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Michael G. Abbott
Queen's University

Charles M. Beach
Queen's University

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by

Michael G. Abbott

Queen's University

Kingston, Ontario

Charles M. Beach

Queen's University

Kingston, Ontario

and

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Abstract

This study uses longitudinal IMDB micro data to document the annual earnings outcomes of Canadian immigrants in four major admission categories (skill-assessed independent economic principal applicants, accompanying economic immigrants, family class immigrants, and refugees) and three annual landing cohorts (those for the years 1982, 1988, and 1994) over the first ten years following their landing in Canada as permanent residents. The findings provide a ten-year earnings signature for the four broad immigrant admission categories in Canada.

The study's first major finding is that skill-assessed economic immigrants had consistently and substantially the highest annual earnings levels among the four admission categories for both male and female immigrants in all three landing cohorts. Family class immigrants or refugees generally had the lowest earnings levels. An important related finding is that refugees exhibited substantially the highest earnings growth rates for both male and female immigrants in all three landing cohorts, while independent economic or family class immigrants generally had the lowest earnings growth rates over their first post-landing decade in Canada. The study's second major finding is that economic recessions appear to have had clearly discernible negative effects on immigrants' earnings levels and growth rates; moreover, these adverse effects were much more pronounced for male immigrants than for female immigrants.

Keywords: Immigrant earnings, admission categories, Canadian immigrants
JEL Codes: J31, J61.

Executive Summary

This study examines immigrant earnings over their first ten years after landing in Canada. Concerns have been expressed about how rapidly immigrants are integrating into the Canadian labour market and about immigrant economic well-being as the earnings gap between immigrants and Canadian-born workers has been widening. Immigrants to Canada enter under different programs or admission categories corresponding to the several objectives of immigration — providing labour market skills to help the economy grow and prosper, contributing to family welfare through family reunification, and offering refuge and new opportunities to thousands of refugees each year. In setting immigration policy and targets, it is important to know how well immigrants in these different admission categories have done, and which have produced better earnings outcomes, in their initial years of Canadian residence.

Accordingly, this study uses longitudinal IMDB micro data to document the annual earnings outcomes of Canadian immigrants in four major admission categories — skill-assessed independent economic immigrants (all of whom are principal applicants), accompanying economic immigrants, family class immigrants, and refugees — and three annual landing cohorts — those for the years 1982, 1988, and 1994 — over the first ten years following their landing in Canada as permanent residents. The empirical results thus provide a ten-year *earnings signature* for the four major admission categories. The study also looks beyond mean or median earnings to examine earnings adjustment patterns over the *entire distribution* of immigrant earners as they integrate into the Canadian labour market. The findings of the study should thus help to inform Canadian immigration policy with respect to (1) the relative economic success of immigrants in different admission categories, and (2) some of the effects on immigrant earnings of the state of the economy, particularly economic recessions, following their arrival in Canada.

Section 2 of the paper describes the construction of the analysis samples for each landing cohort and defines the key features of the empirical analysis. Section 3 introduces the concept of median earnings profiles and examines how they changed for male and female immigrants across the three landing cohorts under study. Section 4 presents the main results of the paper on differences in earnings profiles among immigrant admission categories and across landing cohorts. The analysis is broadened in Section 5 to examine immigrant earnings growth in the lower and upper tails of immigrant earnings distributions by gender and landing cohort since earnings growth rates may be quite different for immigrants in opposite ends of the immigrant earnings distribution. The study concludes with a review of major empirical findings and a discussion of their possible implications for Canadian immigration policy.

The study reports three major findings that motivate its main policy recommendations, and several more specific findings that further research should seek to better understand. First, the study finds that skill-assessed economic immigrants had consistently and substantially the highest earnings levels among the four admission categories for both male and female immigrants in all three landing cohorts. The ten-year average of median earnings levels of skill-assessed economic immigrants exceeded the average median earnings levels for all immigrants by 30-37 percent across the three landing cohorts for men and by 39-56 percent for women.

Family class immigrants or refugees generally had the lowest earnings levels over their first ten post-landings years in Canada. Refugees, both male and female, also experienced declines in their real earnings levels across the three successive landing cohorts. A second important finding is that sizable differences exist across admission categories in the average earnings growth rates of immigrants over their first ten post-landing years in Canada. Refugees exhibited substantially the highest earnings growth rates for both male and female immigrants in all three landing cohorts, while independent economic or family class immigrants generally had the lowest earnings growth rates over their first post-landing decade in Canada.

The study's third major finding is that economic recessions appear to have had major negative effects on immigrants' earnings levels and earnings growth rates. Moreover, these adverse effects were much more pronounced for male immigrants than for female immigrants. Median earnings growth rates for both male and female immigrants in all four admission categories were generally lowest for the 1988 landing cohort — which encountered the early 1990s recession soon after landing in Canada — and highest for the 1994 cohort — which experienced no official recession and more favourable macroeconomic conditions over its first ten years in Canada.

A fourth finding is that the earnings distributions of the four admission categories — or at least the centers of these distributions — show evidence of convergence between distributions as years since landing (YSL) increase over immigrants' first ten years in Canada. However, the rate of median earnings convergence among admission categories diminished with increases in YSL, was slower for female than for male immigrants, and was considerably slower for the 1994 landing cohort than for the two earlier cohorts.

Finally, the study obtains mixed evidence on whether male and female earnings distributions for a given landing cohort tend to become more or less unequal as immigrants integrated into the Canadian labour market. On the one hand, there is evidence of increasing earnings inequality at the lower end of the immigrant earnings distribution as the lowest-earning immigrants lost ground relative to middle-earning immigrants over their first ten years in Canada. But on the other hand, earnings dispersion in the upper end of the immigrant earnings distributions for both men and women tended to decrease over immigrants' first decade in the Canadian labour market, as immigrants in the middle of the earnings distribution realized somewhat faster earnings growth than did the highest-earning immigrants.

These results reflect on two aspects of Canadian immigration policy. First, since skill-assessed independent economic immigrants had substantially higher earnings levels throughout their first ten post-landing years, Canada should continue to place heavy weight on skill-assessed immigrants and not reduce the proportion of new immigrants admitted in the skilled worker category. Second, the 1990-91 recession appears to have had very marked and long-lasting scarring effects on the real earnings of immigrants arriving shortly before that time. This was also the first major recession in decades during which Canada maintained the gross inflow of immigrants at historically high pre-recession levels. Perhaps thought should be given to ways to reduce total immigrant admission levels when severe recessions hit.

1. Introduction

Concerns about how rapidly immigrants are integrating into the Canadian labour market, about immigrant earnings levels and economic well-being, and about Canadian immigration policy have come to the fore recently (Mahoney 2010; Wentz 2010). These concerns are driven by several factors. Since the 1980s, the relative earnings of immigrants have been falling and the number of immigrants living in poverty has been rising (Picot and Sweetman 2005; Reitz 2007; Picot, Hou, and Coulombe 2007; Picot and Hou 2009; Hou and Picot 2010). The recent 2008-2009 recession in Canada may have significantly worsened this situation by making jobs harder to obtain and retain. The aggregate level of annual immigration and the composition of Canada's immigrant intake have also changed quite dramatically over the last three decades. Since 1985, the total level of immigration has risen from 84 thousand to over 250 thousand annually (Citizenship and Immigration Canada 1999, 2010). At the time of the 1981 Census, the top four immigrant source countries for Canada were the United Kingdom, Vietnam, the United States, and India; by the 2006 Census, the top four immigrant source countries were the People's Republic of China, India, the Philippines, and Pakistan (Statistics Canada 2007). And since 1984, the proportion of immigrants arriving in the skill-assessed or economic class has risen from 29.5 percent to 60.9 percent, the proportion arriving as family class immigrants has declined from 50.4 percent to 25.9 percent, and the proportion entering as refugees has fallen from 17.4 percent to 9.1 percent (Citizenship and Immigration Canada 2009, 2010). These shifts in the level and composition of Canadian immigration reinforce the importance of understanding the factors that determine immigrants' post-arrival economic outcomes and, specifically, which immigrant groups are more successful in integrating into and getting ahead in the Canadian economy.

Immigration serves several objectives. These include nation building, providing the labour skills needed to help the Canadian economy grow and prosper, contributing to family welfare by facilitating family reunification, and offering refuge and new opportunities to thousands of refugees each year. In setting immigration policy and targets, it is important to know how well immigrants in these different admission categories have done in their initial years of Canadian residence. A series of major shifts in the direction of Canadian immigration policy since 2008 – both in the Immigration and Refugee Protection Act and in subsequent ministerial instructions – away from the Federal Skilled Worker Program and towards a more short-run, employer-driven immigrant selection system again raises the question of how well immigrants who were landed as permanent residents under former immigration policy regimes have in fact done in the Canadian labour market. In support of evidence-based policy, it is important to know which immigrant selection programs have worked better than others, including which programs have produced better earnings outcomes for immigrants following their admission to Canada.

Canadian immigration policy must recognize and adapt to increasing global competition for skilled workers among developed and developing nations of the world. A number of European countries have recently introduced programs specifically aimed at attracting skilled immigrants. And sustained high rates of economic growth in China, India and other rapidly expanding developing countries are enhancing these countries' capacity both to retain their own skilled workers and to repatriate those who had previously emigrated to Canada and elsewhere. In light of this increasing global competition, Canada cannot afford to be complacent in seeking to attract skilled workers. There has not been a major rethink of Canada's immigration objectives and

policy since the mid-1990s, and there is a need for basic evidence on immigrant economic outcomes to inform such a prospective rethink.

This study seeks to contribute to an evidence-based reassessment of Canada's immigration policy. It examines the annual earnings outcomes of Canadian immigrants in four major admission categories — skill-assessed independent economic immigrants (all of whom are principal applicants), accompanying (other) economic immigrants, family class immigrants, and refugees — and three annual landing cohorts — those for the calendar years 1982, 1988 and 1994 — over the first ten post-landing years following their admission to Canada as landed immigrants or permanent residents. More specifically, the study presents detailed descriptive empirical evidence on the evolution of immigrants' post-landing annual earnings distributions over their first post-landing decade in Canada. The study therefore looks beyond mean or median earnings to examine earnings adjustment patterns over the entire distribution of immigrant wage and salary earners as they integrate into the Canadian labour market. It investigates how the levels and growth rates of selected real annual earnings percentiles differ by admission category over immigrants' first ten post-landing years in Canada, i.e., among skill-assessed economic immigrants, other economic immigrants, family class immigrants, and refugee immigrants. It also investigates how immigrant earnings dispersion varies with years since landing as immigrants' economic integration proceeds after landing in Canada. The study thus provides a ten-year earnings profile or *earnings signature* for four broad immigrant admission categories in Canada. Finally, by examining the earnings distributions of Canadian immigrants who were landed during the three calendar years 1982, 1988 and 1994, the study attempts to identify similarities and differences across landing cohorts in the evolution of immigrants' post-landing

earnings distributions. The findings of this study should thus help to inform Canadian immigration policy with respect to (1) the economic success of immigrants in different admission categories and hence the weight it gives to these categories, and (2) some of the consequences for immigrant earnings of periods of economic recession in Canada.

Previous empirical analyses of the relative economic success of different immigrant admission categories in Canada have been rather limited. De Silva (1997) examined the economic outcomes of male principal applicants for the four landing cohorts 1981-1984 for between four and seven years after landing in Canada. He found that skill-assessed or independent economic immigrants consistently had the highest earnings levels, while refugees had the lowest earnings levels among immigrant classes; however, there was considerable convergence of earnings levels among immigrant classes over this period. Using earlier IMDB data, Li (2003) also found evidence of long-run earnings convergence among independent economic immigrants, family class immigrants, and refugees. Wanner (2003) used CIC's Landing Information Data System (LIDS) for 1980-1995 merged with 1996 Census earnings data for 1995 for both men and women. He too found that independent economic immigrants admitted on the basis of skills under the point system had higher earnings than immigrants in other visa categories immediately after arrival, but that the earnings of other immigrant classes not admitted on the basis of skills converged towards the earnings of the skilled class over time. Abbott and Beach (2008) used data for only the 1982 landing cohort from the same IMDB database as that on which the present study is conducted to investigate both earnings outcomes and earnings mobility of male and female immigrants in four admission categories. They found that earnings mobility was substantially greater for immigrants than for employed workers as a

whole in the Canadian labour market, and that earnings mobility declined as years since landing increased for both male and female immigrants. They also found that annual earnings levels were initially highest for skilled worker principal applicants (i.e., for independent economic immigrants) and lowest for refugees, but that earnings growth rates over the 1982 cohort's first post-landing decade were highest for refugees and lowest for skilled worker principal applicants. Hiebert (2009) examined data on immigrant landing cohorts for the years 1989-2004 merged with 2005 income tax data for immigrants residing in the Vancouver metropolitan area in 2005. He found that the embodied skills, knowledge and abilities — the human capital — of skilled worker principal applicants translated into considerably higher Canadian earnings levels than did the human capital of other non-skill-class groups such as family class immigrants and refugees. But family class immigrants benefited significantly from their families' financial support and social networks; they had relatively high rates of labour market participation and succeeded in substantially reducing the average earnings gap between themselves and skilled worker immigrants as years since landing increased. Xue (2010) used data from the Longitudinal Survey of Immigrants to Canada (LSIC) to examine the detailed employment experience over the first four post-landing years of male and female immigrants who landed in Canada in 2000-2001. She compared the post-landing employment experiences of immigrants in four different admission categories, including skilled worker principal applicants, family class immigrants, and refugees. Xue found that immigrants in all admission categories exhibited significant advances in employment over their first four years in Canada as they shifted towards higher-skilled occupations commensurate with their education and training.

All these previous studies focus exclusively on typical or average earnings differentials across admission categories. The present study is the first to examine broader distributional differences in earnings outcomes among immigrant admission categories.

Several recent papers have stressed that the earnings outcomes of newly-arrived immigrants can be significantly affected by the economic conditions and policy environment prevailing in Canada at the time of their landing, and that these initial landing cohort effects can persist for some years (McDonald and Worswick, 1998; Beach, Green and Worswick, 2008; Picot and Hou, 2009; and Green and Worswick, 2010a). The present paper is the first to compare in detail the earnings outcomes of several different immigrant landing cohorts over the first full decade following their landing in Canada. More specifically, it examines the evolution of the entire distribution of immigrant earnings over the first post-landing decade of immigrant integration into the Canadian labour market.

The paper proceeds as follows. Section 2 describes the construction of the analysis samples for each landing cohort and defines the key features of the study's empirical analysis. Section 3 introduces the concept of median earnings profiles and examines how they have changed — separately for male and female immigrants — across the three landing cohorts under study. Section 4 presents the main results of this paper on differences in earnings profiles among immigrant admission categories and across landing cohorts. The analysis is broadened in Section 5 to examine immigrant earnings growth in the lower and upper tails of the immigrant earnings distribution (separately by gender and admission category) since the patterns of earnings adjustment may be quite different — with quite different degrees of economic success — for recent immigrants in opposite ends of the immigrant earnings distribution. The paper concludes

with a review of our major empirical findings and some discussion of their possible implications for Canadian immigration policy.

2. Data Background and Admission Categories

2.1 Data Source and Landing Cohorts

This paper is based entirely on individual micro data from the longitudinal Immigration Data Base (IMDB) of Citizenship and Immigration Canada (CIC), which contains two broad categories of variables. (For a more detailed description of the IMDB data base, see Abbott 2003.) The first is each immigrant's landing characteristics obtained from landing documents. These characteristics are fixed or unchanged for each immigrant throughout the post-landing period. Included among the landing characteristics the IMDB contains for each immigrant are admission category, gender, year of birth, age at time of landing, education at landing, marital status at landing, mother tongue (native language or language first learned), country of birth, and country of last permanent residence. Of the data on immigrant landing characteristics in the IMDB, this study uses only the information on immigrants' gender, landing cohort, and admission category.¹ The second category of variables in the IMDB is obtained from personal income tax returns and includes immigrants' annual income and earnings, their current place of residence, and their current marital status; unlike immigrants' landing characteristics, these variables can and do change for each immigrant after landing.²

The principal outcome variable of this study is the level of real annual wage and salary earnings from paid employment³ for each immigrant in each of the first ten post-landing calendar years for which the immigrant filed a personal income tax return. To convert annual nominal

earnings measured in current dollars into real annual earnings, we deflated nominal earnings by the value of the annual All-Items Consumer Price Index (CPI) for that tax/calendar year, re-based to the year 2004; all annual earnings figures in this paper are thus expressed in terms of constant (inflation-adjusted) 2004 dollars.⁴

This study employs IMDB data on immigrants in the three annual landing cohorts for the calendar years 1982, 1988, and 1994. For each landing cohort, we assembled income tax data on each immigrant's annual wage and salary earnings in the year of their landing in Canada and in each of the first ten calendar years that immediately followed their landing year. For example, for the 1994 landing cohort, the first post-landing year is 1995, and the tenth post-landing year is 2004. For each of these three annual landing cohorts, the period of Canadian residence is measured by years since landing, or YSL, which varies from 1 for the first post-landing year to 10 for the tenth post-landing year.⁵

The 1982, 1988 and 1994 immigrant landing cohorts experienced different macroeconomic environments over their first post-landing decades in Canada, specifically different recessionary experiences at different times in their first ten post-landing years. The 1982 cohort landed during the quite sharp but short 1981-1982 economic recession, and its last three post-landing years coincided with the 1990-1991 recession, from which the recovery was both weak and prolonged.⁶ The 1988 cohort encountered the 1990-1991 recession early in its first post-landing decade; its second, third and fourth post-landing years (1990, 1991 and 1992) coincided with the 1990-1991 recession and the weak labour market recovery from it. This quite severe recession was concentrated in the industrial heartland of the country where a substantial majority of immigrants settle. Recovery from the 1990-1991 recession was also protracted because of

ongoing industrial restructuring following the FTA and NAFTA agreements and government fiscal consolidation of the middle 1990s as federal and provincial governments in Canada acted to reduce their large budget deficits. The 1994 cohort landed as recovery from the early 1990s recession was strengthening, but the last three or four years of its first post-landing decade coincided with the economic slowdown of the early 2000s in Canada (which, unlike the United States, did not officially experience a recession following the IT bust of 1999).

The 1982, 1988 and 1994 immigrant cohorts were also landed in Canada under different immigration policy regimes. Changes to the point system in 1986 increased the weight assigned to long-run skill factors (education, work experience and language) and raised the pass mark applied to Independent/Skilled Worker applicants. Apart from some minor changes to the point system in 1993 (which reduced the pass mark for Independent/Skilled Worker applicants from 70 to 67 out of a maximum of 100), the only major legislative or regulatory change that occurred between 1988 and 1994 was the creation of the Immigration and Refugee Board on January 1, 1989, which clearly altered the procedures governing refugee determination and admission for the 1994 landing cohort compared to the 1988 and 1982 cohorts. Also notable is the substantial increase in the absolute and relative scale of Canadian immigration between 1982 and 1994. The total number of immigrants landed as permanent residents in Canada (and total immigrants as a percentage of the Canadian population) was 121,179 (0.5 percent) in 1982, 161,582 (0.6 percent) in 1988, and 224,397 (0.8 percent) in 1994. Thus, the total number of immigrants to Canada was 103,218, or 85.2 percent, greater in 1994 than it was in 1982. But over the 1985-1993 sub-period, the total level of annual immigration to Canada rose even more dramatically, from a low of 84.3 thousand in 1985 to a high of 256.7 thousand in 1993, an increase of about 205 percent.

Meanwhile, the number of economic immigrants landed increased by 305 percent, from 26.1 thousand in 1985 to 105.7 thousand in 1993. Thus the proportion of immigrants landed under the skilled worker program (i.e., independent economic immigrants) increased from 31.0 percent in 1985 to 45.6 percent in 1994 (while the proportion coming in under the family class category was correspondingly reduced). Also note that the total level of immigration was kept relatively high throughout the early 1990s recession and the ensuing slow recovery from that recession.⁷

A major limitation of the IMDB is that it does not contain data on non-immigrants. We therefore are unable in this study to compare directly the annual earnings distributions of immigrants and non-immigrants in Canada over a common period of time.

2.2 Immigrant Admission Categories and Analysis Sample

In order to operationally define the major admission categories in which we are interested, we adopted a six-group classification of the detailed immigrant category, or IMCAT, codes used by Citizenship and Immigration Canada to designate each immigrant's admission category in the IMDB; this classification is presented in detail in appendix table A1. However, the present study includes only the major admission categories 1, 2, 3 and 4. These are defined as follows:

1. Independent Economic Immigrants are skilled-assessed principal applicants who were landed from abroad under no special programs.
2. Other Economic Immigrants include both (1) skilled worker principal applicants who were landed from within Canada or who were assessed under some special program and (2) spouses and dependants of skilled worker principal applicants.

3. Family Class Immigrants include all immigrants landed in the family class category corresponding to IMCAT code 01.
4. Refugee Immigrants include all government-assisted refugees, privately-sponsored refugees, landed-in-Canada refugees, and refugee dependants.

The analysis samples for the three landing cohorts were selected in two stages. In the first stage, a cohort master file was selected of all immigrants in a given landing cohort who were 20-54 years of age at time of landing, who filed at least one personal income tax return during the first eleven tax years following their landing in Canada (including the year of landing and the first ten post-landing years), and whose person-year records included no missing or invalid values for the key variables of this study. The resulting total numbers of immigrants in the IMDB master files for the three landing cohorts are approximately 54,385 for the 1982 cohort, 73,785 for the 1988 cohort, and 102,335 for the 1994 landing cohort.⁸ In the second stage, the actual analysis samples for the three landing cohorts were further restricted to include only the person-year records of those immigrants in the four admission categories defined above whose real annual wage and salary earnings in a given calendar year were at least \$1000 (in 2004 dollars).⁹

The analysis samples employed in this study thus consist of immigrants in the above four admission categories who were landed in Canada in the calendar years 1982, 1988 or 1994, who were 20-54 years of age at time of landing, and who filed a personal income tax return for at least one of their first eleven years following landing on which they reported real annual wage and salary earnings of at least 1,000 dollars (in constant 2004 dollars). Each immigrant in a given landing cohort was included in the analysis sample for those tax years in which his/her real

annual wage and salary earnings equaled or exceeded 1,000 2004 dollars, and was excluded from the analysis sample for those tax years in which his/her real annual earnings was less than 1,000 2004 dollars. The analysis samples thus include different sets of individual immigrants for each year of the first post-landing decade depending on whether individual immigrants in the IMDB satisfied or failed to satisfy our sample inclusion criteria. There are therefore several reasons why some immigrants in the four aggregate admission categories may be excluded from our analysis sample for their landing cohort in any particular post-landing year. The sample inclusion criteria we adopt exclude immigrants in those years for which they did not file a Canadian personal income tax return; they therefore exclude immigrants who leave Canada for any reason following landing and therefore cease filing Canadian personal income tax returns. These would include return migrants, i.e., immigrants who subsequent to arriving in Canada decided to return to their country of origin (perhaps because of a lack of economic success in Canada), and onward migrants, i.e., those immigrants who move on to third countries, principally the United States, often in search of better economic opportunities. There are good reasons to think that such sample attrition is non-random across immigrants, but a detailed analysis of it would constitute a separate study. Appendix table A2 tabulates the total number of immigrants in the cohort master file for each landing cohort by the tax year of each immigrant's last person-year record. Table A2 shows that approximately 80 percent of the landed immigrants in each cohort master file actually filed a Canadian income tax return in their tenth post-landing year, meaning that about 20 percent of the immigrants in each cohort master file were not observed in their tenth post-landing year. Of this 20 percent, some immigrants may have left Canada prior to the last year of

their cohort's first post-landing decade, while others were still resident in Canada but simply did not file a Canadian income tax return for that tenth post-landing year.

The sample selection criteria also excluded from the analysis sample for each landing cohort those immigrants who filed an income tax return on which they reported positive wage and salary earnings for a given post-landing year but whose real annual earnings for that year were below the minimum real annual earnings cutoff of \$1,000 in 2004 dollars. Appendix table A3 tabulates by YSL/tax year for each landing cohort the number and proportion of all male and all female immigrants in the IMDB with positive wage and salary earnings (including those immigrants in admission categories that were excluded from our analysis samples) whose real annual earnings were less than the minimum real earnings cutoff and those whose real annual earnings were equal to or greater than the minimum real earnings cutoff. The proportion of all male immigrants with positive annual earnings whose real annual earnings were less than the minimum earnings cutoff ranged between 1.4 and 3.0 percent for the 1982 landing cohort, between 1.5 and 3.6 percent for the 1988 landing cohort, and between 3.9 and 5.5 percent for the 1994 landing cohort. The proportion of all female immigrants with positive annual earnings whose real annual earnings were less than the minimum earnings cutoff ranged between 4.6 and 17.1 percent for the 1982 landing cohort, between 4.3 and 6.6 percent for the 1988 landing cohort, and between 7.1 and 14.3 percent for the 1994 landing cohort. For each of the three landing cohorts, the proportion of all immigrants with positive earnings that was censored by the minimum real earnings cutoff was substantially smaller in all ten post-landing years for male immigrants than for female immigrants. Our sample inclusion criteria thus involve some censoring of immigrants with very low real annual earnings; however, their intent is to limit the

analysis to those immigrants who in any given post-landing year had a stronger, less sporadic attachment to the labour market for paid employment.

3. Median Earnings Differences Across Immigrant Landing Cohorts

The basic concept employed in this study is the profile of immigrant earnings percentiles as a function of years since landing in Canada (YSL) from the first post-landing year (YSL = 1) to the tenth post-landing year (YSL = 10), or the earnings profile for short. Table 1 tabulates the median real annual earnings of male and female immigrants in all four admission categories for the 1982, 1988 and 1994 landing cohorts; the corresponding median earnings profiles are graphically depicted in figure 1. These median earnings profiles are for immigrants in all admissions categories together and refer to the real annual wage and salary earnings of median earners within the male and female immigrant earnings distributions for each of the three landing cohorts. Note that the median earner is not the same individual immigrant from one year to the next; the term median earner instead refers to the real annual earnings level of the middle earner within the cross-sectional immigrant earnings distribution for each year of a given landing cohort's first post-landing decade in Canada.

The first important feature of the earnings profiles in figure 1 is the almost monotonic increase in median earnings levels as years since landing increases; in other words, immigrants' median earnings profiles are generally positively sloped with respect to YSL, implying that the median earnings of a given landing cohort are higher the longer immigrants remain in Canada after landing. Newly-landed immigrants' median earnings could increase with YSL for several reasons. First, as their period of Canadian residence increases, new immigrants probably learn

more about employment opportunities — both locally and elsewhere in the country — and develop their own networks of labour market connections. Second, new immigrants acquire host-country-specific human capital as they gain on-the-job work experience in Canada, thereby becoming more familiar with workplace practices in Canada and learning how to work efficiently in a Canadian setting. Third, recent immigrants may receive formal language training or informally improve their language proficiency as they acquire on-the-job work experience in Canada. Fourth, new immigrants may increase their annual hours of paid work as they acquire additional Canadian work experience, either by increasing their usual hours of work per week or increasing their weeks worked per year. Fifth, following an initial period of either not working or working in another occupation, immigrants may eventually enter the type of work for which they were originally trained in their country of origin, but from which they were initially excluded after landing in Canada because of difficulties with credential recognition or with government/professional requirements to upgrade their original skills.

In addition to their positive slope, a second important feature of the median earnings profiles in figure 1 is their concavity, which indicates that median annual earnings increase at a decreasing rate with YSL. In other words, the annual percentage rate of increase in median earnings generally declines as years since landing increases, with the largest proportional earnings increases occurring in the early years immediately following landing and smaller proportional earnings increases occurring in later post-landing years as immigrants' rates of host-country-specific human capital acquisition diminish the longer they reside and work in Canada. A third feature of the median earnings profiles in figure 1 is that the earnings profiles for female immigrants are appreciably lower than those for male immigrants, perhaps in part because male

immigrants on average spend more time per year in paid employment and hence realize higher annual earnings than do female immigrants.

The increases in immigrants' median earnings in their first post-landing decade are much greater than mean earnings growth of all workers in the Canadian labour market. Over the first post-landing decade of the 1982, 1988 and 1994 immigrant landing cohorts in table 1, mean real annual earnings for Statistic Canada's definition of all earners increased over the corresponding ten-year period by 12.2%, 6.9%, and 10.1%, respectively, for female workers, and by 0.8%, 0.5%, and 9.8%, respectively, for male workers.¹⁰ Immigrant median earnings growth immediately following landing in Canada was thus dramatically greater than the earnings growth of non-immigrant Canadian workers for each of the three landing cohorts in this study.

The median earnings profiles in figure 1 show how immigrant median earnings levels changed in real terms across successive immigrant landing cohorts. At the bottom of each panel in table 1 are the 10-year averages of the median earnings levels for male and female immigrants over their first ten post-landing years. For male immigrants, the generally highest median earnings profile is that for the 1982 cohort (for which the 10-year average of the median earnings levels was \$33,751) and the lowest profile is that for the 1994 cohort (for which the 10-year average of the median earnings levels was \$29,039). Between the 1982 and 1988 landing cohorts, the 10-year average of median earnings levels for all male immigrants fell by \$2,098 per year (6.22 percent), led by declines of \$5,100 per year (11.1 percent) and \$4,498 per year (14.7 percent) in the 10-year average of median earnings levels for males in the independent economic and refugee categories, respectively. Between the 1988 and 1994 landing cohorts, the 10-year average of median earnings levels for all male immigrants fell by a further \$2,614 per year (8.26

percent), from \$31,653 per year for the 1988 cohort to \$29,039 per year for the 1994 cohort. For female immigrants, in contrast, the median earnings profile shifted upward between the 1982 and 1988 landing cohorts, but then shifted back downward between the 1988 and 1994 cohorts to a level slightly below that of the 1982 cohort. The 10-year average of the median real annual earnings levels for female immigrants in all four admission categories combined rose by 11.0 percent, from \$18,748 per year for the 1982 cohort to \$20,817 per year for the 1988 cohort; however, it then fell by 11.7 percent, from \$20,817 per year for the 1988 cohort to \$18,391 per year for the 1994 cohort. Thus, the median earnings levels of female immigrants were highest for the 1988 landing cohort, and generally slightly lower for the 1994 cohort than for the 1982 cohort; on balance, there was a very modest 1.90 percent decline in the median real earnings levels of all female immigrants from the 1982 to the 1994 landing cohort. The net result of these between-cohort earnings differences is that the median real earnings profile of all male immigrants shifted downward over the three successive landing cohorts, first from the 1982 to the 1988 landing cohort and then from the 1988 to the 1994 cohort, whereas the median real earnings profile of all female immigrants generally shifted upward from the 1982 to 1988 landing cohort and then shifted back downward from the 1988 to the 1994 cohort.¹¹ Detailed rankings of the three landing cohorts of male and female immigrants by their median real annual earnings levels for all ten post-landing years are provided in table 1.

The median earnings profiles in figure 1 also suggest that economic recessions have quite discernible negative effects on level and growth rate of immigrants' median earnings, effects that are generally more pronounced for male than for female immigrants. For 1982 male immigrants, median earnings dipped between post-landing years 7 (1989) and 9 (1991), while for 1988 male

immigrants, median earnings dipped between years 2 (1990) and 4 (1992); both dips coincide with the severe early 1990s recession in Canada. For 1994 male immigrants, the median earnings profile noticeably flattens from post-landing years 7 (2001) to 9 (2003), years that coincide with the economic slowdown of the early 2000s in Canada.

More generally, the median earnings profiles of immigrants reflect to some extent differences across landing cohorts in rates of economic growth and in general labour market conditions in Canada over each cohort's first post-landing decade. Table 2 reports the growth rate of real GDP and the aggregate unemployment rate in Canada in each landing cohort's landing year, and the 10-year average growth rate of real GDP and 10-year average of the aggregate unemployment rate in Canada over each cohort's first ten post-landing years. The 10-year increase in median real annual earnings was highest for male and female immigrants in the 1994 landing cohort (table 1); as table 2 shows, the 1994 cohort's first post-landing decade in Canada (1995-2004) was characterized by the highest 10-year growth of real GDP and the lowest 10-year average unemployment rate among the three landing cohorts, and did not include an economic recession. Conversely, the 10-year increase in median real earnings was lowest for male and female immigrants in the 1988 landing cohort (table 1); table 2 shows that the 1988 cohort's first post-landing decade in Canada (1989-1998) was characterized by the lowest 10-year growth of real GDP and almost the highest 10-year average unemployment rate among the three landing cohorts, and in addition included the fairly severe 1990-1991 recession.

4. Earnings Differences Across Immigrant Admission Categories

4.1 Differences in Median Earnings Levels Across Admission Categories

This section provides evidence on how immigrants' median earnings levels differed across admission categories over their first ten post-landing years in Canada. Which of the four admission categories had the highest median earnings, and which had the lowest median earnings, over immigrants' first post-landing decade? Appendix tables A4, A5 and A6 tabulate for the 1982, 1988 and 1994 landing cohorts, respectively, median real annual earnings for each year of the first post-landing decade by gender and admission category, together with the 10-year average of median earnings levels, the average annual percentage change (growth rate) in median earnings over each cohort's first ten post-landing years, and the 10-year percentage change in median earnings levels between the first and tenth years of each cohort's first post-landing decade. Figures 2, 3, and 4 graphically depict the corresponding median earnings profiles of female and male immigrants in the 1982, 1988 and 1994 landing cohorts for the four immigrant admission categories.

In all cases — that is, for both male and female immigrants in all three landing cohorts — independent economic immigrants (all of whom were principal applicants who were skill-assessed under the point system) consistently had by far the highest median earnings levels in all ten years of their first post-landing decade in Canada. For the 1994 landing cohort, for example, the median earnings of male independent economic immigrants were on average 34.9 percent higher than the 10-year average of median earnings for males in all four admission categories, while the median earnings of female independent economic immigrants were on average 55.2

percent higher than the 10-year average of female median earnings for all four admission categories (table A6). Evidently immigrant skills pay off in the Canadian labour market. With the data available to this study, however, we cannot investigate whether the substantially higher median earnings of independent economic immigrants are attributable to their having higher educational or skill levels than immigrants in other admission categories, or whether they simply realize higher returns on their skill attributes than do other categories of immigrants (perhaps because they spend more time in paid employment). Beach, Green and Worswick (2008), however, document that independent economic immigrants do in fact have substantially higher reported skill levels (in the form of higher levels of educational attainment and a higher incidence of official language fluency in either English or French) than do immigrants in other admission categories.

Other economic immigrants, both male and female, ranked second in median earnings levels in all ten post-landing years for the 1988 and 1994 landing cohorts, but only third for the 1982 landing cohort; recall that other economic immigrants consist largely of the spouses and dependants of skilled worker principal applicants. Sweetman and Warman (2010) also find that the earnings of the spouses of skilled-worker principal applicants are considerably below those of the principal applicants with whom they are landed in Canada. Family class immigrants consistently ranked third or fourth among admission categories in terms median earnings levels for both male and female immigrants in all three landing cohorts. In fact, female family class immigrants generally ranked last in terms of median earnings levels for all three landing cohorts. Again for the 1994 landing cohort, the 10-year average of median earnings levels for males in the family class category was 10.5 percent below the 10-year average of median earnings levels

for males in all four admission categories, while the 10-year average of median earnings levels for females in the family class category was 12.6 percent below the 10-year average of median earnings levels for females in all four admission categories (table A6). Finally, refugee immigrants, both female and male, experienced declines in their relative median earnings levels over the three successive landing cohorts. Female refugees had the second-highest median earnings in the 1982 landing cohort, but only the third-highest median earnings in the 1988 and 1994 landing cohorts. Male refugees' median earnings ranked second in the 1982 landing cohort, but dropped from second to fourth place among admission categories in the 1988 and 1994 landing cohorts. For the 1994 landing cohort, the 10-year average of median earnings levels over the period 1995-2004 was 14.7 percent lower for males in the refugee category, and 10.4 percent lower for females in the refugee category, than for males and females in all four admission categories of the 1994 cohort (table A6).

The above findings reveal some notable differences in relative median earnings levels by gender and landing cohort. For example, female family class immigrants generally had the lowest median earnings in all three landing cohorts, whereas male refugees had the lowest median earnings among the four admission categories in the 1988 and 1994 landing cohorts. But despite such differences, the similarities in relative median earnings levels between male and female immigrants and across landing cohorts are at least as striking. Among both male and female immigrants, independent economic immigrants had, by a considerable margin, the highest median earnings in all ten post-landing years for all three immigrant landing cohorts, while other economic immigrants had the second-highest median earnings in all ten post-landing years for both the 1988 and 1994 landing cohorts. Though immigrants' median real earnings levels may

have fallen between the 1982 and 1994 landing cohorts, immigrants in the independent economic category continued to realize substantially higher median real earnings levels than Canadian immigrants in the other three admission categories.

The effects on median earnings of economic recessions or slowdowns are evident across all four admission categories, but are much more pronounced for male than for female immigrants. The median earnings effects of the early 1990s recession on male immigrants are manifested in two ways: first, in the noticeable flattening of the median earnings profiles for 1982 male immigrants in all admission categories from post-landing years 7 through 9 (1989-1991); and second, in the dip (or downturn) of the median earnings profiles for 1988 male immigrants from post-landing years 2 to 3 (1990-1991). These features approximately coincide with the years of the early 1990s recession. When such a major recession occurs shortly after immigrants arrive (as was the case for the 1988 immigrant landing cohort), the earnings effects can be quite severe, possibly resulting in an actual decline in real earnings (as more recently hired workers, including recent immigrants, are often the first to be laid off). But note that for the 1988 male landing cohort, real median earnings levels had fully recovered to their pre-recession level within two years, even though aggregate employment was very slow to recover following the early 1990s recession. When a recession happens later in immigrants' first post-landing decade (as was the case for the 1982 immigrant landing cohort), the impact on median earnings may be more muted, but it can take median earnings levels longer to fully recover, perhaps because of the generally lower growth rates of immigrant earnings in the later years of their first post-landing decade in Canada.

Quite possibly as a result of the severe early 1990s recession, the between-cohort shifts in the median earnings profiles of male and female immigrants in the independent economic and other economic admission categories are broadly consistent with a family earnings adjustment model.¹² For male independent economic immigrants, the median earnings profile shifted down between the 1982 and 1988 landing cohorts as the early 1990s recession severely affected male earnings. However, the median earnings profiles of female independent economic immigrants shifted up substantially between the 1982 and 1988 cohorts, as did the median earnings profiles of both male and female immigrants in the other economic admission category. These shifts in median earnings profiles are consistent with the husband — typically the principal earner — in an immigrant family either losing his job altogether or experiencing a substantial reduction in his annual earnings, and with the wife (and/or other adult family members) entering the employed labour force or working longer hours to compensate for the recession-induced reduction in the husband's current earnings. In the early post-landing years of the 1994 landing cohort, which arrived well after the early 1990s recession, the median earnings profiles of male and female immigrants in the other economic category and of female immigrants in the independent economic category were below their respective median earnings profiles for the early post-landing years of the 1988 landing cohort, which was so adversely affected by the early 1990s recession in their first four post-landing years in Canada. Meanwhile, the median earnings of 1994 male immigrants in the independent economic category were greater than or approximately equal to those of 1988 male immigrants in the same category over the final seven years of each cohort's first post-landing decade.

If one abstracts from the 1988 landing cohort and the recession-generated behavior it induced and just compares the 1982 and 1994 landing cohorts, one can see that the real median earnings of male independent economic immigrants fell substantially between the 1982 and 1994 cohorts (by 15.0 percent on average), while the real median earnings of female independent economic immigrants rose considerably between the 1982 and 1994 cohorts (by 9.8 percent on average). These changes in the median earnings levels of male and female immigrants in the independent economic admission category are consistent with general secular trends in the real earnings of male and female workers as a whole in the Canadian labour market over this period,¹³ though the real earnings changes are proportionately larger for the independent economic immigrants than for paid workers as a whole in Canada.

Finally, we consider how initial median earnings levels in the first post-landing year differed across the four immigrant admission categories, where post-landing year 1 is the first full year of Canadian residence for immigrants in a given landing cohort. What we find is that the rank ordering of the four admission categories by median annual earnings levels in the first post-landing year was identical for male and female immigrants in all three landing cohorts:

1. Independent economic immigrants
2. Other economic immigrants
3. Family class immigrants
4. Refugee immigrants.

Any changes in this initial ranking over immigrants' first post-landing decade obviously reflect differences in median earnings growth rates across the four admission categories, a topic we consider in Section 4.4 below.

4.2 Differences in Earnings Percentile Levels Across Admission Categories

In this section we extend our examination to YSL-earnings profiles for an additional six immigrant earnings percentiles. To this point, earnings level comparisons have been based on the median or typical earnings levels of six gender-cohort immigrant groups, specifically male immigrants in the 1982, 1988 and 1994 landing cohorts, and female immigrants in the same three cohorts. But obviously, not everyone in a given population group is typical. To obtain more comprehensive evidence on immigrants' real earnings distributions than that provided by median earnings alone, we also computed for each gender-cohort group a set of seven earnings percentile levels (or simply percentiles); these are denoted as p05, p10, p25, p50, p75, p90, and p95, where the *i*-th percentile is that earnings level within an earnings distribution such that *i* percent of earners in that distribution have earnings less than or equal to this level and 100-*i* percent have earnings greater than this level. For example, p10 denotes the 10th earnings percentile, and is that earnings level such that only 10 percent of earners in a distribution have earnings less than or equal to p10, and 90 percent of earners in the distribution have earnings greater than p10. The 50th earnings percentile, denoted as p50, is the median earnings level of the distribution.

For each landing cohort, each gender group, and each immigrant admission category, we computed first-decade YSL-earnings profiles corresponding to each of the aforementioned seven real earnings percentiles. For each of the seven percentiles and for each of the ten post-landing years, we ranked the four admission categories by their percentile earnings levels from 1 (for highest) to 4 (for lowest).¹⁴ We then calculated the average rank for each admission category over these 70 rankings. What we find is that for both male and female immigrants in both the

1988 and 1994 landing cohorts, the composite rank ordering of the four admission categories by these seven earnings percentile levels is identical:

1. Independent economic immigrants
2. Other economic immigrants
3. Family class immigrants
4. Refugee immigrants.

For both male and female immigrants in the 1982 landing cohort, categories 3 and 4 are reversed: 1982 refugees had the third-highest percentile earnings levels and 1982 family class immigrants the fourth highest. Particularly strong is the finding that independent economic immigrants ranked first not just for median earnings levels but for all seven percentiles across the entire immigrant earnings distribution.

4.3 Differences in Earnings Growth Rates Across Landing Cohorts

To this point we have focused only on how the levels of immigrants' earnings profiles differed across admission categories and landing cohorts. But immigrant earnings profiles differ not just in their levels, but also in their slopes, i.e., in how rapidly the real annual earnings of immigrants grew over the first ten years following their landing in Canada. We have already seen that immigrant earnings growth rates varied considerably from year to year over the first post-landing decade. In this section we present descriptive evidence on how average annual growth rates of immigrant earnings differed across landing cohorts.

How did median earnings growth differ across the 1982, 1988 and 1994 landing cohorts for male and female immigrants in all four admission categories? Visual inspection of the median earnings profiles of male and female immigrants in all four admission categories by landing

cohort (figure 1) would seem to suggest that male and female immigrants in the 1994 landing cohort had the steepest median earnings profiles, while male and female immigrants in the 1988 landing cohort had the flattest median earnings profiles. This impression is confirmed by the average annual growth rates of median earnings (the 50th earnings percentile, or p50) in table 3 over the first post-landing decade for male and female immigrants in the three landing cohorts. For all male immigrants, average annual growth rates of median earnings for the 1982, 1988, and 1994 landing cohorts were 7.7%, 4.9%, and 8.2%, respectively, while for all female immigrants they were 7.5%, 5.6%, and 8.4%, respectively. That is, both male and female immigrants in the 1994 landing cohort had the steepest median earnings profiles, while male and female immigrants in the 1988 landing cohort had the flattest median earnings profiles. The markedly lower median earnings growth rates of the 1988 landing cohort stand out, and may be attributable to the long-run effects of the early 1990s recession. Note also that even though median earnings levels of male immigrants in the 1994 landing cohort were appreciably lower than those of male immigrants in the 1982 cohort throughout the first post-landing decade, the average median earnings growth rate of 1994 male immigrants following the early 1990s recession was the highest among the three male landing cohorts.

To obtain more comprehensive evidence on immigrant earnings growth than that provided by median earnings alone, we calculated average annual growth rates over each landing cohort's first ten post-landing years for thirteen real earnings percentiles spanning the entire immigrant earnings distribution — the seven enumerated in the previous section as well as p20, p30, p40, p60, p70, and p80.¹⁵ Table 3 presents the average annual growth rates of these thirteen earnings percentiles over the first ten post-landing years for male and female immigrants in all admission

categories for each of the three landing cohorts. To summarize our findings on cross-cohort differences in immigrant earnings growth, let $g(\text{year})$ denote the average annual earnings percentile growth rate for a given annual immigrant landing cohort. The earnings percentile growth rates in table 3 indicate that

$$g(1994) > g(1982) > g(1988)$$

for all earnings percentiles from p05 to p80 for male immigrants, and for all percentiles from p05 to p90 for female immigrants. The ordering of landing cohorts by median earnings growth rates thus appears to apply quite broadly across all but the upper tails of the male and female immigrant earnings distributions.

4.4 Differences in Earnings Growth Rates Across Admission Categories

Average median earnings growth rates differed not only across the three successive landing cohorts, but also across the four admission categories; see appendix tables A7-A9. For both male and female immigrants in all three immigrant landing cohorts, refugees exhibited the highest average annual rates of median earnings growth. Other economic immigrants had the third-highest median earnings growth rates for male immigrants, and the second-highest median earnings growth rates for female immigrants, in all three landing cohorts. Independent economic immigrants had the lowest median earnings growth rates for both male and female immigrants in the 1982 and 1988 landing cohorts; but in the 1994 landing cohort, their median earnings growth rates ranked second for males and third for females among the four admission categories. Family class immigrants' median earnings growth rates ranked second for male immigrants, and third for females, in the 1982 and 1988 landing cohorts, but fell to fourth for both males and females in the 1994 landing cohort. For the 1994 landing cohort, the most recent of our three immigrant

cohorts, refugees had the highest median earnings growth rates for both males and females, family class immigrants had the lowest median earnings growth rates for both males and females, and independent economic immigrants ranked second for males and third for females in terms of median earnings growth. For male immigrants in the 1994 landing cohort, median earnings growth rates were 10.7% for refugees, 8.9% for independent economic immigrants, and 7.6% for family class immigrants. For 1994 female immigrants, the corresponding median earnings growth rates were 11.4% for refugees, 9.0% for independent economic immigrants, and 7.3% for family class immigrants.

The year-to-year median earnings growth rates in Tables A7-A9 provide additional evidence of the apparent negative effects of the 1990-1991 recession in Canada on the earnings of immigrants in the 1982 and 1988 landing cohorts, particularly male immigrants. Consider first immigrants in the 1982 landing cohort, for which post-landing years 8 and 9 are the years of the 1990-1991 recession in Canada. Among male immigrants in the 1982 landing cohort, the percentage change in median real annual earnings between post-landing years 8 (1990) and 9 (1991) was negative for 1982 male immigrants in all four admission categories taken together (-2.3 percent); it was also negative for 1982 male immigrants in the independent economic category (-1.4 percent), the family class category (-2.6 percent), and the refugee admission category (-2.4 percent). But among female immigrants in the 1982 landing cohort, the percentage change in median real annual earnings between post-landing years 8 (1990) and 9 (1991) was negative only for 1982 female immigrants in the independent economic category (-1.9 percent) and the family class category (-0.8 percent). Among 1982 male immigrants, median annual earnings growth rates were also negative, though generally quite small in absolute terms, for

each of the four admission categories between post-landing years 7 (1989) and 8 (1990): -0.4 percent for independent economic immigrants, -1.1 percent for family class immigrants, -0.3 percent for refugee immigrants, and -2.0 percent for other economic immigrants. 1982 male immigrants in three of the four admission categories — the independent economic, family class and refugee categories — thus exhibited negative median earnings growth in both years of the 1990-1991 Canadian recession.

For immigrants in the 1988 landing cohort, post-landing years 2 and 3 coincide with the years of the 1990-1991 recession in Canada. As was the case for male immigrants in the 1982 landing cohort, median earnings growth was negative between post-landing years 2 (1990) and 3 (1991) for 1988 male immigrants in the independent economic category (-2.3 percent), the family class category (-2.5 percent), and the refugee admission category (-4.4 percent), and also for 1988 male immigrants in all four admission categories together (-2.0 percent). Among female immigrants in the 1988 landing cohort, only those in the family class experienced a decrease in median real annual earnings between post-landing years 2 (1990) and 3 (1991), although this reduction was proportionately quite small (-0.9 percent). What these findings suggest is that when a major economic recession such as the early 1990s Canadian recession occurs shortly after immigrants' arrival in the destination country (as was the case for the 1988 immigrant landing cohort), the earnings effects can apparently be quite severe, possibly resulting in an actual decline in median and average real earnings as more recently hired workers, including recent immigrants, are often the first to be laid off. But note that even for male immigrants in the 1988 landing cohort, real median earnings in 1992 exceeded their pre-recession levels in all four

admission categories, even though aggregate employment in Canada was very slow to recover following the early 1990s recession.

Immigrants in the 1994 landing cohort did not experience a Canadian economic recession during the first ten years following their landing in Canada. However, an economic slowdown occurred in Canada in the early 2000s that roughly coincided with the last half of the 1994 landing cohort's first post-landing decade in Canada. There is some evidence that year-to-year median earnings growth did decline considerably after the year 2000 for the 1994 landing cohort. For example, for 1994 male immigrants in all admission categories the annual percentage change in median real earnings declined from 7.6 percent in 2000 to 2.4 percent in 2001, 2.8 percent in 2002, and 1.5 percent in 2003, before increasing to 4.2 percent in 2004. For 1994 female immigrants in all admission categories, a similar decline occurred in year-to-year median earnings growth after the year 2000: their average annual percentage change in median real earnings declined from 7.0 percent in 2000 to 5.0 percent in 2001, 3.1 percent in 2002, and 3.0 percent in 2003, before recovering to 5.1 percent in 2004. But for neither male nor female immigrants in the 1994 landing cohort did median real annual earnings actually decline year-to-year, either in the aggregate or for any of the four admission categories, over the 1994 cohort's first post-landing decade in Canada. Thus, apart from some flattening of the median earnings profiles of 1994 male and female immigrants from post-landing years 7 (2001) to 9 (2003), there is little indication that the economic slowdown of the early 2000s in Canada had discernible effects on the median earnings of immigrants in the 1994 landing cohort.

In summary, what is particularly noteworthy about the median earnings growth rates tabulated in tables A7-A9 is that the only instances of year-to-year median real earnings

decreases, or of negative year-to-year median earnings growth rates, for male or female immigrants in any of the three landing cohorts and four admission categories are those for the years 1990 and 1991 that are observed for the 1982 and 1988 landing cohorts, which are the only two immigrant landing cohorts that experienced the 1990-1991 recession during their first post-landing decade in Canada. Although these findings are purely descriptive in nature and could merely be coincidental with the early 1990s recession in Canada, they provide at least prima facie evidence that the 1990-1991 recession had fairly substantial negative effects on the earnings levels and growth rates of male immigrants in the 1982 and 1988 landing cohorts.

Median earnings growth rates relate only to earnings growth at the center of a given immigrant group's earnings distribution; they therefore provide an incomplete picture of earnings growth unless growth rates are equal across all regions of the earnings distribution, which we have good reasons to think they are not. To obtain more complete evidence on immigrant earnings growth across admission categories, we calculated average annual growth rates over the first ten post-landing years for all thirteen real earnings percentiles spanning the immigrant earnings distribution for each gender-cohort group; we then computed each admission category's average rank of annual growth rates across the thirteen real earnings percentiles for each gender-cohort group. Table 4 presents the resulting composite rankings of admission categories by earnings percentile growth rates for male and female immigrants in the three immigrant landing cohorts. As table 4 indicates, earnings percentile growth rates were generally highest for refugees and lowest for independent economic or family class immigrants. Refugees ranked first in terms of earnings growth rates for both male and female immigrants in all three landing cohorts. Other economic immigrants ranked second in terms of earnings growth rates for

all three cohorts of female immigrants and for the 1988 and 1994 cohorts of male immigrants. For both male and female immigrants, independent economic immigrants ranked fourth (last) in earnings growth for the 1982 and 1988 landing cohorts, and third (second last) for the 1994 cohort. Finally, family class immigrants experienced a decrease in their relative earnings growth rates over the successive landing cohorts. In terms of overall earnings growth, males in the family class ranked second in the 1982 cohort, third in the 1988 cohort, and fourth in the 1994 cohort, while females in the family class ranked third in the 1982 and 1988 cohorts and fourth in the 1994 cohort. In general, the admission category that started off with the lowest initial earnings levels in the first post-landing year — refugees — had the highest annual rates of earnings percentile growth, while the admission category that started off with the highest initial earnings levels in the first post-landing year — independent economic immigrants — had about the lowest annual rates of earnings percentile growth. Based on the four admission categories' average ranks over all thirteen earnings percentile growth rates, refugees had higher earnings growth rates than did other economic immigrants for all six gender-cohort groups, and other economic immigrants in turn had higher earnings growth rates than did independent economic immigrants for all six gender-cohort groups.

Tables 5 and 6 summarize for male and female immigrants, respectively, the rank orderings of the four admission categories according to median real earnings levels (first column), seven real earnings percentile levels (second column), and thirteen earnings percentile growth rates (third column). These tables highlight two of our major findings. First, among the four immigrant admission categories, independent economic immigrants had the highest real annual earnings levels, and family class immigrants or refugees generally had the lowest real annual

earnings levels over their first ten post-landing years in Canada. Second, refugees — both male and female — exhibited the highest annual earnings growth rates in all three landing cohorts, while independent economic immigrants or family class immigrants generally had the lowest annual earnings growth rates over their first post-landing decade. Tables 5 and 6 also show that, over the three successive landing cohorts for 1982, 1988 and 1994, refugees experienced a decrease in their relative annual earnings levels.

4.5 Changes in Relative Median Earnings Across Admission Categories

Previous sections have examined differences in earnings levels and earnings growth rates across admission categories. Section 4.1 reports that, for both male and female immigrants in all three landing cohorts, initial median earnings levels in the first post-landing year were highest for independent economic immigrants, second-highest for other economic immigrants, and lowest for refugee immigrants. Section 4.4 reports that refugee immigrants had the highest annual rates of median earnings growth for both male and female immigrants in all three landing cohorts, while independent economic immigrants had the lowest median earnings growth rates for male and female immigrants in the 1982 and 1988 cohorts, and the second and third highest median earnings growth rates for male and female immigrants, respectively, in the 1994 cohort. This section investigates the implications of these differences in initial earnings levels and subsequent earnings growth rates for how the relative median earnings levels of immigrants in the four admission categories changed over each landing cohort's first post-landing decade. In graphical terms, this section examines how differences across admission categories in initial median earnings levels and in subsequent median earnings growth rates altered the relative levels

of the median earnings profiles for the four immigrant admission categories over the first decade of each immigrant cohort's post-landing period of Canadian residence.

Tables 7, 8 and 9 tabulate for the 1982, 1988 and 1994 landing cohorts, respectively, two sets of median earnings ratios for female and male immigrants in the four admission categories over their first ten post-landing years in Canada: the first set includes the ratio of each admission category's median earnings level to the median earnings level of all male/female immigrants in the landing cohort; the second set consists of median earnings ratios for male/female immigrants for each pair of admission categories. If the median earnings ratio for a given admission category relative to a comparison group of immigrants is greater than 1, then that admission category has a median earnings advantage relative to the comparison group; alternatively, if the median earnings ratio for a given admission category relative to a comparison group of immigrants is less than 1, then that admission category has a median earnings disadvantage relative to the comparison group.¹⁶

Consider first in tables 7, 8 and 9 the ratios of each admission category's median earnings to the median earnings of all immigrants of the same gender in the same landing cohort. These ratios measure the overall relative median earnings of male and female immigrants in the four admission categories for each year of a landing cohort's first post-landing decade. We focus on the implications of these ratios for the relative median earnings of female and male immigrants in the independent economic, family class and refugee categories. First, relative to the median earnings of all immigrants of the same gender in the same landing cohort, the median earnings of both female and male immigrants in the independent economic category decreased considerably over the first ten post-landing years in the 1982 and 1988 landing cohorts, but increased

somewhat over the first ten post-landing years in the 1994 landing cohort. The median earnings advantage of independent economic immigrant relative to all immigrants of the same gender in the same cohort decreased between the first and tenth post-landing years from 51 to 33 percent for female immigrants in the 1982 cohort, from 61 to 29 percent for male immigrants in the 1982 cohort, from 68 to 48 percent for female immigrants in the 1988 cohort, and from 37 to 25 percent for male immigrants in the 1988 cohort. For the 1994 landing cohort, in contrast, the ratio of independent economic immigrants' median earnings to the median earnings of all immigrants of the same gender initially increased over the first 4-6 post-landing years before decreasing slightly; the net result was a modest increase between post-landing years 1 and 10 in the median earnings advantage of independent economic immigrants over all immigrants, from 46 to 52 percent for female immigrants, and from 26 to 31 percent for male immigrants, in the 1994 landing cohort. Second, for both male and female immigrants in all three landing cohorts, the median earnings ratio of refugee immigrants to all immigrants exhibits a clear upward trend throughout most or all of each cohort's first post-landing decade. Moreover, the increases in refugees' overall relative median earnings levels were quite large. The percentage median earnings differential between female refugees and all female immigrants in the same cohort increased between the first and tenth post-landing years from -26 to +8 percent for the 1982 cohort, from -26 to -12 percent for the 1988 cohort, and from -25 to -5 percent for the 1994 cohort. The percentage median earnings differential between male refugees and all male immigrants in the same cohort increased between post-landing years 1 and 10 from -29 to -7 percent for the 1982 cohort, from -25 to -13 percent for the 1988 cohort, and from -26 to -10 percent for the 1994 cohort. The increases in refugees' overall median earnings differentials were

thus somewhat larger for females than for males in all three landing cohorts, and were largest for both female and male refugees in the 1982 cohort and smallest for both female and male refugees in the 1988 cohort. Third, immigrants in the family class category generally experienced little change in their median earnings levels over their first post-landing decade in Canada relative to all immigrants of the same gender in the same landing cohort. In all three landing cohorts, the median earnings ratio of family class immigrants to all immigrants exhibits little change over the first ten post-landing years for males, and only very modest decreases for females. To the extent they changed at all, the relative median earnings of family class immigrants decreased slightly over each landing cohort's first post-landing decade. The overall median earnings ratios in tables 7, 8 and 9 therefore imply two major findings respecting changes in the relative median earnings levels of immigrants in the four admission categories. First, both male and female refugees in all three landing cohorts experienced substantial increases in their relative median earnings over their first ten post-landing years in Canada. Second, both male and female immigrants in the independent economic category experienced decreases in their relative median earnings over the first post-landing decades of the 1982 and 1988 landing cohorts, but slight increases in their relative median earnings over the first ten post-landing years of the 1994 landing cohort.

Tables 7, 8 and 9 also report median earnings ratios for pairs of admission categories. These show how the median earnings level of one admission category changed relative to the median earnings level of another admission category over a landing cohort's first ten post-landing years in Canada. Perhaps the most notable findings revealed by these paired median earnings ratios are those that document post-landing increases in the median earnings of refugee immigrants relative to those of immigrants in the other three admission categories. First, refugee immigrants

experienced substantial increases in their median earnings levels relative to independent economic immigrants, as evidenced by the sizable decreases in the median earnings ratio of independent economic immigrants to refugee immigrants over each cohort's first post-landing decade for both male and female immigrants in all three landing cohorts. As a percentage of the median earnings of independent economic immigrants, the median earnings of refugee immigrants increased between post-landing years 1 and 10 from 49 to 81 percent for females in the 1982 cohort, from 44 to 72 percent for males in the 1982 cohort, from 44 to 59 percent for females in the 1988 cohort, from 55 to 70 percent for males in the 1988 cohort, from 51 to 62 percent for females in the 1994 cohort, and from 59 to 69 percent for males in the 1994 cohort. The ten-year increases in the median earnings of refugees relative to independent economic immigrants were therefore largest for the 1982 landing cohort, and smallest for the 1994 cohort. Second, refugees also realized median earnings gains relative to immigrants in the family class and other economic admission categories: both the median earnings ratio of family class immigrants to refugee immigrants and the median earnings ratio of other economic immigrants to refugee immigrants decreased appreciably over either the initial years or all the years of the first post-landing decade for male and female immigrants in all three landing cohorts.

Two additional findings that emerge from tables 7, 8 and 9 relate to changes in the median earnings of independent economic immigrants over the first ten post-landing years relative to the median earnings of family class and other economic immigrants; these indicate that independent economic immigrants experienced relative median earnings reductions not only in relation to refugees. First, the median earnings of independent economic immigrants relative to those of family class immigrants decreased in the 1982 and 1988 landing cohorts, but increased in the

1994 cohort. For both male and female immigrants in the 1982 and 1988 cohorts, the median earnings ratio of independent economic immigrants to family class immigrants fell either slightly or moderately over the first ten post-landing years; but for the 1994 cohort, the median earnings ratio of independent economic immigrants to family class immigrants rose moderately for males (from 1.34 to 1.46) and more substantially for females (from 1.57 to 1.80) between the first and tenth post-landing years. Second, except for males in the 1994 landing cohort, the median earnings of independent economic immigrants also decreased over the first post-landing decade relative to those of immigrants in the other economic admission category. The median earnings advantage of independent economic immigrants over other economic immigrants decreased over the first post-landing decade from 47 to 32 percent for females in the 1982 cohort, from 74 to 56 percent for males in the 1982 cohort, from 61 to 40 percent for females in the 1988 cohort, from 38 to 29 percent for males in the 1988 cohort, and from 46 to 30 percent for females in the 1994 cohort. For males in the 1994 landing cohort, the median earnings advantage of independent economic immigrants over other economic immigrants initially increased from 25 to 36 percent between post-landing years 1 and 4, but then decreased over the remainder of the first post-landing decade to remain essentially unchanged at 26 percent in post-landing year 10.

In summary, over immigrants' first ten post-landing years in Canada, the median earnings of refugees increased relative to those of immigrants in the other three admission categories for both male and female immigrants in all three landing cohorts, whereas the median earnings of independent economic immigrants generally declined relative to those of immigrants in the other three admission categories, at least for the 1982 and 1988 landing cohorts. Since refugees had the lowest, and independent economic immigrants the highest, median earnings in the first post-

landing year of each cohort, this general pattern of changes in relative median earnings over the first post-landing decade is broadly consistent with median earnings convergence across admission categories, especially for the 1982 and 1988 landing cohorts.

5. Immigrant Earnings Convergence or Divergence

The large immigrant database on which this study is based permits examination of several issues relating to the convergence or divergence of immigrant earnings as newly-landed immigrants integrate into the Canadian labour market. The immigration literature identifies three distinct issues respecting immigrant earnings convergence. The first, associated with the seminal work of Chiswick (1978) and Borjas (1985), among others, is the issue of whether and how rapidly the earnings of immigrants converge to the earnings of Canadian-born workers as immigrants assimilate into Canadian society. Unfortunately, the current study can shed no light on this issue since the IMDB database it utilizes includes data only on Canadian immigrants, and not on Canadian-born workers. The second issue is whether and how rapidly the earnings distributions of Canadian immigrants in different admission categories have been converging among themselves as immigrant cohorts integrate into the Canadian labour market. In other words, have the earnings distributions of the four immigrant admission categories been converging or diverging as new immigrants integrate into the Canadian labour market? A third issue is whether the aggregate earnings distribution of all immigrants taken together becomes more or less unequal as newly-landed immigrant cohorts integrate into the Canadian labour market. How does earnings inequality change with years since landing for a given immigrant

cohort? This section provides some descriptive evidence on the latter two issues, as these are susceptible to analysis using the IMDB database employed in this study.

5.1 Immigrant Earnings Convergence Across Admission Categories

The first issue we address is whether the earnings distributions of the different immigrant admission categories are converging or diverging over immigrants' first post-landing decade in Canada. De Silva (1997), Li (2003) and Wanner (2003) have previously found evidence of earnings convergence across admission categories. Rapid convergence of earnings across admission categories would imply that the long run effects of different immigrant admission criteria are relatively unimportant insofar as their effects on immigrants' relative earnings levels are neither persistent nor long-lasting, whereas slow earnings convergence would suggest the different admission criteria are important inasmuch as they have persistent, long-lasting consequences for immigrants' relative post-landing earnings levels.

Convergence of immigrant cohort earnings distributions across admission categories can be measured in several different ways. In this study we adopt the intuitively simple approach of calculating, for each post-landing year, the ratio of (1) the range of median earnings differences among admission categories — i.e., the median earnings of the highest-earning admissions category minus the median earnings of the lowest-earning admissions category — to (2) the median earnings level of all immigrants of the same gender in a given landing cohort. For gender g in cohort c , this ratio for post-landing year t is calculated as follows:

$$\frac{\text{Maximum median earnings}_{gct} - \text{Minimum median earnings}_{gct}}{\text{Median earnings of all immigrants}_{gct}} \quad \text{for } t = 1, \dots, 10.$$

Decreases in this ratio with increases in YSL indicate median earnings convergence across admission categories, whereas increases in this ratio with increases in YSL indicate median earnings divergence across admission categories.

For both male and female immigrants in all three landing cohorts, the admission category with the highest median earnings in every year of the first post-landing decade was the independent economic category; the admission category with the lowest median earnings for each post-landing year was either refugee immigrants or family class immigrants. Table 10 tabulates separately for male and female immigrants the values of our measure of the relative range of median earnings differences across admission categories against years since landing (YSL) for all three landing cohorts.

Table 10 yields several results. First, there appears to be some convergence of median earnings across admission categories over each landing cohort's first post-landing decade: as table 10 indicates, the values of our measure of cross-category earnings differences generally decrease with increases in YSL (though not monotonically), and the ten-year percentage changes in this measure (from the first to the last year of each cohort's first post-landing decade) are negative for both male and female immigrants in all three landing cohorts. Second, except for the 1994 landing cohort, median earnings convergence across admission categories is more rapid over the first half of the first post-landing decade than over the second half. That is, the rate of median earnings convergence appears to slow down the longer a given immigrant cohort has resided in Canada. Third, the extent of median earnings convergence over the first post-landing decade appears to be somewhat greater for male than for female immigrants in a given landing cohort: the ten-year percentage reductions in our relative median earnings convergence measure

over the first post-landing decade are larger for males than for females in all three landing cohorts. Fourth, table 10 suggests that the rate of median earnings convergence across admission categories was appreciably slower for the 1994 landing cohort than for the two earlier landing cohorts — a potentially worrisome development that might warrant further investigation.¹⁷

5.2 Immigrant Earnings Convergence or Divergence with Years Since Landing

A standard implication of the human capital model of earnings determination is that, as workers of a given age enter the labour market and gain employment experience, the distribution of their annual earnings fans out, diverges, or widens with increases in years of work experience as those who enhance their earnings capacity through on-the-job skill acquisition, training and promotions pull ahead of the rest (Becker, 1964; Mincer, 1974). The earnings distributions of older workers therefore tend to be more unequal than the earnings distributions of younger workers. Green and Worswick (2010a, 2010b) have suggested that it is useful to view entering cohorts of immigrants as analogous to entering birth cohorts of young Canadian-born workers. Both entering cohorts of immigrants and entering cohorts of young Canadian-born workers experience the earnings augmenting effects of human capital acquisition following their entry into the Canadian labour market and both are affected by prevailing economic and labour market conditions at the time of their initial entry into the Canadian labour force.

To investigate whether, as human capital theory suggests, immigrant earnings dispersion increases as years since landing (YSL) increases for a given immigrant landing cohort, or whether it decreases or remains essentially unchanged as YSL increases, we employ a flexible disaggregated approach to characterize earnings dispersion in terms of median-relative earnings percentile ratios. In particular, at the lower end of the distribution, we look at the earnings

percentile ratios p05/p50 and p10/p50, and at the upper end of the distribution we examine the p95/p50 and p90/p50 earnings ratios. This approach allows for different patterns of earnings dispersion to be observed in the two tails of the immigrant earnings distribution. Such an approach thus allows for the possibility that negative economic shocks may have more pronounced effects on the lower regions of the immigrant earnings distribution, whereas positive economic shocks may have more pronounced effects on the middle or upper segments of that distribution.

The most straightforward way to see how immigrant earnings dispersion changes over immigrants' first ten post-landing years in Canada is first to examine the pattern of average real earnings growth across the full range of earnings percentiles for each landing cohort. Figures 5-10 present bar graphs of mean annual percentage changes in thirteen earnings percentiles that span the separate earnings distributions of all male and all female immigrants in the 1982, 1988 and 1994 landing cohorts. An important implication of these bar graphs is that not all real earnings percentiles grew at the same rate over a landing cohort's first post-landing decade in Canada; that is, earnings percentile growth rates varied across immigrants' earnings distributions. Generally speaking, average rates of earnings growth over the first post-landing decade were higher in the middle of each gender-cohort earnings distribution and lower towards the two ends for all three landing cohorts. This pattern is most evident in figures 5 and 6 for male and female immigrants in the 1982 landing cohort, and is least evident in figure 9 for male immigrants in the 1994 landing cohort. Lower earnings growth at the lower end of the immigrant earnings distribution could occur because immigrants may be able to secure only part-time or part-year employment and/or may have skill sets that command relatively low hourly wage rates

in the Canadian labour market. Lower earnings growth at the upper end of the immigrant earnings distribution is probably the result of some new immigrants securing well-paying full-time jobs soon after landing in Canada and hence having less scope for increasing annual earnings by increasing annual hours of work or hourly earnings through job changes or job promotions.

The finding that average earnings growth rates were generally higher around the middle, and lower in the two tails, of the immigrant earnings distributions implies that both upper and lower earnings percentiles would tend to decline relative to the median as the period of post-landing residence in Canada increased. More direct evidence on this implication is provided in figures 11-14. Figures 11 and 12 show, respectively, how the $p05/p50$ and $p10/p50$ earnings ratios varied with YSL for female and male immigrants in the three landing cohorts. For all three immigrant landing cohorts, female immigrants' earnings distributions exhibited moderate first-decade reductions in the $p05/p50$ ratio, and smaller reductions in the $p10/p50$ ratio. In other words, over the first post-landing decade, the bottom decile fell further behind the middle of each landing cohort's female immigrant earnings distribution as YSL increased. For male immigrants in the 1982 and 1988 landing cohorts, both the $p05/p50$ and $p10/p50$ earnings ratios also decreased over the first ten post-landing years, though definitely not monotonically, with the reductions in the $p05/p50$ ratio being proportionately larger than the reductions in the $p10/p50$ ratio. But male immigrants in the 1994 landing cohort deviated from the general pattern of increasing lower-tail earnings dispersion with increases in YSL; their $p05/p50$ earnings ratio remained virtually unchanged, and their $p10/p50$ ratio actually increased slightly, as YSL increased over the course of the first post-landing decade.

Figures 13 and 14 depict graphically how the p95/p50 and p90/p50 earnings ratios varied with YSL for female and male immigrants in the 1982, 1988 and 1994 landing cohorts. For all three immigrant landing cohorts, the earnings distributions of both female and male immigrants provide evidence of decreasing upper-tail earnings dispersion over the first ten post-landing years. The p95/p50 and p90/p50 earnings ratios generally decreased as YSL increased over the first post-landing decade for male and female immigrants in all three cohorts; and the downward drift in the p95/p50 and p90/p50 earnings ratios was most pronounced for males and females in the 1982 cohort, and least pronounced for males and females in the 1988 cohort. In other words, over the first post-landing decade, the top decile moved closer to the middle of each landing cohort's male and female immigrant earnings distribution, presumably because the middle percentiles of these distributions were growing more rapidly than their 90th and 95th percentiles.

Our major findings respecting how immigrant earnings dispersion varied with years since landing over the first post-landing decade are: (1) that immigrant earnings dispersion generally increased with YSL over the lower portion of each cohort's earnings distribution; and (2) that immigrant earnings dispersion generally decreased with YSL over the upper portion of each cohort's earnings distribution. For the three immigrant cohorts we consider, it thus appears that earnings dispersion generally moved in opposite directions at the two ends of the cohorts' earnings distributions. Decreasing lower-tail earnings percentile ratios with increases in YSL imply that immigrant earnings dispersion was increasing with YSL at the lower end of each cohort's earnings distribution, as the lowest-earning immigrants fell further behind the median immigrant earner. In contrast, decreasing upper-tail earnings percentile ratios with increases in YSL imply that immigrant earnings dispersion was decreasing with YSL at the upper end of each

cohort's earnings distribution, as the earnings of immigrants in the middle of the distribution gradually converged towards those of immigrants with the highest earnings.

Since different patterns are observed in the lower and upper tails of the immigrant cohorts' earnings distributions, what is the net result of these different patterns for immigrant earnings dispersion – for convergence or divergence of each immigrant cohort's earnings distribution – as immigrants integrate into the Canadian labour market? Figures 15 and 16 plot the p95/p05 and p90/p10 earnings ratios for each of the three immigrant landing cohorts as a function of years since landing (YSL). Several patterns are discernible in figures 15 and 16. First, how immigrant earnings dispersion varies with YSL is quite different for male and female immigrants. For male immigrants, the p95/p05 and p90/p10 earnings ratios generally decrease with increases in YSL, whereas for female immigrants, these earnings ratios either increase or vary relatively little as YSL increases over each cohort's first post-landing decade. In other words, these percentile earnings ratios provide some evidence of earnings convergence for all three male immigrant cohorts, but only limited evidence of moderate earnings divergence for the three female immigrant cohorts.¹⁸

Second, there are clearly discernible increases in the p95/p05 and p90/p10 earnings ratios that coincide with the economic recession of the early 1990s in Canada. These increases are much more pronounced for the male immigrant cohorts of 1982 and 1988 than for the corresponding female immigrant cohorts. For male immigrants in the 1982 cohort, both the p95/p05 and p90/p10 earnings ratios increase substantially from post-landing year 7 (1989) to post-landing year 10 (1992). For male immigrants in the 1988 cohort, the p95/p05 and p90/p10 earnings ratios both increase sharply from post-landing year 1 (1989) to post-landing year 4

(1992). The only male immigrant cohort that did not experience a recession during its first post-landing decade in Canada is the most recent 1994 landing cohort, for which the p95/p05 and p90/p10 earnings ratios of male immigrants decreased quite markedly, particularly over the first six post-landing years from 1995 to 2000. The 1994 cohort of male immigrants thus provides the cleanest evidence against the human capital theoretic prediction of increasing earnings inequality with increasing labour market experience, at least for the first half decade following their landing in Canada. In the absence of an economic contraction, it appears that there occurs some convergence of the lower and upper tails of the male immigrant earnings distribution as a given landing cohort becomes integrated into the Canadian labour market. In the case of immigrant women, the p95/p05 and p90/p10 earnings ratios of the 1982 and 1988 landing cohorts do increase somewhat during the period that coincides with the early 1990s recession in Canada; but these increases are less pronounced for female immigrants than for male immigrants in the same cohort, perhaps because female employment is more concentrated in less cyclically sensitive service sector jobs and because the family earnings adjustment effect (cf. section 4.1) is more likely to occur. The limited evidence of earnings divergence during periods of economic expansion provided by the rising p95/p05 earnings ratio of female immigrants in the 1994 landing cohort may reflect increases in annual hours of paid work on the part of higher-earning immigrant women as they become more integrated into the Canadian labour market. But in the absence of data on hours of work, such explanations are merely conjectures for further research with different datasets than the one employed in this study.

Third, comparison of the p95/p05 and p90/p10 earnings ratios for the 1982 and 1994 landing cohorts suggests that immigrant earnings inequality within landing cohorts increased over this

period. For both male and female immigrants, the p95/p05 and p90/p10 earnings ratios were generally higher throughout the first ten post-landing years for males and females in the 1994 cohort than for males and females in the 1982 cohort. Referring to figures 11-14, it appears that the increase in overall immigrant earnings inequality between the 1982 and 1994 landing cohorts largely reflects the finding of higher p95/p50 and p90/p50 earnings ratios throughout most of the first post-landing decade for both female and male immigrants in the 1994 cohort compared with female and male immigrants in the 1982 cohort. This increase in immigrant earnings inequality between the 1982 and 1994 landing cohorts is quite consistent with findings of increased earnings inequality in the Canadian labour market as a whole during the 1980s and 1990s, driven largely by very large earnings increases in the upper end of the earnings distribution (Saez and Veall, 2005; Beach, Finnie and Gray, 2010).

6. Summary and Conclusions

This study has used longitudinal IMDB micro data on immigrant annual earnings in Canada to examine how immigrants' earnings evolve over their first ten years after landing in Canada. The principal questions the study addresses are whether and how immigrant earnings levels and earnings growth rates differ across four major immigrant admission categories, namely independent economic immigrants, other economic immigrants, family class immigrants, and refugees. We consider three different immigrant landing cohorts — namely those for the years 1982, 1988, and 1994 — and present separate but parallel findings for male and female immigrants. The results thus provide a ten-year earnings signature for the four major immigrant admission categories in Canada.

The study reports two major findings that motivate our main policy recommendations, and four more specific findings that further research should seek to better understand. The first major finding is that skill-assessed independent economic immigrants had consistently and substantially the highest annual earnings levels among the four immigrant admission categories for both male and female immigrants in all three landing cohorts. The 10-year average of median earnings levels for male/female independent economic immigrants was higher than the 10-year average of median earnings levels for all male/female immigrants in the same landing cohort by 37/39 percent for the 1982 landing cohort, by 30/56 percent for the 1988 landing cohort, and by 35/56 percent for the 1994 landing cohort. Family class immigrants or refugees generally had the lowest annual earnings levels over their first ten post-landing years in Canada. Among male immigrants, those in the family class category had the lowest median earnings levels (by 18 percent on average relative to all male immigrants) in the 1982 landing cohort, while those in the refugee category had the lowest median earnings levels in the 1988 and 1994 cohorts (by 18 percent and 15 percent, respectively, on average). Among female immigrants, those in the family class category had the lowest median earnings levels in all three landing cohorts (by 12 percent, 18 percent, and 13 percent, on average relative to all female immigrants in the 1982, 1988, and 1994 cohorts, respectively).

The study also finds evidence of sizable differences across admission categories in the average annual earnings growth rates of immigrants over their first ten post-landing years in Canada. Refugees, both male and female, exhibited the highest overall earnings growth rates by a substantial margin in all three landing cohorts. Independent economic immigrants had the lowest overall earnings growth rates among both male and female immigrants in the 1982 and

1988 landing cohorts, while family class immigrants had the lowest overall earnings growth rates among male and female immigrants in the 1994 cohort. Differences in median earnings growth rates are generally indicative of these differences in earnings growth across admission categories. Relative to the average annual median earnings growth rates of all male/female immigrants in the same landing cohort, the average annual median earnings growth rates of male/female refugee immigrants were 49/68 percent higher for the 1982 landing cohort, 39/41 percent higher for the 1988 cohort, and 29/35 percent higher for the 1994 cohort. On the other hand, the average annual median earnings growth rates of independent economic male/female immigrants were 36/20 percent lower in the 1982 landing cohort, and 23/26 percent lower in the 1988 landing cohort, than were the corresponding median earnings growth rates of all male/female immigrants in the same landing cohort. For the 1994 cohort, it was family class immigrants who had the lowest median earnings growth rates during their first post-landing decade; their average annual median earnings growth rates were 8/13 percent lower than those of all male/female immigrants in the same landing cohort.

The study's second major finding is that economic recessions appear to have had major negative effects on immigrants' earnings levels and earnings growth rates. Moreover, these adverse effects were much more pronounced for male immigrants than for female immigrants. The apparent effects of the early 1990s Canadian recession on the median earnings of male immigrants to Canada are graphically manifested in two ways: first, in the noticeable flattening of the median earnings profiles for 1982 male immigrants in all four admission categories between post-landing years 7 through 9 (1989-1991); and second, in the dips (or downturns) of the median earnings profiles for 1988 male immigrants in all admission categories and in three of

the four admission categories from post-landing year 2 (1990) to post-landing year 3 (1991). Both these sets of features approximately coincide with the years of the early 1990s recession in Canada, which began in 1990 and ended in 1991. The data reveal that median real earnings levels actually decreased between 1990 and 1991, meaning that year-to-year median earnings growth rates were negative in 1991, not only for 1982 and 1988 male immigrants in all four admission categories but also for 1982 and 1988 male immigrants in the independent economic, family class, and refugee admission categories. More generally, we find that the only instances of year-to-year median real earnings decreases, or of negative year-to-year median earnings growth rates, for male or female immigrants in any of the three landing cohorts and four admission categories are those for the years 1990 and 1991 that are observed for the 1982 and 1988 landing cohorts. While these findings could be merely coincidental, they at least strongly suggest that the 1990-1991 recession had fairly substantial negative effects on the earnings levels and growth rates of male immigrants in the 1982 and 1988 landing cohorts.

Third, there were several notable differences across the 1982, 1988, and 1994 landing cohorts in the rankings of immigrant admission categories on the basis of their earnings levels and earnings growth rates over the first post-landing decade in Canada. Refugees — both male and female — experienced declines in their real and relative annual earnings levels across the three successive landing cohorts. Family class immigrants experienced decreases in their relative earnings growth rates across the three successive landing cohorts. In contrast, independent economic immigrants experienced a marked increase in their relative earnings growth rates between the two earlier landing cohorts and the most recent 1994 cohort.

Fourth, the study finds that the relative median earnings of immigrants in different admission categories changed considerably over immigrants' first ten post-landing years in Canada. On the one hand, the low initial median earnings of refugees increased quite substantially between the first and tenth post-landing years relative to the median earnings of male and female immigrants in the other three admission categories as refugees experienced higher earnings growth than immigrants in other admission categories over each landing cohort's first post-landing decade. On the other hand, the initial median earnings disadvantage of family class immigrants relative to all immigrants of the same gender and landing cohort remained virtually unchanged for males, and increased slightly for females, in the three landing cohorts, as immigrants in the other admission categories experienced more rapid earnings growth over their first post-landing decade of Canadian residence. For both male and female immigrants in the 1982 and 1988 landing cohorts, the initially large median earnings advantage of skill-assessed independent economic immigrants relative to immigrants in the other admission categories decreased appreciably over each cohort's first post-landing decade in Canada. But for the 1994 landing cohort, which did not experience an official economic recession during its first ten post-landing years in Canada, the initial median earnings advantage of both male and female immigrants in the skill-assessed independent economic category relative to all immigrants of the same gender actually increased somewhat over the first post-landing decade, from 46 to 52 percent for females and from 26 to 31 percent for males (table 9); these increases in independent economic immigrants' overall median earnings advantage in the 1994 cohort largely reflect increases in independent economic immigrants' median earnings levels relative to those of family class immigrants in the 1994 cohort.

Fifth, the earnings distributions of the four admission categories for both male and female immigrants — or at least the centers of these distributions — do indeed show evidence of convergence between distributions as years since landing (YSL) increased over immigrants' first ten post-landing years of Canadian residence. But we also find evidence that the rate of median earnings convergence among admission categories diminished as YSL increased, was slower for female than for male immigrants, and was considerably slower for the 1994 landing cohort than for the 1982 and 1988 immigrant cohorts.

Finally, the study finds mixed evidence on within-distribution earnings convergence, i.e., on whether the male and female earnings distributions for a given landing cohort tended to converge to or diverge from the middle as newly-landed immigrants become more integrated into the Canadian labour market over their first post-landing decade. On the one hand, we find evidence of increasing earnings inequality in the lower end of the immigrant earnings distributions as the lowest-earning immigrants lost ground relative to those in the middle of the immigrant earnings distribution over the first ten post-landing years. But on the other hand, we find that earnings dispersion in the upper end of the male and female immigrant earnings distributions tended to decrease with increases in years since landing for all three landing cohorts, as immigrants in the middle of the earnings distribution realized somewhat higher earnings growth over the first post-landing decade relative to the highest-earning immigrants in the upper tail. Abstracting from the apparent inequality-increasing effect of economic recessions, our findings indicate that overall immigrant earnings inequality among male immigrants tended to decrease with increases in years since landing, but among female immigrants tended to increase moderately or remain relatively unchanged over the first ten post-landing years. The evidence also suggests that overall earnings

inequality within immigrant cohorts increased between the 1982 and 1994 landing cohorts, as did earnings inequality in the Canadian labour market as a whole during the 1980s and 1990s.

These results reflect on two aspects of Canadian immigration policy.¹⁹ First, since immigrants in the independent economic admission category had substantially and consistently higher annual earnings throughout the first post-landing decade of Canadian residence for both male and female immigrants in all three landing cohorts, Canada should continue to place heavy weight on skill-assessed immigrants and not reduce the proportion of new permanent immigrants admitted in the skilled worker category. Thus the importance of the Federal Skilled Worker Program should not be reduced or diminished, and other skill-focused initiatives such as the Canadian Experience Class should be maintained or expanded. Rather than perpetuate recent dramatic increases in the numbers of immigrants admitted under Provincial Nominee programs or temporary foreign worker programs, Citizenship and Immigration Canada should pursue ways to improve the Federal Skilled Worker Program by reducing application processing times and effectively addressing its current problems such as those associated with foreign credentials recognition. There also needs to be further research aimed at (1) identifying which immigrant skills are the most important for successful and rapid integration into the contemporary Canadian labour market, and (2) better understanding the detailed work adjustment process that immigrants undergo in adapting to the Canadian economy in the immediate post-landing period.

Second, the 1990-1991 recession appears to have had very marked and long-lasting scarring effects on the real earnings of immigrants arriving shortly before that time. This was also the first major recession in decades during which Canada maintained the gross inflow of immigrants at historically high pre-recession levels. Perhaps thought should be given to ways to reduce total

immigrant admission levels when a severe recession hits. In the past, it has been found that long lags in the processing of immigrant applications has limited the effectiveness of a tap on/tap off immigrant admission policy. But the 2008 revisions to Canadian immigration rules have given the Minister a great deal of authority in the processing of applications. Furthermore, if the federal government could convert to an electronic-based processing system from the current paper-based system, it should be possible to further expedite processing of applications for permanent residence. Finally, in light of the recent 2008-2009 recession that the Canadian economy has just endured and the prospects for slow growth and high unemployment during a gradual and protracted recovery from it, now may be the time to revisit the policy of maintaining high admission levels of permanent residents and temporary foreign workers during periods when the Canadian labour market is likely to have difficulty absorbing them successfully.

Notes

¹ IMDB data on age at landing was used only in selecting the analysis samples for each landing cohort on which the current study is conducted.

² Current age, current educational attainment, and current years of work experience are three important worker characteristics that likely vary over time but are not measured in the IMDB because they are not captured in the data from annual personal income tax returns.

³ All earnings data in this study are earnings from paid employment only, and therefore do not include net self-employment income. We also exclude from this study business class immigrants, for whom self-employment income would obviously be important. Business class immigrants certainly warrant further investigation, but such an investigation is beyond the scope of the current study, which is restricted to assembling evidence on the wage and salary earnings of immigrants in paid employment. Paid workers constitute the vast majority of employed immigrants.

⁴ The IMDB does not contain information on immigrants' weeks worked per year, hours worked per week, or full-time versus part-time status; it is therefore not possible to measure immigrants' annual hours of work or their average hourly or weekly earnings.

⁵ At the time this project began, 1994 was the most recent immigrant landing cohort for which a full ten years of post-landing income tax data were available, and 2005 was the most recent year for which annual income tax data were available in the IMDB.

⁶ For a detailed discussion of the dating of these Canadian recessions, see Cross (2009).

⁷ All figures on the number and distribution of immigrants to Canada cited in this paragraph are from Citizenship and Immigration Canada (2009), pp. 3-4.

⁸ All absolute frequency counts cited in this paper are only approximate because they are randomly rounded to the nearest multiple of 5 by Statistics Canada.

⁹ The reason for this minimum real annual earnings cutoff is to exclude those immigrants with only a weak, occasional or intermittent attachment to the employed labour force. An investigation of immigrant movements into and out of employment would be worthwhile, but is beyond the scope of the current study.

¹⁰ These figures are calculated from Statistics Canada CANSIM series V25655632 for women earners and V25655152 for men earners, both converted to real terms using the CPI deflator. While percentage increases in median earnings generally exceed those in mean earnings (Abbott and Beach 2008, 44-45), these differences are far smaller than those between the percentage increase in immigrants' median earnings in the bottom row of each panel in table 1 and the corresponding percentage increases in mean earnings of all earners in the Canadian labour market as a whole.

¹¹ Obviously many factors aside from the lingering effects of the 1990-1991 recession in Canada could have contributed to these reductions in real earnings levels across successive landing cohorts, including: ongoing industrial restructuring induced by implementation of the FTA and NAFTA; government fiscal consolidation in Canada aimed at reducing large structural budget deficits; the IT crash of the early 2000s; job competition from increasing numbers of skilled Canadian-born workers in the labour market; changes in the skill mix and source-country mix of successive immigrant cohorts; increasing difficulties in converting foreign-acquired skills and credentials into higher Canadian earnings; and the evolving industrial/occupational structure of the Canadian economy. See the discussion and references in Beach, Green and Worswick, 2011, section 5.2.

¹² See, for example, Beach and Worswick (1993).

¹³ See, for example, Beach and Finnie (2004).

¹⁴ For each gender-cohort group, the total number of such rankings equals 70.

¹⁵ That is, for each of the thirteen real earnings percentiles p05, p10, p20, p25, p30, p40, p50, p60, p70, p75, p80, p90, and p95, we calculated the average annual percentage change over the first ten post-landing years, from YSL = 1 to YSL = 10.

¹⁶ Subtracting 1 from each of the median earnings ratios in Tables 7, 8 and 9 and then multiplying the resulting difference by 100 gives the percentage median earnings differential between the admission category in the numerator and the comparison group in the denominator: if this differential is positive, then the admission category in the numerator has a median earnings advantage relative to the comparison group in the denominator; if this differential is negative, then the admission category in the numerator has a median earnings disadvantage relative to the comparison group in the denominator.

¹⁷ We also calculated our measure of relative earnings differences across admission categories using mean earnings rather than median earnings of male and female immigrants in the three landing cohorts. The results for mean earnings are similar in direction and magnitude to those in table 10 for median earnings.

¹⁸ Ostrovsky (2008), using a very different methodology than ours, also finds evidence for male immigrants of decreasing earnings inequality with increases in YSL over the 1982-2004 period.

¹⁹ One must be careful in drawing policy conclusions from essentially descriptive findings as there could be several causes of these findings. But we feel that the strength and consistency of our reported findings are sufficient to support the two sets of policy recommendations we make.

Table 1: Median Real Annual Earnings (in 2004 dollars) of Male and Female Immigrants in All Admission Categories by Years Since Landing (YSL) for 1982, 1988 and 1994 Landing Cohorts

YSL	Median Real Annual Earnings (\$/yr)			Ranks of Landing Cohorts		
	1982 Cohort	1988 Cohort	1994 Cohort	1982 Cohort	1988 Cohort	1994 Cohort
Males in All Admission Categories						
1	\$20,879	\$25,131	\$17,808	2	1	3
2	26,125	28,506	21,517	2	1	3
3	29,281	27,936	24,492	1	2	3
4	32,103	29,214	27,397	1	2	3
5	34,535	30,251	29,917	1	2	3
6	37,291	32,288	32,185	1	2	3
7	39,337	33,492	32,965	1	2	3
8	39,517	34,648	33,880	1	2	3
9	38,599	36,686	34,390	1	2	3
10	39,842	38,377	35,833	1	2	3
10-year average	\$33,751	\$31,653	\$29,039	1	2	3
avg annual % change	7.69%	4.88%	8.24%	2	3	1
10-year % change	90.8%	52.7%	101.2%	2	3	1
Females in All Admission Categories						
1	\$12,300	\$15,409	\$11,356	2	1	3
2	14,647	17,925	13,527	2	1	3
3	15,926	18,446	15,362	2	1	3
4	17,234	19,770	17,103	2	1	3
5	18,543	20,571	18,616	3	1	2
6	20,020	21,707	19,919	2	1	3
7	21,213	22,428	20,921	2	1	3
8	22,054	23,188	21,567	2	1	3
9	22,252	23,829	22,206	2	1	3
10	23,290	24,896	23,330	3	1	2
10-year average	\$18,748	\$20,817	\$18,391	2	1	3
avg annual % change	7.45%	5.55%	8.44%	2	3	1
10-year % change	89.4%	61.6%	105.4%	2	3	1

Source: Authors' calculations from the IMDB.

Table 2: Differences in Aggregate Economic Conditions Among the 1982, 1988 and 1994 Landing Cohorts

Immigrant Landing Cohort	Growth Rate of Real GDP in Landing Year	Aggregate Unemployment Rate in Landing Year	Ten-Year Percentage Increase in Real GDP	Ten-Year Average of Agg. Unemployment Rate
1982 Landing Cohort	-2.9%	11.0%	26.2%	9.73%
1988 Landing Cohort	5.0%	7.8%	20.3%	9.54%
1994 Landing Cohort	4.8%	10.4%	34.8%	8.06%

Source: Statistics Canada (2009), pp. 11, 37.

Table 3: Average Annual Growth Rates of 13 Real Earnings Percentiles over First Ten Post-Landing Years by Gender and Landing Year, Immigrants in All Admission Categories

Earnings Percentile	Average Annual Growth Rates (% per year)						Ranks of Landing Cohorts by Sex					
	Males	Males	Males	Females	Females	Females	Male Ranks			Female Ranks		
	1982	1988	1994	1982	1988	1994	1982	1988	1994	1982	1988	1994
	All Admission Categories						All Admission Categories					
p05	4.367	3.007	8.302	4.536	3.119	5.776	2	3	1	2	3	1
p10	5.766	3.940	9.096	6.278	4.475	7.144	2	3	1	2	3	1
p20	7.742	5.252	9.217	7.149	5.782	7.617	2	3	1	2	3	1
p25	7.856	5.242	9.196	7.511	6.115	8.000	2	3	1	2	3	1
p30	8.044	5.252	9.040	7.695	6.198	8.211	2	3	1	2	3	1
p40	8.031	5.129	8.484	7.521	5.813	8.615	2	3	1	2	3	1
p50	7.693	4.884	8.244	7.453	5.549	8.445	2	3	1	2	3	1
p60	7.116	4.788	8.060	7.309	5.470	8.014	2	3	1	2	3	1
p70	6.236	4.579	7.974	7.124	5.196	7.893	2	3	1	2	3	1
p75	5.513	4.467	7.925	6.860	5.050	7.931	2	3	1	2	3	1
p80	4.665	4.378	7.850	6.528	4.867	7.880	2	3	1	2	3	1
p90	3.594	4.001	7.063	5.796	5.062	7.789	3	2	1	2	3	1
p95	3.094	4.203	6.056	4.211	5.321	7.421	3	2	1	3	2	1

Source: Authors' calculations from the IMDB.

Table 4: Ordering of Admission Categories by Average Rank over 13 Real Earnings Percentiles of the Average Annual Earnings Percentile Growth Rates during First Post-Landing Decade: Male and Female Immigrants in the 1982, 1988 and 1994 Landing Cohorts

Male Immigrants – 1982 Landing Cohort

1. Refugees (average rank = 1.00)
2. Family Class (average rank = 2.08)
3. Other Economic (average rank = 2.92)
4. Independent Economic (average rank = 4.00)

Male Immigrants – 1988 Landing Cohort

1. Refugees (average rank = 1.00)
2. Other Economic (average rank = 2.46)
3. Family Class (average rank = 2.69)
4. Independent Economic (average rank = 3.85)

Male Immigrants – 1994 Landing Cohort

1. Refugees (average rank = 1.00)
2. Other Economic (average rank = 2.46)
3. Independent Economic (average rank = 3.00)
4. Family Class (average rank = 3.54)

Female Immigrants – 1982 Landing Cohort

1. Refugees (average rank = 1.00)
2. Other Economic (average rank = 2.00)
3. Family Class (average rank = 3.00)
4. Independent Economic (average rank = 4.00)

Female Immigrants – 1988 Landing Cohort

1. Refugees (average rank = 1.23)
2. Other Economic (average rank = 1.77)
3. Family Class (average rank = 3.39)
4. Independent Economic (average rank = 3.62)

Female Immigrants – 1994 Landing Cohort

1. Refugees (average rank = 1.46)
 2. Other Economic (average rank = 1.69)
 3. Independent Economic (average rank = 3.00)
 4. Family Class (average rank = 3.85)
-

Source: Authors' calculations from the IMDB.

Table 5: Comparison of the Rankings of Admission Categories (1) by Median Earnings Levels, (2) by Earnings Percentile Levels, and (3) by Average Annual Earnings Percentile Growth Rates: Male Immigrants in the 1982, 1988 and 1994 Landing Cohorts

Ranking by Median Earnings Levels	Ranking by Seven Earnings Percentile Levels	Ranking by 13 Average Annual Earnings Percentile Growth Rates
1982 Male Immigrants	1982 Male Immigrants	1982 Male Immigrants
1 Independent Economic	1 Independent Economic	1 Refugee
2 Refugee	2 Other Economic	2 Family Class
3 Other Economic	3 Refugee	3 Other Economic
4 Family Class	4 Family Class	4 Independent Economic
1988 Male Immigrants	1988 Male Immigrants	1988 Male Immigrants
1 Independent Economic	1 Independent Economic	1 Refugee
2 Other Economic	2 Other Economic	2 Other Economic
3 Family Class	3 Family Class	3 Family Class
4 Refugee	4 Refugee	4 Independent Economic
1994 Male Immigrants	1994 Male Immigrants	1994 Male Immigrants
1 Independent Economic	1 Independent Economic	1 Refugee
2 Other Economic	2 Other Economic	2 Other Economic
3 Family Class	3 Family Class	3 Independent Economic
4 Refugee	4 Refugee	4 Family Class

Source: Authors' calculations from the IMDB.

Table 6: Comparison of the Rankings of Admission Categories (1) by Median Earnings Levels, (2) by Earnings Percentile Levels, and (3) by Average Annual Earnings Percentile Growth Rates: Female Immigrants in the 1982, 1988 and 1994 Landing Cohorts

Ranking by Median Earnings Levels	Ranking by Seven Earnings Percentile Levels	Ranking by 13 Average Annual Earnings Percentile Growth Rates
1982 Female Immigrants	1982 Female Immigrants	1982 Female Immigrants
1 Independent Economic	1 Independent Economic	1 Refugee
2 Refugee	2 Other Economic	2 Other Economic
3 Other Economic	3 Refugee	3 Family Class
4 Family Class	4 Family Class	4 Independent Economic
1988 Female Immigrants	1988 Female Immigrants	1988 Female Immigrants
1 Independent Economic	1 Independent Economic	1 Refugee
2 Other Economic	2 Other Economic	2 Other Economic
3 Refugee	3 Family Class	3 Family Class
4 Family Class	4 Refugee	4 Independent Economic
1994 Female Immigrants	1994 Female Immigrants	1994 Female Immigrants
1 Independent Economic	1 Independent Economic	1 Refugee
2 Other Economic	2 Other Economic	2 Other Economic
3 Refugee	3 Family Class	3 Independent Economic
4 Family Class	4 Refugee	4 Family Class

Source: Authors' calculations from the IMDB.

Table 7: Median Real Annual Earnings Ratios among Immigrant Admission Categories by Tax Year/YSL, Female and Male Immigrants in the 1982 Landing Cohort

Tax Year	YSL	Median, All Admission Categories	Ratio Adm. Cat. 1 to All	Ratio Adm. Cat. 2 to All	Ratio Adm. Cat. 3 to All	Ratio Adm. Cat. 4 to All	Ratio Adm. Cat. 1 to 2	Ratio Adm. Cat. 1 to 3	Ratio Adm. Cat. 1 to 4	Ratio Adm. Cat. 2 to 3	Ratio Adm. Cat. 2 to 4	Ratio Adm. Cat. 3 to 4
Females in 1982 Landing Cohort												
1983	1	\$12,300	1.510	1.028	0.918	0.742	1.468	1.645	2.035	1.120	1.386	1.237
1984	2	14,647	1.423	0.981	0.906	0.891	1.450	1.571	1.597	1.083	1.102	1.017
1985	3	15,926	1.438	0.988	0.889	0.950	1.455	1.617	1.514	1.112	1.041	0.936
1986	4	17,234	1.425	0.990	0.874	1.024	1.440	1.632	1.392	1.133	0.967	0.853
1987	5	18,543	1.383	0.989	0.869	1.049	1.398	1.592	1.318	1.139	0.943	0.828
1988	6	20,020	1.358	1.001	0.872	1.070	1.357	1.558	1.269	1.148	0.935	0.814
1989	7	21,213	1.339	0.990	0.875	1.073	1.352	1.529	1.248	1.131	0.923	0.816
1990	8	22,054	1.392	1.008	0.872	1.044	1.381	1.597	1.334	1.156	0.966	0.835
1991	9	22,252	1.354	1.021	0.857	1.063	1.326	1.580	1.274	1.191	0.961	0.806
1992	10	23,290	1.331	1.007	0.858	1.080	1.321	1.551	1.232	1.174	0.933	0.795
Males in 1982 Landing Cohort												
1983	1	\$20,879	1.613	0.927	0.828	0.711	1.741	1.948	2.268	1.119	1.303	1.164
1984	2	26,125	1.474	0.870	0.807	0.819	1.695	1.827	1.799	1.078	1.061	0.985
1985	3	29,281	1.446	0.846	0.795	0.863	1.711	1.820	1.676	1.064	0.980	0.921
1986	4	32,103	1.382	0.826	0.810	0.913	1.673	1.706	1.513	1.020	0.905	0.887
1987	5	34,535	1.358	0.832	0.817	0.936	1.631	1.662	1.450	1.019	0.889	0.872
1988	6	37,291	1.338	0.848	0.822	0.939	1.577	1.628	1.424	1.032	0.903	0.875
1989	7	39,337	1.314	0.822	0.833	0.941	1.598	1.578	1.396	0.987	0.874	0.885
1990	8	39,517	1.302	0.802	0.820	0.933	1.624	1.588	1.395	0.978	0.859	0.879
1991	9	38,599	1.315	0.827	0.818	0.933	1.590	1.608	1.411	1.011	0.887	0.877
1992	10	39,842	1.288	0.826	0.833	0.932	1.559	1.546	1.382	0.991	0.886	0.894

Notes: Admission category 1 denotes the Independent Economic category, admission category 2 the Other Economic category, admission category 3 the Family Class category, and admission category 4 the Refugee category. “All” refers to female/male immigrants in all four admission categories.

Source: Authors’ calculations from the IMDB.

Table 8: Median Real Annual Earnings Ratios among Immigrant Admission Categories by Tax Year/YSL, Female and Male Immigrants in the 1988 Landing Cohort

Tax Year	YSL	Median, All Admission Categories	Ratio Adm. Cat. 1 to All	Ratio Adm. Cat. 2 to All	Ratio Adm. Cat. 3 to All	Ratio Adm. Cat. 4 to All	Ratio Adm. Cat. 1 to 2	Ratio Adm. Cat. 1 to 3	Ratio Adm. Cat. 1 to 4	Ratio Adm. Cat. 2 to 3	Ratio Adm. Cat. 2 to 4	Ratio Adm. Cat. 3 to 4
Females in 1988 Landing Cohort												
1989	1	\$15,409	1.678	1.044	0.880	0.736	1.607	1.906	2.280	1.186	1.419	1.196
1990	2	17,925	1.647	1.033	0.844	0.802	1.595	1.951	2.055	1.223	1.289	1.053
1991	3	18,446	1.648	1.056	0.813	0.826	1.561	2.026	1.995	1.298	1.278	0.985
1992	4	19,770	1.609	1.062	0.801	0.829	1.515	2.009	1.940	1.326	1.281	0.966
1993	5	20,571	1.591	1.069	0.800	0.859	1.488	1.990	1.851	1.337	1.244	0.930
1994	6	21,707	1.556	1.060	0.809	0.864	1.467	1.924	1.800	1.311	1.227	0.935
1995	7	22,428	1.525	1.059	0.810	0.874	1.440	1.883	1.745	1.308	1.213	0.927
1996	8	23,188	1.491	1.054	0.814	0.858	1.414	1.831	1.737	1.294	1.228	0.949
1997	9	23,829	1.496	1.062	0.822	0.867	1.409	1.821	1.725	1.292	1.224	0.947
1998	10	24,896	1.484	1.057	0.843	0.881	1.404	1.760	1.685	1.254	1.201	0.957
Males in 1988 Landing Cohort												
1989	1	\$25,131	1.373	0.998	0.903	0.750	1.375	1.520	1.830	1.105	1.331	1.204
1990	2	28,506	1.337	1.014	0.862	0.795	1.319	1.551	1.682	1.177	1.276	1.084
1991	3	27,936	1.333	1.037	0.858	0.775	1.286	1.554	1.720	1.209	1.337	1.106
1992	4	29,214	1.312	1.030	0.871	0.794	1.273	1.507	1.652	1.183	1.297	1.097
1993	5	30,251	1.293	1.022	0.883	0.804	1.265	1.464	1.608	1.158	1.271	1.098
1994	6	32,288	1.288	0.996	0.879	0.825	1.292	1.465	1.562	1.133	1.208	1.066
1995	7	33,492	1.291	1.003	0.889	0.842	1.287	1.452	1.534	1.129	1.192	1.056
1996	8	34,648	1.275	0.989	0.891	0.854	1.289	1.431	1.493	1.110	1.158	1.043
1997	9	36,686	1.251	0.981	0.879	0.862	1.274	1.423	1.450	1.116	1.138	1.019
1998	10	38,377	1.245	0.967	0.893	0.874	1.288	1.394	1.424	1.083	1.106	1.021

Notes: Admission category 1 denotes the Independent Economic category, admission category 2 the Other Economic category, admission category 3 the Family Class category, and admission category 4 the Refugee category. “All” refers to female/male immigrants in all four admission categories.

Source: Authors’ calculations from the IMDB.

Table 9: Median Real Annual Earnings Ratios among Immigrant Admission Categories by Tax Year/YSL, Female and Male Immigrants in the 1994 Landing Cohort

Tax Year	YSL	Median, All Admission Categories	Ratio Adm. Cat. 1 to All	Ratio Adm. Cat. 2 to All	Ratio Adm. Cat. 3 to All	Ratio Adm. Cat. 4 to All	Ratio Adm. Cat. 1 to 2	Ratio Adm. Cat. 1 to 3	Ratio Adm. Cat. 1 to 4	Ratio Adm. Cat. 2 to 3	Ratio Adm. Cat. 2 to 4	Ratio Adm. Cat. 3 to 4
Females in 1994 Landing Cohort												
1995	1	\$11,356	1.463	0.999	0.931	0.753	1.464	1.572	1.944	1.074	1.328	1.237
1996	2	13,527	1.555	1.009	0.913	0.795	1.541	1.703	1.955	1.105	1.269	1.148
1997	3	15,362	1.536	1.078	0.896	0.822	1.425	1.715	1.870	1.204	1.312	1.090
1998	4	17,103	1.536	1.120	0.890	0.840	1.371	1.727	1.830	1.259	1.334	1.059
1999	5	18,616	1.547	1.124	0.892	0.903	1.377	1.734	1.714	1.259	1.245	0.988
2000	6	19,919	1.584	1.139	0.872	0.929	1.391	1.816	1.705	1.306	1.226	0.939
2001	7	20,921	1.579	1.173	0.861	0.935	1.346	1.833	1.689	1.362	1.255	0.922
2002	8	21,567	1.571	1.167	0.849	0.946	1.346	1.852	1.660	1.375	1.233	0.897
2003	9	22,206	1.578	1.184	0.843	0.953	1.333	1.873	1.656	1.405	1.243	0.884
2004	10	23,330	1.523	1.176	0.849	0.949	1.295	1.795	1.605	1.386	1.239	0.894
Males in 1994 Landing Cohort												
1995	1	\$17,808	1.261	1.007	0.940	0.742	1.252	1.341	1.699	1.071	1.357	1.267
1996	2	21,517	1.350	1.015	0.918	0.768	1.330	1.471	1.758	1.106	1.321	1.195
1997	3	24,492	1.385	1.038	0.898	0.811	1.334	1.543	1.707	1.157	1.280	1.106
1998	4	27,397	1.396	1.028	0.892	0.823	1.358	1.565	1.695	1.153	1.248	1.083
1999	5	29,917	1.390	1.034	0.890	0.845	1.344	1.561	1.644	1.161	1.223	1.053
2000	6	32,185	1.354	1.053	0.885	0.872	1.285	1.530	1.553	1.190	1.208	1.015
2001	7	32,965	1.360	1.061	0.888	0.879	1.282	1.532	1.548	1.195	1.207	1.010
2002	8	33,880	1.340	1.055	0.890	0.893	1.270	1.506	1.501	1.186	1.182	0.997
2003	9	34,390	1.333	1.066	0.887	0.897	1.251	1.503	1.486	1.201	1.188	0.989
2004	10	35,833	1.307	1.040	0.893	0.899	1.257	1.463	1.455	1.164	1.158	0.994

Notes: Admission category 1 denotes the Independent Economic category, admission category 2 the Other Economic category, admission category 3 the Family Class category, and admission category 4 the Refugee category. “All” refers to female/male immigrants in all four admission categories.

Source: Authors’ calculations from the IMDB.

Table 10: Relative Range of Median Earnings Differences Across Admission Categories by Post-Landing Year (YSL), Male and Female Immigrant Earners in the 1982, 1988 and 1994 Landing Cohorts

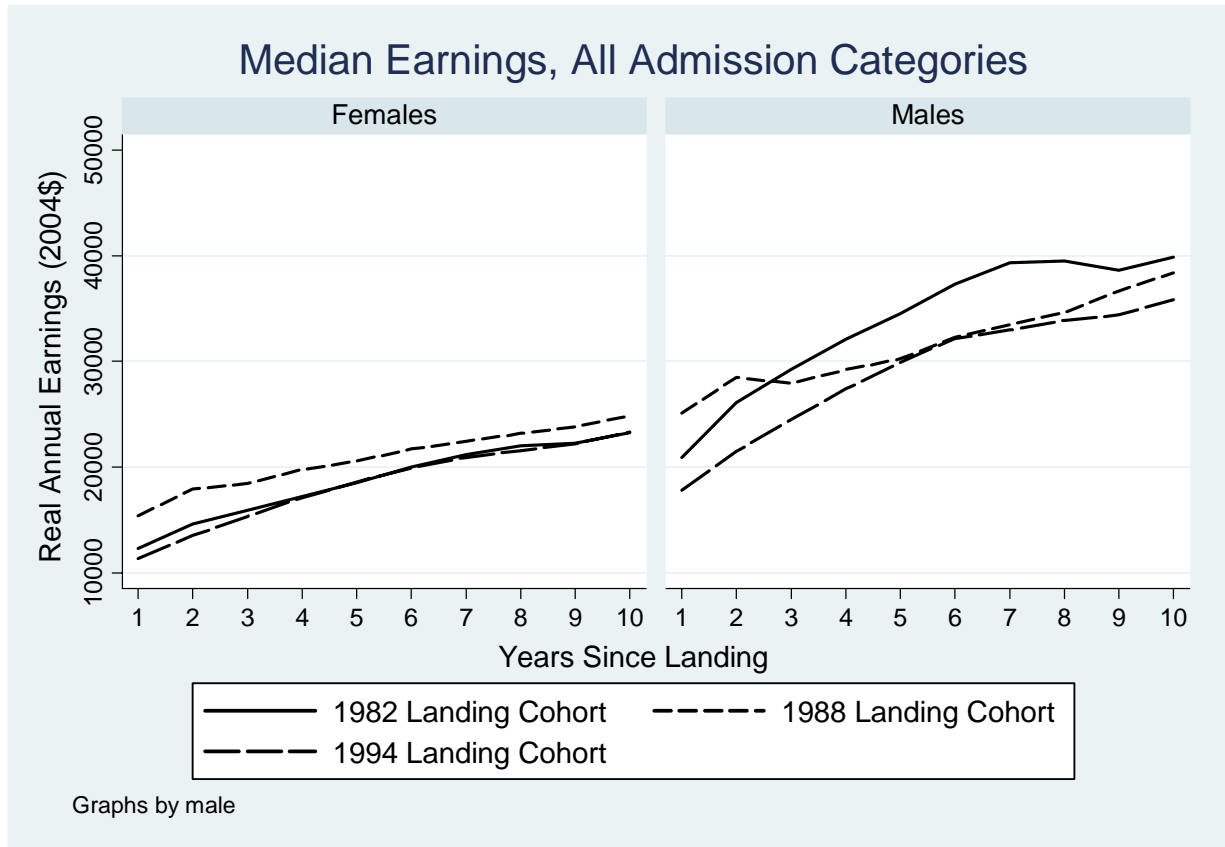
YSL	Male Immigrants			Female Immigrants		
	1982 Cohort	1988 Cohort	1994 Cohort	1982 Cohort	1988 Cohort	1994 Cohort
1	0.902	0.623	0.519	0.768	0.942	0.711
2	0.667	0.542	0.582	0.532	0.846	0.760
3	0.652	0.558	0.574	0.549	0.834	0.715
4	0.572	0.518	0.572	0.552	0.808	0.697
5	0.541	0.489	0.544	0.514	0.791	0.655
6	0.516	0.463	0.482	0.487	0.747	0.712
7	0.492	0.450	0.481	0.463	0.715	0.718
8	0.501	0.421	0.450	0.520	0.676	0.723
9	0.497	0.388	0.446	0.497	0.674	0.736
10	0.462	0.371	0.414	0.473	0.641	0.675
10-year % change	-48.8%	-40.5%	-20.2%	-38.5%	-31.9%	-5.1%

Notes: For each gender-cohort group, the relative range of median earnings differences across admission categories for each post-landing year is equal to the difference between the median earnings of the highest-earning admissions category and the median earnings of the lowest-earning admissions category divided by the median earnings level of all male/female immigrants in the landing cohort.

Source: Authors' calculations from the IMDB.

Figure 1

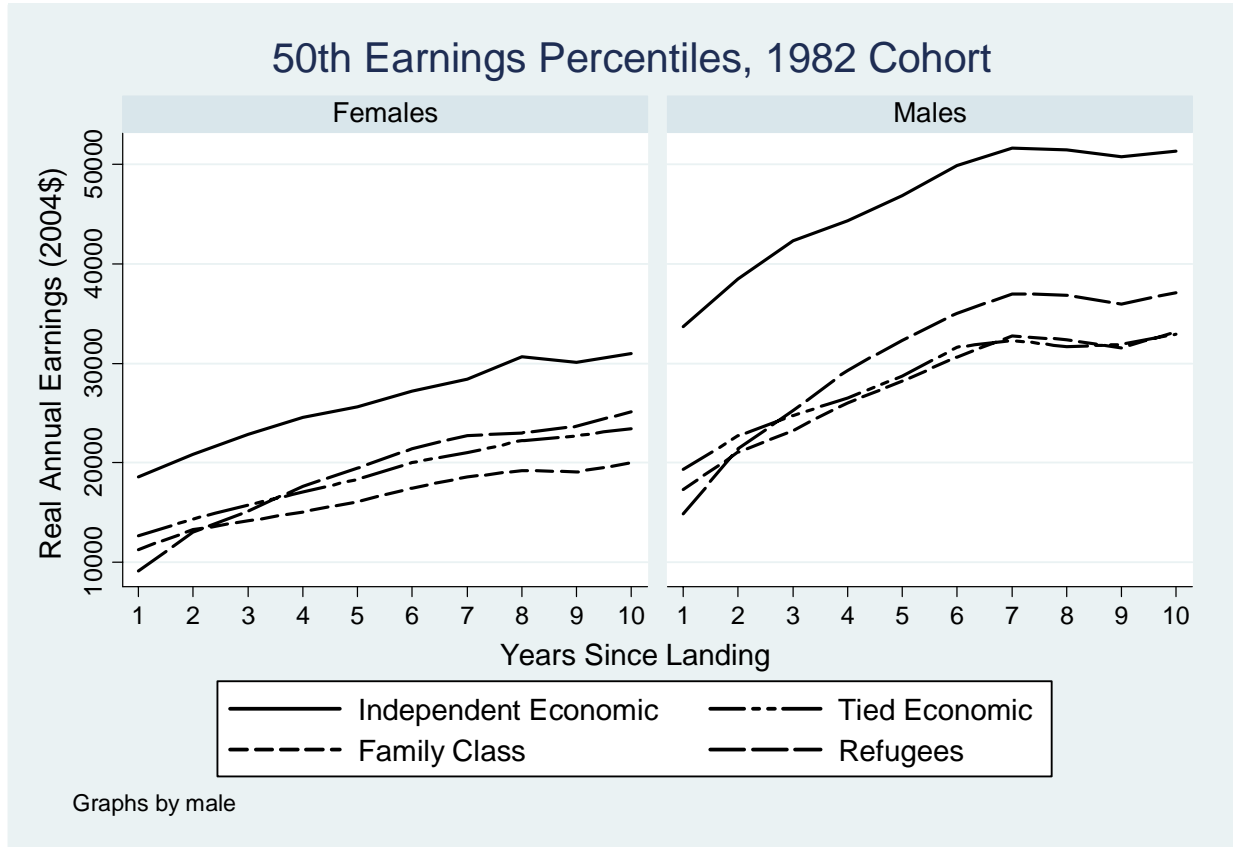
YSL Profiles for Median Real Annual Earnings of Immigrants in All Four Admission Categories, by Gender and Landing Cohort



Source: Authors' calculations from the IMDB.

Figure 2

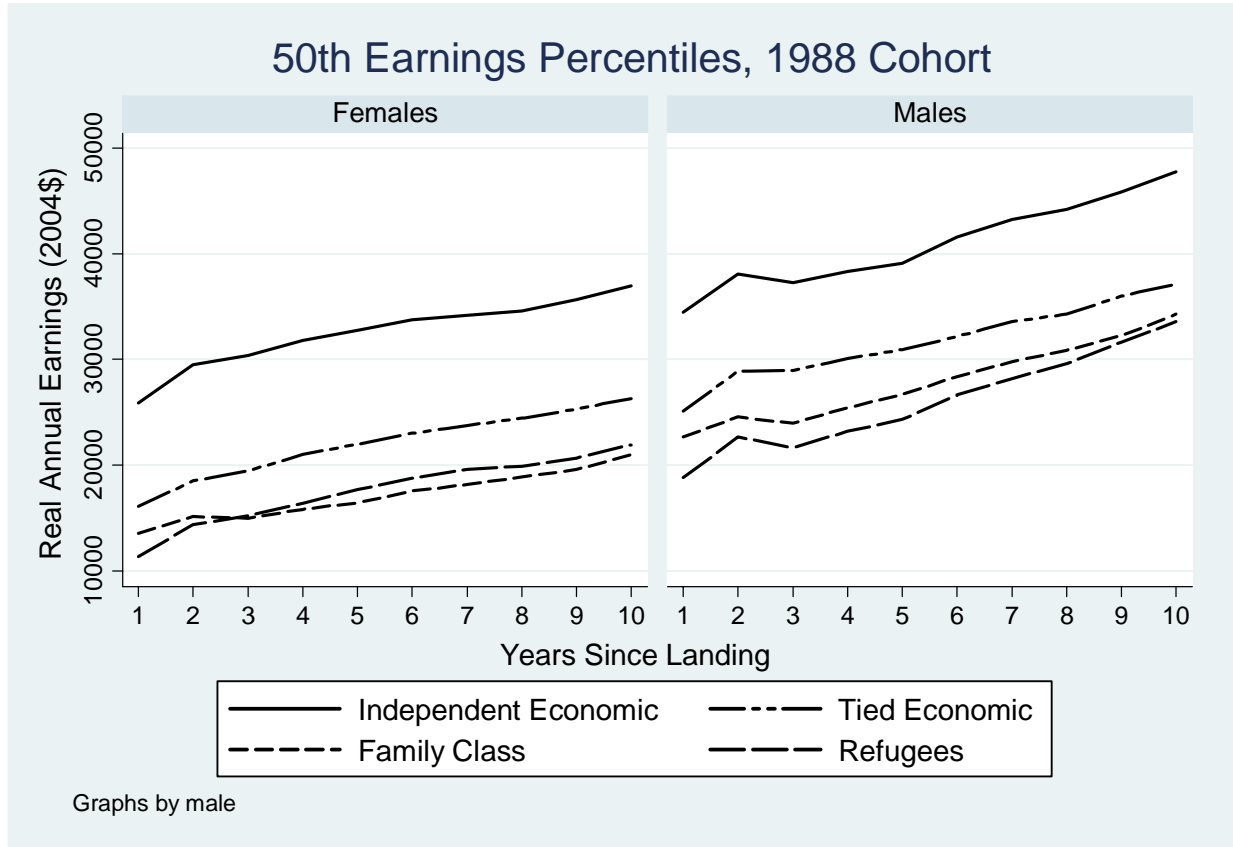
YSL Profiles for Median Real Annual Earnings of Immigrants in the 1982 Landing Cohort, by Gender and Admission Category



Source: Authors' calculations from the IMDB.

Figure 3

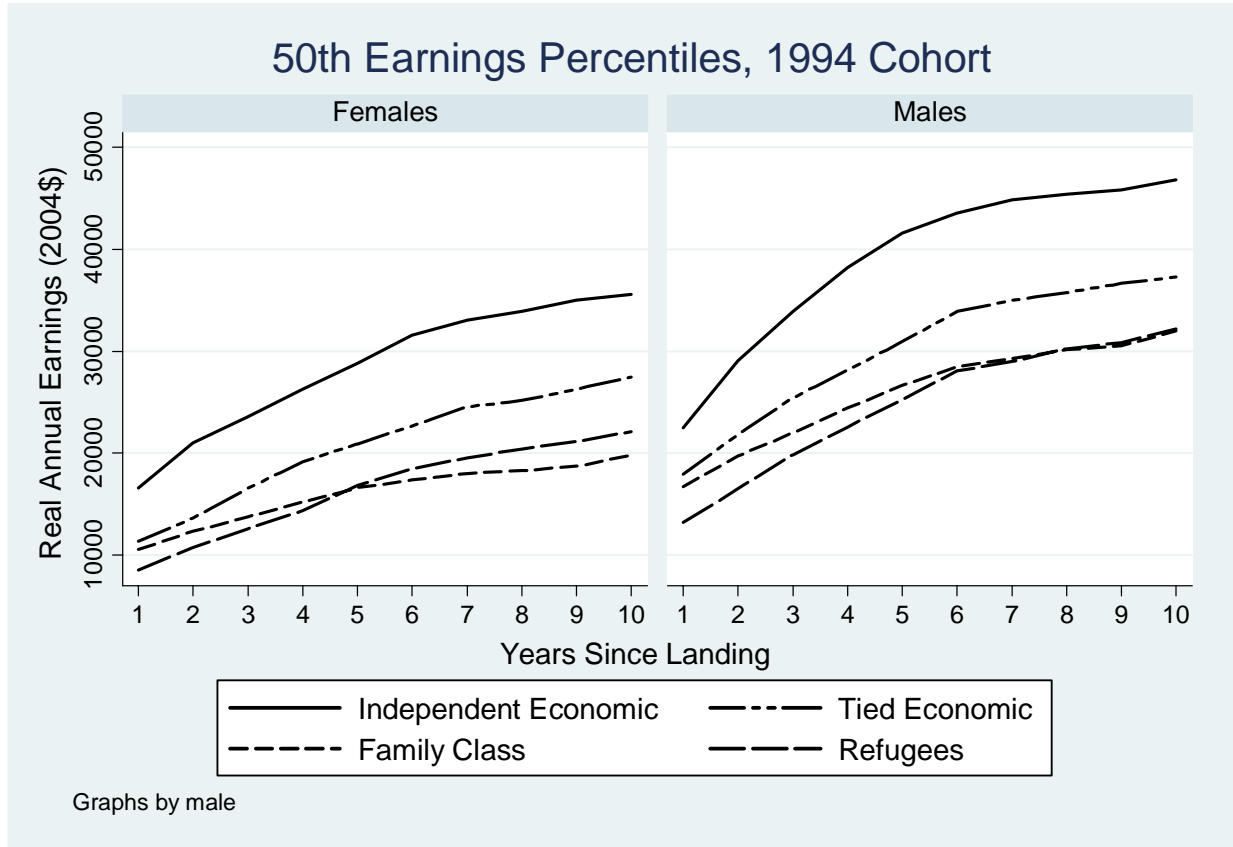
YSL Profiles for Median Real Annual Earnings of Immigrants in the 1988 Landing Cohort, by Gender and Admission Category



Source: Authors' calculations from the IMDB.

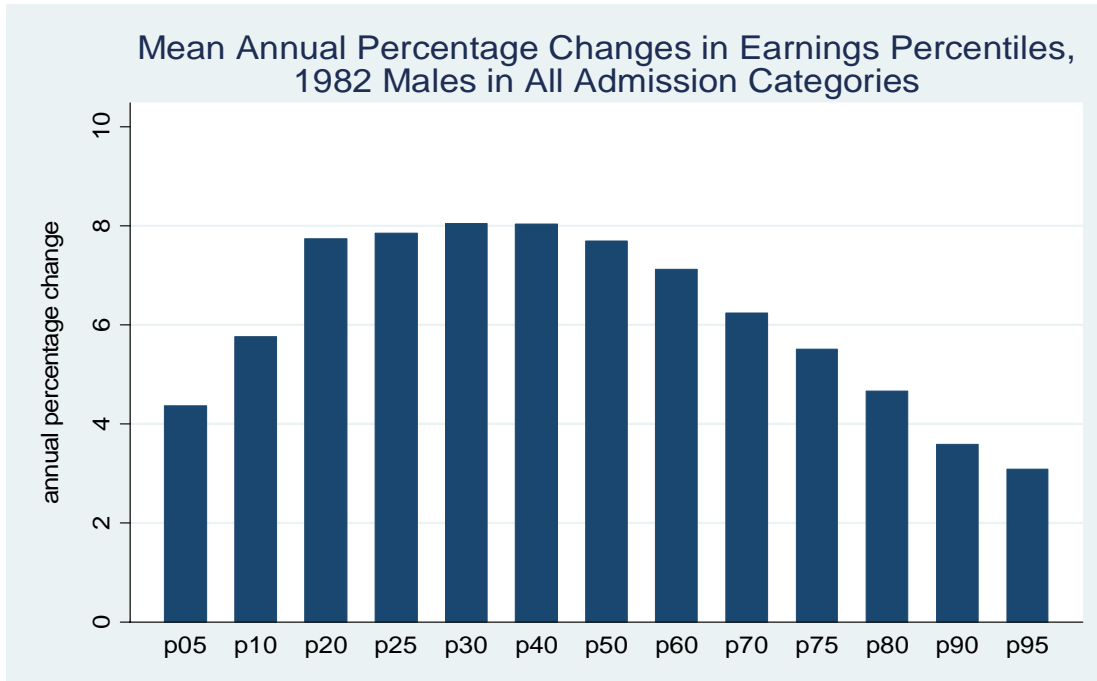
Figure 4

YSL Profiles for Median Real Annual Earnings of Immigrants in the 1994 Landing Cohort, by Gender and Admission Category



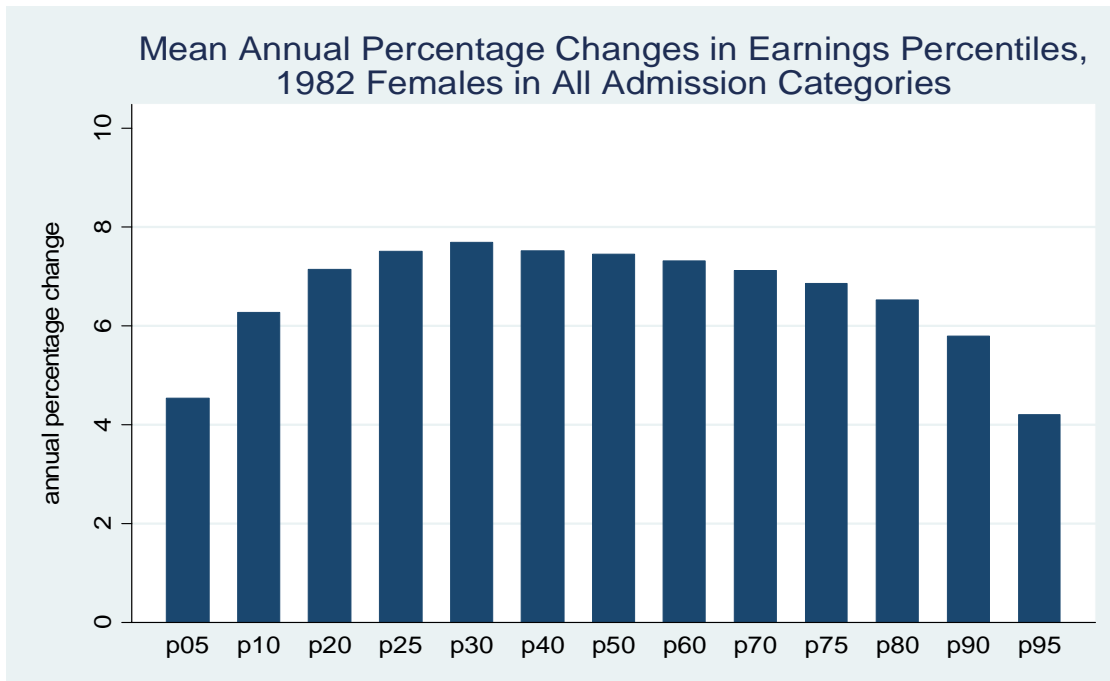
Source: Authors' calculations from the IMDB.

Figure 5



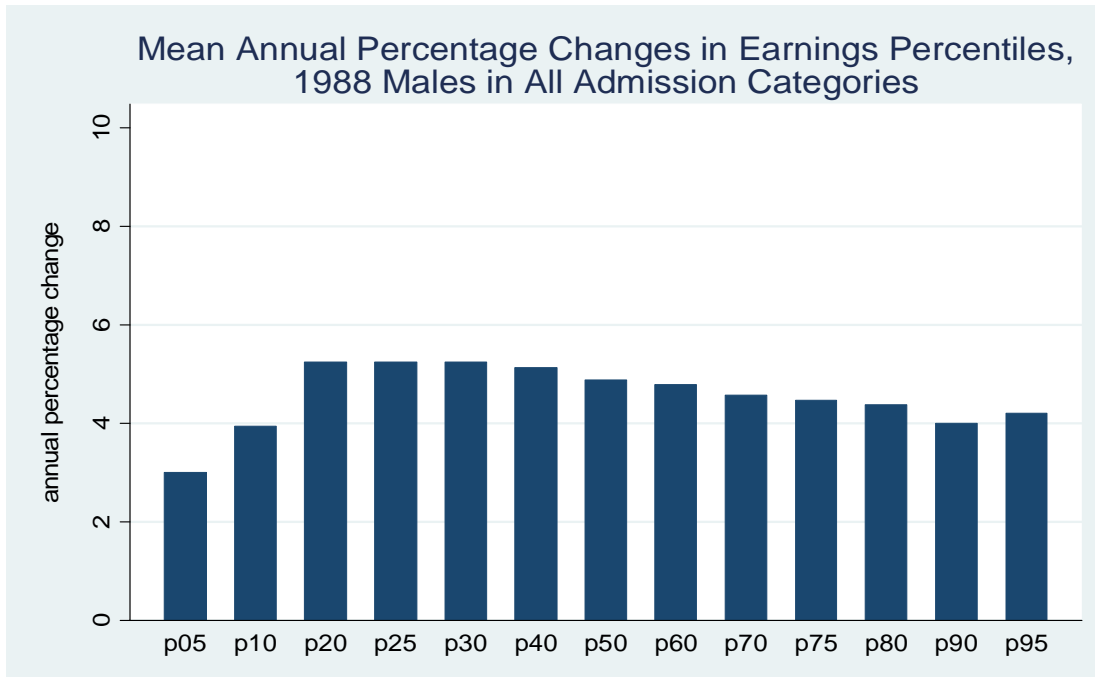
Source: Authors' calculations from the IMDB.

Figure 6



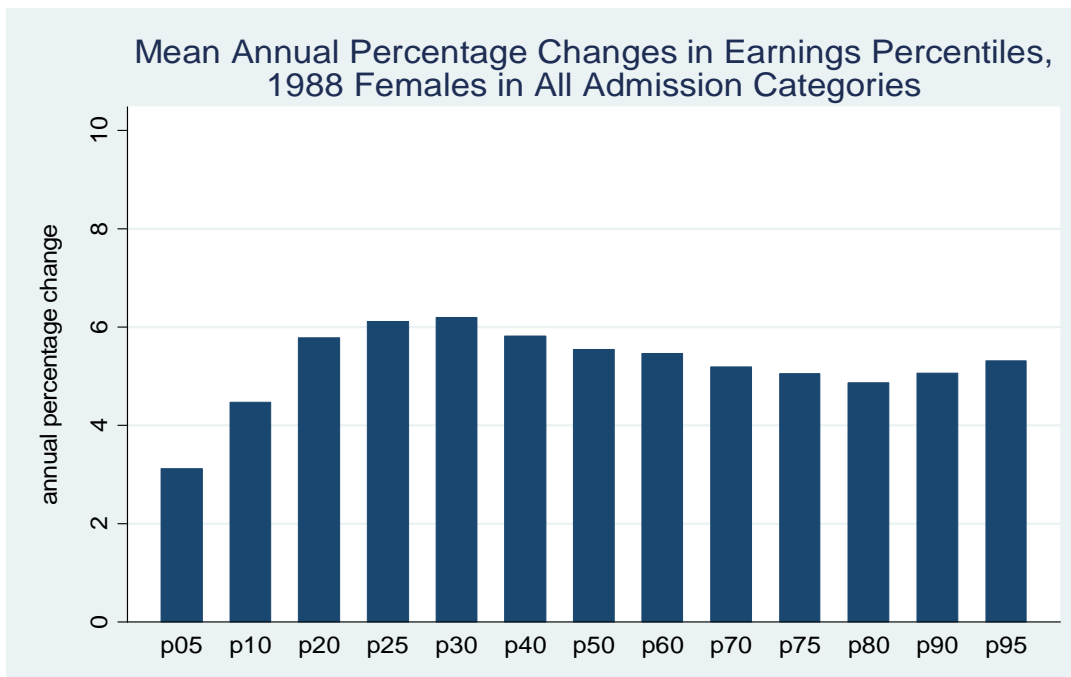
Source: Authors' calculations from the IMDB.

Figure 7



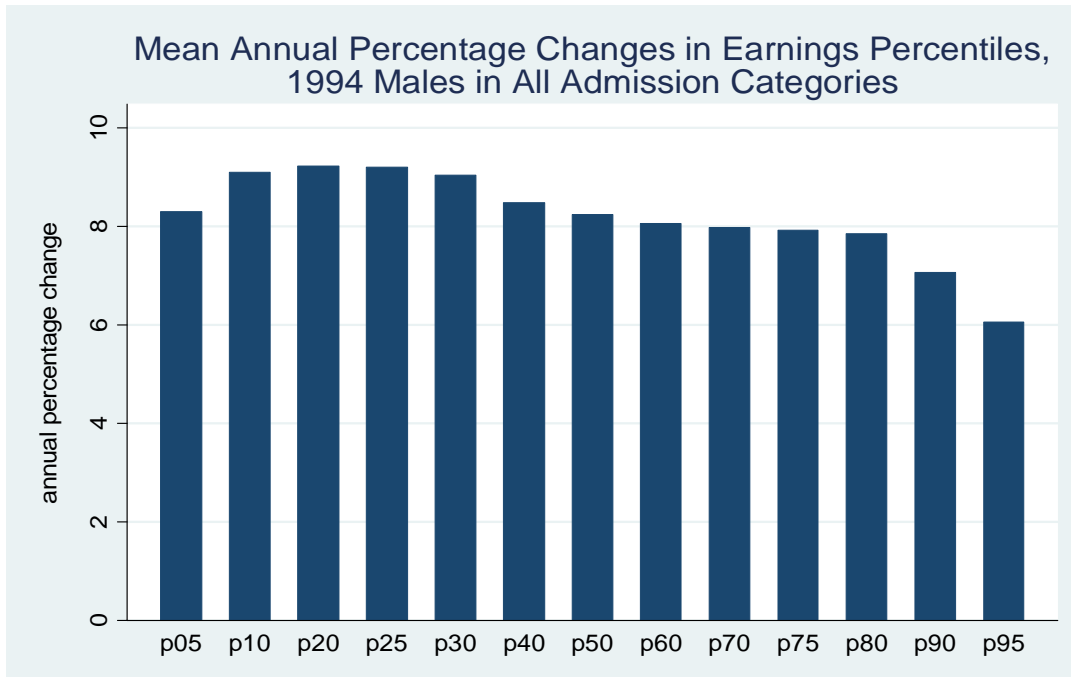
Source: Authors' calculations from the IMDB.

Figure 8



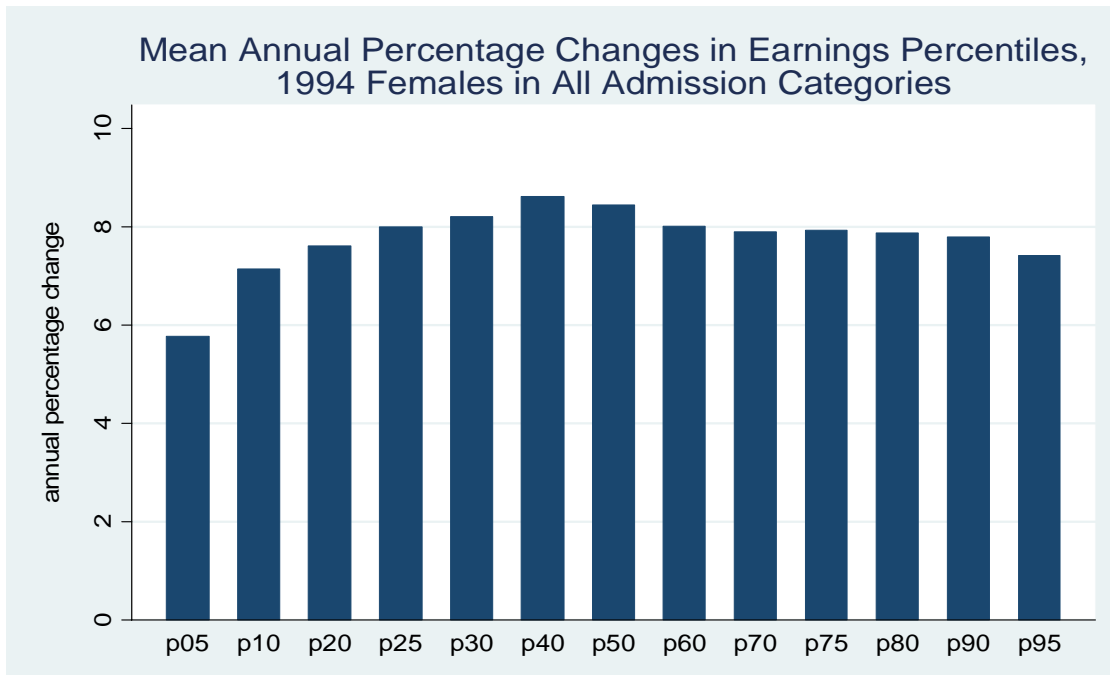
Source: Authors' calculations from the IMDB.

Figure 9



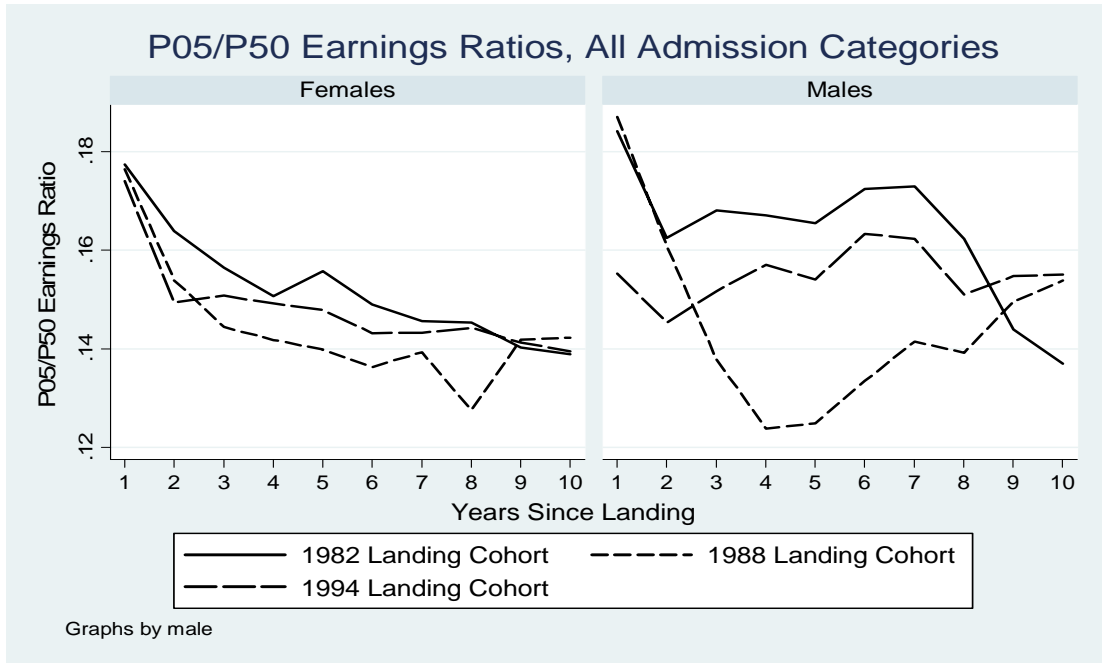
Source: Authors' calculations from the IMDB.

Figure 10



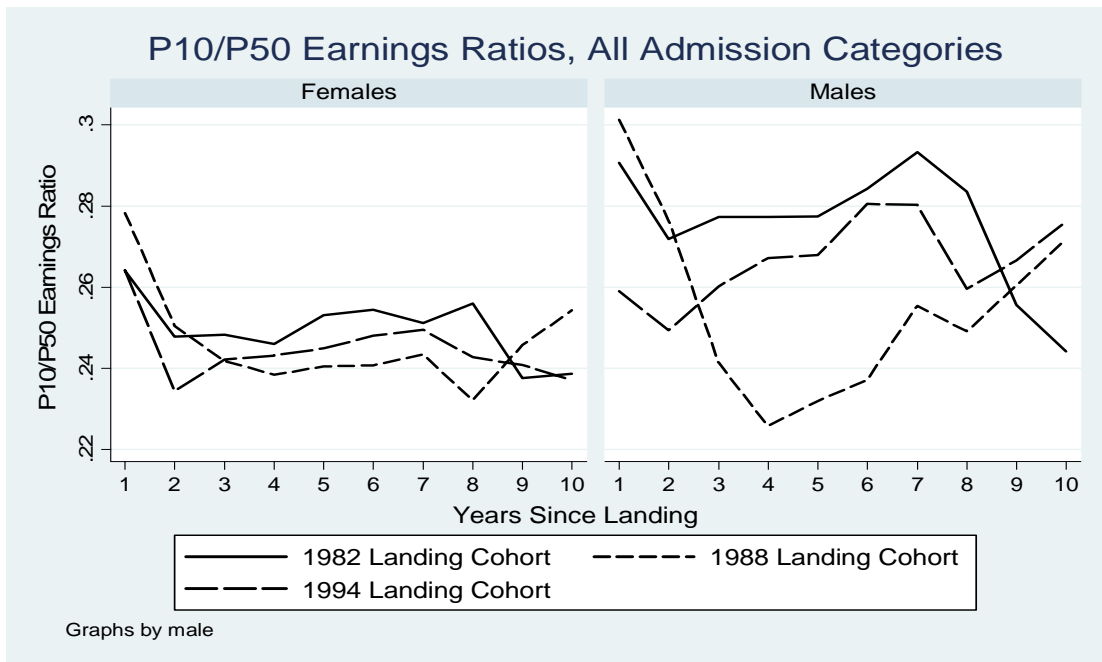
Source: Authors' calculations from the IMDB.

Figure 11



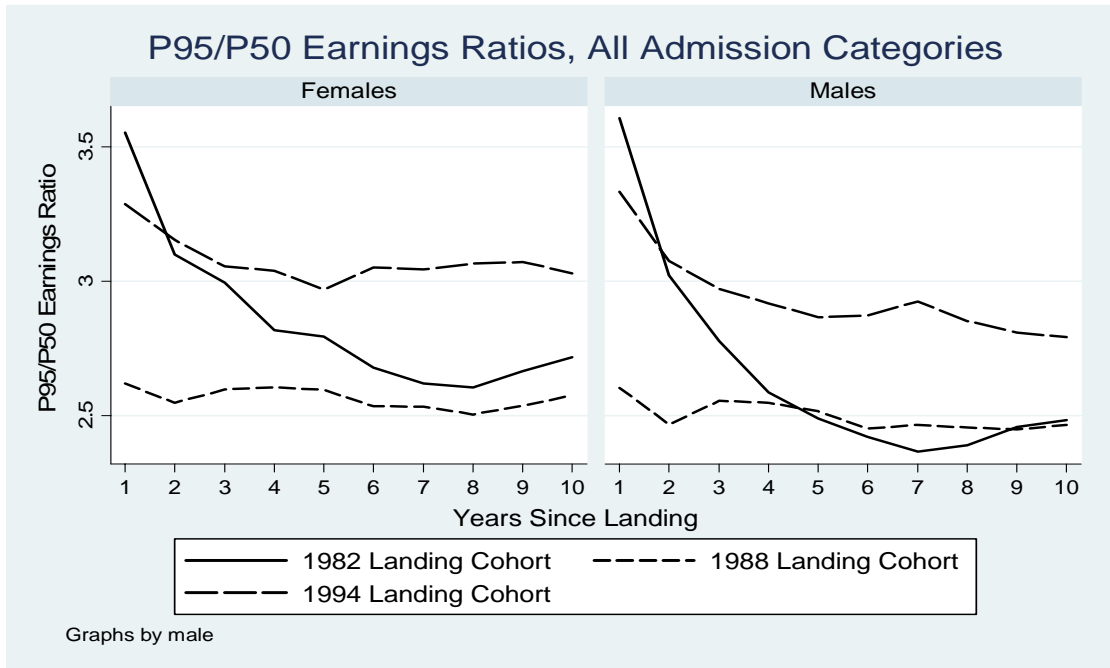
Source: Authors' calculations from the IMDB.

Figure 12



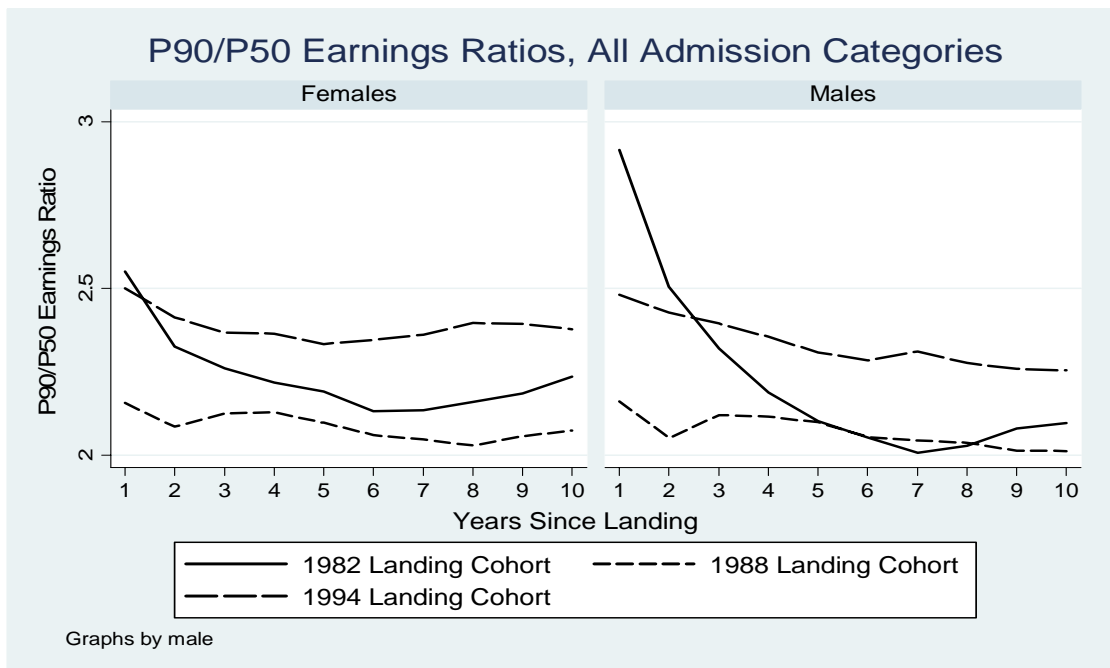
Source: Authors' calculations from the IMDB.

Figure 13



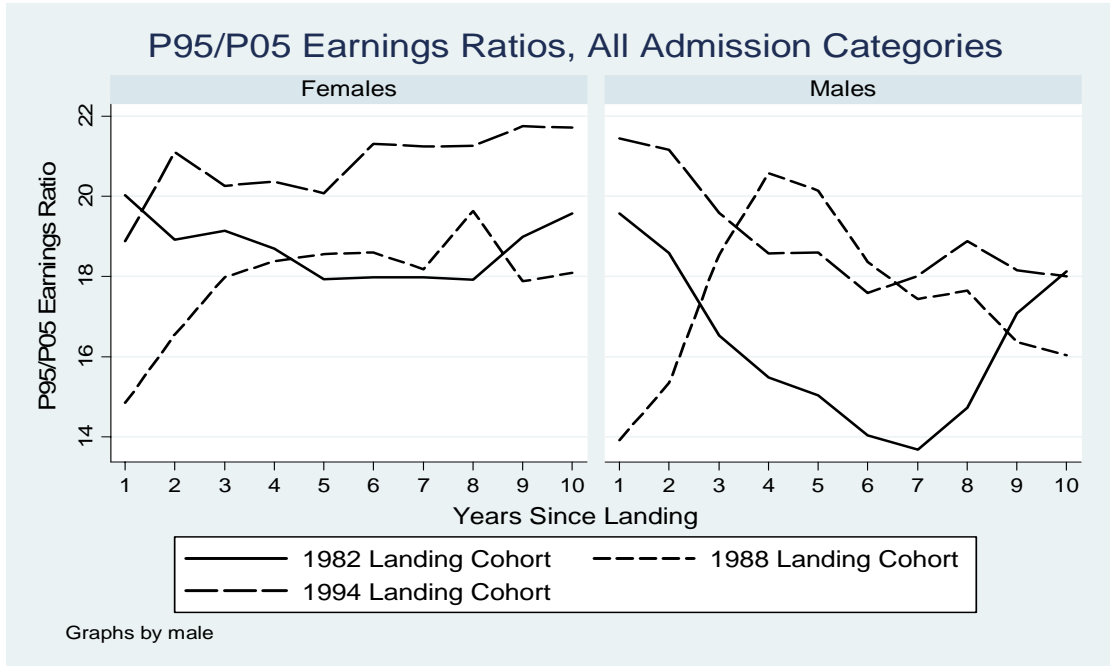
Source: Authors' calculations from the IMDB.

Figure 14



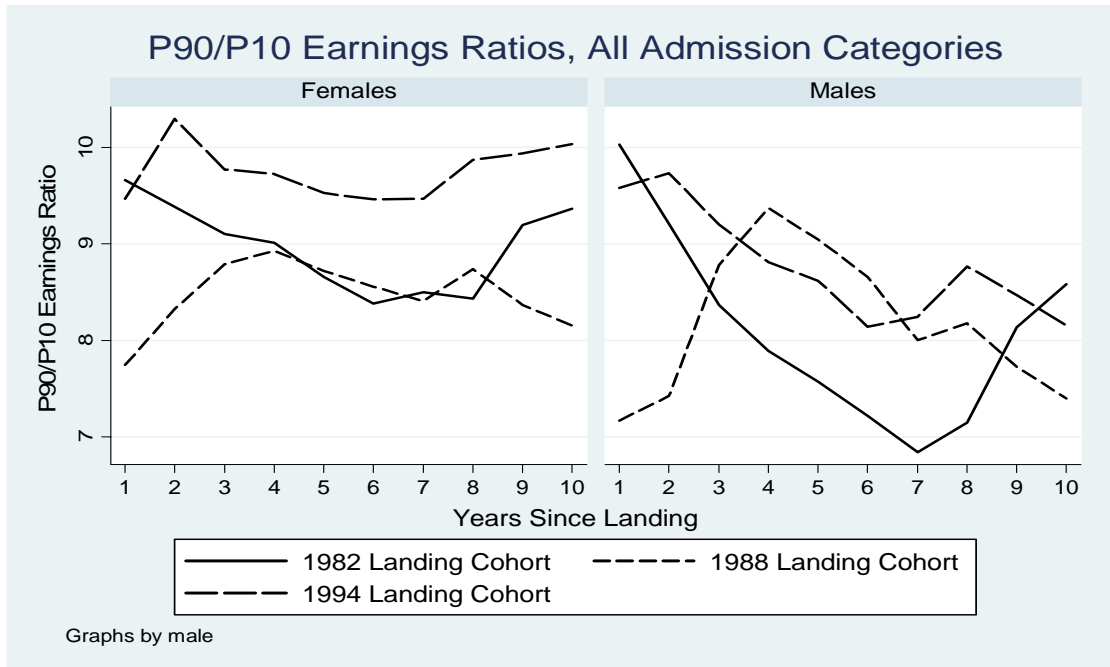
Source: Authors' calculations from the IMDB.

Figure 15



Source: Authors' calculations from the IMDB.

Figure 16



Source: Authors' calculations from the IMDB.

Appendix

Table A1: Definition of Admission Categories (admcat) in Terms of IMCAT Codes

Admission Category (admcat) Code	Admission Category Label	IMCAT Code	IMCAT Code Description
admcat = 0	Other	16	Live-in Caregiver
		17	Backlog Case
		18	Administrative Review
		19	Humanitarian & Compassionate Case
		20	Other H & C Case outside Family CI/PubPolicy
		21	Other Immigrant
admcat = 1	Independent Economic	07	Skilled Worker PA, ABR, No SPG
admcat = 2	Other Economic	08	Skilled Worker PA, CAN, SPG
		09	Skilled Worker Spouse & Dependent
admcat = 3	Family Class	01	Family Class
admcat = 4	Refugees	12	Government Assisted Refugee
		13	Privately Sponsored Refugee
		14	Landed in Canada Refugee
		15	Refugee Dependent
admcat = 5	Business Class	02	Entrepreneur PA, ABR, No SPG
		03	Self Employed PA, ABR, No SPG
		04	Investor PA, ABR, No SPG
		05	Other Business PA, CAN, SPG
		06	Business Class Spouse & Dependent

Notes: Admission categories and IMCAT codes in bold are those included in the landing cohort master files and cohort analysis samples for this study.

Table A2: Number of Immigrants in the Master Files for the 1982, 1988 and 1994 Landing Cohorts by YSL and Tax Year of Last Income Tax Record for Each Immigrant

YSL	Tax Year	Number of Persons	Percent of Total	Cumulative Percent
1982 Landing Cohort				
0	1982	825	1.51	1.51
1	1983	985	1.81	3.32
2	1984	915	1.68	4.99
3	1985	870	1.62	6.61
4	1986	995	1.83	8.44
5	1987	820	1.52	9.96
6	1988	885	1.63	11.59
7	1989	1,005	1.84	13.43
8	1990	1,275	2.34	15.77
9	1991	2,155	3.96	19.73
10	1992	43,655	80.27	100.00
Total		54,385	100.00	
1988 Landing Cohort				
0	1988	775	1.05	1.05
1	1989	1,070	1.45	2.50
2	1990	1,155	1.57	4.07
3	1991	1,270	1.73	5.80
4	1992	1,525	2.07	7.87
5	1993	1,530	2.07	9.95
6	1994	1,575	2.14	12.09
7	1995	1,670	2.27	14.36
8	1996	1,930	2.62	16.97
9	1997	3,005	4.07	21.04
10	1998	58,255	78.96	100.00
Total		73,785	100.00	
1994 Landing Cohort				
0	1994	1,040	1.03	1.03
1	1995	1,525	1.49	2.52
2	1996	1,675	1.64	4.15
3	1997	2,110	2.07	6.22
4	1998	2,530	2.48	8.71
5	1999	2,400	2.35	11.05
6	2000	2,055	2.01	13.06
7	2001	1,885	1.84	14.90
8	2002	2,600	2.54	17.45
9	2003	3,250	3.18	20.63
10	2004	81,220	79.37	100.00
Total		102,335	100.00	

Source: Authors' calculations from the IMDB.

Table A3: Number of Immigrants in the Landing Cohort Master Files Reporting Positive Wage and Salary Earnings Who had Earnings at Least Equal to the Minimum Earnings Cutoff of 1,000 2004 Dollars per Year, by Gender and YSL

YSL	number/ percent	1982 Landing Cohort		1988 Landing Cohort		1994 Landing Cohort	
		Earnings < \$1,000	Earnings ≥ \$1,000	Earnings < \$1,000	Earnings ≥ \$1,000	Earnings < \$1,000	Earnings ≥ \$1,000
All Male Immigrants							
1	number	435	23,045	475	30,365	1,475	31,655
	percent	1.85	98.15	1.54	98.46	4.45	95.55
2	number	355	22,630	620	28,905	1,295	32,210
	percent	1.54	98.46	2.10	97.90	3.87	96.13
3	number	300	21,960	1,005	26,770	1,295	32,300
	percent	1.35	98.65	3.62	96.38	3.85	96.15
4	number	395	21,210	855	25,145	1,305	31,720
	percent	1.83	98.17	3.29	96.71	3.95	96.05
5	number	370	20,595	700	23,885	1,425	30,930
	percent	1.76	98.24	2.85	97.15	4.40	95.60
6	number	315	20,230	620	23,125	1,540	30,285
	percent	1.53	98.47	2.61	97.39	4.84	95.16
7	number	325	19,620	670	22,490	1,565	29,680
	percent	1.63	98.37	2.89	97.11	5.01	94.99
8	number	310	18,920	605	21,925	1,710	29,375
	percent	1.61	98.39	2.69	97.31	5.50	94.50
9	number	565	18,055	705	21,555	1,635	28,210
	percent	3.03	96.97	3.17	96.83	5.48	94.52
10	number	480	17,305	720	21,165	1,555	27,770
	percent	2.70	97.30	3.29	96.71	5.30	94.70
All Female Immigrants							
1	number	3,095	14,970	1,480	24,625	2,495	26,300
	percent	17.13	82.87	5.67	94.33	8.66	91.34
2	number	1,930	15,515	1,150	24,085	2,090	27,225
	percent	11.06	88.94	4.56	95.44	7.13	92.87
3	number	1,590	15,675	1,545	22,605	2,450	28,035
	percent	9.21	90.79	6.40	93.60	8.04	91.96
4	number	1,640	15,805	1,190	21,370	3,035	28,515
	percent	9.40	90.60	5.27	94.73	9.62	90.38
5	number	1,490	15,635	1,190	20,485	3,645	28,780
	percent	8.70	91.30	5.49	94.51	11.24	88.76
6	number	1,050	15,630	895	19,915	4,175	29,045
	percent	6.29	93.71	4.30	95.70	12.57	87.43
7	number	1,005	15,440	940	19,420	4,370	28,855
	percent	6.11	93.89	4.62	95.38	13.15	86.85
8	number	805	14,885	900	19,030	4,775	28,700
	percent	5.13	94.87	4.52	95.48	14.26	85.74
9	number	1,075	14,305	1,135	18,870	4,635	27,905
	percent	6.99	93.01	5.67	94.33	14.24	85.76
10	number	670	13,925	1,335	18,925	4,400	27,740
	percent	4.59	95.41	6.59	93.41	13.69	86.31

Source: Authors' calculations from the IMDB.

Table A4: Median Real Annual Earnings (in 2004 dollars) by Tax Year/Years Since Landing (YSL) and Admission Category, Female and Male Immigrants in the 1982 Landing Cohort

Tax Year	YSL	Median Real Annual Earnings (\$ per year)					Ranks of Admission Categories			
		Independent Economic	Other Economic	Family Class	Refugee Class	All Admission Categories	Independent Economic	Other Economic	Family Class	Refugee Class
Females in 1982 Landing Cohort										
1983	1	\$18,569	\$12,648	\$11,292	\$9,125	\$12,300	1	2	3	4
1984	2	20,842	14,374	13,271	13,048	14,647	1	2	3	4
1985	3	22,897	15,742	14,157	15,128	15,926	1	2	4	3
1986	4	24,562	17,061	15,054	17,651	17,234	1	3	4	2
1987	5	25,653	18,346	16,113	19,458	18,543	1	3	4	2
1988	6	27,197	20,037	17,455	21,432	20,020	1	3	4	2
1989	7	28,400	21,010	18,569	22,754	21,213	1	3	4	2
1990	8	30,708	22,230	19,231	23,019	22,054	1	3	4	2
1991	9	30,132	22,724	19,076	23,657	22,252	1	3	4	2
1992	10	30,998	23,462	19,991	25,159	23,290	1	3	4	2
10-year average		\$25,996	\$18,763	\$16,421	\$19,043	\$18,748	1	3	4	2
avg annual growth		5.93%	7.16%	6.65%	12.49%	7.45%	4	2	3	1
10-year % change		66.9%	85.5%	77.0%	175.7%	89.4%	4	2	3	1
Males in 1982 Landing Cohort										
1983	1	\$33,688	\$19,352	\$17,297	\$14,855	\$20,879	1	2	3	4
1984	2	38,500	22,718	21,074	21,405	26,125	1	2	4	3
1985	3	42,354	24,760	23,265	25,273	29,281	1	3	4	2
1986	4	44,377	26,523	26,009	29,321	32,103	1	3	4	2
1987	5	46,890	28,747	28,206	32,334	34,535	1	3	4	2
1988	6	49,888	31,636	30,647	35,032	37,291	1	3	4	2
1989	7	51,671	32,329	32,753	37,007	39,337	1	4	3	2
1990	8	51,466	31,685	32,407	36,887	39,517	1	4	3	2
1991	9	50,772	31,924	31,570	35,995	38,599	1	3	4	2
1992	10	51,325	32,919	33,203	37,140	39,842	1	4	3	2
10-year average		\$46,093	\$28,259	\$27,643	\$30,525	\$33,751	1	3	4	2
avg annual growth		4.89%	6.22%	7.73%	11.43%	7.69%	4	3	2	1
10-year % change		52.4%	70.1%	92.0%	150.0%	90.8%	4	3	2	1

Source: Authors' calculations from the IMDB.

Table A5: Median Real Annual Earnings (in 2004 dollars) by Tax Year/ Years Since Landing (YSL) and Admission Category, Female and Male Immigrants in the 1988 Landing Cohort

Tax Year	YSL	Median Real Annual Earnings (\$ per year)					Ranks of Admission Categories			
		Independent Economic	Other Economic	Family Class	Refugee Class	All Admission Categories	Independent Economic	Other Economic	Family Class	Refugee Class
Females in 1988 Landing Cohort										
1989	1	\$25,849	\$16,090	\$13,562	\$11,339	\$15,409	1	2	3	4
1990	2	29,526	18,516	15,135	14,370	17,925	1	2	3	4
1991	3	30,393	19,476	15,003	15,233	18,446	1	2	4	3
1992	4	31,808	20,995	15,835	16,394	19,770	1	2	4	3
1993	5	32,727	21,991	16,448	17,677	20,571	1	2	4	3
1994	6	33,777	23,017	17,552	18,765	21,707	1	2	4	3
1995	7	34,199	23,756	18,160	19,593	22,428	1	2	4	3
1996	8	34,563	24,435	18,879	19,901	23,188	1	2	4	3
1997	9	35,650	25,309	19,581	20,670	23,829	1	2	4	3
1998	10	36,953	26,324	20,994	21,927	24,896	1	2	4	3
10-year average		\$32,545	\$21,991	\$17,115	\$17,587	\$20,817	1	2	4	3
avg annual growth		4.11%	5.68%	5.02%	7.81%	5.55%	4	2	3	1
10-year % change		43.0%	63.6%	54.8%	93.4%	61.6%	4	2	3	1
Males in 1988 Landing Cohort										
1989	1	\$34,498	\$25,084	\$22,697	\$18,849	\$25,131	1	2	3	4
1990	2	38,117	28,909	24,569	22,660	28,506	1	2	3	4
1991	3	37,239	28,962	23,956	21,656	27,936	1	2	3	4
1992	4	38,319	30,091	25,432	23,193	29,214	1	2	3	4
1993	5	39,100	30,920	26,700	24,319	30,251	1	2	3	4
1994	6	41,577	32,171	28,386	26,625	32,288	1	2	3	4
1995	7	43,243	33,602	29,774	28,184	33,492	1	2	3	4
1996	8	44,182	34,276	30,872	29,593	34,648	1	2	3	4
1997	9	45,878	36,007	32,250	31,638	36,686	1	2	3	4
1998	10	47,777	37,098	34,267	33,555	38,377	1	2	3	4
10-year average		\$40,993	\$31,712	\$27,890	\$26,027	\$31,653	1	2	3	4
avg annual growth		3.74%	4.52%	4.72%	6.78%	4.88%	4	3	2	1
10-year % change		38.5%	47.9%	51.0%	78.0%	52.7%	4	3	2	1

Source: Authors' calculations from the IMDB.

Table A6: Median Real Annual Earnings (in 2004 dollars) by Tax Year/ Years Since Landing (YSL) and Admission Category, Female and Male Immigrants in the 1994 Landing Cohort

Tax Year	YSL	Median Real Annual Earnings (\$ per year)					Ranks of Admission Categories			
		Independent Economic	Other Economic	Family Class	Refugee Class	All Admission Categories	Independent Economic	Other Economic	Family Class	Refugee Class
Females in 1994 Landing Cohort										
1995	1	\$16,619	\$11,349	\$10,571	\$8,547	\$11,356	1	2	3	4
1996	2	21,037	13,648	12,351	10,758	13,527	1	2	3	4
1997	3	23,601	16,564	13,758	12,622	15,362	1	2	3	4
1998	4	26,276	19,160	15,214	14,360	17,103	1	2	3	4
1999	5	28,807	20,919	16,612	16,808	18,616	1	2	4	3
2000	6	31,551	22,685	17,372	18,508	19,919	1	2	4	3
2001	7	33,034	24,544	18,023	19,557	20,921	1	2	4	3
2002	8	33,892	25,171	18,304	20,412	21,567	1	2	4	3
2003	9	35,044	26,291	18,711	21,159	22,206	1	2	4	3
2004	10	35,539	27,442	19,796	22,140	23,330	1	2	4	3
10-year average		\$28,540	\$20,777	\$16,071	\$16,487	\$18,391	1	2	4	3
avg annual growth		9.04%	10.50%	7.32%	11.38%	8.44%	3	2	4	1
10-year % change		113.8%	141.8%	87.3%	159.0%	105.4%	3	2	4	1
Males in 1994 Landing Cohort										
1995	1	\$22,457	\$17,937	\$16,744	\$13,220	\$17,808	1	2	3	4
1996	2	29,046	21,834	19,745	16,525	21,517	1	2	3	4
1997	3	33,923	25,434	21,983	19,871	24,492	1	2	3	4
1998	4	38,236	28,164	24,429	22,559	27,397	1	2	3	4
1999	5	41,576	30,939	26,637	25,289	29,917	1	2	3	4
2000	6	43,573	33,906	28,484	28,062	32,185	1	2	3	4
2001	7	44,838	34,974	29,265	28,969	32,965	1	2	3	4
2002	8	45,401	35,756	30,155	30,241	33,880	1	2	4	3
2003	9	45,846	36,653	30,512	30,852	34,390	1	2	4	3
2004	10	46,838	37,271	32,014	32,197	35,833	1	2	4	3
10-year average		\$39,173	\$30,287	\$25,997	\$24,778	\$29,039	1	2	3	4
avg annual growth		8.85%	8.66%	7.58%	10.65%	8.24%	2	3	4	1
10-year % change		108.6%	107.8%	91.2%	143.6%	101.2%	2	3	4	1

Source: Authors' calculations from the IMDB.

Table A7: Annual Percentage Changes in Median Real Annual Earnings (in 2004 dollars) by Tax Year/YSL and Admission Category, Female and Male Immigrants in the 1982 Landing Cohort

Tax Year	YSL	Annual Percentage Change in Real Median Earnings					Ranks of Admission Categories			
		Independent Economic	Other Economic	Family Class	Refugee Class	All Admission Categories	Independent Economic	Other Economic	Family Class	Refugee Class
Females in 1982 Landing Cohort										
1984	2	12.24%	13.65%	17.53%	42.99%	19.09%	4	3	2	1
1985	3	9.86%	9.52%	6.68%	15.94%	8.73%	2	3	4	1
1986	4	7.27%	8.38%	6.34%	16.68%	8.21%	3	2	4	1
1987	5	4.44%	7.53%	7.04%	10.24%	7.60%	4	2	3	1
1988	6	6.02%	9.22%	8.33%	10.14%	7.97%	4	2	3	1
1989	7	4.42%	4.86%	6.39%	6.17%	5.96%	4	3	1	2
1990	8	8.13%	5.81%	3.56%	1.16%	3.97%	1	2	3	4
1991	9	-1.88%	2.22%	-0.81%	2.77%	0.90%	4	2	3	1
1992	10	2.87%	3.25%	4.80%	6.35%	4.67%	4	3	2	1
Average annual percentage change		5.93%	7.16%	6.65%	12.49%	7.45%	4	2	3	1
10-yr percentage change, 1983-1992		66.9%	85.5%	77.0%	175.7%	89.4%	4	2	3	1
Males in 1982 Landing Cohort										
1984	2	14.28%	17.40%	21.84%	44.10%	25.12%	4	3	2	1
1985	3	10.01%	8.99%	10.40%	18.07%	12.08%	3	4	2	1
1986	4	4.78%	7.12%	11.80%	16.02%	9.64%	4	3	2	1
1987	5	5.66%	8.38%	8.44%	10.27%	7.58%	4	3	2	1
1988	6	6.39%	10.05%	8.65%	8.34%	7.98%	4	1	2	3
1989	7	3.57%	2.19%	6.87%	5.64%	5.49%	3	4	1	2
1990	8	-0.40%	-1.99%	-1.06%	-0.33%	0.46%	2	4	3	1
1991	9	-1.35%	0.75%	-2.58%	-2.42%	-2.32%	2	1	4	3
1992	10	1.09%	3.12%	5.17%	3.18%	3.22%	4	3	1	2
Average annual percentage change		4.89%	6.22%	7.73%	11.43%	7.69%	4	3	2	1
10-yr percentage change, 1983-1992		52.4%	70.1%	92.0%	150.0%	90.8%	4	3	2	1

Source: Authors' calculations from the IMDB.

Table A8: Annual Percentage Changes in Median Real Annual Earnings (in 2004 dollars) by Tax Year/YSL and Admission Category, Female and Male Immigrants in the 1988 Landing Cohort

Tax Year	YSL	Annual Percentage Change in Real Median Earnings					Ranks of Admission Categories			
		Independent Economic	Other Economic	Family Class	Refugee Class	All Admission Categories	Independent Economic	Other Economic	Family Class	Refugee Class
Females in 1988 Landing Cohort										
1990	2	14.22%	15.07%	11.60%	26.73%	16.33%	3	2	4	1
1991	3	2.94%	5.18%	-0.87%	6.01%	2.91%	3	2	4	1
1992	4	4.66%	7.80%	5.55%	7.62%	7.18%	4	1	3	2
1993	5	2.89%	4.74%	3.87%	7.83%	4.05%	4	2	3	1
1994	6	3.21%	4.66%	6.71%	6.15%	5.52%	4	3	1	2
1995	7	1.25%	3.21%	3.46%	4.41%	3.32%	4	3	2	1
1996	8	1.06%	2.86%	3.96%	1.57%	3.39%	4	2	1	3
1997	9	3.14%	3.57%	3.72%	3.87%	2.77%	4	3	2	1
1998	10	3.66%	4.01%	7.21%	6.08%	4.48%	4	3	1	2
Average annual percentage change		4.11%	5.68%	5.02%	7.81%	5.55%	4	2	3	1
10-yr percentage change, 1989-1998		43.0%	63.6%	54.8%	93.4%	61.6%	4	2	3	1
Males in 1988 Landing Cohort										
1990	2	10.49%	15.25%	8.25%	20.22%	13.43%	3	2	4	1
1991	3	-2.30%	0.18%	-2.49%	-4.43%	-2.00%	2	1	3	4
1992	4	2.90%	3.90%	6.16%	7.10%	4.57%	4	3	2	1
1993	5	2.04%	2.76%	4.98%	4.85%	3.55%	4	3	1	2
1994	6	6.33%	4.05%	6.32%	9.49%	6.73%	2	4	3	1
1995	7	4.01%	4.45%	4.89%	5.86%	3.73%	4	3	2	1
1996	8	2.17%	2.01%	3.69%	5.00%	3.45%	3	4	2	1
1997	9	3.84%	5.05%	4.46%	6.91%	5.88%	4	2	3	1
1998	10	4.14%	3.03%	6.25%	6.06%	4.61%	3	4	1	2
Average annual percentage change		3.74%	4.52%	4.72%	6.78%	4.88%	4	3	2	1
10-yr percentage change, 1989-1998		38.5%	47.9%	51.0%	78.0%	52.7%	4	3	2	1

Source: Authors' calculations from the IMDB.

Table A9: Annual Percentage Changes in Median Real Annual Earnings (in 2004 dollars) by Tax Year/YSL and Admission Category, Female and Male Immigrants in the 1994 Landing Cohort

Tax Year	YSL	Annual Percentage Change in Real Median Earnings					Ranks of Admission Categories			
		Independent Economic	Other Economic	Family Class	Refugee Class	All Admission Categories	Independent Economic	Other Economic	Family Class	Refugee Class
Females in 1994 Landing Cohort						Females in 1994 Landing Cohort				
1996	2	26.59%	20.26%	16.84%	25.86%	19.12%	1	3	4	2
1997	3	12.19%	21.36%	11.40%	17.33%	13.56%	3	1	4	2
1998	4	11.33%	15.67%	10.58%	13.77%	11.33%	3	1	4	2
1999	5	9.63%	9.18%	9.19%	17.05%	8.84%	2	4	3	1
2000	6	9.52%	8.44%	4.58%	10.11%	7.00%	2	3	4	1
2001	7	4.70%	8.20%	3.74%	5.67%	5.03%	3	1	4	2
2002	8	2.60%	2.55%	1.56%	4.38%	3.09%	2	3	4	1
2003	9	3.40%	4.45%	2.23%	3.66%	2.96%	3	1	4	2
2004	10	1.41%	4.37%	5.80%	4.64%	5.06%	4	3	1	2
Average annual percentage change		9.04%	10.50%	7.32%	11.38%	8.44%	3	2	4	1
10-yr percentage change, 1995-2004		113.8%	141.8%	87.3%	159.0%	105.4%	3	2	4	1
Males in 1994 Landing Cohort						Males in 1994 Landing Cohort				
1996	2	29.34%	21.73%	17.92%	25.00%	20.83%	1	3	4	2
1997	3	16.79%	16.49%	11.33%	20.25%	13.83%	2	3	4	1
1998	4	12.71%	10.73%	11.13%	13.52%	11.86%	2	4	3	1
1999	5	8.73%	9.85%	9.04%	12.10%	9.20%	4	2	3	1
2000	6	4.81%	9.59%	6.93%	10.97%	7.58%	4	2	3	1
2001	7	2.90%	3.15%	2.74%	3.23%	2.42%	3	2	4	1
2002	8	1.26%	2.24%	3.04%	4.39%	2.77%	4	3	2	1
2003	9	0.98%	2.51%	1.18%	2.02%	1.51%	4	1	3	2
2004	10	2.16%	1.69%	4.92%	4.36%	4.19%	3	4	1	2
Average annual percentage change		8.85%	8.66%	7.58%	10.65%	8.24%	2	3	4	1
10-yr percentage change, 1995-2004		108.6%	107.8%	91.2%	143.6%	101.2%	2	3	4	1

Source: Authors' calculations from the IMDB.

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