Skills Research Initiative
Initiative de recherche sur les compétences

Brain Drain and Return:
Evidence from Longitudinal Tax Filer Records

Ross Finnie (Queen's University and Statistics Canada)

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Abstract

This paper exploits the unique strengths of the tax-based Longitudinal Administrative Database (LAD) to measure the flows of Canadians to other countries and the patterns of return over the period 1982-2003. Overall, approximately .01 percent (i.e., one tenth of one percent) of the adult population leaves the country in any given year. Departure rates have generally moved with the state of the Canadian economy, but the trends have clearly been driven by more than this: declining in the 1980s as the economy was going well; turning up towards the end of the decade, but before the economy began to stall in 1989; rising through the early part of the 1990s as the economy was mired in a deep recession, but then continuing to rise through 1997, by which time a strong recovery was underway; and then declining sharply since 2000 – thus stemming what many had thought was an inexorable upwards trend – when economic factors were fairly stable. Departure rates decline with age (except for the youngest group); are lower for couples without children than other family types; are high for those in British Columbia, quite low for Francophone Quebecers, and very high for Anglophones in that province; are somewhat lower for those on EI and substantially higher for those at higher income levels; and are very much higher for recent immigrants. Exit rates for those at higher income levels shifted upwards in the 1990s (the "brain drain" phenomenon?), but returned to pre-1990s rates in more recent years in the case of men, while the shift was maintained for women. Only a minority of those who leave ever return: about 15 percent within five years of their departure. Return rates have, however, increased significantly since 2000 – mirroring to a large extent what was happening on the departure side.

Résumé

Dans cette étude, l'auteur exploite les grandes possibilités de la banque de Données administratives longitudinales (DAL), fondée sur les déclarations d'impôt, pour mesurer les mouvements des Canadiens vers d'autres pays et leurs habitudes de retour de 1982 à 2003. Dans l'ensemble, environ 0,01 p. 100 (c.-à-d. un dixième de un pour cent) de la population adulte quitte le pays dans une année donnée. Les taux de départ varient généralement en fonction de l'état de l'économie canadienne, mais les tendances ont nettement été influencées par d'autres facteurs : elles ont diminué dans les années 1980 lorsque l'économie allait bien; elles ont augmenté vers la fin de la décennie, mais avant que l'économie n'entre dans une période de stagnation; elles se sont redressées au début des années 1990 lorsque l'économie est entrée dans une profonde récession, puis elles ont poursuivi leur ascension jusqu'en 1997, au moment où une vive reprise de l'économie s'est amorcée; enfin, elles sont en chute libre depuis 2000 – stoppant ce que de nombreuses personnes estimaient être une inexorable tendance à la hausse – au moment où les facteurs économiques étaient assez stables. Les taux de départ diminuent avec l'âge (sauf pour le groupe des plus jeunes); sont plus faibles pour les couples sans enfants que les autres types de famille; sont élevés en Colombie-Britannique, assez faibles pour les Québécois francophones et très élevés pour les Anglophones de cette province; sont quelque peu plus faibles pour ceux qui reçoivent de l'assurance-emploi et beaucoup plus élevés pour ceux qui ont un revenu élevé, et ils sont largement plus élevés pour les immigrants récents. Les taux de départ des personnes à revenu élevé ont recommencé à

augmenter dans les années 1990 (le phénomène de l'« exode des cerveaux »?), mais ils sont revenus aux niveaux d'avant 1990 ces dernières années dans le cas des hommes, alors que la remontée s'est poursuivie dans le cas des femmes. Une très petite portion de ceux qui partent reviennent : environ 15 p. 100 dans les cinq ans suivant leur départ. Toutefois, les taux de retour se sont sensiblement accrus depuis 2000 – ce qui ressemble, dans une grande mesure, à ce qui s'est produit du côté des départs.

I. INTRODUCTION

Through the late-1990s, it was difficult to pick up a newspaper without reading about the infamous "brain drain", with the general perception being that Canadians were leaving the country in unprecedented numbers and that the exodus was greatest among the nation's best and brightest. This "fact" was then often linked to various policy issues. It was, for example, often argued that the Canadian income tax system needed to be made more "competitive" (i.e., rates reduced) to keep more (high income) Canadians at home. Other discussions focused on more specific groups, such engineers, scientists, and medical professionals. Still other debates targeted the particular case of recent university graduates, with student debt loads sometimes alleged to be an important factor in causing "young brains" to leave. Other conversations could be named: suffice it to say that many wagons were hitched to the brain drain horse.[1]

One reason the brain drain became such a "hot button" in Canada was that the empirical evidence on the extent and nature of emigration from Canada was quite limited. That which emerged, however, pointed to the following.[2] First, the total number of Canadians leaving the country as a percentage of the overall population was, even in the 1990s, quite small (typically less than one fifth of one percent of the population in any given year), especially when judged by historical standards. These amounted to an average of about 22,000 individuals (adults) per year through the first part of the 1990s (up to 1997). These flows were also only one side of a long-run, and still continuing, net inflow of migrants: in raw numbers, immigrants continue to typically outnumber emigrants by a fair degree (although "quality issues" remain).

Second, flows to the U.S. – the principal destination – were also low when seen in a long-term perspective, but did rise through the 1990s. Those increases took place, however, in a context where labour mobility was increasing globally, especially for certain high skill types, and the American and Canadian economies were becoming increasingly integrated, due at least partly to the FTA and NAFTA. Furthermore, the U.S. economy was exceptionally strong through the latter part of the 1990s, thus attracting workers, especially highly skilled individuals drawn to the exceptional growth at the high end of the American earnings distribution, and Canadian movers were no more than part of a global phenomenon in this regard.

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[1] See Finnie [2001] for further elaboration of these discussions.

[2] See Finnie [2001, 2005] for more detail.

Third, most of those leaving were widely distributed across the income, skill, and occupation distributions. There were, however, certain groups of "knowledge" (highly skilled) workers for whom the movements represented substantial shares of the domestic stock and which were far greater than the offsetting inflows. These groups included doctors, nurses, engineers, scientists, high tech workers, university professors, and higher income individuals in general.

Most previous empirical research was, however, limited by the unavailability of the sort of general and extended longitudinal database that is best suited to the measurement and analysis of the emigration of Canadians and their return – or not – to this country.

The contribution of this paper is to exploit the unique strengths of the Longitudinal Administrative Database ("LAD"), constructed from individuals' tax records, to shed new light on the extent and nature of the flows of Canadians to other countries and the patterns of return over the period 1982-2003.

It begins by tracking the overall rates of emigration on an annual basis over this period, drawing particular attention to the important trend shifts which separate the 1980s, the earlier part of the 1990s, and the years since that time. It then models the leaving process at the micro level where the probability of emigrating from Canada from one year to the next is taken to be a function of an individual's personal attributes and economic circumstances. A similar approach is then used to document and model, using a hazard framework, the rate (probability) of return to Canada for those who depart. The paper thus captures the general (empirical) structure of leaving and returning to Canada in a general manner, with special attention paid to differences among individuals at different income levels (the measure of "skill" available in the data).[3]

The paper is laid out as follows. In the next section, the data, samples, and estimation models are discussed. The third section presents the analysis of Canadian emigration (i.e., outflows), beginning with some simple graphs of overall leaving rates over time, followed by the presentation of the estimation results for the model, which essentially addresses the question: "Who leaves?" The analysis of the rates of return among those who leave is then presented in the fourth section of the paper, which begins with some simple empirical hazard rates and then proceeds with the

[3] This paper builds on Finnie [2005] in a number of ways. First, it updates the empirical record from 1999 through 2003, a period over which some fairly dramatic changes have occurred. Second, the models are extended to incorporate additional macroeconomic measures and immigrant identifiers, and in other ways, including various checks for robustness. Third, myriad other smaller changes have been made.

econometric models which capture this process ("Who returns?"). The final section of the paper summarizes the major findings and points to their significance.

II. THE DATA, SAMPLES, AND MODELS

II.1 The Longitudinal Administrative Database ("LAD") and Sample Selection

The Longitudinal Administrative Database ("LAD") is a twenty percent random sample of all Canadian tax filers (and non-filing spouses identified by tax filers) constructed from Canada Revenue Agency tax files. The LAD follows individuals longitudinally (i.e., over time) based on their SIN-based individual identifiers (SINs themselves are not included in the LAD in order to protect individual confidentiality) and matches them into family units on an annual basis, thus providing individual and family-level information on incomes, taxes, and basic demographic characteristics in a dynamic framework. The first year of the LAD is 1982 and the file ran through 2003 when this work was undertaken, thus determining the period covered by this analysis.

The LAD is uniquely well-suited to this analysis for a number of reasons. First, the LAD is closely representative of the underlying adult population. Unlike some other countries (such as the U.S.) the rate of tax filing in Canada is very high across all income levels. Higher income Canadians are required by law to file, while lower income individuals have strong incentives to file in order to recover income tax and other payroll tax deductions made throughout the year and to receive various tax credits and other benefits (e.g., the National Child Benefit). The full set of annual tax files from which the LAD is constructed cover upwards of 95 percent of the target adult population (official population estimates), and are especially strong among the working age populations covered here, thus comparing very favourably with survey-based databases in this regard.

Furthermore, given that most individuals file tax forms every year, attrition from the LAD is quite low, meaning that it remains representative on a longitudinal basis as well as cross-sectionally. This again contrasts to survey-based databases, which typically have problems in following individuals over time, *especially* those who move, potentially introducing sample bias to a study of mobility such as this one.[4]

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[4] Atkinson *et al* [1992] and OECD [1996] discuss the typically better coverage and lower attrition of administrative databases over survey databases. See Finnie [1998] for evidence on attrition from the LAD and the relationship of this attrition to migration behaviour over selected intervals.

Second, the longitudinal nature of the LAD and its income tax basis allows individuals who leave the country to be identified, which is not generally an easy task in survey-based databases precisely because it requires tracking precisely those who are no longer in the country. And of an even greater challenge, the LAD also permits the identification of those who subsequently return to Canada, no matter how many years have passed or where they have been or what they have been doing in the meantime. In both cases – departures and returns – the longitudinal structure also allows for the modelling of these processes in an appropriate fashion.

A third, and related advantage is the massive sample size of the LAD, as it not only allows the identification of leavers and returners, but also in sufficient numbers to carry out a meaningful analysis. This again overcomes what is an impossible challenge for most general databases because the number of such persons in the general population is low, since relatively few individuals leave the country in any given year, and even fewer return after that.

Fourth, the LAD's extended period of coverage, from 1982 to 2003, allows trends in both leaving and returning to be analysed in a consistent manner on an annual basis over the last two decades, and also permits the tracking of the return process for a relatively long period of time following an individual's departure.

Finally, while lacking in some of the socio-economic variables typically found in survey databases (e.g., education level), the LAD possesses a sufficient number of variables (including the individual's income level) to allow for the analysis of how leaving and returning to Canada varies with individuals' personal and situational attributes. These include basic demographic characteristics (age, sex, marital status, etc.), income sources, place of residence and other information that can be linked to individuals' records through that information (e.g., the provincial unemployment rate), and the identification of recent immigrants and their year of arrival in this country (only recently available in the LAD).

II.2 Sample Selection

Individuals were included in the analysis in a given year if they were over the age of 18 and had no missing data for the variables used in the analysis. The latter resulted in a very small number of deletions because the relevant information is generally required, by law, to be provided on individuals' tax forms or is otherwise available from that information (e.g., the "geographical" information linked in based on individuals' addresses). Current full-time post-secondary students

were also deleted from the analysis due to the special situation of this group and the labour market focus of the present study, thus leaving students to be better treated in a separate analysis.

For the exit analysis, individuals could be included in the analysis for some years but not others, depending on their years of inclusion in the LAD and whether they passed the sample selection criteria in those years. The unit of analysis is a person-year pair of years, meaning that one observation is created for each time a person is observed in one year and then the following year (to permit the identification of an exit) and the person otherwise meets the sample selection criteria. Standard errors are corrected for the repeated observations of given individuals stemming from this person-year sample construction, although with the massive size of the LAD samples, this rarely makes any meaningful difference in the results.

For the return analysis, an individual's exit must first be observed and thus have met the sample selection criteria just described and been observed to leave the country in the manner described further below. Individuals are then "followed" (as described below) until either i) they are observed to return to Canada, or ii) they reach the end of the sample period (i.e., 2003), at which point the record is right-censored.

II.3 The Models

The Leaving Model

The leaving model uses a logit specification, where the dependent variable is whether the individual leaves the country in a given year. It can be expressed as follows:

(1) $y_{it}\,(\text{leaving}) = \beta_0 + X_{it-1}\,\beta_1 + \varepsilon_{it}$,

where y_{it} (leaving) is the indicator of whether individual *i* left Canada in year *t*. β_0 is an intercept and X_{it-1} is a row vector of explanatory variables corresponding to the individual's situation in *t-1* and which are therefore pre-determined ("exogenous") to the probability of moving in *t*. β_1 are the coefficients representing the relationship between these variables and the propensity to move.[5]

[5] The information in individuals' tax files given in the LAD generally pertains either to annual accumulations over the course of the year in question (e.g., incomes) , or the situation holding at year end (e.g., place of residence, marital status, and age). The precise date of departure from the country in any given year for those who leave is, for example, not available, nor are the individual's characteristics at precisely that point in time. Hence the annual-based nature of the model in terms of the definition of the dependent variable and the explanatory variables to which moving is related.

Several sets of explanatory variables are included in the models. First are a range of basic demographic characteristics. These include current age (captured by a series of dummy variables), family type (couple with children, couple with no children, unattached individual, single parent), province/region of residence, an indicator of being the member of a "minority" (official) language group (English in Quebec, French outside Quebec – thus leaving the province/region variables on their own to represent the majority language group in each jurisdiction),[6] and area size of residence (rural areas and small towns, smaller cities, larger cities).

A second set of variables represent broad indicators of the individual's current economic situation. The individual's market income (primarily earnings but including other non-government sources of income such as asset-based income) is measured with a series of categorical variables representing different levels, from zero to upwards of $100,000 (measured in 2003 current dollars). This is a particularly important set of variables in terms of assessing "brain drain" issues, since income is essentially used as a proxy for "brains" – and could in fact be argued as comprising the more pertinent measure.[7] An indicator of having received EI income in the year in question is also included: do those on EI leave the country at higher or lower rates than others?

A couple of variants of the model allow for the relationship between the probability of leaving and the individual's income level to differ in the 1990s and then again in more recent years (both relative to the 1980s), to test if the rate of leaving for those at the higher end of the economic ladder shifted relative to those at lower levels (holding other factors constant) – as would presumably be expected if there had been a worsening of the "brain drain" phenomenon *per se* (as opposed to more general changes in departure rates).

A third set of variables represent the economic conditions faced by the individual. These include the unemployment rate of the province in which the individual is living plus the ratio of the provincial versus U.S. (national) unemployment rate to capture the effect of the relative economic conditions in the two countries on moving.[8]

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[6] The only language identifiers available on the LAD are English and French, defined by the language of the tax form used by the individual.

[7] The notion of "brain" is not always well defined in the drain debate. Sometimes, for example, it includes entrepreneurs, whether or not they have/are "brains". The income indicator included in the models would normally capture those income-related definitions better than an education measure, but both types of measures would clearly be desirable.

[8] The provincial unemployment rates represent the usual Statistics Canada measures as available on

The models also include a series of calendar year dummy variables to capture any time trends (without imposing any functional form on those trends) and any other significant influences which operate at a national level and which have shifted over time and are other not otherwise captured by the variables included in the models. Policy changes would, for example, be captured by these variables. Various combinations of the relevant unemployment rate and calendar year variables are presented in order to tease out the effects of each of these, and their interactions.

Finally, a set of variables identifying recent immigrants and the number of years since immigration are included to make broad comparisons between immigrants and the non-immigrant Canadian population. The re-emigration of immigrants could, of course, be a subject worthy of its own treatment, and the analysis is kept intentionally simple here, meant only to serve as an introduction to that broader topic.[9]

Separate models are estimated for men and women due to the different structures of emigration behaviour for these two groups.

In summary, this modelling approach represents a stochastically well behaved reduced form specification which suits the goals here of identifying the various individual characteristics, labour market attributes, economic factors, and year effects associated with leaving Canada. This method has previously been used (Finnie [2004]) to analyse the analogous issue of inter-provincial mobility in Canada and has the positive attributes of being quite intuitive, of making good use of the data available (rich in some ways but limited in others), and of being well suited to the goal of identifying the relationships between leaving Canada and the explanatory variables included in the models, including the time trends that have been subject to such focus in both the technical literature and public debate.

Cansim, while the relative Canadian-U.S. variable uses an alternative measure of the Canadian unemployment rate constructed (again by Statistics Canada) to be more directly comparable to the U.S. rate (e.g., adjustments are made for the age of the population considered, the precise definition of being unemployed, and so on).

[9] This immigrant information, only recently available on the LAD, is taken from the IMDB ("Immigration Database"). The IMDB incorporates landing information, including country of origin, education level, and class of immigrant, and covers all immigrants (i.e., 100 percent of this group) who arrived in Canada since 1980. Further work on the movement of immigrants, including their inter-provincial mobility, is currently in progress.

The Return Model

The return model is similar to the leaving model, but with some slight adjustments applied to the samples and model used so as to represent a proper hazard model specification. It resembles the leaving model – now basically turned on its head – in that the dependent variable is the probability of *returning* to Canada (as opposed to leaving) in any given calendar year. But what differs from the leaving model is the use of a hazard model approach, whereby only individuals who are observed to first leave the country are included, and they are tracked in a precise year-by-year fashion from the year of their departure. The model thus includes a set of dummy variables representing the elapsed number of years the person has been out of the country to capture the relevant duration effects.[10]

The model can be represented as follows:

(1) $y_{it}\,(\text{return}) = \gamma_0 + X_{1iT}\gamma_1 + X_{2iT}\gamma_2 + \text{DUR}\gamma_3 + \varepsilon_{it}$,

where y_{it} (return) is the indicator that individual *i* returns to Canada in year *t*. X_{1i} is the same type of row vector of explanatory variables as included in the leaving models, here corresponding to the individual's situation at the point of departure from Canada (denoted by *T*). X_{2iT} is a limited set of time-varying explanatory variables, in practice limited to the relative U.S.-Canada unemployment rate.[11] DUR represents the vector of duration terms, capturing the number of years since the person departed from Canada (corresponding to the annual nature of the data). The γs represent the vectors of coefficients representing the relationship between returning to Canada and the explanatory variables.

An observation is created for each individual who leaves the country for each year until they are observed to return. If the individual is not observed to return, he or she is right-censored at the end of the data period.[12]

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[10] See Keifer [1990] for how this approach represents a logit-based hazard specification in the presence of discrete data. This type of model is used by Finnie and Sweetman [2003] and Huff-Stevens [1994, 1995] to analyse poverty dynamics, by Gunderson and Melino [1990] to model strike durations, by Ham and Rae [1987] to analyse jobless durations, and by Finnie and Gray [2002] to model earnings dynamics.

[11] Current age might also be worth including as a time-varying regressor, but age at departure is included in X_1, and current age plus years-since-departure are equal to current age, precluding the identification of more than two of the three relevant parameters. Other variables in X_1 are not really defined or relevant in terms of their current values after the individual leaves the country since they describe the individual's characteristics and situation at the point of leaving, while the equivalents of these measures for the person when they are living out of the country are not available.

[12] Return rates need to be adjusted for the fact that individuals who die while out of the country would no longer be at risk of returning. This is done by applying age-specific mortality rates and right-censoring individuals'

One novel feature of this model is that individuals are tracked over a period of time they are not actually observed in the data – when they are out of the country. This approach is legitimate, however, and facilitates the analysis in question because individuals *are* observed if and when they return to Canada – the event in question.[13] In short, the working assumption is that individuals are still out of the country (i.e., the spell in question continues) until a return is observed (indicating the end of that spell – the relevant transition).

As indicated, individuals' characteristics as of the point of departure are included as regressors in the return model. This approach thus identifies the relationship between the rate of returning and these attributes – which are in many ways the most relevant in terms of understanding the return phenomenon from a Canadian perspective. For example, how do return rates vary by age at departure, the province from which the individual left, the income level in the year prior to leaving, and so on? The duration terms provide a sense of the dynamic nature of the relevant hazard process. The calendar year variables similarly represent the current year (not when the person left).

The Dependent Variables: Leaving and Returning

The identification that a person left Canada in a given year is made through the relevant declaration on individuals' tax forms. The place for such declarations is at the top of the first page and is therefore not easily missed. There are, furthermore, significant incentives for individuals to make such a declaration if the situation applies. First, most Canadians are eligible for tax refunds at year-end, and this is especially true for those who leave the country because their annual incomes are not as high as their running (monthly) amounts would have indicated, leaving them in lower tax brackets than would have been used for their deductions – and hence eligible for greater refunds. Secondly, if an individual ever wants to return to Canada, even to visit, having one's tax matters cleanly dealt with in this way is of clear advantage.

In previous work (Finnie [2005]), other broader definitions of leaving were also used. A second definition added those observed to have a declaration of non-residence in Canada (for tax purposes) without having severed one's ties as completely as by the initial definition to the declared

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records at the time they are deemed to die by this probabilistic assignment. The principal findings are not, however, affected by this treatment.

[13] Individuals are supposed to use the same SIN number when they return, and are otherwise linked to that earlier number in the LAD if they get a new one.

departures. A third definition also included those observed to have a foreign mailing address, even though they still had a legitimate tax province and did not declare a departure on their tax form. The major findings – both raw rates of leaving as well as the model results – were largely insensitive to the definition used, except for the general levels (i.e., expanding the definition obviously increased the numbers leaving). The definition used here was ultimately deemed best suited to the purposes of the analysis due to its clear meaning and consistent definition over time.

The definition of return is simply the obverse of the leaving definition, and is indicated by an individual making the analogous tax form declaration ("returning to Canada"). Broader definitions were again used in earlier work, these essentially based on the reverse of the leaving definitions, as were various combinations of the different leaving and returning definitions, but the major results were again little affected by the precise definitions employed.

III. RAW LEAVING RATES

Figure 1 (and its supporting table) show the annual rates of leaving Canada over the 1982-2003 period covered by the data. Overall, the rates are generally very low, ranging from a low of .045 percent (i.e., under one-half of one-tenth of 1 percent) to a high of .133 percent (a little under one and a half tenths of 1 percent). In absolute numbers, these rates represent around 15,000 leavers in the first year, 1982, and approximately the same number in 2003, the final year, with a peak at approximately 27,000 leavers in 2000. Rates are generally a little higher for men than women, this gap being widest when rates were also highest, through the latter part of the 1990s.

These rates and absolute numbers generally correspond to other estimates in the literature for the years other data are available (Finnie [2001]). The LAD data, however, represent an annual series using a consistent definition of leaving which spans an extended period of time up to the relatively recent past such as cannot be found elsewhere.

The leaving rates follow the economic cycle to a significant degree – but far from perfectly. The substantial declines which occurred through the mid-to-late 1980s correspond to the strong growth in the Canadian economy over that period, but the rates bottom out in 1987, whereas the economy continued to grow through 1988 before beginning to stall at the end of 1989. Departures rose steadily (apart from 1990) through the first part of the 1990s, when the economy was stuck in a lingering deep recession, but continued to do so right through 1997, even though the Canadian

economy began to recover quite strongly in 1996. After finally turning down in 1998, leaving rates stalled in 1999, then rose again in 2000.

Sharp declines in leaving rates then occurred from 2001 through 2003 – and these in the absence of any correspondingly significant economic developments (i.e., the Canadian economy continued to grow as in previous years). The annual declines since 2000 in fact outstrip the substantial rises seen through most of the 1990s – which were seen by some observers as inexorable, and as harbingers of continued further rises into the future. In short, what rose so dramatically subsequently declined in an even more pronounced fashion.

Exit rates have not, certainly, returned to their lows of the late 1980s – and the 2003 rates are still approximately double those earlier levels. But they are also down 45 percent (men) and 31 percent (women) from their year 2000 highs, and the downward trend shows no sign of levelling off through the end of the data period covered – although speculation beyond that year is of course nothing more than that.

The raw data thus suggest the importance of several primary influences in determining the observed time trends. First, as noted, the stronger the Canadian economy, the fewer the number of leavers. This seems to be a clear and continuing factor.

But through much of the 1990s, much more than economic factors seem to have been at play, since rates rose even as the Canadian economy evidenced strong recovery, then fell sharply over a period of relatively consistent economic performance. One factor in the earlier of these years was undoubtedly the even greater strength of the U.S. economy over this period, especially for those at the very top, and its vacuuming up of highly skilled talent from Canada as much as from other countries.[14]

A second likely factor was the problems experienced in certain specific sectors in Canada which added considerable "push" to other "pull" factors, these including the health sector (cut-backs in the health system caused doctors and nurses to seek opportunities elsewhere), the universities (professors – for similar reasons), R&D (engineers, scientists, etc.), and others.

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[14] See Finnie [2001] for further discussion of this point and those that follow. It should be noted that the LAD does not generally identify the country to which the person moved. For somewhere about half of all leavers, there is an address code for the individual's final correspondence with tax authorities, but the other half have a Canadian address or otherwise one that is not useable, and even the address information that is available is somewhat uncertain, uneven, and generally difficult to work with. Hence, it is not possible to model departures to different countries – in particular the U.S. versus elsewhere – separately.

Third, the Canadian and U.S. economies were linked more tightly than ever through the first the FTA, then NAFTA, and related agreements, and these included changes which made it easier for individuals to move between the countries to seek work.

Finally, certain immigrants that arrived in this country in the 1990s appear to have left soon thereafter – those from Hong Kong being a special case in point; conversely, their rates of returning to their home countries may have also shifted over this period.[15]

However, while these factors – and perhaps others – might explain the "specialness" of the 1990s, the sharp declines since then might need to be explained by similarly particular circumstances, since the relative gain in strength of the Canadian economy was likely not sufficiently important to account for the large shifts identified in the data, no new trade deals have been reached, and there have been no other overarching structural shifts in the Canadian economy, especially with respect to at least some of the more relevant problem sectors which accounted for some of the large outflows of the 1990s.

That said, however, let us start with those sectoral factor(s). In fact, the recovery in government spending has pumped a significant amount of money into the health sector, and some into the universities as well (especially on the research side) – two areas of significant loss in the 1990s. These developments have, therefore, probably accounted for at least some stemming of the 1990s tide, although these are inherently difficult factors to quantify in any precise manner – and any such exercise is certainly beyond the capacity of the LAD, which has limited information on industry and occupation of employment.

Second, though, is perhaps a combination of new "socio-political" factors. The events of "9-11" and the subsequent tightening of U.S. borders, the war in Iraq, the re-election of George W. Bush, and the general U.S. shift of the U.S. to the right have perhaps made that country both more difficult to get into and a less desirable place to live for some Canadians who might have been attracted there in earlier years – seeking better career opportunities without excessive compromise in terms of the "culture" of the society or politics of that country.

There may also have been a "feedback" mechanism at work, as one hears stories of doctors (and others) returning to Canada after discovering that moving to the U.S. is not as rosy as may have been thought for a whole range of reasons: doctors facing high malpractice insurance costs and

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[15] See Devoretz and Zhang [2004] for the case of Hong Kong immigrants in particular.

restrictions placed on their practice of medicine imposed by HMOs and private health insurance companies; the costs of private security, sending their children to good schools, and other expenses draining substantial sums from the raw earnings premia often observed for U.S. workers; and the shock of being exposed to what is essentially a rather different culture in a wide range of ways.

But again we are into the realm of speculation, and this is an empirical paper. Suffice it say, therefore, that there have been important swings in the rate of emigration from Canada over the last two decades, that the rises of the 1990s were strong but still left the overall numbers of leaving rather small (if not unimportant), and that there has been a substantial slowing, and then reversal, of those latter trends starting in 1997 but showing the greatest and most sustained momentum since 2000. We now move to analyse some of the micro factors associated with "who moves".

IV. THE LEAVING MODELS

IV.1 The Basic Models

The main leaving model results are shown in Table 1. The findings are presented in probability space, as derived from the underlying logit models. To do this, the model parameter estimates were first used to calculate a baseline probability where all the categorical (dummy) variables were set to zero and the unemployment rate and the ratio of the Canada-U.S. unemployment rates were set to their sample means (8.7 percent and 1.2 percent respectively). This generates the "baseline rates" of .061 percent and .083 percent shown in the first row of the two regressions (men and women) and in the shaded rows of each set of explanatory variables (for ease of reference). These rates thus correspond to the characteristics represented by the omitted categorical variables in the models: age 35-44, being in a couple with children, living in Ontario, not being a minority (French) language speaker, residing in a large city, not receiving any EI benefits, having a market income of $30,000-60,000, being a non-immigrant, and 1991 set as the calendar year.[16]

Each categorical variable is then "turned on" one at a time, and the relevant coefficient estimates are used to calculate a new predicted probability. These are the other numbers shown in

[16] Note that the rates are shown in *percentage* terms (with a potential range of 0-100), not probabilities (0-1), as would be more normal for a logit (0-1 probability) model. This approach is adopted for clarity of exposition and discussion in the face of the numbers being so small. The baseline .06% for men thus corresponds to the rates of .05 to .15 shown in Figure 1, and is shown instead of the .0006 rate this would represent in probability terms.

the table. The statistical significance of the associated coefficient estimates is shown in the usual fashion (.05 and .01 confidence levels). The full logit model results are shown in Appendix A1.[17]

Holding other factors constant, the rates of leaving the country are fairly average for the youngest individuals (18-24), then rise (age 25-34), and decline thereafter. This pattern is consistent with a life-cycle model where the costs and benefits of moving, both economic and psychological, would point towards doing so earlier in life, but – it would appear – only after getting a start in one's career.[18]

Family status effects might be expected to reflect a similar set of cost and benefit factors, but the results are not entirely as might have been anticipated. The outlier group here is couples with no children, who have inordinately low leaving rates, a result which contrasts with the case of inter-provincial mobility, where having children and being married are generally (independently and together) related to lower mobility rates, not higher ones. Evidently, leaving the country is different than moving across provincial lines in this respect – at least for couples.[19] The relatively high leaving rates of single parents, single mothers in particular, could represent individuals not identified as married in the LAD data joining partners abroad.[20]

The probability of leaving the country varies considerably by province and language group. People living in Atlantic Canada are considerably less likely to leave than most others, those in British Columbia (including the territories) have the highest rates, while those in Ontario and the Prairies (including Alberta) are in the middle rank.

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[17] The coefficient estimates are of course based on all the variation in the independent variables in the sample, while the predicted probabilities shown in the main table are based on using those estimates to generate first the baseline probabilities, and then the probabilities associated with each of the indicated changes. There are various conventions for presenting such probability effects (e.g., fixing all the explanatory variables at their sample means, even in the case of sets of categorical variables where a corresponding baseline "person" obviously does not exist), any of which would generate similar probability effects, the only (minor) differences being principally due to the non-linearities of the underlying logit models used in the estimation.

[18] See Finnie [2004] for further discussion of the underlying logic of the variables included in the models and findings for the related dynamic of inter-provincial mobility.

[19] The strong positive effects for being age 25-34 (just seen) might be affecting these family effects. That is, most couples without children are this age, meaning that a couple without children *in this age category* would have to have both effects taken into account.

[20] Although individuals are supposed to declare their marital status on their tax forms and the LAD attempts to match common-law partners into couples (using individuals' ages, addresses, and other information), some matches are missed and some individuals are therefore erroneously identified as unmarried or, this case, a single parent where the spouse is simply out of the country.

Perhaps most interesting here, however, are the findings for Quebec. Francophones in that province have by a wide margin the lowest rates of all Canadians. But taking into account the English-Quebec minority language indicator shows that Quebec Anglophones have a much higher rate of leaving than not only Francophone Quebecers, but all other groups as well. Included in the infamous exodus of Quebec Anglophones from Quebec have apparently been disproportionate numbers who left the country entirely. Interestingly, Francophones outside of Quebec have somewhat higher leaving rates than English speakers in the province/region in which they live.

Not surprisingly, individuals living in larger cities are, *ceteris paribus*, about twice as likely to leave as rural dwellers, and substantially more likely than those in smaller cities as well.

Those receiving Employment Insurance (formerly Unemployment Insurance) in a given year are less likely to leave the country. This could reflect a lack of employability (in other countries as in Canada), a dependency on this income support program, an absence of funds to finance a move, or some combination of these and/or other factors. It is interesting to contrast this result with the higher rates of inter-provincial mobility found for individuals receiving EI (Finnie [2004]).

The provincial unemployment rate appears to have a significantly negative effect on leaving, while the higher the rate relative to the U.S., the greater the likelihood of leaving. These variables are discussed further below.

The market income variables are very interesting, and indicate that the higher the individual's income (mostly earnings), the greater the probability of leaving. This is especially true at the very highest income levels ($60,000-$100,000 and $100,000+).[21] This tendency is particularly marked among men. To the degree income levels capture the "brain drain", rates of leaving are clearly greater for the country's most talented workers. That said, their numbers are small, since relatively few individuals have incomes at these levels and the vast majority of leavers are in the lower income categories.[22]

The immigrant effects are very strong, and take an interesting pattern. In a male immigrant's landing year, his chances of leaving the country are a full 10 times greater than those of a non-immigrant Canadian with similar characteristics (as captured by the models). These rates then

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[21] Market income includes wages and salaries, net self-employment and professional income, dividend and interest income, and all other private (non-government) sources except for capital gains (omitted partly due to adjustments related to tax rules in certain years).

[22] See Finnie [2001].

actually rise further still over the early years in the country. The rates begin to decline only 6 years following immigration, at which point they do so fairly sharply – although even those who have been in Canada as long as 16 years (or more) have more than double the rate of leaving the country in any given year than non-immigrants.[23]

The raw trends in leaving rates over time were shown above. What do the year patterns look like after the factors represented by the variables included in the models are taken account of? These are captured by the calendar year variables included in the models. The associated predicted probabilities shown in Table 1 are also are plotted in Figure 2. The raw and adjusted trends are in fact very similar. Leaving rates declined significantly through most of the 1980s, began to rise after bottoming out in 1987 and increased through 1997, after which they again declined, except for a small uptick in 2003. The story would, therefore, again be one of significant cyclical effects (even after including the unemployment rate variables discussed above and further below), but also some important shifts – upward in the 1990s and then back down since that time, especially since 2000.

In fact, the rates in the final years of the data are closer to the historical lows of the late 1980s than was seen in the raw rates – but then so too were the highs not so high as in the raw data. Once controlling for other factors, then, rates have generally not moved as dramatically over time as the raw data suggest. Otherwise put, some of the swings – first upward and then downward – in the 1990s and since were evidently linked to factors explained by the variables included in the models. However, strong residual shifts remain evident. One curiosity in these results is the small increase in 2003, as this was not seen in the raw data. Only time can tell if this is the beginning of a new trend – or a small and relatively inconsequential blip.

One final point regarding these calendar year effects pertains to the issue of recent immigrants. The set of controls for immigrants and their years since immigration included in the standard model captures the general differences in departure rates between immigrants and the non-immigrant population over the period covered by the analysis. But was there a shift in immigrants' behaviour over time? And in particular, did the Hong Kong phenomenon have a particular effect? And most importantly, were any such shifts strong enough to affect these overall time trends? The data indicate that the answer is no. Appendix Figure A1 shows the year effects where two different

[23] It would be interesting to separate moves "back home" from those on to a third country. Such investigations are left for a later analysis. (See also the challenges posing such an analysis discussed above.)

sets of controls are added to the models: first, a set of immigrant-year interactions to allow the calendar year patterns to take their own shape for immigrants, and second, an additional set of interactions especially for those who came to Canada from Hong Kong. While some of these interactions are in fact statistically significant (results available from the author) the figures clearly indicate that the overall (general) calendar year effects are practically unchanged when special consideration is taken of immigrants in this way.[24]

IV.2 The Unemployment Rate and Year Variables

Tables 2a and 2b show (for men and women) the results for various models including different combinations of the provincial unemployment rate, the ratio of the Canada-U.S. unemployment rates (the Canadian rates again at the provincial level), and the (residual) calendar year effects. The year variables pick up effects that moved in a general way (i.e., at the national level) over time or which are otherwise not captured by the other variables included in the models, while the provincial unemployment rate and Canada-U.S. unemployment ratio will be identified by differences in these measures across provinces as well as over time (although it should be remembered that a set of province-region dummy variables is also included in the models – thus capturing any consistent differences along this dimension). The first column in each table repeats the standard specification discussed above.[25]

These variables are clearly inter-related, but a number of general findings are worth noting. First, the estimates for each variable do not generally change across the different specifications – despite their (potential) connectedness. Hence, it is less important to choose a "best" model and it is possible to think of the different variables as capturing somewhat different influences.

Second, the effects of the provincial unemployment rate are always negative and of a substantial magnitude: a higher unemployment rate is associated with a significantly lower (not higher) probability of leaving the country: the "wrong" sign if we think individuals leave Canada to seek better opportunities when the economy is not performing as well. However, the higher the

[24] Perhaps the most interesting finding is a significant decline in the rate of (re-)emigration among those from Hong Kong in the mid-1990s, presumably reflecting the uncertainty of what was going to happen to the former British colony as it was handed over to China and the perception of Canada as a safe haven in that time of uncertainty.

[25] The other variables shown in Table 1 were also included in these models, but the results are not shown.

relative Canadian (provincial) rate to the U.S. rate, the greater the probability of leaving: the "correct" result.

An increase in a province's unemployment rate thus has two effects: a negative direct effect capturing the unemployment effect alone, and a positive effect related to the rise in the Canada-U.S. ratio. If we take the two effects together, a rise of 1 percent in a provincial unemployment rate has a slightly negative overall effect, shifting the average probability of leaving from the baseline 6.1 percent to 5.7 in the case of men, and from 8.3 percent to 7.9 percent for women. The "direct effect" thus dominates the "ratio effect", and the overall influence is still of the "wrong" sign, but the net influence is not very large.

The provincial unemployment rate on its own would thus appear to capture a variety of effects. One of these is certainly the economic performance of the province in which the individual lives, but also the performance of other economies which presumably also affect departure rates – both inside and outside of Canada – with which this variable is correlated. A lower unemployment rate in Canada might indicate not just a sluggish economy here, but a slowing down of economic activity – and reduced job opportunities – in other countries as well. A second effect is likely the role of other (unobserved) factors (i.e., liberalised trade and border-crossing rules) that underlie the observed shifts over time in leaving rates with which the unemployment rate is again correlated. This is especially likely given that there were strong, broad swings in the Canadian unemployment over the period studied, including a declining unemployment rate through the middle and latter part of the 1990s when exits were rising (not falling – the "correct effect" for the unemployment rate) for other reasons.

The *relative* Canadian-U.S. unemployment rate is, in contrast, better behaved probably because it is has more precise meaning – especially once the general macro conditions of Canada and to some degree other countries' economies are already controlled for by the straight provincial rate on its own.[26]

Finally, the year variables show the same basic patterns in all specifications, and basically take the same form as previously discussed.

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[26] A national level Canadian unemployment rate (nor the ratio of this rate to the U.S. rate) cannot be used in these specifications due to the inclusion of the set of dummy year variables, since the model would not be identified.

So, what do we take from these findings? First, that the state of the Canadian (provincial) economy and its performance relative to other countries are significant determinants of the flows out of the country. But second, that it is much more than such economic factors that have driven the wide swings in emigration rates in the last two decades, and the correlation of those factors with the Canadian (and American) unemployment rates preclude us from properly identifying the role of these latter factors.[27]

IV.3 Shifts in Income Patterns Over Time

The results shown in Table 3a are based on models which include the interaction of the income variables with two sets of dummy variable allowing for shifts in the income patterns first in the 1990s and then since 2000. If individuals at higher income levels were relatively more (or less) likely to leave in one of the later periods (relative to the 1980s baseline comparison group), this would show up as a set of positive (negative) coefficients on the interactions with the higher income terms relative to the lower ones.[28] The relevant relationships are graphed in Figure 3a.[29]

The results suggest that there was in fact a substantial increase in the (relative) exit rates of those at higher income levels relative to the $30,000-$60,000 control group in the 1990s. This is seen in the positive and statistically significant coefficients on the interactions of the two top income categories with the indicators of the 1990-1999 period in the table, and in the (relative) upward shift in leaving rates after 1990 for individuals (men and women both) at these income levels graphed in the figures. The effects are negative for the two lowest income groups for men (much weaker for women), thus suggesting a continuum of this shift in income effects.

The higher-income shifts are, however, actually negative (although not significant) for the subsequent period (after 2000), at least in the case of men, suggesting that whatever shift occurred in

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[27] Replacing the unemployment rates used here with the rate of change in real GDP generates a similar set of findings (results available from the author).

[28] Again the models include the other variables shown in Table 2 but these are once more not shown.

[29] The graphs in the period up to 1989 reflect the general (common) year effects plus each of the basic market income variables (i.e., without interactions). From 1990 to 1999 they show the combination of the general year effects for that period, the general income effects, plus the income interactions for that period. The years since 2000 reflect a similar set of influences, in this case using the later set of year and income interaction variables. The key cut-points are thus 1990 and 2000, at which point the rates shift differentially by income level. The widening and narrowing of the gaps by income level *within* each of the decade periods is entirely due to the non-linearities of the underlying logit model used in the estimation.

the 1990s no longer held after 2000. Furthermore, while the probabilities of leaving are considerably higher for those at higher income levels (as discussed earlier) the *shifts* over time of this effect for the highest income class (where both the differences in levels and the shifts are greatest) are not all that large: predicted probabilities of .285 (for the baseline pre-1990 period, .342 for the 1990-99 period (an increase of 20 percent), and down to .275 for 2000-03 (Table 3a).[30]

For women, in contrast, the pulling away at the top was as strong in the latter period as through the 1990s – although there are relatively few(er) of them at these income levels.

In Table 3b and Figure 3b (full models results in Appendix Table A2b), results are shown using a somewhat different set of cut-points for the income interactions: pre-1990, 1990-97, and 1998-2003. These better reflect the most distinct phases of the Canadian economy over the period covered by the data: expansion, recession, recovery. The results are, however, much the same as those just shown. First, there are upward shifts for those at higher incomes for the middle period, statistically significant for both income groups for men, but just the $60,000-$100,000 group for women (the $100,000+ category is significant at the 5.6 percent level). But then these differences disappear post-1997 for men, but in fact become even stronger for women.

These findings are of course largely consistent with the general story line emerging here, but add some nuances. For men, there was a general shift in departure patterns in the earlier and middle parts of the 1990s but then a reversal of those tendencies around 1997, and these patterns are now seen to have been somewhat – but not dramatically – stronger for those at higher income levels than those in the middle and lower ranks. For women, the same holds, except the higher income shifts maintained themselves into the latest data period.

V. RETURNING

V.1 Empirical Hazard Rates

Figure 4 shows the simple empirical hazard rates of returning to Canada for those observed to leave at any time over the period covered by the data. Interestingly, individuals are more likely to

[30] Recall that the predicted probabilities take into account all the relevant variables (interactions), in particular the general year effects, the general income interactions, and the specific period-income interactions. Hence, the predicted probability for the highest income group is still well above that of the baseline $30,000-$60,000 group for the 2000-03 period even though the period-income shift is negative because the general income effects are still strongly positive.

return after having been away two years than just one, but after this the rate of return declines, taking the classic negatively sloped form of most empirical hazards. The rates vary from 3.5 percent to reach the maximum of 4.4 percent in year 2, to 3.7, 2.5, and 2.0 over the following three years (men and women taken together).[31]

These hazard rates imply survivor rates (i.e., the percentage of individuals still out of the country) of 96.5, 92.2, 88.8, 86.6, and 84.9 percent. Thus, after five years, 15.1 percent of those who had left had subsequently come back. These rates are, however, averaged over the whole period covered by the analysis, and do not control for any of the factors accounted for in the models. We now turn to the return models to take a deeper look at these dynamics.

V.2 The Return Models

The results for the return models are shown in Table 4. It is important to keep in mind throughout that these results are for those already identified as leavers, who are mobile individuals to start with. Keeping this conditioning in mind helps make better sense of some of the findings.[32]

The baseline rates are 2.5 and 2.7 percent (men and women), corresponding to the same characteristics noted above for the leaving models, with the added condition of having been away just one year (i.e., the duration term). These are of course much higher than the leaving rates, which were on the order of a fraction of one-tenth of one percent, but this makes sense: the latter apply to the whole population in any given year, and leaving Canada is a rare event in this respect, whereas the return models apply to those who have already left, among whom returning is a much more common event (as the raw hazard rates just shown indicate).

By age, those 65 and older are easily the least likely to return, the two younger groups (18-24 and 25-34) are the most likely, and the other groups are in-between these. There is no clear pattern by family status, except that lone parents have the lowest rates of return.

Provinces with lower rates of departure tend to also have higher rates of return. Consistent with this, Francophone Quebecers are the most likely, and Anglophone Quebecers the least likely to

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[31] These empirical hazard rates are calculated in the conventional fashion: the percentage who return in the year in question among those individuals *still at risk* in that year (i.e., still living out of the country).

[32] The results are presented in the same fashion as the leaver models seen above, and again the full set of logit model results are included in the appendix.

return of all groups. Similarly, those in rural areas (men and women) and smaller cities (women only) are more likely to return than those from larger cities.

Those who had EI before departing do not appear to behave differently than others. The (current) unemployment rate in the province in which the person was living before leaving has the "correct" negative sign (a higher unemployment rate means a lower rate of return), but the effect is not statistically significant. The same is true for the relative Canada-U.S. unemployment rate.

Of considerable interest is the pattern of return by income level. It was seen above that high income individuals ($60,000-100,000 and $100,000+) were several times more likely to leave than those at lower levels, but now we see that their return rates are also significantly higher, especially among men. The differences are not as great as in the case of leaving, but do still point to those at higher income levels being more generally mobile – in the case of returns as well as leaving.

The immigrant patterns, conversely, show that recent immigrants are not only much more likely to leave Canada than others, but also less likely to come back. Those who leave within the first few years of arriving in Canada are less than half as likely to come back as non-immigrant Canadians, and while immigrant behaviour gradually moves towards that of non-immigrants with the number of years they had been in Canada (before leaving), their lower rates of return persist even after having been in Canada more than a dozen years. Presumably many of their departures represent "returning home" and are thus to be expected, but probing deeper into the immigrant patterns is left for later research.

The duration terms are plotted in Figure 5 as well as given in Table 4. They show the same general shape as the simple empirical hazard rates presented above: a rise in the second year relative to the first, and a decline after that.[33]

The calendar year variables are also plotted (Figure 6). There is a bit of noise in the patterns, but the overall trends are interesting. Most importantly, the rates declined through 1990 (men) or 1992 (women), remained flat through the 1990s, then rose after 2000. Thus, while rates of leaving the country generally rose through most of the 1990s, return rates remained flat. And then when

[33] These models do not attempt to adjust for unobserved heterogeneity for two reasons: the results of such exercises depend on untestable assumptions regarding the underlying form of the omitted heterogeneity and the standard routines commonly employed for these tests are not widely available for the logit specification used here. The duration results may, therefore, be interpreted as representing both "pure" duration effects and any associated/correlated unobserved heterogeneity. That said, the empirical patterns of these combined effects are perhaps of greatest interest to those wishing to understand the general empirical tendencies captured by these

leaving rates fell so significantly after 2000, return rates rose in contradistinction. Whatever was attracting Canadians abroad through the 1990s, return rates held steady, while the more recent changes which appear to have been working in the opposite direction since 2000 hold for both departures and returns.

Furthermore, if annual rates of return have in fact risen by the roughly 50 percent since the 1990s that these calendar year effects suggest, and are perhaps continuing to rise (they show no sign of falling off), that would lead to very different overall rates of return as these probabilities accumulated over time in more recent periods as compared to earlier ones. If the overall rates of return were in the range of around 15 percent after five years when averaged over the entire period covered by the data (as discussed above), they would be much greater than that with the increasingly higher rates of recent years. Leaving Canada is by no means the point of no return, and especially of late.

Tables 5a and 5b show the same sets of unemployment rate and calendar year variables as seen earlier in the leaving models. Here, it is the straight provincial unemployment rate variable that performs best: consistently positive and statistically significant except where are all the different sets of variables are included (Model I). And now it is the ratio variable which takes its turn at doing some odd things, showing a significantly negative effect when included along with the provincial variable on its own when the calendar variables are also omitted (Model IV); making more sense when the latter are included (Model I). The calendar year variables take the same form as discussed above, showing increases since 2000 (or so – depending on the specification).

The general conclusion here, then, is that unemployment rates matter, they are probably correlated with other factors (as discussed in the context of the leaving models presented above), the year and unemployment rate measures are related, but that the evidence indicates that something has happened in the last few years, regardless which model is chosen.

Allowing for interactions between market income (at departure) and the period indicators (1990-99 and 2000-03) generates little in the way of significant findings (Table 6).

It should be noted, though, that these models are being identified with just 5,520 men and 4,340 women observed as returning to Canada – ample to identify the significant effects that have been noted , but not so numerous as to be pushed too far, either.

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models.

VI. CONCLUSION

This paper has provided new empirical evidence on the rates at which Canadians leave the country and subsequently return (or not), covering the period 1982 through 2003. The major findings may be summarized as follows:

- Overall, somewhere broadly in the range of .01 percent (i.e., one tenth of one percent) of the adult population leaves the country in any given year.
- Departure rates have generally been in synch with the state of the Canadian economy, but the trends have clearly been driven by more than this: declining in the 1980s as the economy was going well; turning up towards the end of the decade, but before the economy began to stall in 1989; rising through the early part of the 1990s as the economy was mired in a deep recession, but then continuing to rise through 1997, by which time the economy had recovered quite strongly; and then declining quite sharply since 2000, when economic factors would have been fairly stable.
- At the micro level, departure rates decline with age (except for the very youngest group); are lower for couples without children than other family types; are higher in British Columbia, quite low for Francophone Quebecers, and very high for their Anglophone co-nationalists; are somewhat lower for those on EI and substantially higher for those at higher income levels; and are very much higher for recent immigrants to this country.
- Exit rates for those at higher income levels seem to have shifted upwards somewhat in the 1990s (the "brain drain" phenomenon?), but returned to pre-1990s rates in more recent years in the case of men, while the shift was maintained for women (i.e., the relatively few of them at those highest income levels).
- Only a minority of those who leave ever return. Over the entire period covered by this analysis, on the order of around 2.5 percent returned after being away one year, and about 15 percent of all leavers return within five years of their departure. The hazard rates estimated here indicate, however, that there was a substantial increase in returns since 2000 – mirroring to a large extent what was happening on the departure side.
- The explanatory variables are generally less significant in the return models than in the departure models (not surprising given that all leavers have already demonstrated

themselves to be prone to moving), but where the effects do matter they generally mirror the departure patterns: where individuals are more likely to leave, they are less likely to return, and vice versa. An important exception to this rule, and of specific interest, is that return rates are (like departure rates) significantly higher for those at higher income levels, suggesting such individuals are generally more *mobile*, rather than leavers *per se*.

Is the "brain drain" a problem? At the general level, probably not, since the absolute numbers remain small – and to the degree it is a concern, it should have become less so in recent years as the numbers of individuals leaving has fallen. That said, things could – and probably should – be done to keep our best and brightest at home, but these policy issues have probably not changed much in recent years and Finnie [2001] remains a reference for those discussions.

In terms of further empirical research, the patterns for recent immigrants seem particularly worth pursuing in more detail, since such individuals are often touted to represent an important flow of human capital into the country – and indeed, one that can at least help offset those who leave the country. How many immigrants to Canada re-emigrate thereafter? To which countries to they go? Are the relationships between the various explanatory variables and departure and return rates structurally different for immigrants and non-immigrants? The LAD could be used to address such issues.

REFERENCES

AUCC [1999], *Trends*: *The Canadian University in Profile*". Ottawa: Association of Universities and Colleges of Canada, 96 pp.

Atkinson, A. B., F. Bourguignon, and C. Morrison (1992) *Empirical Studies of Earnings Mobility.* Switzerland: Harwood Academic Publishers.

CMA [1999], Investing in Health Futures: No Time Like the Present. Ottawa: Canadian Medical Association, report prepared for the 132nd Annual Meeting, 39 pp.

Conference Board of Canada [1999], "Are We Losing Our Minds? Trends, Determinants and the Role of Taxation in Brain Drain to the United States", 35 pp. Ottawa.

Devoretz, Don and Kangqing Zhang [2004], "Citizenship, Passports and the Brain Drain Triangle, *Journal of Comparative Policy Analysis*, V. 6, N.2, pp. 199-212.

Devoretz, Don [1999], "The Brain Drain is Real and it Costs Us". Montreal: Institute for Research on Public Policy, *Policy Options*, V. 20, No .7, pp. 18-24.

Devoretz, Don and Samuel A. Laryea [1998], "Canadian Human Capital Transfers: The United States and Beyond". Toronto: C.D. Howe Institute Commentary No. 115, 40 pp.

Emery, Herb [1999], "The Evidence Vs. the Tax-Cutters". Montreal: Institute for Research on Public Policy, *Policy Options*, V. 20, No .7, pp. 25-29.

Finnie, Ross [2005], "Leaving and Coming Back to Canada: Evidence from Longitudinal Data", in Harris, Richard and Thomas Lemieux (eds.), "North American Linkages", Calgary: University of Calgary Press, 2005, pp. 197-226.

_____ [2004], "Who Moves? – A Logit Model Analysis of Inter-Provincial Migration In Canada", *Applied Economics,* Vol. 36, pp. 1759-1779.

_____ [2001], "The Brain Drain: Myth and Reality – What It Is and What Should be Done" (with accompanying comments by Peter Kuhn, John Helliwell, Daniel Schwanen, Peter Barrett, and David Stewart-Patterson). Montreal: Institute for Research on Public Policy, *Choix/Choices*, Vol. 7, No. 6 (November), 68 pp.

_____ [1998], "Inter-Provincial Mobility in Canada: A Longitudinal Analysis". Ottawa:

Human Resources Development Canada (Applied Research Branch) Working Paper.

Finnie, Ross and David Gray [2002], "The Dynamics of the Earnings Distribution in Canada: An Econometric Analysis", *Labour Economics*. "The Dynamics of the Earnings Distribution in Canada: An Econometric Analysis", *Labour Economics*, V. 9, No. 6, pp. 763-800.

Finnie, Ross and Arthur Sweetman [2003], "Poverty Dynamics: New Empirical Evidence for Canada", *Canadian Journal of Economics*, V. 36, No. 2 (May), pp. 291-325.

Frank, Jeffrey and Eric Belair [2000]. "Pathways to the United States: Graduates from the Class of '95'". Ottawa: *Education Quarterly Review* (Statistics Canada Cat. No. 81-003-XIE), Vol. 6, No. 3, pp. 36-44.

_____ [1999], "South of the Border: Graduates from the Class of '95 Who Moved to the United States", Statistics Canada.

Globerman, Steven [1999], "Perspectives on North American Free Trade". Ottawa: Industry Canada Research Publications Program, Paper No. 3 (April), 35 pp.

Gunderson, M. and A. Melino [1990], "The Effects of Public Policy on Strike Duration" *Journal of Labor Economics* 8, pp. 295-316.

Ham, J. and S. Rae [1987], "Unemployment Insurance and Male Unemployment in Canada", *Journal of Labor Economics* 5, pp. 325-353.

Heckman, J, and B. Singer [1984], "Econometric Duration analysis" *Journal of Econometrics* 24, pp. 63-132.

Helliwell, John [1999], "Checking the Brain Drain: Evidence and Implications". Montreal: Institute for Research on Public Policy*, Policy Options*, V. 20, No .7, pp. 6-17.

_____ [2000], "Globalization: Myths, Facts and Consequences". Toronto: C.D. Howe Benefactors' Lecture, 55 pp.

Hoefer, Mike, Doug Norris and Elizabeth Ruddick [2000], "Canadians Authorized to Work in the United States Under NAFTA Provisions". paper presented at the November Metropolis Conference in Vancouver.

Huff Stevens, Ann [1994], "The Dynamics of Poverty Spells: Updating Bane and Ellwood", *American Economic Review*, Vol. 84, No. 2 (May 1994), pp. 34-37.

IRPP [1998], "A Tax Cutting Strategy for Canada". Montreal: *Policy Options symposium*, V. 19, No. 10 (December), 48 pp.

____ [1999], "The Brain Drain". Montreal: Institute for Research on Public Policy*, Policy Options* symposium, V. 20, No. 7 (September), pp. 3-43

Iqbal, Mahmood [1999], "Are We Losing Our Minds?", *Policy Options*, V. 20, No .7, pp. 34-38.

Keifer, N. [1990], "Econometric Methods for Grouped Duration Data", in Hartog, J., G. Ridder, and J. Theeuwes (eds.), *Panel Data and Labour Market Studies*, Elsevier Science Publishers, pp. 97-117.

McKendry, Robert J. R., George A. Wells, Paula Dale, Owen Adams, Lynde Buske, Jill Strachan, and Lourdes Flor [1996], "Factors Influencing the Emigration of Physicians from Canada to the United States". Ottawa: *Canadian Medical Association Journal*, V. 4, N. 2 (Jan.), pp. 171-81.

Mintz, Jack [2001], *Most Favoured Nation*. Toronto: C.D. Howe Institute, Policy Study 36.

OECD (1996) "Earnings Inequality, Low-Paid Employment and Earnings Mobility". Paris: Organization for Economic Cooperation and Development, *Employment Outlook* Chapter 3, 59-108.

Schwanen, Daniel [2000], "Putting the Brain Drain in Context", C.D. Howe Institute Commentary No. 140.

Simpson, Jeffrey [2000], *Star-Spangled Canadians: Canadians Living the American Dream*. Toronto: Harper-Collins, 2000.

_____, [2000], "Do Tax Differences Contribute Toward the Brain Drain from Canada to the U.S.?", paper presented at the Canadian Economics Association meetings, Vancouver.

Schwanen, Daniel [2001], "Minding the Brain Drain", in Finnie, Ross, "The Brain Drain: Myth and Reality – What It Is and What Should be Done", Montreal: Montreal: Institute for Research on Public Policy, *Choix/Choices*, Vol. 7, No. 6 (November 2001), pp. 55-58.

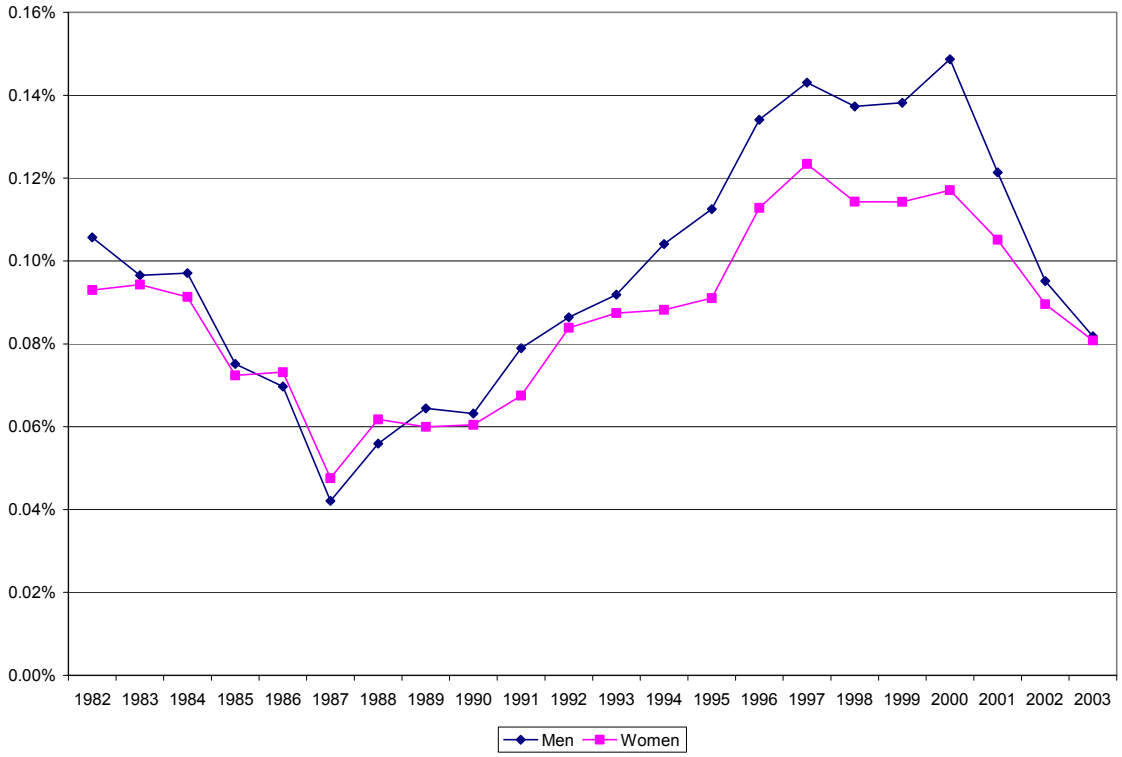
_____[2000], "Putting the Brain Drain in Context", C.D. Howe Institute Commentary No. 140.

Wagner, Don [2000], "Do Tax Differences Contribute Toward the Brain Drain from Canada to the U.S.?", paper presented at the Canadian Economics Association meetings, Vancouver.

Wagner, Don [2001], IRPP.

Zhao, John, Doug Drew, and T. Scott Murray [2000], Brain Drain and Brain Gain: The Migration of Knowledge Workers from and to Canada: *Education Quarterly Review* (Statistics Canada Cat. No. 81-003-XIE), Vol. 6, No. 3, pp. 8-44.

Figure 1 – Rates of leaving Canada. 1982 - 2003



Rates of Leaving Canada, 1982 - 2003							
Year	Men	Women	All	Year	Men	Women	All
1982	0.106%	0.093%	0.100%	1993	0.092%	0.087%	0.090%
1983	0.097%	0.094%	0.095%	1994	0.104%	0.088%	0.096%
1984	0.097%	0.094%	0.095%	1995	0.113%	0.091%	0.102%
1985	0.075%	0.072%	0.074%	1996	0.134%	0.113%	0.123%
1986	0.070%	0.073%	0.071%	1997	0.143%	0.123%	0.133%
1987	0.042%	0.048%	0.045%	1998	0.137%	0.114%	0.125%
1988	0.056%	0.062%	0.059%	1999	0.138%	0.114%	0.126%
1989	0.064%	0.060%	0.062%	2000	0.149%	0.117%	0.132%
1990	0.063%	0.060%	0.062%	2001	0.121%	0.105%	0.113%
1991	0.079%	0.068%	0.073%	2002	0.095%	0.090%	0.092%
1992	0.086%	0.084%	0.085%	2003	0.082%	0.081%	0.081%

Table 1 - Leaving Models: Basic Specification (Predicted Probabilites)				
	Men		**Women**	
Baseline Rate (%)	0.061%	**	0.083%	**
Age				
18-24	0.056	**	0.106	**
25-34	0.102	**	0.150	**
35-44	0.061		0.083	
45-54	0.047	**	0.065	**
55-64	0.033	**	0.041	**
65- +	0.017	**	0.020	**
Family Status				
Couple & Kids	0.061		0.083	
Couple No Kids	0.023	**	0.034	**
Single & Kids	0.082	**	0.083	
Single No Kids	0.072	**	0.106	**
Province/Region				
Ontario	0.061		0.083	
Atlantic	0.042	**	0.060	**
British-Columbia	0.088	**	0.123	**
Prairies	0.069	**	0.093	**
Quebec	0.024	**	0.031	**
Minority Language				
English in Quebec	0.245	**	0.340	**
French outside Quebec	0.078	**	0.098	**
Majority language	0.061		0.083	
Area Size of Residence				
0 - 14,999	0.030	**	0.042	**
15,000 - 99,999	0.038	**	0.050	**
100,000 +	0.061		0.083	
Employment Insurance				
None	0.061		0.083	
Some	0.036	**	0.060	**
Provincial Unemployment Rate				
8.7	0.061		0.083	
9.7	0.036	**	0.061	**
Canada - U.S. Unemployment Ratio				
1.2	0.061		0.083	
1.3	0.097	**	0.108	**

… Table 1 (cont.)

	Men		Women	
Baseline Rate (%)	0.061%	**	0.083%	**
Market Income ($)				
< 10,000	0.060		0.056	**
10,000 - 30,000	0.061		0.065	**
30,000 - 60,000	0.061		0.083	
60,000 - 100,000	0.129	**	0.134	**
100,000 +	0.360	**	0.240	**
Year Since Immigration				
Non-immigrant	0.061		0.083	
0	0.619	**	0.739	**
1 to 3	0.755	**	0.750	**
4 to 6	0.841	**	0.871	**
7 to 9	0.419	**	0.473	**
10 to 12	0.291	**	0.314	**
13 to 15	0.212	**	0.237	**
16 +	0.140	**	0.198	**
Calendar Year				
1983	0.101	**	0.139	**
1984	0.111	**	0.139	**
1985	0.074	**	0.104	**
1986	0.065		0.102	**
1987	0.038	**	0.065	**
1988	0.048	**	0.083	
1989	0.052	**	0.076	
1990	0.047	**	0.075	**
1991	0.061		0.083	
1992	0.072	**	0.107	**
1993	0.076	**	0.107	**
1994	0.087	**	0.111	**
1995	0.088	**	0.111	**
1996	0.097	**	0.129	**
1997	0.095	**	0.134	**
1998	0.084	**	0.120	**
1999	0.084	**	0.120	**
2000	0.087	**	0.120	**
2001	0.069	**	0.109	**
2002	0.057	*	0.094	**
2003	0.064		0.108	**

Notes * Indicates significance at the 5% level.
** Indicates significance at the 1% level.

Figure 2 – Leaving Models: Calendar Year Effects

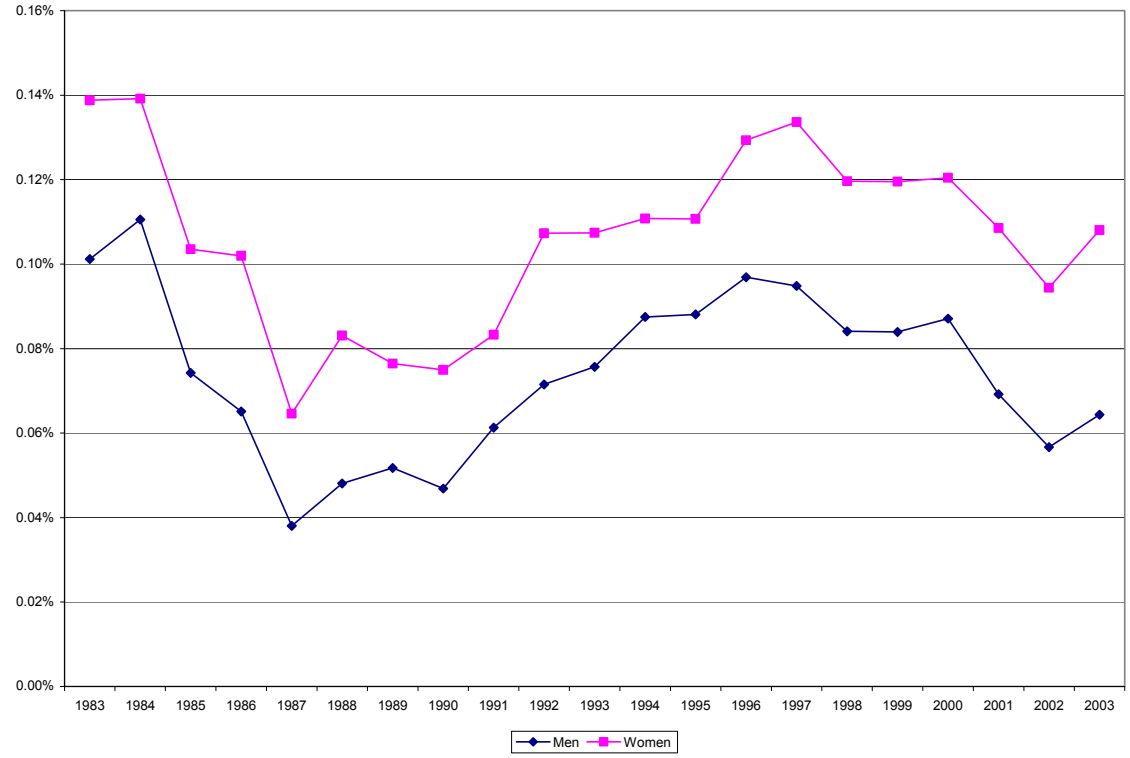


Table 2a - Leaving Models: Unemployment and Calendar Year Effects (Men)								
	i		ii		iii		iv	
Baseline Rate (%)	0.061%	**	0.063%	**	0.062%	**	0.078%	**
Provincial Unemployment Rate								
8.7	0.061				0.062		0.078	
9.7	0.036	**			0.055	**	0.066	**
Canada - U.S. Unemployment Ratio								
1.2	0.061						0.078	
1.3	0.097	**					0.151	**
Calendar Year								
1983	0.101	**	0.083	**	0.084	**		
1984	0.111	**	0.088	**	0.091	**		
1985	0.074	**	0.066		0.067			
1986	0.065		0.059		0.060			
1987	0.038	**	0.036	**	0.035	**		
1988	0.048	**	0.047	**	0.047	**		
1989	0.052	**	0.054	**	0.052	**		
1990	0.047	**	0.049	**	0.048	**		
1991	0.061		0.063		0.062			
1992	0.072	**	0.067		0.067	**		
1993	0.076	**	0.067	*	0.068	*		
1994	0.087	**	0.080	**	0.082	**		
1995	0.088	**	0.085	**	0.086	**		
1996	0.097	**	0.097	**	0.097	**		
1997	0.095	**	0.097	**	0.097	**		
1998	0.084	**	0.091	**	0.090	**		
1999	0.084	**	0.094	**	0.092	**		
2000	0.087	**	0.100	**	0.097	**		
2001	0.069	**	0.080	**	0.077	**		
2002	0.057	*	0.062		0.060			
2003	0.064		0.065		0.064			

Notes * Indicates significance at the 5% level.
** Indicates significance at the 1% level.
The models also include the other variables indicated in the basic specification.

Table 2b - Leaving Models: Unemployment and Calendar Year Effects (Women)								
	i		ii		Iii		iv	
Baseline Rate (%)	0.083%	**	0.085	**	0.067	**	0.110%	**
Provincial Unemployment Rate								
8.7	0.083				0.067		0.110	
9.7	0.061	**			0.049		0.097	**
Canada - U.S. Unemployment Ratio								
1.2	0.083						0.110	
1.3	0.108	**					0.168	**
Calendar Year								
1983	0.139	**	0.124	**	0.100	**		
1984	0.139	**	0.122	**	0.099	**		
1985	0.104	**	0.097	**	0.078	**		
1986	0.102	**	0.097	**	0.078	**		
1987	0.065	**	0.062	**	0.050	**		
1988	0.083		0.083		0.066			
1989	0.076		0.078		0.062			
1990	0.075	**	0.077	*	0.061	**		
1991	0.083		0.085		0.067			
1992	0.107	**	0.103	**	0.083	**		
1993	0.107	**	0.100	**	0.081	**		
1994	0.111	**	0.105	**	0.085	**		
1995	0.111	**	0.109	**	0.087	**		
1996	0.129	**	0.130	**	0.104	**		
1997	0.134	**	0.136	**	0.108	**		
1998	0.120	**	0.125	**	0.099	**		
1999	0.120	**	0.128	**	0.101	**		
2000	0.120	**	0.131	**	0.103	**		
2001	0.109	**	0.118	**	0.093	**		
2002	0.094	**	0.099	**	0.078	**		
2003	0.108	**	0.109	**	0.086	**		

Notes * Indicates significance at the 5% level.
** Indicates significance at the 1% level.
The models also include the other variables indicated in the basic specification.

Table 3a - Leaving Models: Income Effects				
	Men		Women	
Baseline Rate (%)	0.053%	**	0.069%	**
Market Income ($)				
< 10,000	0.054		0.044	**
10,000 - 30,000	0.057	**	0.057	**
30,000 - 60,000	0.053		0.069	
60,000 - 100,000	0.106	**	0.093	**
100,000 +	0.285	**	0.137	**
Market Income ($) Interaction 1990 - 1999				
< 10,000	0.047	**	0.044	
10,000 - 30,000	0.049	**	0.053	
30,000 - 60,000	0.053		0.069	
60,000 - 100,000	0.118	**	0.116	**
100,000 +	0.342	**	0.206	**
Market Income ($) Interaction 2000 +				
< 10,000	0.063	**	0.054	**
10,000 - 30,000	0.055		0.052	
30,000 - 60,000	0.053		0.069	
60,000 - 100,000	0.101		0.115	**
100,000 +	0.275		0.224	**
Calendar Year				
1983	0.100	**	0.114	**
1984	0.109	**	0.114	**
1985	0.074	**	0.085	**
1986	0.065		0.084	**
1987	0.038	**	0.053	**
1988	0.048	**	0.069	
1989	0.051	**	0.063	
1990	0.047	**	0.062	*
1991	0.053		0.069	
1992	0.062	**	0.089	**
1993	0.065	**	0.089	**
1994	0.076	**	0.092	**
1995	0.076	**	0.092	**
1996	0.084	**	0.108	**
1997	0.082	**	0.111	**
1998	0.073	**	0.100	**
1999	0.073	**	0.100	**
2000	0.100	**	0.115	**
2001	0.079	**	0.103	**
2002	0.065	*	0.090	**
2003	0.073		0.102	**

Notes

* Indicates significance at the 5% level.

** Indicates significance at the 1% level.

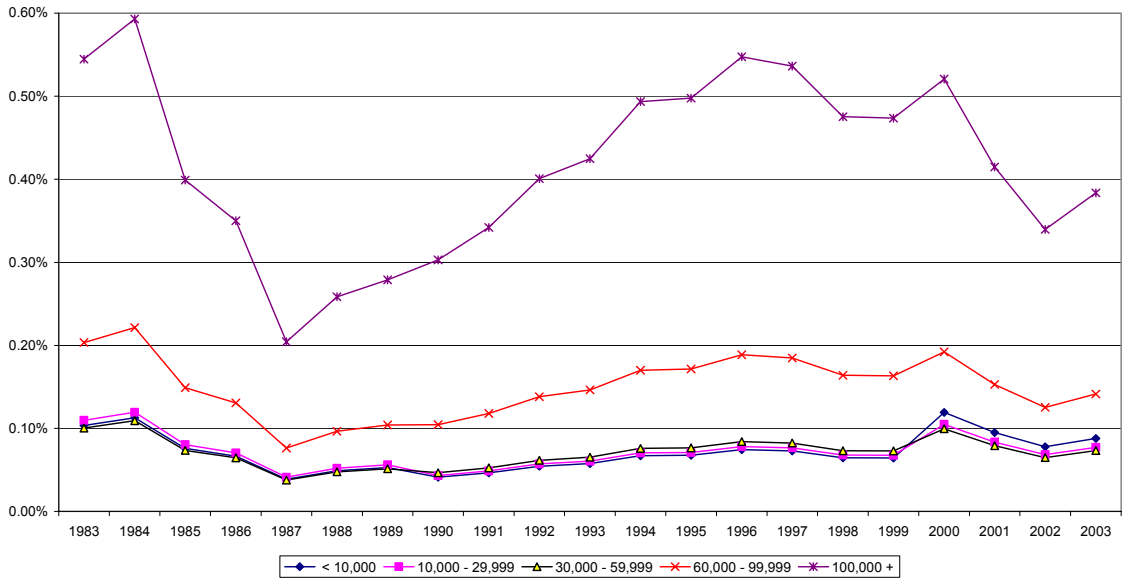
The models also include the other variables indicated the in basic specification.

Table 3b - Leaving Models: Alternative Income Year	Men		Women	
Base Level	0.048%	**	0.053%	**
Market Income				
< 10,000	0.052%	*	0.051%	
10,000 - 30,000	0.052%	**	0.049%	*
30,000 - 60,000	0.048%	**	0.053%	**
60,000 - 100,000	0.097%	**	0.068%	**
100,000 - +	0.259%	**	0.113%	**
Market Income Interation 1990 – 1997				
< 10,000	0.041%	**	0.042%	**
10,000 - 30,000	0.044%	**	0.043%	**
30,000 - 60,000	0.048%	**	0.053%	**
60,000 - 100,000	0.110%	**	0.084%	**
100,000 - +	0.330%	**	0.150%	
Market Income Interation 1998 +				
< 10,000	0.053%		0.052%	
10,000 - 30,000	0.048%	*	0.043%	**
30,000 - 60,000	0.048%	**	0.053%	**
60,000 - 100,000	0.097%		0.094%	**
100,000 - +	0.256%		0.179%	**
Calendar Year				
1983	0.105%	**	0.106%	**
1984	0.114%	**	0.106%	**
1985	0.076%	**	0.078%	**
1986	0.067%		0.076%	**
1987	0.039%	**	0.048%	
1988	0.048%	**	0.059%	*
1989	0.052%	**	0.054%	
1990	0.048%	**	0.053%	*
1991	0.048%	**	0.053%	**
1992	0.056%	**	0.069%	**
1993	0.059%	**	0.070%	**
1994	0.069%	**	0.072%	**
1995	0.069%	**	0.071%	**
1996	0.076%	**	0.082%	**
1997	0.074%	**	0.084%	**
1998	0.084%	**	0.085%	**
1999	0.084%	**	0.084%	**
2000	0.087%	**	0.084%	**
2001	0.069%	**	0.076%	**
2002	0.057%	*	0.068%	**
2003	0.064%		0.077%	**

Notes * indicates significance at the 5% level.
** Indicates significance at the 1% level.
The models also include the other variables indicated in basic specification

Figure 3a – Leaving Models: Income Effects

Men



Women

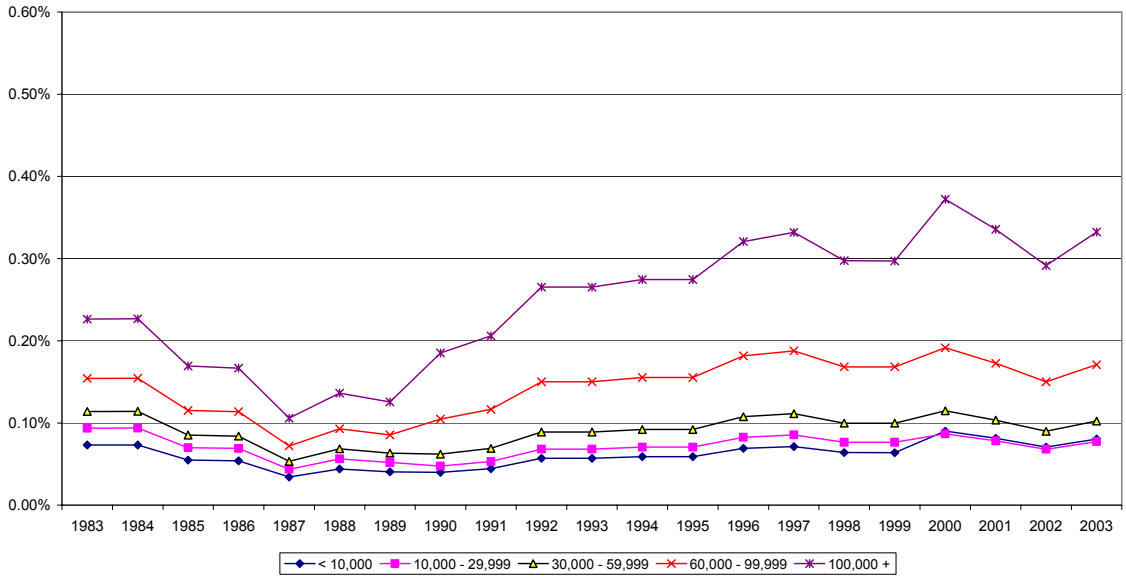
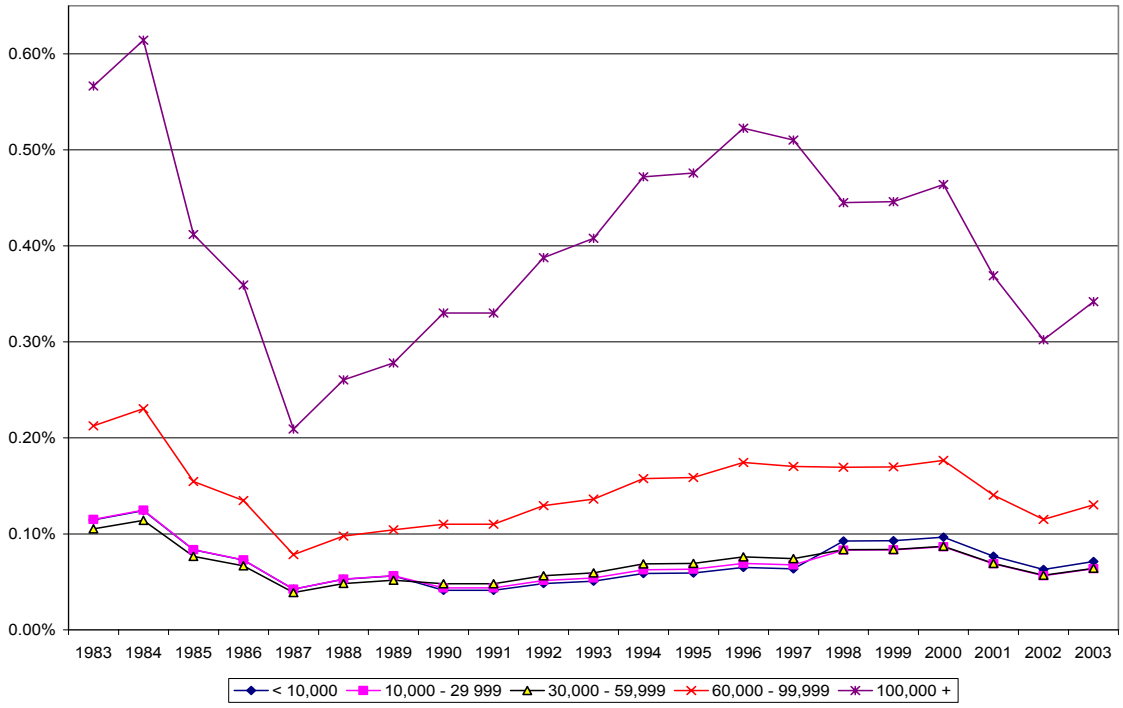


Figure 3b – Leaving Models: Alternative Calendar Year Interactions

Men



Women

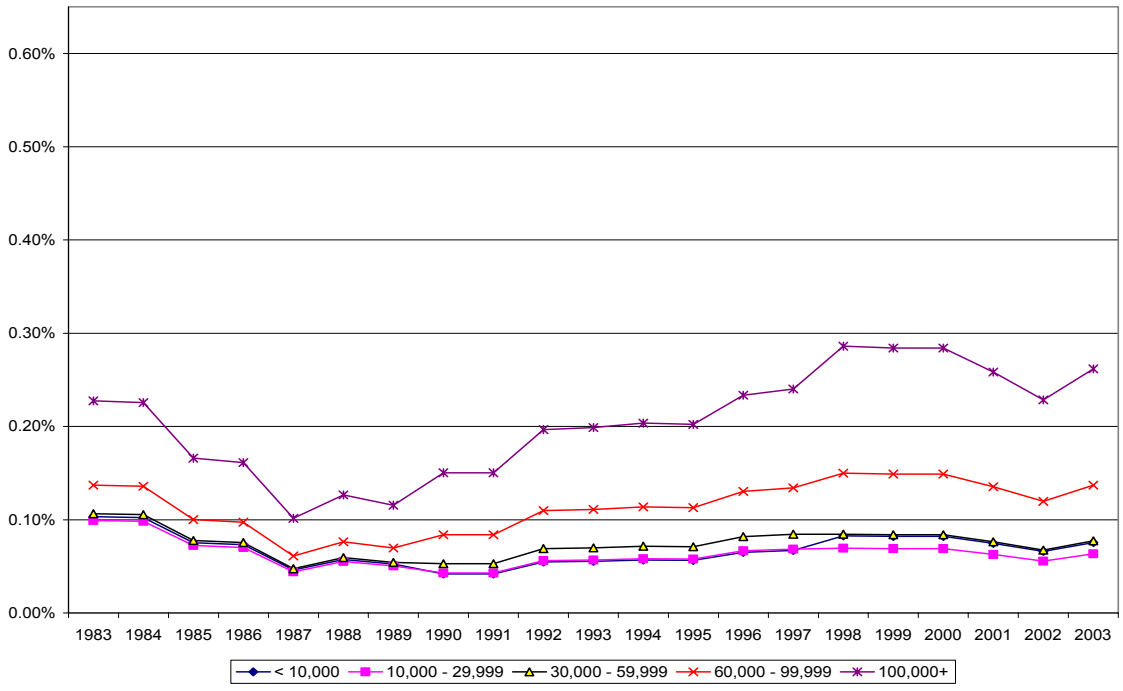
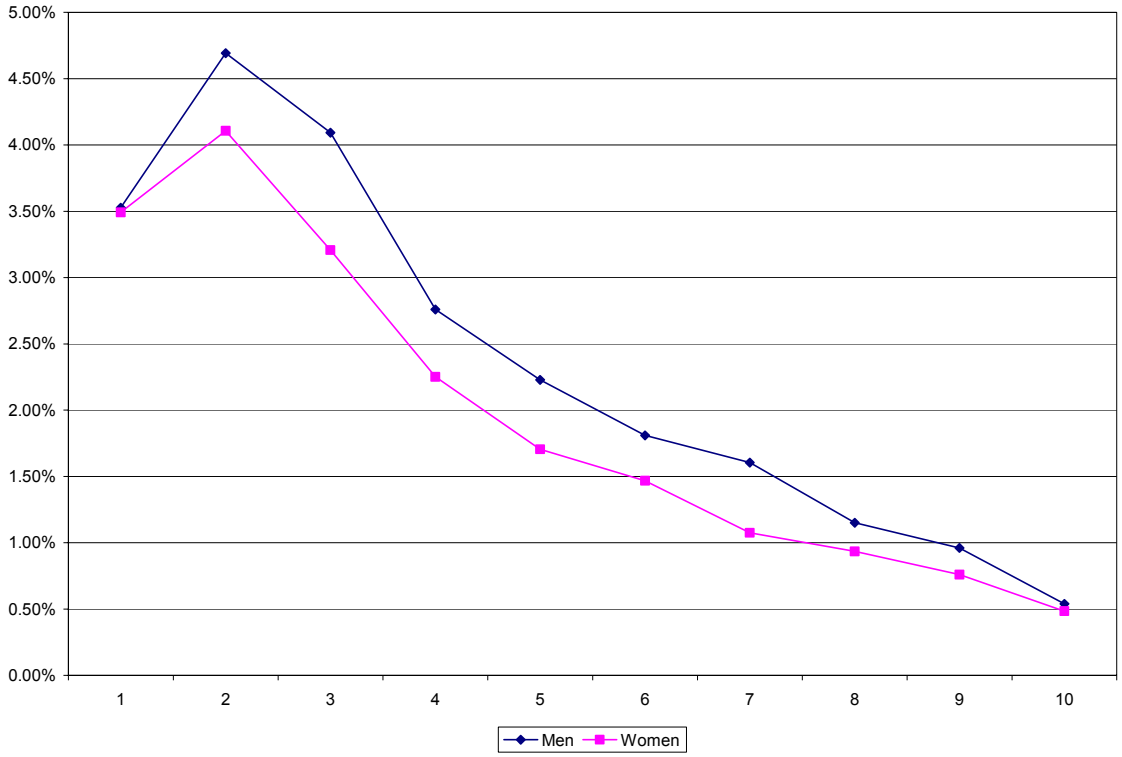


Figure 4 – Empirical Return Rates (Years Since Departure)



Empiral Return Rates (Years Since Departure)										
	1	2	3	4	5	6	7	8	9	10
Men	3.527%	4.692%	4.093%	2.759%	2.228%	1.810%	1.604%	1.150%	0.961%	0.539%
Women	3.492%	4.106%	3.207%	2.251%	1.704%	1.467%	1.075%	0.935%	0.760%	0.484%
All	3.511%	4.416%	3.683%	2.517%	1.988%	1.645%	1.350%	1.046%	0.863%	0.516%

Table 4 - Return Models: Basic Specification				
	Men		**Women**	
Baseline Rate (%)	2.503%	**	2.733%	**
Age				
18-24	3.597	**	3.819	**
25-34	3.253	**	3.393	**
35-44	2.503		2.733	
45-54	2.649		2.722	
55-64	2.749		2.472	
65- +	1.587	**	1.850	**
Family Status				
Couple & Kids	2.503		2.733	
Couple No Kids	2.685		3.116	
Single & Kids	2.144	**	2.534	*
Single No Kids	2.439		2.968	
Province/Region				
Ontario	2.503		2.733	
Atlantic	3.745	**	3.645	**
British-Columbia	2.844	**	3.008	
Prairies	3.192	**	3.447	**
Quebec	4.070	**	4.049	**
Minority Language				
English in Quebec	1.776	**	1.968	**
French outside Quebec	3.657	**	3.069	
Majority language	2.503		2.733	
Area Size of Residence				
000-14,999	2.876	**	3.049	*
15,999 - 99,000	2.737		3.175	**
100,000 +	2.503		2.733	

… Table 4 (cont.)				
	Men		**Women**	
Baseline Rate (%)	2.503%	**	2.733%	**
Employment Insurance				
None	2.503		2.733	
Some	2.523		2.845	
Provincial Unemployment Rate				
8.7	2.503		2.733	
9.7	1.132		1.311	
Canada - U.S. Unemployment Ratio				
1.2	2.503		2.733	
1.3	3.248		3.823	
Market Income ($)				
< 10,000	1.741	**	2.391	**
10,000 - 30,000	2.167	**	2.539	*
30,000 - 60,000	2.503		2.733	
60,000 - 100,000	3.172	**	3.364	**
100,000 +	3.699	**	2.720	
Year Since Immigration				
Non-immigrant	2.503		2.733	
0	1.197	*	2.018	
1 to 3	0.906	**	1.208	**
4 to 6	1.135	**	1.135	**
7 to 9	1.231	**	1.630	**
10 to 12	1.436	**	1.489	**
13 to 15	1.360	**	1.356	**
16 +	1.540	**	1.412	**

… Table 4 (cont.)				
	Men		**Women**	
Baseline Rate (%)	2.503%	**	2.733%	**
Years Since Departure				
1 year	2.503		2.733	
2 years	3.391	**	3.524	**
3 years	2.981	**	2.674	
4 years	2.002	**	1.923	**
5 years	1.599	**	1.368	**
6 years	1.252	**	1.242	**
7 years	1.238	**	0.920	**
8 years	0.894	**	0.792	**
9 years	0.719	**	0.663	**
more than 9 years	0.398	**	0.349	**
Calendar Year				
1984	3.123		5.232	**
1985	3.590	**	3.229	
1986	3.971	**	3.838	**
1987	2.777		2.328	
1988	3.279		2.693	
1989	2.360		2.841	
1990	2.142		2.279	
1991	2.503		2.733	
1992	2.402		1.650	**
1993	2.748		2.940	
1994	2.867		2.500	
1995	2.738		2.679	
1996	2.473		2.435	
1997	2.603		2.532	
1998	2.543		2.932	
1999	2.797		2.932	
2000	2.725		2.963	
2001	2.808		3.391	
2002	3.526	**	3.580	*
2003	3.821	**	3.940	**
Notes * Indicates significance at the 5% level.				
** Indicates significance at the 1% level.				

Figure 5 – Return Models: Duration Effects (Years Since Departure)

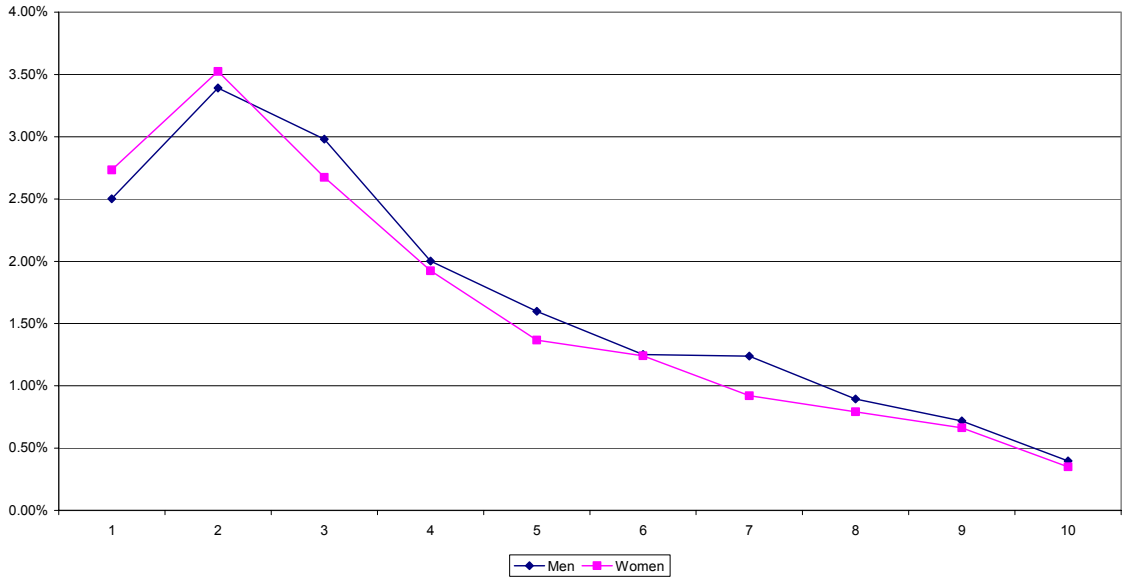


Figure 6 – Return Models: Calendar Year Effects

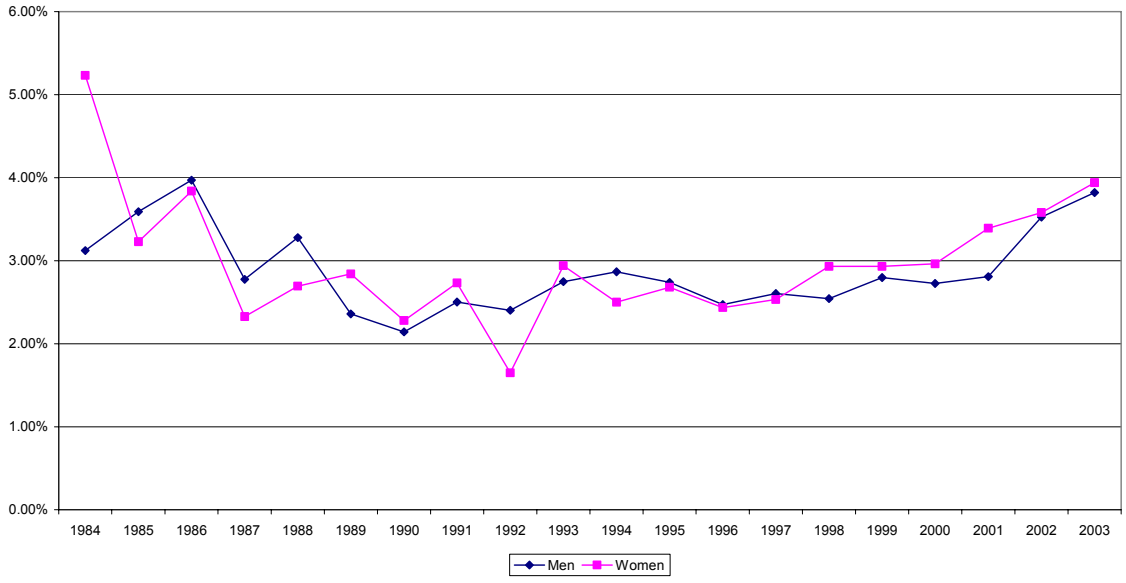


Table 5a - Return Models: Unemployment and Calendar Year Effects (Men)								
	I		**ii**		**iii**		**Iv**	
Baseline Rate (%)	2.503%	**	2.386%	**	2.412%	**	2.745%	**
Provincial Unemployment Rate								
8.7	2.503				2.412		2.745	
9.7	1.132				1.452	**	1.501	**
Canada - U.S. Unemployment Ratio								
1.2	2.503						2.745	
1.3	3.248						1.890	**
Calendar Year								
1984	3.123		2.728		2.936			
1985	3.590	**	3.345	**	3.422	**		
1986	3.971	**	3.899	**	3.826	**		
1987	2.777		2.908		2.753			
1988	3.279		3.751	**	3.336	**		
1989	2.360		2.730		2.412			
1990	2.142		2.410		2.168			
1991	2.503		2.386		2.412			
1992	2.402		2.100		2.252			
1993	2.748		2.440		2.624			
1994	2.867		2.753		2.816			
1995	2.738		2.845		2.747			
1996	2.473		2.573		2.505			
1997	2.603		2.855		2.712			
1998	2.543		2.988	*	2.708			
1999	2.797		3.397	**	3.008	*		
2000	2.725		3.447	**	2.930			
2001	2.808		3.393	**	2.919			
2002	3.526	**	3.945	**	3.522	**		
2003	3.821	**	4.263	**	3.783	**		

Notes * Indicates significance at the 5% level.
** Indicates significance at the 1% level.
The models also include the other variables indicated in the basic specification.

Table 5b - Return Models: Unemployment and Calendar Year Effects (Women)								
	I		**ii**		**iii**		**iv**	
Baseline Rate (%)	2.733%	**	2.602%	**	2.606%	**	2.794%	**
Provincial Unemployment Rate								
8.7	2.733				2.606		2.794	
9.7	1.311				1.808	*	1.129	**
Canada - U.S. Unemployment Ratio								
1.2	2.733						2.794	
1.3	3.823						2.697	
Calendar Year								
1984	5.232	**	4.536	**	4.823	**		
1985	3.229		2.948		3.032			
1986	3.838	**	3.711	**	3.656	**		
1987	2.328		2.399		2.301			
1988	2.693		2.960		2.755			
1989	2.841		3.221		2.924			
1990	2.279		2.508		2.316			
1991	2.733		2.602		2.606			
1992	1.650	**	1.440	**	1.517	**		
1993	2.940		2.636		2.769			
1994	2.500		2.393		2.442			
1995	2.679		2.723		2.690			
1996	2.435		2.502		2.477			
1997	2.532		2.770		2.670			
1998	2.932		3.381	**	3.182			
1999	2.932		3.515	**	3.223			
2000	2.963		3.681	**	3.256			
2001	3.391		3.963	**	3.568	**		
2002	3.580	*	3.885	**	3.576	**		
2003	3.940	**	4.244	**	3.891	**		

Notes * Indicates significance at the 5% level.
** Indicates significance at the 1% level.
The models also include the other variables indicated in the basic specification.

Table 6 - Return Models: Income Effects				
	Men		**Women**	
Baseline Rate (%)	3.146%	**	2.478%	**
Market Income ($)				
< 10,000	2.328	**	1.998	**
10,000 - 30,000	2.052	**	2.081	**
30,000 - 60,000	3.146		2.478	
60,000 - 100,000	4.026	**	3.134	
100,000 +	4.996	**	1.592	
Market Income ($) Interation with post 1990				
< 10,000	2.167		2.334	
10,000 - 30,000	3.131	**	2.461	
30,000 - 60,000	3.146		2.478	
60,000 - 100,000	4.027		2.802	
100,000 +	4.601		2.784	
Market Income ($) Interation with post 2000				
< 10,000	2.007		1.972	*
10,000 - 30,000	2.936	**	2.340	
30,000 - 60,000	3.146		2.478	
60,000 - 100,000	3.707		4.108	
100,000 +	4.243		2.447	
Calendar Year				
1984	3.976		4.860	**
1985	4.562	**	2.977	
1986	5.051	**	3.521	**
1987	3.532		2.125	
1988	4.168		2.448	
1989	2.988		2.577	
1990	2.707		2.067	
1991	3.146		2.478	
1992	2.934		1.515	**
1993	3.252		2.743	
1994	3.321		2.357	
1995	3.133		2.541	
1996	2.806		2.316	
1997	2.942		2.416	
1998	2.861		2.804	
1999	3.135		2.806	
2000	3.049		2.838	
2001	3.122		3.160	
2002	3.891		3.242	*
2003	4.191	*	3.507	**

Notes
* Indicates significance at the 5% level.
** Indicates significance at the 1% level.
The models also include the other variables indicated in the basic specification.

Table A1 - Leaving Models: Full Logit Models						
	Men			**Women**		
Total Observations	37,124,845			37,267,060		
Stayers	37,092,445			37,237,565		
Leavers	32,395			29,495		
Variable	Estimate		StdErr	Estimate		StdErr
Intercept	-7.334	**	(0.049)	-7.049	**	(0.051)
Age Category						
18-24	-0.086	**	(0.024)	0.240	**	(0.022)
25-34	0.507	**	(0.015)	0.589	**	(0.015)
35-44						
45-54	-0.261	**	(0.018)	-0.255	**	(0.021)
55-64	-0.612	**	(0.024)	-0.705	**	(0.029)
65- +	-1.254	**	(0.032)	-1.445	**	(0.034)
Area Size of Residence						
0 - 14,999	-0.721	**	(0.020)	-0.687	**	(0.020)
15,000 - 99,999	-0.482	**	(0.022)	-0.509	**	(0.023)
100,000 +						
Provincial Unemployment Rate	-0.055	**	(0.011)	-0.032	**	(0.012)
Canada - U.S. Unemployment Ratio	0.303	**	(0.066)	0.173	**	(0.072)
Employment Insurance						
None						
Some	-0.538	**	(0.021)	-0.322	**	(0.019)
Family Status						
Couple & Kids						
Couple No Kids	-0.965	**	(0.037)	-0.909	**	(0.042)
Single & Kids	0.293	**	(0.014)	-0.004		(0.014)
Single No Kids	0.157	**	(0.022)	0.239	**	(0.021)
Minority Language						
English in Quebec	1.385	**	(0.029)	1.406	**	(0.031)
French outside Quebec	0.243	**	(0.061)	0.167	**	(0.066)
Majority language						
Market Income ($) in year prior to Departure						
< 10,000	-0.015		(0.019)	-0.394	**	(0.016)
10,000 - 30,000	-0.0041		(0.017)	-0.249	**	(0.016)
30,000 - 60,000						
60,000 - 100,000	0.745	**	(0.017)	0.474	**	(0.025)
100,000 +	1.771	**	(0.019)	1.059	**	(0.042)

… Table A1 (cont.)						
	Men			Women		
Province/Region						
Ontario						
Atlantic	-0.370	**	(0.042)	-0.329	**	(0.043)
British-Columbia	0.359	**	(0.017)	0.393	**	(0.018)
Prairies	0.112	**	(0.016)	0.111	**	(0.017)
Quebec	-0.933	**	(0.028)	-0.987	**	(0.029)
Years Since Immigration						
0	2.313	**	(0.118)	2.183	**	(0.126)
1 to 3	2.511	**	(0.028)	2.198	**	(0.032)
4 to 6	2.618	**	(0.021)	2.348	**	(0.024)
7 to 9	1.923	**	(0.028)	1.737	**	(0.030)
10 to 12	1.557	**	(0.035)	1.326	**	(0.040)
13 to 15	1.238	**	(0.047)	1.047	**	(0.053)
16 +	0.827	**	(0.053)	0.865	**	(0.055)
Year of Departure						
1983	0.501	**	(0.060)	0.511	**	(0.065)
1984	0.590	**	(0.063)	0.514	**	(0.069)
1985	0.191	**	(0.051)	0.218	**	(0.055)
1986	0.060		(0.049)	0.202	**	(0.051)
1987	-0.477	**	(0.053)	-0.254	**	(0.054)
1988	-0.244	**	(0.045)	-0.002		(0.046)
1989	-0.170	**	(0.042)	-0.085		(0.045)
1990	-0.269	**	(0.043)	-0.105	**	(0.045)
1991						
1992	0.154	**	(0.043)	0.254	**	(0.046)
1993	0.210	**	(0.048)	0.254	**	(0.051)
1994	0.355	**	(0.044)	0.286	**	(0.048)
1995	0.363	**	(0.039)	0.285	**	(0.043)
1996	0.457	**	(0.036)	0.440	**	(0.039)
1997	0.436	**	(0.036)	0.473	**	(0.039)
1998	0.316	**	(0.038)	0.362	**	(0.041)
1999	0.314	**	(0.040)	0.362	**	(0.044)
2000	0.351	**	(0.041)	0.369	**	(0.045)
2001	0.120	**	(0.042)	0.265	**	(0.046)
2002	-0.079	*	(0.039)	0.125	**	(0.041)
2003	0.048		(0.038)	0.261	**	(0.039)

*** Significant at the 95% level**

**** Significant at the 99line Rate**

Table A2a - Leaving Models With Income Interaction: Full Logit Models						
	Men			**Women**		
Total Observations	37,124,845			37,267,060		
Stayers	37,092,445			37,237,565		
Leavers	32,395			29,495		
Variable	Estimate		StdErr	Estimate		StdErr
Intercept	-7.481	**	(0.071)	-7.232	**	(0.067)
Age Category						
18-24	-0.094	**	(0.024)	0.237	**	(0.022)
25-34	0.509	**	(0.015)	0.590	**	(0.015)
35-44						
45-54	-0.264	**	(0.018)	-0.256	**	(0.021)
55-64	-0.612	**	(0.024)	-0.705	**	(0.029)
65- +	-1.257	**	(0.032)	-1.448	**	(0.034)
Area Size of Residence						
0 - 14,999	-0.722	**	(0.020)	-0.685	**	(0.020)
15,000 - 99,999	-0.483	**	(0.022)	-0.508	**	(0.023)
100,000 +						
Provincial Unemployment Rate	-0.054	**	(0.011)	-0.031	**	(0.012)
Canada - U.S. Unemployment Ratio	0.291	**	(0.066)	0.162	**	(0.072)
Employment Insurance Receipts						
None						
Some	-0.535	**	(0.021)	-0.321	**	(0.019)
Family Status						
Couple & Kids						
Couple No Kids	-0.965	**	(0.037)	-0.909	**	(0.042)
Single & Kids	0.293	**	(0.014)	-0.002		(0.014)
Single No Kids	0.157	**	(0.022)	0.240	**	(0.021)
Minority Language						
English in Quebec	1.385	**	(0.029)	1.406	**	(0.031)
French outside Quebec	0.244	**	(0.061)	0.169	**	(0.066)
Majority language						

… Table A2a (cont.)						
	Men			**Women**		
Market Income ($) in year prior to Departure						
< 10,000	0.030		(0.039)	-0.444	**	(0.031)
10,000 - 30,000	0.088	**	(0.032)	-0.198	**	(0.029)
30,000 - 60,000						
60,000 - 100,000	0.705	**	(0.032)	0.302	**	(0.057)
100,000 +	1.691	**	(0.038)	0.686	**	(0.119)
Market Income ($) Interaction with post 1990						
< 10,000	-0.152	**	(0.045)	-0.002		(0.037)
10,000 - 30,000	-0.162	**	(0.040)	-0.067	*	(0.037)
30,000 - 60,000						
60,000 - 100,000	0.102	**	(0.039)	0.221	**	(0.066)
100,000 +	0.182	**	(0.045)	0.406	**	(0.133)
Market Income ($) Interaction with post 2000						
< 10,000	0.152		(0.051)	0.201		(0.043)
10,000 - 30,000	-0.035		(0.047)	-0.082		(0.044)
30,000 - 60,000						
60,000 - 100,000	-0.048		(0.048)	0.210	**	(0.073)
100,000 +	-0.036		(0.053)	0.491	**	(0.137)
Province/Region						
Ontario						
Atlantic	-0.365	**	(0.042)	-0.323	**	(0.043)
British-Columbia	0.357	**	(0.017)	0.394	**	(0.018)
Prairies	0.112	**	(0.016)	0.111	**	(0.017)
Quebec	-0.930	**	(0.028)	-0.983	**	(0.029)

… Table A2a (cont.)						
	Men			**Women**		
Years Since Immigration						
0	2.329	**	(0.118)	2.180	**	(0.126)
1 to 3	2.520	**	(0.028)	2.198	**	(0.032)
4 to 6	2.629	**	(0.022)	2.348	**	(0.024)
7 to 9	1.924	**	(0.028)	1.738	**	(0.030)
10 to 12	1.554	**	(0.035)	1.327	**	(0.040)
13 to 15	1.235	**	(0.047)	1.050	**	(0.053)
16 +	0.835	**	(0.053)	0.870	**	(0.055)
Years of Departure						
1983	0.648	**	(0.069)	0.501	**	(0.069)
1984	0.733	**	(0.072)	0.503	**	(0.073)
1985	0.337	**	(0.062)	0.211	**	(0.059)
1986	0.205	**	(0.059)	0.196	**	(0.056)
1987	-0.333	**	(0.063)	-0.260	**	(0.058)
1988	-0.098		(0.056)	-0.006		(0.051)
1989	-0.022		(0.054)	-0.088		(0.050)
1990	-0.121	*	(0.054)	-0.106	*	(0.050)
1991						
1992	0.158	**	(0.043)	0.253	**	(0.046)
1993	0.217	**	(0.048)	0.254	**	(0.051)
1994	0.367	**	(0.044)	0.287	**	(0.048)
1995	0.375	**	(0.039)	0.287	**	(0.043)
1996	0.471	**	(0.036)	0.443	**	(0.039)
1997	0.450	**	(0.036)	0.477	**	(0.039)
1998	0.329	**	(0.038)	0.368	**	(0.041)
1999	0.326	**	(0.040)	0.367	**	(0.044)
2000	0.638	**	(0.050)	0.508	**	(0.050)
2001	0.411	**	(0.050)	0.404	**	(0.050)
2002	0.211	**	(0.048)	0.264	**	(0.046)
2003	0.333	**	(0.046)	0.394	**	(0.044)
*** Significant at the 95% level**						
**** Significant at the 99% level**						

Table A2b - Leaving Models With Alternative Calendar Year interactions: Full Logit Models

	Men			Women		
Total Observations	37,124,845			37,267,060		
Stayers	37,092,445			37,237,565		
Leavers	32395			29,495		
Variable	Estimate		StdErr	Estimate		StdErr
Intercept	-7.568	**	(0.070)	-7.495	**	(0.066)
Age Category						
18-24	-0.180	**	(0.024)	-0.088	**	(0.022)
25-34	0.394	**	(0.015)	0.451	**	(0.015)
35-44						
45-54	-0.554	**	(0.018)	-0.759	**	(0.021)
55-64	-1.136	**	(0.025)	-1.417	**	(0.030)
65- +	-1.684	**	(0.033)	-2.127	**	(0.035)
Area Size of Residence						
000-14,000	-0.674	**	(0.020)	-0.613	**	(0.020)
015-99,000	-0.457	**	(0.022)	-0.458	**	(0.023)
100,000 +						
Provincial Unemployment Rate						
	-0.056	**	(0.011)	-0.042	**	(0.011)
Unemployment Ratio						
	0.299	**	(0.065)	0.227	**	(0.070)
Unemployment Insurance Receipts						
None						
Some	-0.538	**	(0.021)	-0.256	**	(0.019)
Family Status						
Couple & Kids						
Couple No Kids	0.657	**	(0.015)	1.038	**	(0.017)
Single & Kids	-0.211	**	(0.045)	-0.458	**	(0.030)
Single No Kids	0.658	**	(0.015)	0.934	**	(0.017)
Minority Language						
English in Quebec	1.382	**	(0.029)	1.391	**	(0.031)
French outside Q	0.232	**	(0.061)	0.114		(0.066)
Majority languag						

… Table A2b (cont.)						
	Men			**Women**		
Market Income in year prior to Departure						
< 10,000	0.086	*	(0.041)	-0.031		(0.033)
10,000 – 30,000	0.088	**	(0.034)	-0.072	*	(0.032)
30,000 – 60,000						
60,000 - 100,000	0.703	**	(0.034)	0.253	**	(0.062)
100,000 - +	1.684	**	(0.041)	0.759	**	(0.133)
Market Income Interation with post 1990						
< 10,000	-0.243	**	(0.048)	-0.198	**	(0.040)
10,000 – 30,000	-0.181	**	(0.043)	-0.136	**	(0.040)
30,000 – 60,000						
60,000 - 100,000	0.127	**	(0.042)	0.210	**	(0.073)
100,000 - +	0.244	**	(0.049)	0.287		(0.151)
Market Income Interation with post 1996						
< 10,000	0.018		(0.048)	0.009		(0.041)
10,000 – 30,000	-0.094	*	(0.044)	-0.124	**	(0.041)
30,000 – 60,000						
60,000 - 100,000	0.004		(0.044)	0.320	**	(0.073)
100,000 - +	-0.010		(0.050)	0.460	**	(0.144)
Taxation Region						
Ontario						
Atlantic	-0.366	**	(0.042)	-0.343	**	(0.043)
British-Columbia	0.347	**	(0.017)	0.348	**	(0.018)
Prairies	0.118	**	(0.016)	0.107	**	(0.017)
Quebec	-0.926	**	(0.028)	-0.999	**	(0.029)

… Table A2b (cont.)						
	Men			Women		
Year since immigration						
0	2.284	**	(0.118)	1.971	**	(0.126)
1 to 3	2.525	**	(0.028)	2.142	**	(0.032)
4 to 6	2.665	**	(0.021)	2.374	**	(0.024)
7 to 9	1.969	**	(0.028)	1.813	**	(0.030)
10 to 12	1.601	**	(0.035)	1.424	**	(0.040)
13 to 15	1.285	**	(0.047)	1.152	**	(0.053)
16 +	0.885	**	(0.053)	0.981	**	(0.055)
Year of Departure						
1983	0.784	**	(0.070)	0.701	**	(0.068)
1984	0.865	**	(0.073)	0.692	**	(0.072)
1985	0.465	**	(0.063)	0.386	**	(0.060)
1986	0.328	**	(0.061)	0.358	**	(0.056)
1987	-0.212	**	(0.064)	-0.106		(0.059)
1988	0.007		(0.058)	0.115	*	(0.052)
1989	0.072		(0.056)	0.024		(0.051)
1990	-0.273	**	(0.043)	-0.109	*	(0.045)
1991						
1992	0.161	**	(0.043)	0.268	**	(0.046)
1993	0.211	**	(0.048)	0.279	**	(0.051)
1994	0.358	**	(0.044)	0.303	**	(0.047)
1995	0.366	**	(0.039)	0.296	**	(0.042)
1996	0.459	**	(0.036)	0.440	**	(0.039)
1997	0.436	**	(0.036)	0.469	**	(0.039)
1998	0.553	**	(0.046)	0.471	**	(0.045)
1999	0.555	**	(0.048)	0.464	**	(0.048)
2000	0.595	**	(0.049)	0.464	**	(0.049)
2001	0.365	**	(0.050)	0.369	**	(0.049)
2002	0.166	**	(0.047)	0.246	**	(0.046)
2003	0.290	**	(0.046)	0.382	**	(0.044)

*** Significant at the 95% level**
**** Significant at the 99% level**

Table A3 - Return Models: Full Logit Models						
	Men			Women		
Total Observations	227,045			214,450		
Stayers	221,525			210,110		
Leavers	5,520			4,340		
Variable	Estimate		StdErr	Estimate		StdErr
Intercept	-3.219	**	(0.190)	-3.253	**	(0.204)
Age Category						
18-24	0.363	**	(0.060)	0.334	**	(0.055)
25-34	0.262	**	(0.036)	0.216	**	(0.041)
35-44						
45-54	0.057		(0.044)	-0.004		(0.059)
55-64	0.094		(0.061)	-0.100		(0.088)
65- +	-0.455	**	(0.116)	-0.390	**	(0.127)
Area Size of Residence						
0 - 14,999	0.139	**	(0.045)	0.109	*	(0.050)
15,000 - 99,999	0.089		(0.050)	0.150	**	(0.055)
100,000 +						
Provincial Unemployment Rate						
	-0.081		(0.048)	-0.075		(0.050)
Canada - U.S. Unemployment Ratio						
	0.174		(0.269)	0.224		(0.278)
Employment Insurance Receipts						
None						
Some	0.008		(0.051)	0.040		(0.048)
Family Status						
Couple & Kids						
Couple No Kids	0.070		(0.098)	0.131		(0.123)
Single & Kids	-0.155	**	(0.034)	-0.076	*	(0.036)
Single No Kids	-0.026		(0.057)	0.083	+	(0.053)

… Tables A3 (cont.)						
	Men			Women		
Minority Language						
English in Quebec	-0.343	**	(0.073)	-0.329	**	(0.085)
French outside Q	0.379	**	(0.132)	0.116		(0.165)
Majority languag						
Market Income ($) in year prior to Departure						
< 10,000	-0.363	**	(0.051)	-0.134	**	(0.042)
10,000 – 30,000	-0.144	**	(0.043)	-0.074		(0.041)
30,000 – 60,000						
60,000 - 100,000	0.237	**	(0.040)	0.208	**	(0.062)
100,000 +	0.391	**	(0.045)	-0.005		(0.121)
Province/Region						
Ontario						
Atlantic	0.403	**	(0.100)	0.288	**	(0.109)
British-Columbia	0.128	**	(0.048)	0.096		(0.052)
Prairies	0.243	**	(0.039)	0.232	**	(0.044)
Quebec	0.486	**	(0.069)	0.393	**	(0.077)
Years Since Immigration						
0	-0.738	*	(0.350)	-0.303		(0.357)
1 to 3	-1.016	**	(0.093)	-0.817	**	(0.111)
4 to 6	-0.791	**	(0.072)	-0.879	**	(0.090)
7 to 9	-0.710	**	(0.099)	-0.517	**	(0.107)
10 to 12	-0.555	**	(0.123)	-0.608	**	(0.147)
13 to 15	-0.610	**	(0.165)	-0.701	**	(0.212)
16 +	-0.486	**	(0.188)	-0.660	**	(0.241)

… Table A3 (cont.)

	Men			Women		
Duration Term						
1						
2	0.304	**	(0.043)	0.254	**	(0.047)
3	0.175	**	(0.046)	-0.022		(0.052)
4	-0.223	**	(0.053)	-0.351	**	(0.059)
5	-0.448	**	(0.060)	-0.692	**	(0.068)
6	-0.693	**	(0.068)	-0.789	**	(0.074)
7	-0.703	**	(0.072)	-1.089	**	(0.088)
8	-1.029	**	(0.087)	-1.239	**	(0.099)
9	-1.247	**	(0.101)	-1.416	**	(0.113)
9 et +	-1.838	**	(0.066)	-2.058	**	(0.073)
Year of Departure						
1984	0.221		(0.191)	0.649	**	(0.172)
1985	0.361	**	(0.131)	0.167		(0.146)
1986	0.462	**	(0.115)	0.340	**	(0.126)
1987	0.104		(0.128)	-0.161		(0.144)
1988	0.270		(0.145)	-0.015		(0.159)
1989	-0.059		(0.156)	0.039		(0.162)
1990	-0.156		(0.146)	-0.182		(0.155)
1991						
1992	-0.041		(0.126)	-0.505	**	(0.151)
1993	0.094		(0.114)	0.073		(0.122)
1994	0.136		(0.111)	-0.089		(0.123)
1995	0.090		(0.122)	-0.020		(0.132)
1996	-0.012		(0.130)	-0.115		(0.140)
1997	0.039		(0.158)	-0.076		(0.168)
1998	0.016		(0.186)	0.070		(0.195)
1999	0.111		(0.199)	0.070		(0.210)
2000	0.085		(0.201)	0.081		(0.212)
2001	0.115		(0.159)	0.216		(0.168)
2002	0.343	**	(0.116)	0.270	*	(0.125)
2003	0.423	**	(0.110)	0.366	**	(0.119)

*** Significant at the 95% level**

**** Significant at the 99line Rate**

Table A4 - Return Models With Income Interaction: Full Logit Models						
	Men			Women		
Total Observations	227,045			214,450		
Stayers	221,525			210,110		
Leavers	5,520			4,340		
Variable	Estimate		StdErr	Estimate		StdErr
Intercept	-2.999	**	(0.243)	-3.350	**	(0.248)
Age Category						
18-24	0.375	**	(0.060)	0.335	**	(0.055)
25-34	0.263	**	(0.036)	0.214	**	(0.041)
35-44						
45-54	0.058		(0.044)	-0.002		(0.059)
55-64	0.095		(0.061)	-0.102		(0.088)
65- +	-0.454	**	(0.116)	-0.391	**	(0.127)
Area Size of Residence						
0 - 14,999	0.137	**	(0.045)	0.110	*	(0.050)
15,000 - 99,999	0.088		(0.050)	0.150	**	(0.055)
100,000 +						
Provincial Unemployment Rate						
	-0.079		(0.048)	-0.075		(0.050)
Canada - U.S. Unemployment Ratio						
	0.168		(0.269)	0.223		(0.278)
Employment Insurance Receipts						
None						
Some	0.021		(0.051)	0.042		(0.048)
Family Status						
Couple & Kids						
Couple No Kids	0.069		(0.098)	0.132		(0.123)
Single & Kids	-0.156	**	(0.034)	-0.082	*	(0.036)
Single No Kids	-0.033		(0.057)	0.077		(0.053)
Minority Language						
English in Quebec	-0.343	**	(0.073)	-0.327	**	(0.085)
French outside Quebec	0.391	**	(0.132)	0.120		(0.165)
Majority language						

… Table A4 (cont.)						
	Men			Women		
Market Income ($) in year prior to Departure						
< 10,000	-0.301	**	(0.072)	-0.215	**	(0.065)
10,000 - 30,000	-0.427	**	(0.076)	-0.175	**	(0.067)
30,000 - 60,000						
60,000 - 100,000	0.247	**	(0.065)	0.235		(0.120)
100,000 +	0.463	**	(0.075)	-0.443		(0.347)
Market Income ($) Interation with post 1990						
< 10,000	-0.072		(0.076)	0.155		(0.076)
10,000 - 30,000	0.423	**	(0.093)	0.168		(0.086)
30,000 - 60,000						
60,000 - 100,000	0.000		(0.083)	-0.112		(0.146)
100,000 +	-0.082		(0.093)	0.559		(0.377)
Market Income ($) Interation with post 2000						
< 10,000	-0.148		(0.121)	-0.013		(0.119)
10,000 - 30,000	0.358	**	(0.147)	0.117		(0.138)
30,000 - 60,000						
60,000 - 100,000	-0.083		(0.140)	0.271		(0.191)
100,000 +	-0.163		(0.147)	0.430		(0.432)
Province/Region						
Ontario						
Atlantic	0.398	**	(0.100)	-0.323	**	(0.043)
British-Columbia	0.127	**	(0.048)	0.394		(0.018)
Prairies	0.244	**	(0.039)	0.111	**	(0.017)
Quebec	0.482	**	(0.069)	-0.983	**	(0.029)

… Table A4 (cont.)						
	Men			**Women**		
Years Since Immigration						
0	-0.734	*	(0.350)	-0.287		(0.357)
1 to 3	-1.024	**	(0.093)	-0.814	**	(0.111)
4 to 6	-0.800	**	(0.072)	-0.882	**	(0.090)
7 to 9	-0.710	**	(0.099)	-0.518	**	(0.107)
10 to 12	-0.558	**	(0.123)	-0.602	**	(0.147)
13 to 15	-0.607	**	(0.165)	-0.703	**	(0.212)
16 +	-0.473	**	(0.188)	-0.683	**	(0.241)
Duration Term						
1						
2	0.310	**	(0.043)	0.265	**	(0.047)
3	0.188	**	(0.047)	0.000		(0.053)
4	-0.202	**	(0.056)	-0.315	**	(0.061)
5	-0.422	**	(0.062)	-0.657	**	(0.070)
6	-0.660	**	(0.071)	-0.754	**	(0.076)
7	-0.662	**	(0.076)	-1.057	**	(0.090)
8	-0.977	**	(0.091)	-1.213	**	(0.102)
9	-1.181	**	(0.106)	-1.396	**	(0.115)
9 et +	-1.712	**	(0.084)	-2.055	**	(0.084)
Year of Departure						
1984	0.234		(0.191)	0.673	**	(0.172)
1985	0.372	**	(0.131)	0.183		(0.146)
1986	0.473	**	(0.115)	0.351	**	(0.127)
1987	0.116		(0.128)	-0.154		(0.144)
1988	0.281		(0.145)	-0.012		(0.159)
1989	-0.051		(0.156)	0.039		(0.162)
1990	-0.150		(0.146)	-0.182		(0.155)
1991						
1992	-0.070		(0.127)	-0.492	**	(0.151)
1993	0.033		(0.117)	0.102		(0.123)
1994	0.054		(0.116)	-0.050		(0.126)
1995	-0.004		(0.129)	0.025		(0.136)
1996	-0.114		(0.137)	-0.068		(0.144)
1997	-0.067		(0.165)	-0.025		(0.172)
1998	-0.095		(0.192)	0.123		(0.199)
1999	-0.003		(0.206)	0.124		(0.214)
2000	-0.031		(0.208)	0.135		(0.217)
2001	-0.008		(0.168)	0.243		(0.173)
2002	0.213		(0.130)	0.269	*	(0.133)
2003	0.287	**	(0.127)	0.347	**	(0.130)
*** Significant at the 95% level**						
**** Significant at the 99% level**						

Figure A1 – Leaving Models: Calendar Year Effects with Immigrant-Year Interactions