, IPE is defined for all individuals regardless of labour force participation status. The table reflects the differences both at the participation and employment margins, and therefore estimated differences between immigrants and Canadian-born are larger than previous two tables. IPE, however, provides a more comprehensive view of the success of assimilation for immigrants. Recent cohorts have lower rates of IPE than earlier cohorts, however, show signs of assimilation. For example, the 1993-96 cohort has 21.1% lower IPE relative to Canadian-born in 1994 but this figure drops to 8.1% by 1997.

Estimated differences between immigrants and native-born in tables 3-6 control for observed characteristics in  $X$  of specification (1). The next section uses a fixed-effects specification commonly used in studies of immigrant economic assimilation and extends that framework to assess the role of business cycles.

### **3.1.2 Fixed Effects Specification**

The immigration literature studying earnings assimilation uses a parametric specification, with assimilation being captured by years since migration and differences across cohorts captured by cohort dummies that allow for a separate intercept shift for each cohort. This conventional approach is called a fixed-effects model and the corresponding BCM is given by:

$$I_i(t) = X_i(t)\beta + \sum_{j=1}^J \delta_j C_i^j + \alpha_1 YSM_i + \alpha_2 YSM_i^2 + u_i \quad (2)$$

Specification (2) is estimated by merging data across all survey years and  $X$  refers to the same set of characteristics as in specification (1).  $C^j$  is a cohort dummy equal to 1 for immigrants in cohort  $j$ , 0 otherwise.  $YSM$  is the number of years an immigrant spent in the host country. This model is extended to control for macro conditions by the following BCM:

$$I_i(t) = X_i(t)\beta + \sum_{j=1}^J \delta_j C_i^j + \alpha_1 YSM_i + \alpha_2 YSM_i^2 + \phi_a U_i^e + \phi_s U_i^s + u_i \quad (3)$$

In specification (3)  $U^e$  refers to the national unemployment rate at entry and  $U^s$  refers to the unemployment rate at the survey year. Given significant differences in terms of labour market conditions across provinces, survey year unemployment rate is captured at the provincial level using the information about the region of residence for individuals in each survey year. For the native-born  $U^e$  refers to the labour market conditions at the year of completion of schooling calculated as (Survey Year- Years of Schooling – 6),<sup>10</sup> whereas for immigrants it refers to the unemployment rate at the year of immigration. Immigrants may acquire additional schooling after their arrival. In the analysis the immigrant sample is restricted to adults who were at least 18 years old at arrival so that most of them will have finished their schooling by that time.<sup>11</sup> There is no information in the data about the province an individual first lived or for how long after completion of

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<sup>10</sup> This assumes no interruptions in the course of schooling for labour market or other reasons.

<sup>11</sup> The group that is most likely to get further education in the host country is the age group 18 to 22 at the time of migration. This group constitutes 4.8 % of male immigrants and close to 50 % of this group has high school or less education in survey year 1997. This indicates that by the time this group arrived in Canada they have most likely completed all their schooling in the source country. Also, Hashmi (1987) has shown that adult immigrants have on average very little post-immigration schooling.

schooling for the native-born and after arriving to the host country for immigrants. Therefore, the national unemployment rate is used to capture macro conditions at entry.

Specification (3) restricts the effects of macro conditions at the time of entry and at the survey year to be same for immigrants and native-born. The previous literature has evidence that immigrants can be more sensitive to the business cycle than natives. To allow for this possibility specification (3) is extended to include interaction terms of  $U^e$  and  $U^s$  with cohort dummies. Also, to test the effect of macro conditions at entry on the rate of assimilation of immigrants YSM is interacted with  $U^e$ .

In specification (3) a cohort is defined as immigrants arriving over a number of years, such as 1986-89. Within a given cohort immigrants arrive at different years and face different labour market conditions. This variation of macro conditions at entry among immigrants within a given cohort allows for the separate identification of cohort effects and macro conditions at entry.<sup>12 13</sup> The interpretation of cohort effects in this context is then the unobserved differences common to immigrants within a given cohort. The literature interprets these cohort effects as differences in “unobserved quality”. This may be driven by changes the immigration policy resulting in changes in source country and visa category distribution of immigrants, or by changing incentives to immigrate that affect unobserved quality of immigrants. A separate BCM is estimated for each of the

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<sup>12</sup> There is significant variation in labour market conditions at entry for both immigrants and native-born. Immigrants in the sample arrive over the 1966-96 period, whereas native-born could have finished their schooling over a period from the early 1940's to 1996.

<sup>13</sup> If cohorts were defined as single year arrival cohorts, both the effects of unemployment at entry and cohort effects could still be identified if a common effect of macro conditions at entry is assumed for both immigrants and native-born. However, identification of the differential impact of entry macro conditions on immigrants is not possible in this case. In all other cohort definitions this identification is possible. The practice in the immigration literature has always been to define cohorts as multi-year arrival cohorts. This paper adopts the same approach that gives rise to specification in (3).

three outcomes of interest, that is LFP, Employment and IPE, and the results are presented in table 7. Table 8 presents the estimated marginal effects.

For each of the outcome variables three different specifications are estimated. The first specification is the fixed-effects specification (2) of section 3.1.2 that controls for years since migration but doesn't control for macro conditions (column (a) in table 7); the second is specification (3) of section 3.1.2 which in addition controls for macro conditions at entry and at the survey year but restricts the effects of macro conditions to be the same for immigrants and native-born (column (b) in the table). Finally, the last specification extends (3) in a way that allows for a differential impact of macro conditions on immigrants by introducing interaction terms of unemployment rate with immigrant dummies. Also, this specification allows for assimilation profiles of immigrants to be affected by the macro conditions at entry (column (c) in the table). Results from the above three specifications are presented in the first three columns in table 7 for LFP, in the next three columns for the Employment outcome and the last three columns for the IPE.

The important result that emerges from table 7 -which is consistent across all three models of LFP, Employment and IPE outcomes- is that cohort effects are very sensitive to the inclusion of controls for macroeconomic conditions. In all three models the specification that doesn't control for macro conditions (column (a)) shows significant cohort effects which suggests that controlling for years since migration, latter immigrants cohorts are doing worse than earlier immigrants cohorts. Controlling for common effects of macro conditions on immigrants and native-born in the next specification causes the cohort effects to become smaller, however, there still remain significant cohort effects. In

the last specification, controlling for macro conditions and allowing the effects to vary between immigrants and native-born results in almost all cohort effects becoming insignificant. This suggests that without controlling for macro conditions the cohort effects would be capturing differences in performance of immigrants resulting from different macroeconomic conditions along their assimilation path. There is no indication of a decline in unobserved “quality” of the recent immigrant cohorts.

Macro conditions at entry have an adverse impact on LFP of both immigrants and native-born as indicated by the negative coefficient of unemployment at entry. However, it doesn't have an additional impact on immigrants as given by the insignificant coefficient for the interaction term of migrant dummy with unemployment at entry. A higher unemployment rate at entry also causes the slope of the assimilation profile of immigrants to become flatter (given by the negative coefficient of *Ysmunen*) suggesting a lower assimilation rate in terms of LFP if unemployment at entry is higher.<sup>14</sup> The effect of macro conditions at entry on employment, however, is insignificant. There is neither a shift in the intercept terms for native-born and immigrants nor a change in the slope of the assimilation profile of immigrants (as given by insignificant coefficients for *unempent*, *m\_unent* and *Ysmunen* in columns (b) and (c) for Employment outcome). The effects on IPE of macro conditions on entry, however, is significant suggesting that higher unemployment at entry causes a lower IPE for both immigrants and native-born, and also the slope of the immigrant assimilation profile in terms of IPE becomes flatter.

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<sup>14</sup> Several different specifications are estimated and above results are robust to these alternative specifications. These alternative specifications included interaction of the cohort dummies (coh6670, coh7175 ..) with unemployment rate at entry (alternative for *M-unent* variable in the tables), and each of these interaction terms were individually and jointly insignificant. Also, rather than interacting *ysm* with unemployment rate at entry (given by *Ysmunen* in the tables) another specification included interaction terms *ysm\*cohort\*unempent* allowing *ysm* profiles to be affected differently by the macro conditions at

These results for IPE are as expected since IPE summarizes the effects at the LFP and employment margins. The marginal effects of these variables reported in table 8 shows that a 4% increase in unemployment rate will result in a 0.4% decline in LFP for immigrants and natives<sup>15</sup>. On the other hand an immigrant's probability of LFP increases by the same amount for spending one more year in the host country as given by the marginal effect of years since migration. However, this result should not be interpreted as effects of business cycles being small. If a recession is long-lived with high unemployment rates for a number of consecutive years, then an immigrant landing over this period can be significantly disadvantaged than one who lands during an expansionary period. Table 8 also shows that the marginal effect of the interaction term for years since migration and unemployment rate at entry is quite small compared to the marginal effect of years since migration (about 1/10<sup>th</sup>). So the major impact of arriving during a recession is that immigrants start out worse but their assimilation rate is not much affected.

These results suggest that there are important impacts of macro conditions at entry on LFP for both immigrants and native-born. The finding that there are no effects on employment could result from selection bias at the participation stage. If individuals who have less chance of success in the labour market during a recession decide not to participate then those who participate are the individuals most likely to be successful. As a result no effect of macro conditions at entry among the participants is observed. These results are in line with the findings of Chiswick, Cohen and Zach (1997) who find poor macro conditions at the time of entry to have no adverse effect on the incidence of

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entry. This resulted in negative significant coefficient estimates for some interaction terms but not all. Results from the more parsimonious specification is presented above.

<sup>15</sup> The unemployment rate increased by about 4% in the two recessions from 1979 to 1983, and from 1989 to 1993.

unemployment among immigrants. Although the results of this paper and others suggest no effect of entry macro conditions on employment probability among the participants, the poor prospects in a labour market may be forcing individuals to accept lower paying jobs. This could be leading to the findings by Stewart and Hyclak (1984), Nakamura and Nakamura (1992) and Chiswick and Miller (1999) that worse macro conditions at entry result in lower wages.

Consistent with the previous studies in the literature a higher unemployment rate at the survey year is found to have an adverse effect on LFP, Employment and IPE for both immigrants and native-born. Moreover, this effect is larger for more recent cohorts as suggested by the larger negative interaction terms for more recent cohorts (given by  $M_{unsy70}$ ,  $M_{unsy80}$ ,  $M_{unsy90}$ )<sup>16</sup>. This suggests that immigrants from more recent cohorts are more adversely affected by an economic downturn. This may be because immigrants with less years of residence in the host country have accumulated less of the host country specific skills, making them more vulnerable in bad economic conditions. In all three models the coefficients of region dummies change with the inclusion of controls for macro conditions. For example, the negative coefficient for Atlantic region becomes insignificant for LFP model after controlling for macro conditions. This suggests that region dummies capture some of the effects of macro conditions.

With the inclusion of controls for macro conditions in all three models the significance of the coefficient for years since migration increases. Failing to control for macro conditions one may conclude that there is no assimilation as in the case of LFP

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<sup>16</sup> Alternative specifications are estimated that included interaction terms of cohort dummies  $coh6670$ ,  $coh7175$  etc. with the unemployment at the survey year replacing terms ( $M_{unsy70}$ ,  $M_{unsy80}$  and  $M_{unsy90}$ ). The resulting coefficients are positive for early cohorts and negative for the latter ones and

model in specifications (a) and (b) where the corresponding coefficient is insignificant. Similar result is obtained by McDonald and Worswick (1998) where they show that neglecting the impact of macro conditions at the survey year leads to a significant understatement in the rate of assimilation. Therefore, not only the estimated cohort effects but also the assimilation profiles are sensitive to the inclusion of controls for business cycles. The positive coefficients for  $Ysm$  in column (c) of all three models suggest that although immigrants are being adversely affected by the macro economic conditions they have a positive assimilation rate.

Another interesting finding that is robust across all three models is related to the education variables. The results suggest that individuals with higher levels of education are more successful, as expected. The interesting finding is that immigrants with 0 to 8 years of schooling are doing better than their native-born counterparts. On the other hand, immigrants with university education are doing worse than native-born with university education suggesting that immigrants get lower returns to education relative to their native-born counterparts for university education or higher. There is a lot of anecdotal evidence that highly educated immigrants, especially those in the regulated occupations such as medicine, are having qualifications recognition problem. One explanation for the lower participation and employment rates for this highly educated group could be these difficulties in the transferability of skills acquired in the source country to the host country labour market.

Figures 5-7 illustrate predicted immigrant differentials in terms of LFP, Employment and IPE by arrival cohort based on the coefficient estimates in table 7. The

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other qualitative results remain the same. Not all interaction terms were significant. The paper reports the results from the above more parsimonious specification.

reference person in these graphs is an individual with university education, living in Ontario with a size of centre of residence >500K, married, age 35-44. The more recent cohorts have larger differentials that increase at recessions and decline during the booms. Earlier cohorts (those arrived before 1982) are more insulated from the effects of macro conditions. The effect of early 1990s recession has been especially severe compared to early 1980s recession. The graphs also illustrate that although recent immigrants start with higher differentials, they all show signs of assimilation by declining differentials over time.

*(The rest of the discussion is related to the work in progress with IMDB)*

### **3.1.3 Effect of Changes in the Distribution of Immigrants by Class and Country of Origin on Recent Immigrants' Performance**

Immigrants admitted under different classes (visa category) and immigrants from different source countries may be facing different challenges in the labour market that cannot be controlled for by the other observable characteristics such as education and age. For example an immigrant coming under the skilled worker class may be more successful than an immigrant admitted under refugee class with the same years of education, the same age and other observable characteristics. Immigrants under the family class may have access to the networks and information of their relatives already living in the host country and this may increase the likelihood of finding employment and the quality of match between the job and the employee. However, these kinds of contacts may not be available to other categories of immigrants. Such differences can be important in explaining the success of various cohorts of immigrants but cannot be controlled for

without data on class of immigration or country of origin. Taking into account differences in distribution of immigrants by class or country of origin across various cohorts may therefore help in explaining observed differences in performance of cohorts of immigrants. Assessing the relative success of immigrants over the business cycle by source country and visa category is also interesting from a policy perspective. Conclusions from this analysis inform the decisions about how to manage the class composition of immigrants and help identifying immigrants that are in greater need of help over the business cycle.

This section uses data from the Immigration DataBase (IMDB) that provides information on class and country of origin of immigrants. The IMDB combines information from landing records of immigrants with information recorded on the personal income tax returns (T1). The data provides information on class of immigrants, country of origin, demographic characteristics as of the time of landing and employment earnings. However, there is no information on number of weeks or hours of work, nor on labour force participation status. The database currently covers the period 1980 to 1998. To be in the IMDB an individual who landed over 1980-98 must have filed a tax return at least once. For the purposes of this study, individual records in the IMDB are linked to the administrative data called Landing Records (LIDS). This allows identification of all immigrants to Canada who landed over the 1980-98 period even if the individual did not file a tax return for some reason over this period.

Table 3.1 shows the distribution of immigrants by class across landing years from 1980 to 1998. Individuals under family class are admitted based on a family tie with a close relative already residing in the host country. Refugee class members are admitted

under humanitarian grounds. Neither the family class and nor the refugee class members are assessed by the point system. Skilled workers, business class and assisted relative class members on the other hand are assessed by the point system. Those falling under the skilled worker class are subject to the tightest points test by being assessed for more factors and being required to pass a higher threshold. The screening process is more relaxed for the business class and assisted relative class. The “other” component of the immigration program has elements of both economic considerations (through the point system) and humanitarian grounds. Having elements of both components, but not fitting entirely in one or the other, it is separated out. It is important to note that only individuals identified as principal applicants are assessed by the points system. For example for a family applying under the skilled worker class, only the characteristics of the individual that applies on behalf of the family (i.e. the principal applicant) are assessed. If this individual passes the test, all family members are granted admission, otherwise all are rejected.

Table 3.1 shows significant changes in class (visa category) composition of immigrants over years. For example in 1984 family class constituted 37.2% of all immigrants in that year, whereas this figure dropped to 17.7% in 1997. Similarly in 1992 only 14.3% of immigrants were admitted under the skilled worker class, whereas this number jumped to 49.2% in 1998. Over the sample period similar changes occur for other classes as well. It is also interesting to note that for the skilled worker class their ratio among all immigrants drops from about 39.3% in 1982 to about 19% during 1984-86 period. During 1987-90 period the ratio increases to levels observed during 1980-82. During 1991-92 there is a big decline in the ratio once again, dropping to 14.3% in 1992.

Following 1992 the ratio steadily increases, reaching 49.2% in 1998. These changes can be driven by both changes in incentives for migration or by changes in immigration policy over the years. During recessions a lower number of skilled immigrants may be willing to migrate due to declining returns to immigration. Immigration policy is also an important factor in these outcomes. Before 1990 immigration policy was tied to the stage of the business cycle resulting in decline in number of immigrants admitted during recessions. For example on May 1982 a restriction was imposed on individuals willing to migrate under skilled worker class. The application was rejected if an applicant didn't have an arranged employment in Canada. This resulted in a decline in number of principal applicants admitted under skilled worker class from 21,000 in 1981 to 6,500 in 1984. This also resulted in a fall in total immigrant landings.<sup>17</sup> After 1990, however, the policy of tying immigration levels to the stage of the business cycle was abandoned. This period corresponds to the upward trend observed in ratio of skilled workers among all immigrants.

Table 3.3 presents the average years of schooling of immigrants over 1980-98 period. Average years of schooling among male immigrants, aged 25-55 at landing increased by 2.9 years between 1980 and 98. An increase in years of schooling is also observed within each immigrant class except the "other" category. Average years of schooling over the sample period is the highest for skilled workers, followed by business class, assisted relative class, refugee class, family class and "other" category respectively. Table 3 provides various statistics about multi-year immigrant arrival cohorts defined in the earlier analysis in addition to the ones in tables 3.1 and 3.3. There is significant

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<sup>17</sup> The Revised Selection Criteria for Independent Immigrants, Employment and Immigration Canada, 1985, p.1

variation across cohorts in the region they live in 1998. More of the recent immigrants choose to live in Ontario and BC, and less in Prairies.<sup>18</sup> Over the sample period there is almost a 20% fall in ratio of immigrants whose mother tongue is English. The share of Asia, Middle East and Africa as source countries grows by almost 40% over the 1980-98 period.

*(Analysis with IMDB is underway)*

## **4 Conclusions**

This paper studies the effects of macroeconomic conditions on labour market outcomes of immigrants. Allowing for cohort effects, both effects of macro conditions at the time of arrival and at the time of survey year are explored. Previous studies in the literature, however, study either the effects of macro conditions at arrival by assuming away the cohort effects or the effects of macro conditions at the time of the survey allowing for cohort effects. Also, for the first time in literature this paper explores the impacts at labour force participation (LFP) margin. Using 19 annual cross-sections of Survey of Consumer Finances (SCF) covering the period 1979 to 1997 it is shown that estimates of cohort effects are very sensitive to the inclusion of controls for macroeconomic conditions. Without controls for macroeconomic conditions there are significant negative cohort effects for the latter immigrant cohorts suggesting that they are doing worse than the earlier immigrant cohorts. Controlling for macro conditions and allowing the effects to vary between immigrants and native-born results in all cohort

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<sup>18</sup> Note that 1998 refers to different length of time since migration for different cohorts. For the 80-82 cohort this means around 18 years after in Canada whereas 1 year for the 97-98 cohort. Therefore, if region of residence at the same number of years after arrival is examined for all cohorts, a different picture may arise.

effects becoming insignificant. This result suggests that the deterioration in assimilation of recent immigrants is due to the adverse economic conditions rather than a decline in quality of immigrants. Macro conditions at the time of entry to the labour market have adverse impacts on LFP but no significant effect on Employment probability. A higher unemployment rate at the survey year is, however, found to have an adverse effect on both. With the inclusion of controls for macro conditions the significance and magnitude of the coefficient measuring assimilation (coefficient on *years since migration*) increases. Therefore, not only the estimated cohort effects but also the assimilation profiles are sensitive to the inclusion of controls for business cycles.

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Figure 1: Labour Force Participation (LFP) Rates, Reference Year

Males 25-55, Canadian-born & Immigrants - Year of imm. 1966-96

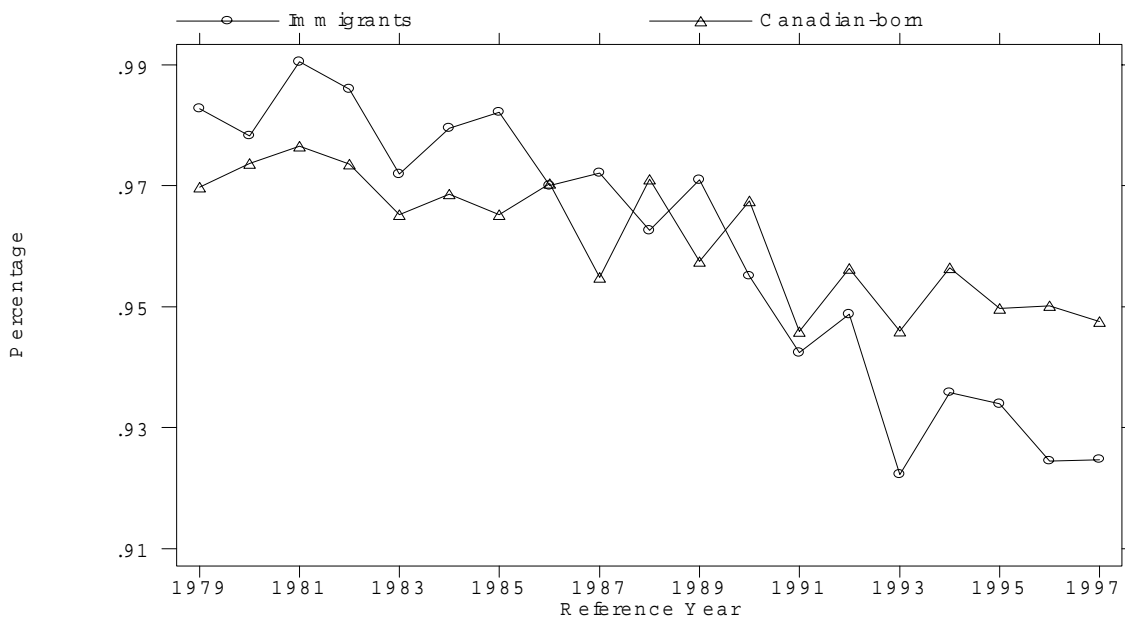


Figure 2: Employment Rates (Incidence of Positive Earnings for Labour Force

Participants), Reference Year, Males 25-55

Canadian-born & Immigrants - Year of imm. 1966-96

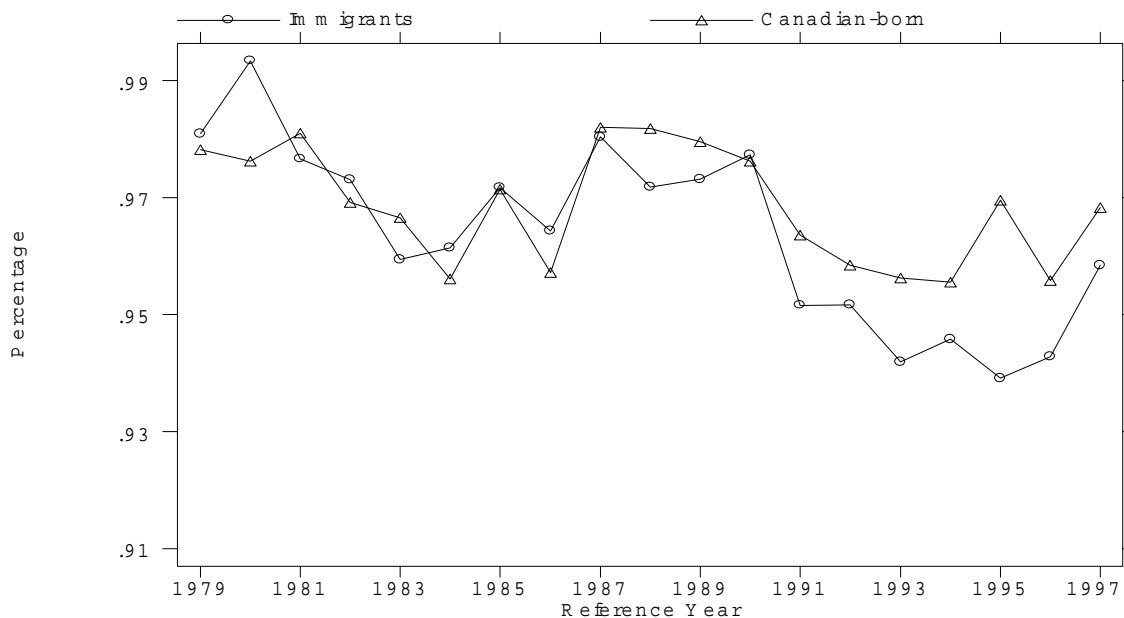


Figure 3: Incidence of Positive Earnings (IPE), Reference Year

Males 25-55, Canadian-born & Immigrants - Year of imm. 1966-96

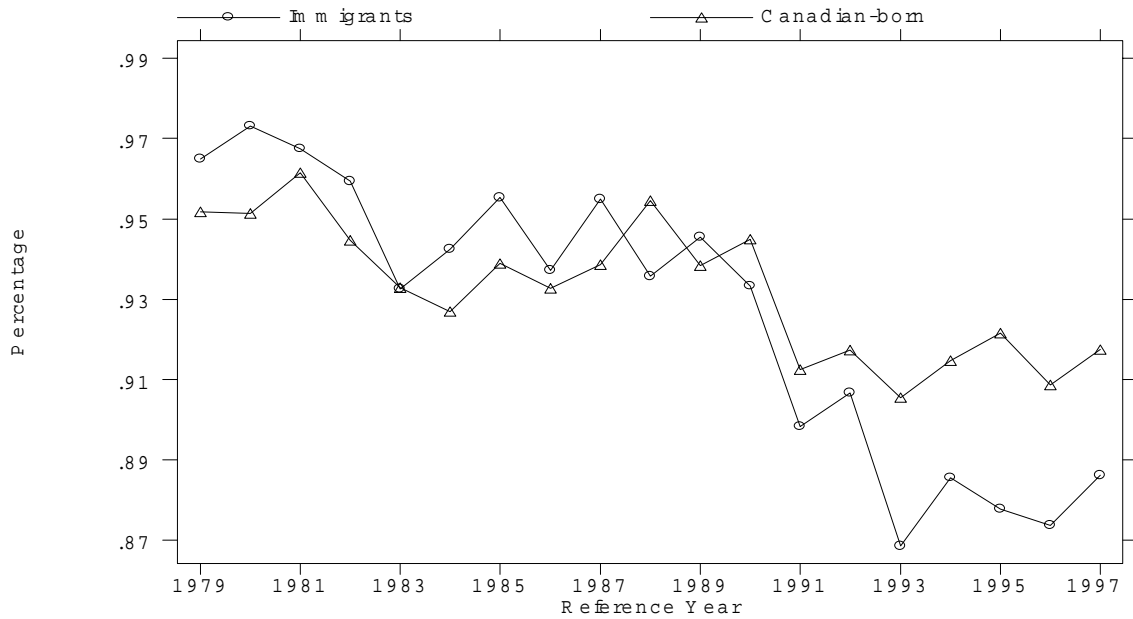


Figure 4: Incidence of Positive Earnings (IPE) for labour force participants &

Employment Rate for labour force participants, Reference Year

Males 25-55, Immigrants - Year of imm. 1966-96

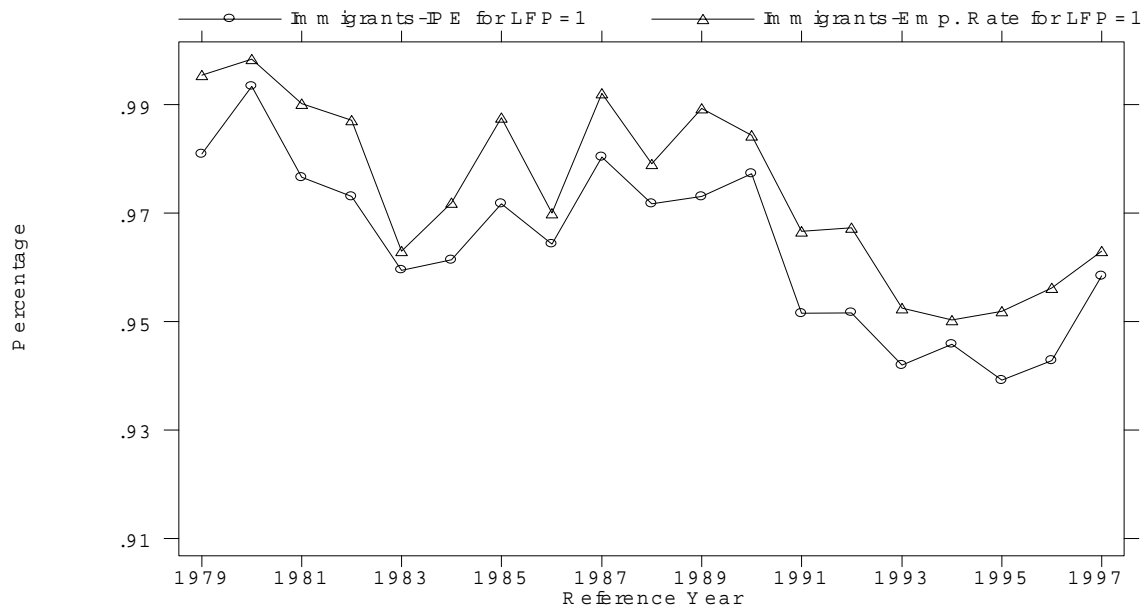


Figure 5: Predicted Immigrant LFP Differentials (Specification c-Table7), living in Ontario, married, age35-44, Urban1, university education)

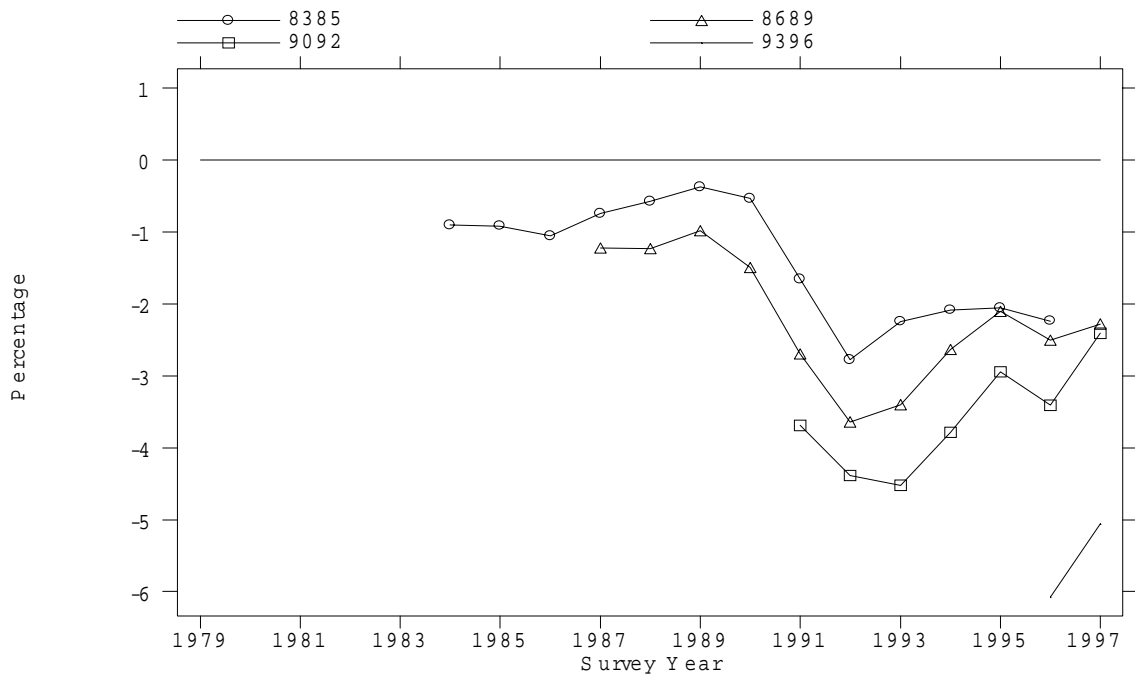
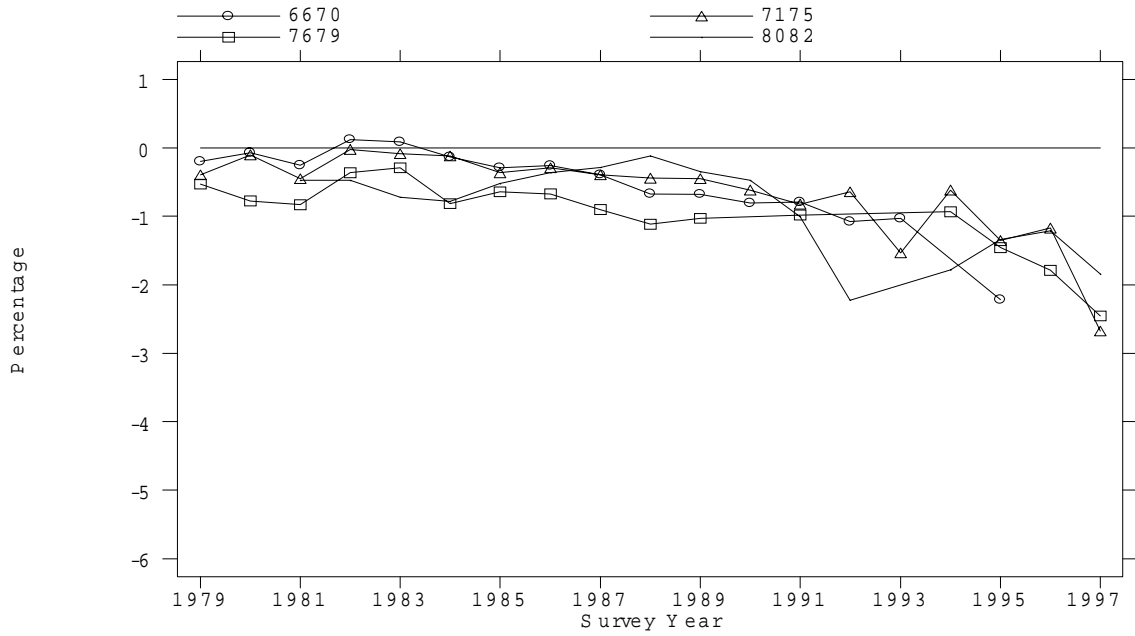


Figure 6: Predicted Immigrant Employment Differentials (Specification c-Table 7), living in Ontario, married, age35-44, Urban1, university education)

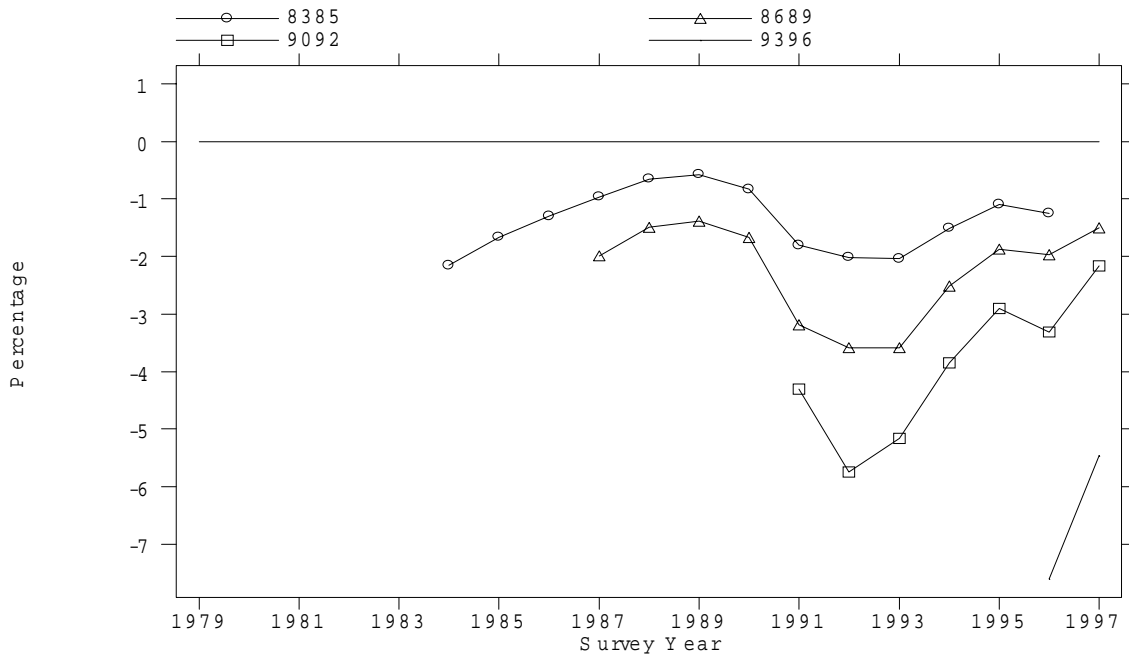
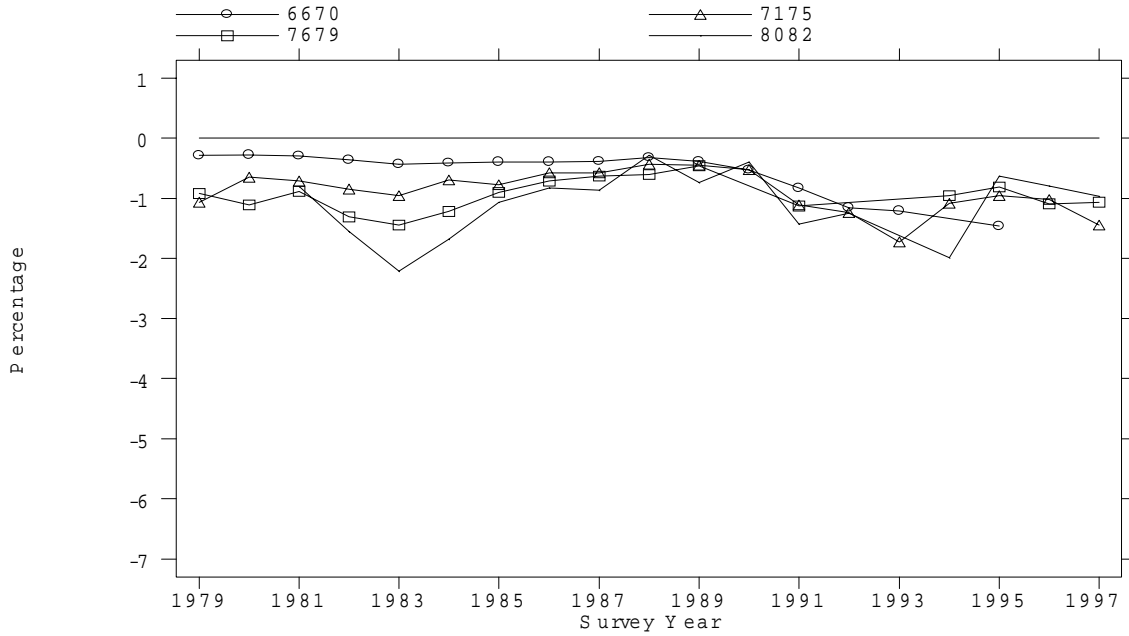


Figure 7: Predicted Immigrant IPE Differentials (Specification c-Table 7), living in Ontario, married, age35-44, Urban1, university education)

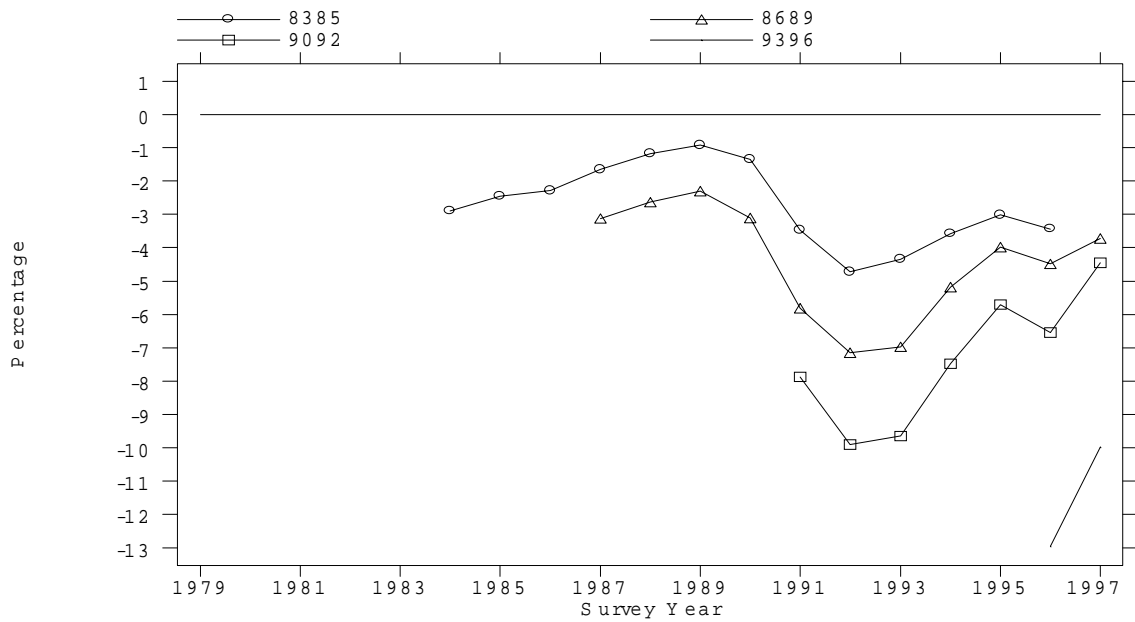
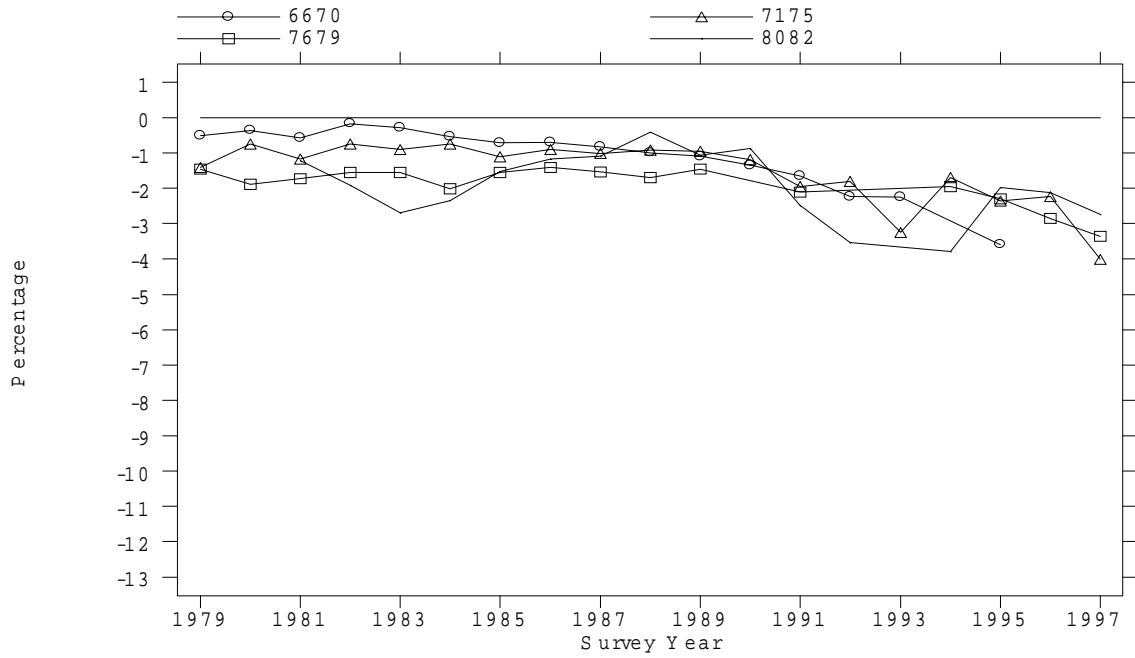
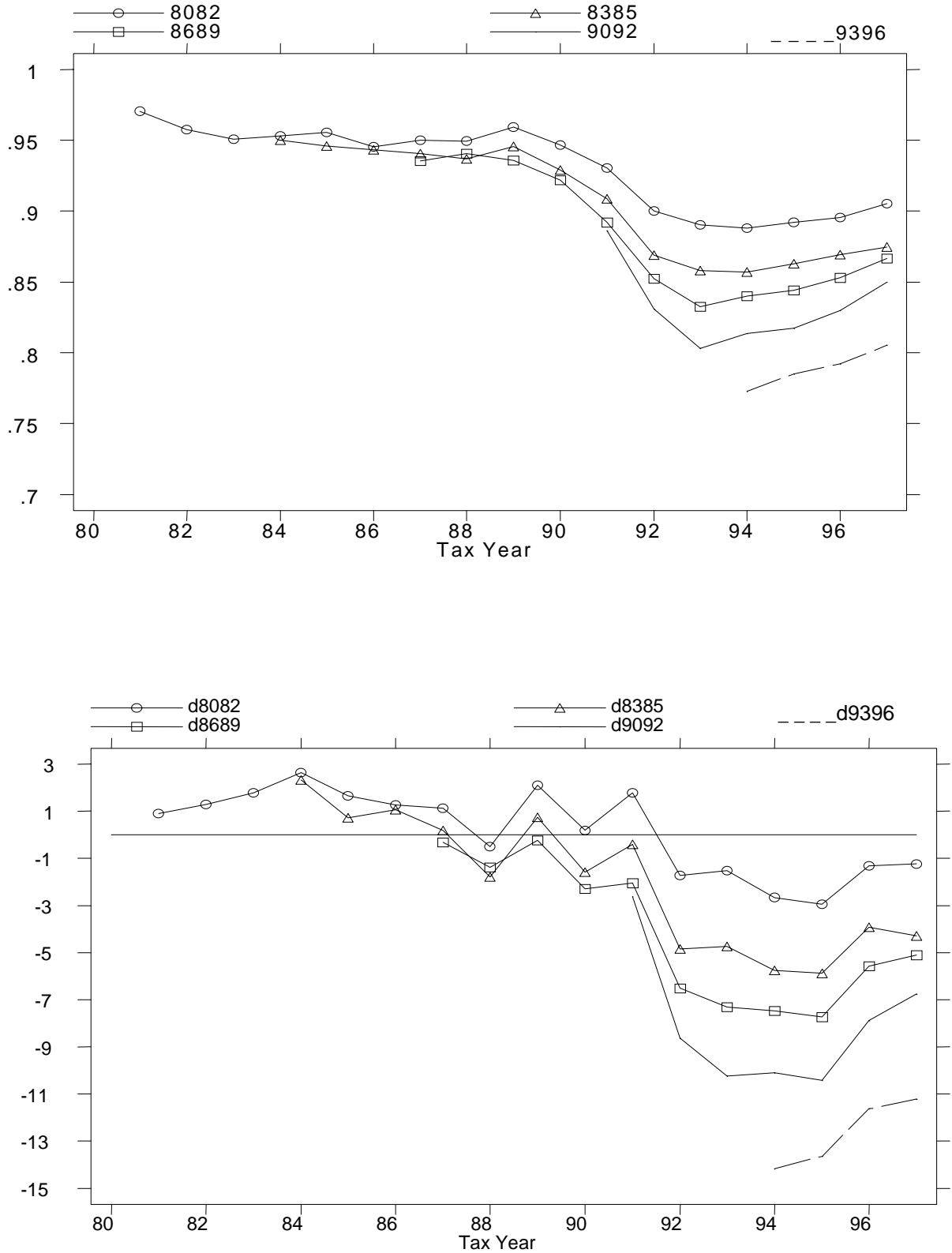


Figure 8 - Incidence of Positive Earnings (IPE) using IMDB Data, Tax Year

Males 25-55, Immigrant Cohorts - Year of imm. 1980-96

Upper Graph – Levels; Lower Graph – Immigrant – Canadian born differences



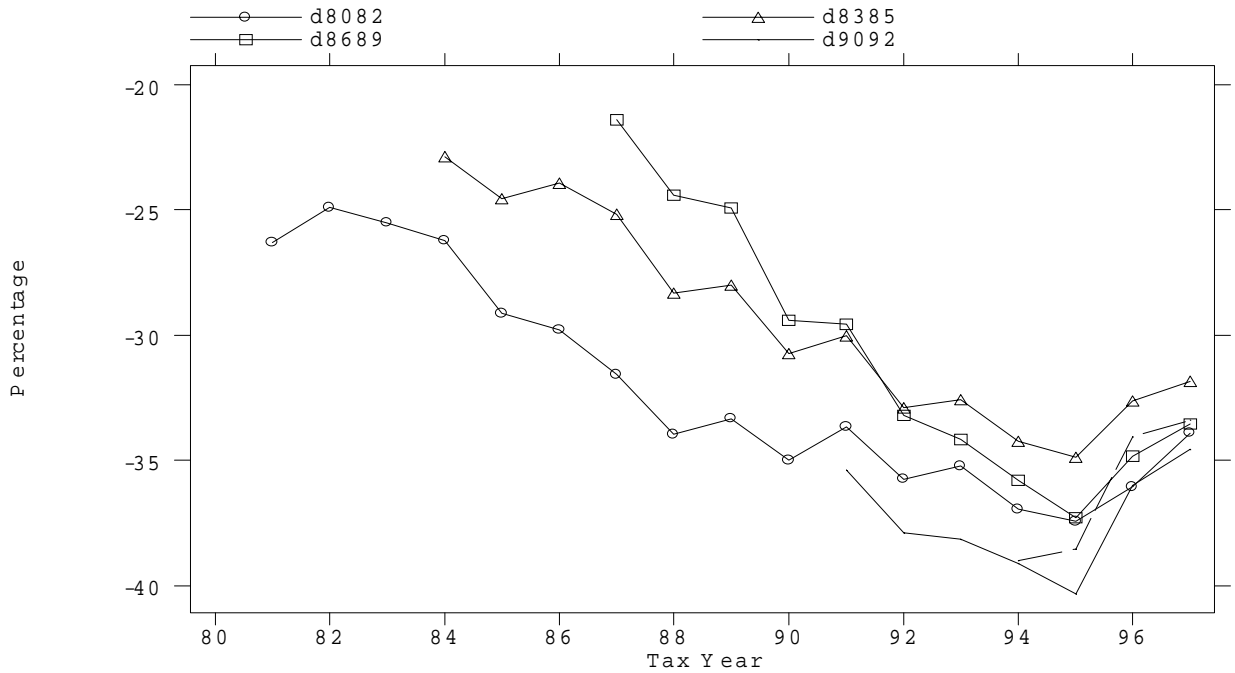
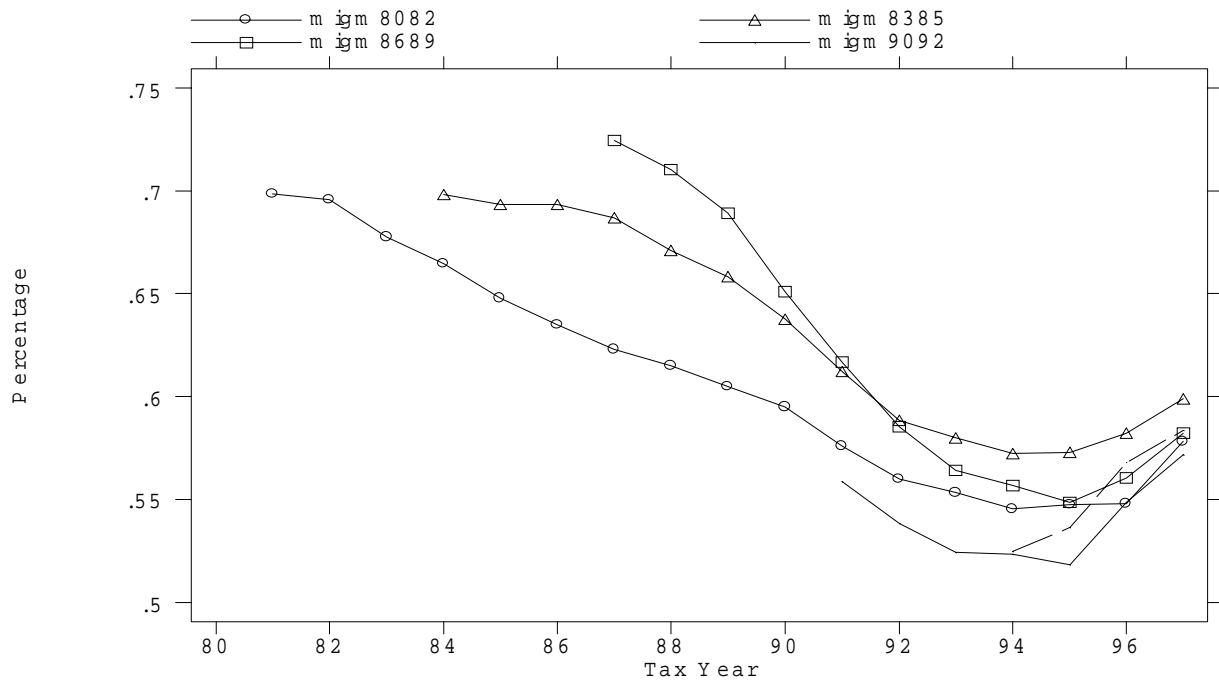


Table 1- Sample Means (%)

## SCF Data

	Canadian Born	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
<b>Education</b>									
0-8 years	10.6	16.5	15.0	10.1	10.0	8.7	8.4	7.3	4.5
Some sec.- no post secondary	43.1	32.1	32.1	33.9	34.4	36.9	32.4	33.2	29.5
Some post sec.	8.4	6.6	7.3	7.1	7.7	7.6	7.2	5.8	4.8
Post sec. cert. or diploma	21.9	19.5	20.4	23.6	22.9	19.9	28.6	25.8	28.1
University degree	16.1	25.3	25.3	25.2	25.1	26.9	23.5	27.9	33.2
<b>Age</b>	37.9	44.4	40.9	38.3	37.1	36.2	36.2	36.7	36.8
<b>Region</b>									
Atlantic	9.7	1.6	1.4	1.6	1.5	1.4	0.9	0.9	1.5
Quebec	29.1	14.3	13.3	16.9	19.5	23.1	15.2	20.5	17.9
Ontario	32.7	57.2	54.7	47.7	48.4	50.4	61.6	50.6	48.2
Prairies	17.4	10.4	13.7	18.5	17.8	13.7	9.3	9.6	9.5
BC	11.1	16.7	16.8	15.3	15.9	11.4	13.0	18.5	22.9

Table 1 – cont'd

## Immigrant Cohorts

	Canadian Born	66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
<b>Mother Tongue</b>									
English	65.8	39.9	38.6	34.4	26.0	20.8	19.2	15.4	14.7
French	30.7	5.1	3.6	4.8	4.2	4.3	3.3	4.1	3.8
Other	3.5	55.0	57.8	60.9	69.8	74.9	77.5	80.5	81.5
<b>Area Size</b>									
Urban, >=500,000	40.6	72.3	76.6	76.7	79.7	83.6	85.1	87.3	86.1
U,100,000-499,999	16.0	13.8	11.5	10.8	9.3	8.7	8.3	7.5	7.7
U,30,000-99,999	9.3	3.8	3.3	3.5	3.8	2.3	2.7	1.8	2.3
U,2500-29,999	4.2	1.7	1.5	1.4	1.5	1.0	0.7	0.6	0.4
U,<2500	9.9	3.0	2.6	2.8	2.2	1.2	1.2	1.3	1.6
Rural	20.1	5.5	4.6	4.9	3.4	3.2	2.1	1.5	1.9

Note: The Atlantic region contains the following provinces: Prince Edward Island, Nova Scotia, New Brunswick, and Newfoundland. The Prairie region contains Manitoba, Saskatchewan, and Alberta.

Source: Author's compilation based on SCF Data, Statistics Canada (1980 – 1998)



Table 2 – Differences in Means (%) between Immigrants and Canadian-born – SCF Data  
LFP, Employment, IPE

<b>Year</b>	<b>Figure 3 Δ IPE</b>	<b>Figure 2 Δ Employment Rate</b>	<b>Figure 1 Δ LFP Rate</b>
1979	1.3	0.3	1.3
1980	2.2	1.7	0.5
1981	0.6	-0.4	1.4
1982	1.5	0.4	1.2
1983	0	-0.7	0.7
1984	1.6	0.5	1.1
1985	1.6	0	1.7
1986	0.4	0.7	0
1987	1.6	-0.2	1.7
1988	-1.9	-1.0	-0.8
1989	0.7	-0.6	1.4
1990	-1.2	0.1	-1.3
1991	-1.4	-1.2	-0.3
1992	-1.1	-0.7	-0.8
1993	-3.7	-1.4	-2.4
1994	-2.9	-1.0	-2.1
1995	-4.4	-3.0	-1.6
1996	-3.5	-1.3	-2.6
1997	-3.1	-1.0	-2.3

**Table 3 – Sample Means (%)**  
**IMDB Data, Males, Age 25-55 at Migration**

	<b>Immigrant Cohorts</b>					
	<b>80-82</b>	<b>83-85</b>	<b>86-89</b>	<b>90-92</b>	<b>93-96</b>	<b>97-98</b>
<b><u>Education</u></b>						
0-8 years	15.4	14.5	12.6	11.9	7.8	4.9
Some secondary, no post sec.	24.3	26.4	28.0	31.7	28.6	20.9
Some post sec.	6.8	9.6	7.6	8.0	6.5	4.8
Post sec. certificate or diploma	28.0	24.6	25.1	22.5	19.8	20.0
University degree	25.5	25.0	26.7	26.0	37.4	49.4
<b><u>Age</u></b>	34.6	34.4	34.7	34.8	36.1	36.2
<b><u>Region</u></b>						
Atlantic	1.6	1.9	1.1	0.8	0.9	1.0
Quebec	15.3	16.8	13.1	17.7	13.7	14.4
Ontario	47.1	52.3	61.3	56.4	54.4	54.9
Prairies	17.7	13.5	10.3	9.1	9.0	8.3
BC	17.8	15.0	13.9	15.9	21.9	21.3
Territories	0.4	0.5	0.3	0.3	0.1	0.1
<b><u>Mother Tongue</u></b>						
English	29.8	19.2	16.7	11.9	13.4	10.0
French	3.5	3.0	2.1	1.9	2.8	3.0
Other	66.7	77.7	81.2	86.2	83.8	87.0

**Table 3 Concluded –Sample Means (%)**  
**IMDB Data, Males, Age 25-55 at Migration**

	<b>Immigrant Cohorts</b>					
	<b>80-82</b>	<b>83-85</b>	<b>86-89</b>	<b>90-92</b>	<b>93-96</b>	<b>97-98</b>
<b><u>Source Country</u></b>						
North America	7.8	8.0	3.8	2.3	2.7	2.0
Europe	40.6	29.3	28.8	20.7	20.1	20.0
Asia	31.6	36.2	38.4	45.2	52.9	54.4
Middle East	3.7	4.3	6.2	7.9	6.6	6.5
Africa	4.4	6.1	8.0	9.0	7.5	8.6
Caribbean, Guyana	7.0	7.0	7.1	6.1	5.6	3.9
South & Central America	3.2	8.1	6.6	7.6	3.6	3.5
Oceania & Australia	1.7	1.1	1.0	1.2	1.1	1.1
<b><u>Class</u></b>						
Family	22.4	35.2	21.4	26.3	27.1	18.0
Business	5.5	9.0	8.6	7.8	10.5	7.8
Skilled Worker	38.6	20.9	30.0	20.2	30.0	47.9
Assisted Relative	13.6	9.0	10.7	9.3	13.6	11.1
Refugee	19.9	25.6	22.1	19.5	13.2	13.0
Other	0.1	0.3	7.3	16.9	5.7	2.2

Note: The characteristics of the cohorts are as of the time of landing. Further restrictions for Region applies: region of immigrants for those who filed a tax return in 1998 and ages between 25 and 55 at that tax year.

Table 3.1 – Distribution of Immigrants by Class  
(IMDB Data, Males, Age at migration 25-55)

Landing Year	Family Class	Business Class	Skilled Worker	Assisted Relative	Refugee Class	Other
1980	20.6	4.8	33.9	13.1	27.6	0
1981	23.7	5.5	42.7	15.7	12.4	0
1982	22.9	6.3	39.3	12.0	19.4	0.1
1983	34.5	9.7	24.5	7.1	24.4	0.1
1984	37.2	8.2	18.8	10.0	25.3	0.6
1985	33.8	9.1	19.8	10.0	27.1	0.3
1986	27.5	8.2	19.3	6.7	26.2	12.0
1987	20.1	7.0	27.2	9.4	17.0	19.3
1988	16.6	10.0	37.5	12.9	22.0	1.1
1989	23.1	9.0	31.3	11.9	24.1	0.6
1990	25.9	7.4	27.4	11.7	21.6	5.9
1991	25.6	6.4	20.0	8.9	18.6	20.5
1992	27.1	9.4	14.3	7.5	18.6	23.1
1993	33.2	12.7	19.9	9.9	11.8	12.4
1994	31.5	12.8	26.6	14.4	11.1	3.5
1995	24.6	8.7	33.1	16.0	15.6	2.1
1996	19.5	8.0	39.9	14.4	14.3	3.9
1997	17.7	8.2	46.9	12.4	12.5	2.4
1998	18.4	7.3	49.2	9.5	13.6	2.0
1980-98	24.4	8.5	30.6	11.4	17.9	7.2

Table 3.2 – Distribution of Immigrants by Class  
(IMDB Data, No restriction on age at migration)

Landing Year	Family Class	Business Class	Skilled Worker	Assisted Relative	Refugee Class	Other
1980	29.1	3.9	23.7	10.3	31.9	1.0
1981	34.5	5.1	31.2	14.4	13.5	1.4
1982	34.9	6.2	29.8	10.3	17.0	1.8
1983	47.5	7.7	15.9	5.9	20.5	2.5
1984	46.2	7.6	12.7	9.2	21.7	2.7
1985	40.6	8.3	14.2	8.7	26.1	2.1
1986	35.5	8.5	15.4	6.2	24.5	9.9
1987	30.0	7.6	21.9	8.4	16.3	15.7
1988	26.4	10.0	29.9	10.8	20.3	2.5
1989	27.6	10.1	26.5	11.4	22.8	1.6
1990	29.5	8.8	24.1	12.0	19.7	5.9
1991	31.5	7.6	16.7	9.3	17.5	17.3
1992	32.3	11.6	12.5	7.5	17.4	18.7
1993	38.4	14.1	15.9	9.5	11.3	10.8
1994	37.9	13.6	20.8	13.3	10.2	4.3
1995	31.1	9.8	26.8	15.1	15.3	2.0
1996	25.0	10.0	33.8	13.6	14.2	3.4
1997	22.0	10.1	40.7	12.2	12.7	2.3
1998	23.4	8.7	42.4	9.1	14.1	2.3
1980-98	31.5	9.4	24.5	10.7	17.3	6.5

Table 3.3 – Mean Years of Schooling of Immigrants by Class  
Males, Age at Migration 25-55, Source: IMDB Data

Landing Year	All Classes	Family Class	Business Class	Skilled Worker	Assisted Relative	Refugee Class	Other
1980	11.9	11.5	12.1	14.0	10.5	10.1	-
1981	12.9	11.3	12.5	14.4	11.5	12.2	-
1982	13.3	11.4	13.0	14.8	12.3	13.1	12.0
1983	13.0	12.5	13.5	14.8	11.5	12.3	12.0
1984	12.6	12.1	13.4	15.3	11.2	11.7	11.5
1985	12.9	13.0	13.9	14.2	11.8	12.1	12.0
1986	12.8	12.8	13.7	14.6	12.4	12.1	11.5
1987	12.8	12.4	13.8	14.9	12.1	12.1	10.9
1988	13.1	12.3	13.8	14.3	11.7	12.2	10.7
1989	13.0	12.1	13.7	14.6	11.1	12.3	14.1
1990	12.9	12.1	13.5	14.8	11.9	12.4	11.0
1991	12.9	12.1	13.3	15.4	12.7	12.4	12.1
1992	13.0	12.4	13.0	15.3	13.2	12.7	12.5
1993	13.2	12.0	13.2	15.6	13.7	12.7	12.2
1994	13.7	12.0	13.1	16.0	13.8	13.1	13.6
1995	14.1	12.0	13.0	16.4	14.6	12.9	12.0
1996	14.4	12.4	12.7	16.4	15.0	13.1	11.1
1997	14.7	12.5	13.0	16.4	15.2	12.8	12.1
1998	14.8	12.6	13.3	16.4	15.1	12.8	12.0
1980-98	13.4	12.2	13.2	15.5	13.1	12.4	12.0

Table 3.4 Mean Years of Schooling of Immigrants by Class  
No restriction on age at migration, Source: IMDB Data

Landing Year	All Classes	Family Class	Business Class	Skilled Worker	Assisted Relative	Refugee Class	Other
1980	8.5	8.6	8.9	10.6	7.7	7.1	11.3
1981	9.3	8.6	9.1	11.0	8.2	8.3	11.3
1982	9.7	8.6	9.3	11.2	9.0	9.7	12.2
1983	9.5	8.9	10.2	11.6	8.7	9.0	11.9
1984	9.3	8.9	9.1	12.0	8.4	8.7	11.1
1985	9.6	9.7	9.7	11.4	8.9	8.8	11.6
1986	9.8	9.6	9.4	11.0	9.9	8.9	10.9
1987	9.7	9.0	9.6	11.2	9.1	8.9	9.9
1988	9.4	8.6	9.8	10.3	8.9	8.9	10.8
1989	9.6	9.3	9.6	10.6	8.0	9.4	12.6
1990	10.0	9.5	10.0	11.5	8.9	9.5	10.1
1991	10.3	9.4	10.1	12.3	9.4	10.0	10.8
1992	10.2	9.5	9.7	11.6	9.5	10.2	11.1
1993	10.1	9.2	9.9	11.9	9.9	9.7	11.1
1994	10.3	9.4	9.8	12.1	10.0	9.9	12.2
1995	10.5	9.7	9.7	12.3	10.4	9.9	9.9
1996	11.9	10.6	10.3	13.8	12.4	11.0	9.5
1997	12.0	10.7	10.5	13.6	12.4	10.7	9.8
1998	12.3	10.9	10.9	14.0	12.7	10.6	9.7
1980-98	10.2	9.4	9.9	12.1	9.8	9.4	10.4



**Table 4 - Differences in Labour Force Participation Rates between Immigrants and Canadian-born by Arrival Cohort and Survey Year  
Probit Estimates Using Flexible Forms Specification**

Survey Year	Sample Size	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
1979	3876	0.004 (.014)	-0.009 (.018)	-0.002 (.017)					
1980	1725	-0.029 (.021)	-0.005 (.014)	-0.042 (.031)					
1981	3868	0.007 (.010)	0.010 (.010)	0.001 (.016)	-0.058 (.056)				
1982	4044	0.001 (.014)	0.010 (.012)	0.019*** (.007)	-0.031 (.023)				
1983	1699	0.022* (.014)	-0.009 (.023)	0.001 (.026)	-0.021 (.029)				
1984	3992	-0.001 (.020)	-0.008 (.023)	-0.062* (.034)	-0.018 (.031)	-0.095 (.077)			
1985	3984	0.025*** (.006)	0.005 (.012)	-0.007 (.019)	0.025*** (.005)	0.008 (.015)			
1986	3374	-0.001 (.015)	0.006 (.018)	-0.022 (.029)	-0.029 (.029)	-0.025 (.032)			
1987	4587	0.015 (.016)	0.021* (.012)	0.007 (.017)	0.008 (.023)	0.004 (.023)	0.007 (.029)		
1988	3933	-0.014 (.024)	-0.035 (.034)	-0.081* (.049)	0.013 (.015)	-0.049 (.049)	-0.163** (.073)		
1989	4363	0.009 (.017)	0.022* (.013)	0.018 (.018)	0.019 (.016)	0.008 (.022)	0.001 (.028)		
1990	4592	-0.043 (.029)	-0.052 (.036)	-0.047 (.053)	0.022* (.013)	-0.063 (.044)	-0.086** (.043)		
1991	4493	0.018 (.016)	0.021 (.018)	0.034*** (.012)	0.007 (.022)	0.026 (.017)	-0.001 (.026)	-0.099 (.072)	
1992	4178	0.001 (.023)	0.005 (.020)	-0.040 (.050)	-0.070 (.063)	-0.074 (.059)	-0.041 (.038)	-0.066 (.056)	
1993	3974	-0.002 (.031)	0.042*** (.013)	0.039** (.017)	0.019 (.027)	-0.035 (.055)	-0.005 (.030)	-0.004 (.033)	

**Table 4 – Concluded**  
**Differences in Labour Force Participation Rates between Immigrants and Canadian-born by Arrival Cohort and Survey Year**  
**Probit Estimates Using Flexible Forms Specification**

Survey Year	Sample Size	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
1994	4549	-0.024 (.028)	-0.016 (.026)	0.025 (.020)	-0.028 (.031)	-0.025 (.033)	-0.052* (.030)	-0.104*** (.036)	-0.183*** (0.065)
1995	3916	0.030* (.018)	-0.032 (.034)	-0.048 (.040)	-0.082 (.051)	-0.058 (.048)	-0.051 (.038)	-0.079* (.043)	-0.078 (.049)
1996	3972	0.029 (.018)	0.032** (.015)	0.019 (.023)	0.008 (.025)	0.017 (.029)	0.011 (.021)	0.006 (.024)	-0.032 (.034)
1997	4011	0.012 (.024)	0.016 (0.022)	0.038** (.019)	0.032 (.019)	0.016 (.032)	-0.017 (.029)	-0.008 (.029)	-0.064 (.040)

Notes: 1. \* indicates significance at the 10 percent level, \*\* and \*\*\* at the 5 and 1 percent levels respectively.

2. dF/dx is for discrete change of dummy variable from 0 to 1. To evaluate the marginal effect of a variable marginal effect of that variable is evaluated for each observation, and then mean over the sample of these marginal effects are found. Estimated standard errors are asymptotic standard errors computed using the delta method.

Source: Author's calculation based on SCF Data, Statistics Canada (1980 – 1998)

**Table 5 - Differences in Employment Rates between Immigrants and Canadian-born by Arrival Cohort and Survey Year  
Probit Estimates Using Flexible Forms Specification**

Survey Year	Sample Size	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
1979	3763	0.007 (.010)	0.017*** (.007)	0.006 (.011)					
1980	1685	0.013 (.009)	0.010 (.007)	0.002 (.011)					
1981	3789	-0.009 (.020)	-0.019 (.021)	-0.032 (.034)	-0.023 (.033)				
1982	3949	0.016* (.010)	-0.004 (.016)	-0.020 (.023)	-0.021 (.022)				
1983	1643	-0.014 (.024)	-0.053** (.026)	0.018 (.014)	-0.032 (.030)				
1984	3865	-0.004 (.018)	0.010 (.018)	-0.052* (.031)	-0.018 (.028)	-0.195** (.090)			
1985	3875	-0.013 (.019)	-0.007 (.017)	-0.025 (.028)	-0.051 (.036)	-0.033 (.035)			
1986	3281	0.010 (.017)	-0.003 (.022)	0.012 (.020)	0.004 (.021)	-0.004 (.027)			
1987	4415	0.019*** (.007)	-0.009 (.018)	0.019 (.016)	-0.046 (.027)	-0.020 (.030)	-0.055 (.081)		
1988	3803	0.004 (.015)	-0.008 (.018)	0.014 (.012)	-0.028 (.026)	0.001 (.007)	-0.092 (.062)		
1989	4209	-0.010 (.026)	-0.018 (.023)	0.007 (.015)	0.002 (.017)	0.018*** (.006)	-0.001 (.016)		
1990	4422	-0.025 (.028)	-0.068 (.052)	-0.063 (.048)	0.012 (.013)	0.023*** (.006)	0.020** (.008)		
1991	4280	-0.020 (.037)	0.038*** (.004)	0.014 (.021)	0.012 (.018)	-0.026 (.037)	-0.043 (.036)	-0.182** (.090)	
1992	3986	0.001 (.029)	0.008 (.021)	-0.040 (.046)	0.043*** (.006)	-0.016 (.044)	-0.037 (.037)	-0.073 (.054)	
1993	3758	0.020 (.025)	0.008 (.021)	0.024 (.019)	0.015 (.019)	-0.022 (.049)	-0.061 (.043)	-0.027 (.036)	

**Table 5 – Concluded**  
**Differences in Employment Rates between Immigrants and Canadian-born by Arrival Cohort and Survey Year**  
**Probit Estimates Using Flexible Forms Specification**

Survey Year	Sample Size	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
1994	4315	0.006 (.020)	0.022* (.013)	-0.051* (.031)	-0.014 (.025)	0.001 (.025)	-0.019 (.023)	-0.064** (.031)	-0.079 (0.050)
1995	3684	-0.021 (.029)	0.015 (.016)	-0.012 (.028)	0.003 (.027)	-0.063 (.046)	-0.041 (.029)	-0.032 (.030)	-0.135** (.055)
1996	3757	0.012 (.022)	-0.010 (.030)	0.021 (.018)	-0.046 (.043)	-0.023 (.039)	0.026* (.014)	-0.030 (.033)	-0.089* (.051)
1997	3750	-0.005 (.029)	0.006 (0.024)	0.026** (.013)	0.015 (.019)	-0.001 (.031)	0.011 (.019)	0.003 (.023)	-0.026 (.035)

Notes: 1. \* indicates significance at the 10 percent level, \*\* and \*\*\* at the 5 and 1 percent levels respectively.

2. dF/dx is for discrete change of dummy variable from 0 to 1. To evaluate the marginal effect of a variable marginal effect of that variable is evaluated for each observation, and then mean over the sample of these marginal effects are found. Estimated standard errors are asymptotic standard errors computed using the delta method.

Source: Author's calculation based on SCF Data, Statistics Canada (1980 – 1998)

**Table 6 - Differences in Incidence of Positive Earnings between Immigrants and Canadian-born by Arrival Cohort and Survey Year  
Probit Estimates Using Flexible Forms Specification**

Survey Year	Sample Size	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
1979	3876	0.007 (.016)	0.009 (.016)	0.002 (.021)					
1980	1725	-0.007 (.022)	0.015 (.013)	-0.031 (.030)					
1981	3868	-0.004 (.023)	-0.014 (.023)	-0.035 (.037)	-0.074 (.058)				
1982	4044	0.015 (.016)	0.006 (.018)	-0.015 (.025)	-0.044 (.029)				
1983	1699	0.016 (.027)	-0.049 (.035)	0.019 (.028)	-0.047 (.041)				
1984	3992	-0.005 (.026)	0.001 (.026)	-0.108*** (.042)	-0.042 (.038)	-0.283*** (.102)			
1985	3984	0.021 (.016)	0.003 (.019)	-0.030 (.031)	-0.013 (.029)	-0.023 (.035)			
1986	3374	0.008 (.022)	0.007 (.024)	0.002 (.029)	-0.021 (.033)	-0.014 (.035)			
1987	4587	0.026 (.019)	0.012 (.020)	0.007 (.022)	-0.027 (.033)	-0.011 (.033)	0.013 (.048)		
1988	3933	-0.004 (.026)	-0.038 (.036)	-0.052 (.043)	-0.039 (.037)	0.008 (.033)	-0.205*** (0.078)		
1989	4363	0.004 (.027)	0.009 (.025)	0.028 (0.021)	0.024 (0.023)	0.036** (0.016)	0.001 (0.033)		
1990	4592	-0.061* (.037)	-0.103** (.052)	-0.095 (0.060)	0.031 (.020)	-0.030 (0.042)	-0.049 (.040)		
1991	4493	0.008 (.031)	0.043** (.021)	0.046** (0.022)	0.013 (.030)	0.006 (.035)	-0.035 (.040)	-0.202** (.090)	
1992	4178	0.003 (.034)	0.009 (.028)	-0.038 (.048)	-0.029 (.061)	-0.077 (.065)	-0.075 (.050)	-0.136** (.069)	
1993	3974	0.011 (.039)	0.053** (.021)	0.061*** (.023)	0.033 (.034)	-0.043 (.066)	-0.052 (.047)	-0.021 (.044)	

**Table 6 – Concluded**  
**Differences in IPE between Immigrants and Canadian-born by Arrival Cohort and Survey Year**  
**Probit Estimates Using Flexible Forms Specification**

Survey Year	Sample Size	Immigrant Cohorts							
		66-70	71-75	76-79	80-82	83-85	86-89	90-92	93-96
1994	4549	-0.016 (.031)	0.006 (.027)	-0.043 (.037)	-0.035 (.036)	-0.020 (.038)	-0.061* (.033)	-0.149*** (.041)	-0.211*** (.067)
1995	3916	0.013 (.030)	-0.017 (.035)	-0.053 (.044)	-0.064 (.050)	-0.100* (.055)	-0.080** (.041)	-0.090** (.045)	-0.194*** (0.061)
1996	3972	0.037 (.027)	0.025 (.028)	0.031 (.031)	-0.026 (.041)	0.003 (.042)	0.029 (.026)	-0.015 (.035)	-0.089* (.048)
1997	4011	0.009 (.034)	0.020 (.030)	0.060*** (.023)	0.045* (.025)	0.018 (.040)	-0.007 (.034)	-0.004 (.035)	-0.081* (.047)

Notes: 1. \* indicates significance at the 10 percent level, \*\* and \*\*\* at the 5 and 1 percent levels respectively.

2. dF/dx is for discrete change of dummy variable from 0 to 1. To evaluate the marginal effect of a variable marginal effect of that variable is evaluated for each observation, and then mean over the sample of these marginal effects are found. Estimated standard errors are asymptotic standard errors computed using the delta method.

Source: Author's calculation based on SCF Data, Statistics Canada (1980 – 1998)

**Table 7 – Coefficient Estimates from Probit Models Using Fixed Effects Specification  
1979-97 SCF Sample**

Variable	LFP			Employment			IPE		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Atl	-0.18 (.04)***	0.04 (.06)	0.05 (.06)	-0.11 (.04)***	0.29 (.07)***	0.29 (.07)***	-0.17 (.03)***	0.19 (.05)***	0.19 (.05)***
Que	-0.09 (.05)*	0.04 (.06)	0.05 (.06)	-0.27 (.06)***	-0.03 (.07)	-0.02 (.07)	-0.20 (.04)***	0.01 (.05)	0.03 (.05)
Prair	0.14 (.04)***	0.11 (.04)***	0.11 (.04)***	-0.07 (.04)*	-0.13 (.04)***	-0.12 (.04)***	0.04 (.03)	-0.008 (.03)	-0.009 (.03)
Bc	0.11 (.05)**	0.17 (.05)***	0.17 (.05)***	-0.05 (.05)	0.07 (.06)	0.07 (.06)	0.03 (.04)	0.14 (.04)***	0.13 (.04)***
Single	-0.78 (.04)***	-0.77 (.04)***	-0.77 (.04)***	-0.44 (.04)***	-0.43 (.04)***	-0.43 (.04)***	-0.69 (.03)***	-0.68 (.03)***	-0.68 (.03)***
Wds	-0.48 (.05)***	-0.48 (.04)***	-0.48 (.05)***	-0.44 (.05)***	-0.43 (.05)***	-0.43 (.05)***	-0.52 (.04)***	-0.52 (.04)***	-0.52 (.04)***
Urban1	-0.05 (.04)	-0.04 (.04)	-0.05 (.04)	0.01 (.05)	0.02 (.05)	0.02 (.05)	-0.02 (.04)	-0.02 (.04)	-0.02 (.04)
Urban2	-0.07 (.04)	-0.06 (.04)	-0.06 (.04)	-0.02 (.04)	-0.03 (.04)	-0.03 (.04)	-0.06 (.03)*	-0.06 (.03)*	-0.06 (.03)*
Urban3	-0.13 (.05)***	-0.13 (.05)***	-0.13 (.05)***	-0.04 (.06)	-0.04 (.06)	-0.04 (.06)	-0.10 (.04)**	-0.10 (.04)**	-0.10 (.04)**
Rural	0.003 (.04)	0.004 (.04)	0.003 (.04)	-0.09 (.04)**	-0.09 (.04)**	-0.09 (.04)**	-0.05 (.03)	-0.05 (.03)	-0.05 (.03)
Ed08	-0.54 (.04)***	-0.56 (.04)***	-0.56 (.04)***	-0.25 (.05)***	-0.28 (.05)***	-0.28 (.05)***	-0.46 (.03)***	-0.49 (.03)***	-0.50 (.03)***
Edpscd	0.24 (.04)***	0.27 (.05)***	0.27 (.05)***	0.16 (.04)***	0.19 (.04)***	0.19 (.04)***	0.23 (.03)***	0.26 (.04)***	0.26 (.04)***
Eduniv	0.45 (.06)***	0.47 (.06)***	0.47 (.06)***	0.03 (.06)***	0.34 (.06)***	0.34 (.06)***	0.45 (.05)***	0.47 (.05)***	0.47 (.05)***
Fbed08	0.35 (.07)***	0.37 (.07)***	0.38 (.07)***	0.20 (.08)**	0.23 (.08)***	0.23 (.08)***	0.31 (.06)***	0.34 (.06)***	0.34 (.06)***
Fbedpscd	0.004 (.07)	-0.02 (.07)	-0.01 (.07)	-0.10 (.07)	-0.13 (.07)*	-0.13 (.07)*	-0.05 (.06)	-0.08 (.06)	-0.08 (.06)
Fbeduniv	-0.23 (.08)***	-0.24 (.08)***	-0.24 (.08)***	-0.24 (.08)***	-0.25 (.08)***	-0.25 (.08)***	-0.26 (.07)***	-0.28 (.07)***	-0.27 (.07)***
coh6670	0.40 (.12)***	0.31 (.12)**	-0.55 (.34)	0.003 (.11)	-0.14 (.12)	-0.18 (.33)	0.22 (.09)**	0.08 (.10)	-0.40 (.27)
coh7175	0.25 (.11)**	0.20 (.11)*	-0.59 (.07)*	-0.12 (.10)	-0.21 (.10)**	-0.18 (.30)	0.06 (.09)	-0.02 (.09)	-0.43 (.25)*
coh7679	0.05 (.11)	0.03 (.12)	-0.74 (.32)**	-0.18 (.09)*	-0.21 (.10)**	-0.13 (.30)	-0.08 (.08)	-0.11 (.09)	-0.48 (.25)*
coh8082	-0.07 (.11)	-0.06 (.11)	-0.05 (.36)	-0.22 (.09)**	-0.22 (.10)**	0.15 (.34)	-0.18 (.08)**	-0.17 (.08)**	0.07 (.29)
coh8385	-0.22 (.11)**	-0.16 (.12)	-0.20 (.42)	-0.26 (.10)***	-0.21 (.11)*	0.22 (.39)	-0.27 (.09)***	-0.21 (.09)**	0.04 (.33)
coh8689	-0.36 (.09)***	-0.33 (.09)***	-0.34 (.37)	-0.41 (.09)***	-0.37 (.10)***	-0.01 (.33)	-0.44 (.07)***	-0.40 (.08)***	-0.18 (.29)
coh9092	-0.50 (.09)***	-0.43 (.10)***	-0.33 (.43)	-0.54 (.09)***	-0.47 (.10)***	0.22 (.41)	-0.60 (.08)***	-0.52 (.08)***	0.0002 (.35)
coh9396	-0.72 (.09)***	-0.66 (.10)***	-0.64 (.45)	-0.74 (.10)***	-0.70 (.10)***	-0.04 (.43)	-0.83 (.08)***	-0.76 (.09)***	-0.32 (.36)

**Table 7 Concluded – Coefficient Estimates from Probit Models Using Fixed Effects Specification  
1979-97 SCF Sample**

Variable	LFP			Employment			IPE		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Ysm	0.008 (.01)	0.01 (.01)	0.07 (.03)**	0.03 (.01)***	0.04 (.01)***	0.05 (.03)*	0.02 (.01)**	0.03 (.01)***	0.07 (.03)**
Ysmsq	-0.001 (.0004)***	-0.001 (.0004)***	-0.002 (.0006)***	-0.001 (.0004)***	-0.001 (.0004)***	-0.001 (.0006)**	-0.001 (.0003)***	-0.001 (.0003)***	-0.002 (.0004)***
Age2529	0.36 (.06)***	0.40 (.06)***	0.40 (.06)***	0.07 (.05)	0.10 (.06)*	0.10 (.06)*	0.24 (.04)***	0.28 (.05)***	0.28 (.05)***
Age3034	0.19 (.05)***	0.21 (.05)***	0.21 (.05)***	0.01 (.05)	0.03 (.05)	0.03 (.05)	0.10 (.04)**	0.13 (.04)***	0.13 (.04)***
Age3539	0.13 (.05)***	0.14 (.05)***	0.14 (.05)***	0.001 (.05)	0.006 (.05)	0.006 (.05)	0.07 (.04)*	0.07 (.04)*	0.07 (.04)*
Age4549	-0.14 (.05)***	-0.15 (.05)***	-0.15 (.05)***	0.01 (.05)	0.002 (.05)	0.002 (.05)	-0.08 (.04)**	-0.09 (.04)**	-0.09 (.04)**
Age5055	-0.40 (.04)***	-0.42 (.05)***	-0.42 (.04)***	0.03 (.05)	0.01 (.05)	0.01 (.05)	-0.25 (.04)***	-0.27 (.04)***	-0.27 (.04)***
French	0.03 (.05)	0.02 (.05)	0.01 (.06)	0.04 (.06)	0.04 (.06)	0.02 (.06)	0.03 (.04)	0.02 (.04)	0.01 (.05)
Othlang	-0.11 (.05)**	-0.11 (.05)**	-0.11 (.05)**	-0.03 (.04)	-0.03 (.04)	-0.03 (.04)	-0.08 (.04)**	-0.08 (.04)**	-0.08 (.04)**
cons	2.05 (.05)***	2.42 (.09)***	2.43 (.09)***	2.06 (.06)***	2.67 (.10)***	2.66 (.10)***	1.76 (.04)***	2.32 (.07)***	2.32 (.08)***
unempnt	---	-0.017 (.009)*	-0.017 (.009)*	---	-0.017 (.01)*	-0.015 (.01)	---	-0.019 (.007)***	-0.019 (.008)**
Unempsy	---	-0.04 (.009)***	-0.04 (.009)***	---	-0.07 (.01)***	-0.07 (.01)***	---	-0.06 (.008)***	-0.06 (.008)***
M_unent	---	---	0.05 (.04)	---	---	-0.01 (.03)	---	---	0.02 (.03)
Ysmunen	---	---	-0.006 (.003)**	---	---	-0.002 (.003)	---	---	-0.004 (.002)**
M_unsy70	---	---	0.04 (.02)***	---	---	0.001 (.02)	---	---	0.03 (.01)**
M_unsy80	---	---	-0.05 (.02)***	---	---	-0.03 (.02)	---	---	-0.05 (.02)***
M_unsy90	---	---	-0.07 (.03)**	---	---	-0.06 (.03)**	---	---	-0.08 (.03)***
Wald chi2	1362.46	1396.38	1438.93	464.68	506.03	552.18	1579.80	1643.74	1708.80
No of obs.	73130	73130	73130	70229	70229	70229	73130	73130	73130

Notes: 1. Coefficient estimates from probit estimation of pooled data across SCF master files covering survey years 1979-97.

2. \* indicates significance at 10 % level, \*\* and \*\*\* at 5 % and 1 % levels respectively.

**Table 8 – Marginal Effects from Probit Models Using Fixed Effects Specification  
1979-97 SCF Sample**

Variable	LFP			Employment			IPE		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Atl	-0.012 (.003)	0.002 (.003)	0.003 (.003)	-0.008 (.003)	0.014 (.003)	0.014 (.003)	-0.021 (.004)	0.017 (.004)	0.017 (.004)
Que	-0.006 (.004)	0.002 (.003)	0.003 (.003)	-0.022 (.006)	-0.002 (.004)	-0.001 (.004)	-0.025 (.006)	0.001 (.005)	0.003 (.005)
Prair	0.007 (.002)	0.006 (.002)	0.006 (.002)	-0.005 (.003)	-0.009 (.003)	-0.009 (.003)	0.004 (.003)	-0.0009 (.003)	-0.0009 (.003)
Bc	0.006 (.003)	0.009 (.003)	0.008 (.003)	-0.004 (.004)	0.004 (.003)	0.004 (.003)	0.003 (.004)	0.013 (.004)	0.013 (.004)
Single	-0.093 (.009)	-0.089 (.008)	-0.089 (.008)	-0.043 (.006)	-0.041 (.005)	-0.04 (.005)	-0.121 (.009)	-0.117 (.008)	-0.116 (.008)
Wds	-0.045 (.007)	-0.043 (.007)	-0.043 (.007)	-0.043 (.008)	-0.041 (.007)	-0.04 (.007)	-0.083 (.009)	-0.08 (.009)	-0.08 (.009)
Urban1	-0.003 (.002)	-0.003 (.002)	-0.003 (.002)	0.001 (.003)	0.001 (.003)	0.001 (.003)	-0.003 (.004)	-0.002 (.004)	-0.002 (.004)
Urban2	-0.004 (.003)	-0.004 (.003)	-0.004 (.003)	-0.002 (.003)	-0.002 (.003)	-0.002 (.003)	-0.007 (.004)	-0.007 (.004)	-0.007 (.004)
Urban3	-0.009 (.004)	-0.009 (.004)	-0.009 (.004)	-0.003 (.004)	-0.003 (.004)	-0.003 (.004)	-0.012 (.005)	-0.012 (.005)	-0.012 (.005)
Rural	0.0002 (.002)	0.0002 (.002)	0.0002 (.002)	-0.006 (.003)	-0.006 (.003)	-0.006 (.003)	-0.006 (.004)	-0.006 (.004)	-0.006 (.004)
Ed08	-0.052 (.007)	-0.054 (.007)	-0.054 (.007)	-0.02 (.005)	-0.023 (.005)	-0.022 (.005)	-0.071 (.008)	-0.076 (.008)	-0.075 (.008)
Edpscd	0.012 (.002)	0.012 (.002)	0.012 (.002)	0.009 (.002)	0.01 (.002)	0.01 (.002)	0.021 (.003)	0.023 (.003)	0.022 (.003)
Eduniv	0.018 (.003)	0.018 (.002)	0.018 (.002)	0.016 (.003)	0.016 (.003)	0.016 (.003)	0.035 (.004)	0.035 (.003)	0.034 (.003)
Fbed08	0.015 (.003)	0.016 (.003)	0.016 (.002)	0.011 (.004)	0.012 (.004)	0.012 (.004)	0.027 (.005)	0.028 (.005)	0.028 (.005)
Fbedpscd	0.0002 (.004)	-0.001 (.004)	-0.0009 (.004)	-0.007 (.005)	-0.009 (.005)	-0.009 (.005)	-0.006 (.007)	-0.009 (.007)	-0.009 (.007)
Fbeduniv	-0.017 (.007)	-0.018 (.007)	-0.017 (.007)	-0.019 (.008)	-0.02 (.008)	-0.02 (.008)	-0.035 (.01)	-0.036 (.01)	-0.035 (.01)
coh6670	0.018 (.004)	0.014 (.005)	-0.051 (.046)	0.0002 (.007)	-0.01 (.01)	-0.01 (.03)	0.021 (.008)	0.008 (.009)	-0.055 (.05)
coh7175	0.013 (.005)	0.01 (.005)	-0.053 (.042)	-0.009 (.008)	-0.016 (.009)	-0.013 (.023)	0.006 (.009)	-0.002 (.01)	-0.058 (.04)
coh7679	0.003 (.006)	0.002 (.007)	-0.077 (.053)	-0.013 (.008)	-0.016 (.009)	-0.009 (.02)	-0.009 (.01)	-0.013 (.01)	-0.069 (.05)
coh8082	-0.005 (.007)	-0.004 (.007)	-0.003 (.023)	-0.017 (.009)	-0.017 (.009)	0.008 (.02)	-0.022 (.01)	-0.019 (.01)	0.007 (.028)
coh8385	-0.015 (.009)	-0.011 (.009)	-0.014 (.033)	-0.021 (.01)	-0.016 (.01)	0.011 (.018)	-0.035 (.01)	-0.026 (.01)	-0.02 (.04)
coh8689	-0.026 (.009)	-0.023 (.008)	-0.023 (.031)	-0.033 (.01)	-0.029 (.009)	-0.0007 (.02)	-0.057 (.01)	-0.051 (.01)	0.00002 (.04)
coh9092	-0.044 (.013)	-0.036 (.011)	-0.025 (.042)	-0.055 (.01)	-0.044 (.01)	0.012 (.019)	-0.096 (.02)	-0.077 (.02)	-0.042 (.06)
coh9396	-0.077 (.017)	-0.066 (.017)	-0.063 (.068)	-0.089 (.02)	-0.077 (.02)	-0.002 (.028)	-0.152 (.02)	-0.132 (.02)	-0.32 (.36)

**Table 8 Concluded – Marginal Effects from Probit Models Using Fixed Effects Specification  
1979-97 SCF Sample**

Variable	LFP			Employment			IPE		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
Ysm	0.0005 (.0007)	0.0007 (.0007)	0.004 (.002)	0.002 (.0008)	0.002 (.0008)	0.003 (.002)	0.002 (.001)	0.003 (.001)	0.007 (.003)
Ysmsq	-0.00007 (.00003)	-0.00006 (.00002)	-0.0001 (.00004)	-0.00009 (.00003)	-0.00008 (.00003)	-0.00009 (.00004)	-0.0002 (.00004)	-0.0001 (.00004)	-0.0002 (.00005)
Age2529	0.016 (.002)	0.016 (.002)	0.016 (.002)	0.004 (.003)	0.006 (.003)	0.005 (.003)	0.022 (.004)	0.024 (.003)	0.024 (.003)
Age3034	0.014 (.004)	0.015 (.004)	0.015 (.004)	0.007 (.003)	0.002 (.003)	0.002 (.003)	0.012 (.005)	0.015 (.005)	0.015 (.005)
Age3539	0.007 (.002)	0.007 (.002)	0.007 (.002)	0.0001 (.003)	0.0004 (.003)	0.0004 (.003)	0.007 (.004)	0.008 (.004)	0.007 (.004)
Age4549	-0.009(.004)	-0.01 (.004)	-0.01 (.004)	0.0009 (.003)	0.0001 (.003)	0.0001 (.003)	-0.009 (.005)	-0.01 (.005)	-0.01 (.005)
Age5055	-0.034 (.006)	-0.036 (.006)	-0.036 (.006)	0.002 (.003)	0.0008 (.003)	0.0008 (.003)	-0.033 (.006)	-0.036 (.007)	-0.035 (.006)
French	0.002 (.003)	0.001 (.003)	0.001 (.003)	0.003 (.003)	0.002 (.003)	0.001 (.003)	0.003 (.005)	0.002 (.005)	0.001 (.005)
Othlang	-0.006 (.003)	-0.006 (.003)	-0.006 (.003)	-0.002 (.003)	-0.002 (.003)	-0.002 (.003)	-0.008 (.004)	-0.007 (.004)	-0.008 (.004)
cons									
unempnt	---	-0.001 (.0005)	-0.001 (.0005)	---	-0.001 (.0006)	-0.001 (.0006)	---	-0.002 (.0008)	-0.002 (.0008)
Unempsy	---	-0.002 (.0006)	-0.002 (.0006)	---	-0.005 (.0008)	-0.005 (.0008)	---	-0.007 (.001)	-0.007 (.001)
M_unent	---	---	0.003 (.002)	---	---	-0.0008 (.002)	---	---	0.002 (.003)
Ysmunen	---	---	-0.0003 (.00017)	---	---	-0.0001 (.0002)	---	---	-0.0004 (.0002)
M_unsy70	---	---	0.002 (.001)	---	---	0.00008 (.001)	---	---	0.003 (.001)
M_unsy80	---	---	-0.003 (.001)	---	---	-0.0019 (.001)	---	---	-0.005 (.002)
M_unsy90	---	---	-0.004 (.002)	---	---	-0.004 (.002)	---	---	-0.008 (.003)

Notes: Average marginal effects for the following reference person: migrant, living in Ontario, size of centre of residence>500K, married, has some sec. ed. or post sec. ed. but no post secondary certificate or diploma, age between 30 and 34, mother tongue is neither French nor English. Average marginal effects are calculated using the estimated coefficients from Table 7. Standard errors are calculated by delta method and presented in parenthesis.

**Table 9 – Variable Definitions**

<b>Variable</b>	<b>Definition</b>
LFP	Dummy variable equal to 1 if individual participated in the labour market in the reference year; 0 otherwise
Employed	Dummy variable equal to 1 if individual was employed in the reference year and reported positive earnings; 0 otherwise
IPE	Dummy variable equal to 1 if individual reported positive earnings in the reference year; 0 otherwise
Atl	Dummy variable equal to 1 if individual lives in Atlantic Region; 0 otherwise
Que	Dummy variable equal to 1 if individual lives in Quebec; 0 otherwise
Prair	Dummy variable equal to 1 if individual lives in Prairies Region; 0 otherwise
Bc	Dummy variable equal to 1 if individual lives in BC; 0 otherwise
Ont	Dummy variable equal to 1 if individual lives in Ontario; 0 otherwise - <i>excluded category</i>
Single	Dummy variable equal to 1 if the individual is single and never married; 0 otherwise
Wds	Dummy variable equal to 1 if the individual is widowed, divorced or separated; 0 otherwise
Married	Dummy variable equal to 1 if individual is married; 0 otherwise – <i>excluded category</i>
Urban1	Dummy variable equal to 1 if size of centre of residence 500K or more; 0 otherwise
Urban2	Dummy variable equal to 1 if size of centre of residence is 100K to 499,999; 0 otherwise
Urban3	Dummy variable equal to 1 if size of centre of residence is 30,000 to 29,999; 0 otherwise
Urban4	Dummy variable equal to 1 if size of centre of residence is less than 29,999; 0 otherwise – <i>excluded category</i>
Rural	Dummy variable equal to 1 if individual lives in a rural area; 0 otherwise
Ed08	Dummy variable equal to 1 if individual has 0 to 8 years of schooling; 0 otherwise
Edssec	Dummy variable equal to 1 if individual has some sec. ed. or post sec. ed. but no post secondary certificate or diploma; 0 otherwise – <i>excluded category</i>
Edpscd	Dummy variable equal to 1 if ind. has a post secondary certificate/diploma but no univ. degree; 0 otherwise
Eduniv	Dummy variable equal to 1 if individual has university degree or more education; 0 otherwise
Fbed08	Ed08 variable interacted with the migrant dummy
Fbedpscd	Edpscd variable interacted with the migrant dummy
Fbeduniv	Eduniv variable interacted with the migrant dummy
Coh6670	Dummy variable equal to 1 if individual is a migrant who arrived during 1966-1970; 0 otherwise
Coh7175	Dummy variable equal to 1 if individual is a migrant who arrived during 1971-1975; 0 Otherwise
Coh7679	Dummy variable equal to 1 if individual is a migrant who arrived during 1976-1979; 0 Otherwise
Coh8082	Dummy variable equal to 1 if individual is a migrant who arrived during 1980-1982; 0 Otherwise
Coh8385	Dummy variable equal to 1 if individual is a migrant who arrived during 1983-1985; 0 Otherwise
Coh8689	Dummy variable equal to 1 if individual is a migrant who arrived during 1986-1989; 0 Otherwise
Coh9092	Dummy variable equal to 1 if individual is a migrant who arrived during 1990-1992; 0 Otherwise
Coh9396	Dummy variable equal to 1 if individual is a migrant who arrived during 1993-1996; 0 Otherwise (Control group is natives for the cohort variables)
Ysm	Years Since Migration (0 for native-born)
Ysm <sup>2</sup>	Years Since Migration Squared (0 for native-born)
Age2529	Dummy variable equal to 1 if individual is age 25 to 29; 0 otherwise
Age3034	Dummy variable equal to 1 if individual is age 30 to 34; 0 otherwise
Age3539	Dummy variable equal to 1 if individual is age 35 to 39; 0 otherwise
Age4044	Dummy variable equal to 1 if individual is age 40 to 44; 0 otherwise – <i>excluded category</i>
Age4549	Dummy variable equal to 1 if individual is age 45 to 49; 0 otherwise
Age5055	Dummy variable equal to 1 if individual is age 50 to 55; 0 otherwise
French	Dummy variable equal to 1 if individual's mother tongue is French; 0 otherwise
English	Dummy variable equal to 1 if individual's mother tongue is English; 0 otherwise - <i>excluded category</i>

**Table 9 Concluded– Variable Definitions**

<b>Variable</b>	<b>Definition</b>
Othlang	Dummy variable equal to 1 if individual's mother tongue is neither French nor English ; 0 otherwise
Unempent	Unemployment rate at entry
Unempsy	Regional unemployment rate at the survey year
M_unent	Unemployment rate at entry interacted with migrant Dummy
Ysmunen	Unempent interacted with Ysm variable
M_unsy70	Unempsy interacted with a dummy variable that is equal to 1 if an individual is a migrant who arrived before 1980 and 0 otherwise
M_unsy80	Unempsy interacted with a dummy variable that is equal to 1 if an individual is a migrant who arrived between 1980 and 1989, and 0 otherwise
M_unsy90	Unempsy interacted with a dummy variable that is equal to 1 if an individual is a migrant who arrived after 1989, and 0 otherwise