

**Transmigration from Canada to the United States:
How Many “Foreigners” are Leaving the Country?**

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Abstract

The migration of highly skilled and well-educated Canadians to the United States since the early 1990s has been the topic of lengthy media discussion in Canada in the past few years. Significantly less scholarly analysis has been devoted to the topic, due in part to the lack of pertinent data for studying various important issues of this migration. One of these issues has been the transmigration of individuals from third countries who reside and work in Canada for a period of time before migrating to the United States. The policy implications of this type of migration are quite different than those associated with migration of Canadian-born (and presumably Canadian-educated) individuals. Using INS microdata from 1972 through 2000, we find that transmigration has generally decreased over this period. We also find that the numbers of temporary admissions to the U.S. have also increased and so too have the number of adjustments of status applications to permanent residency, which might result in an underestimation of actual permanent transmigration. Still, it appears that changes in transmigration are due almost entirely to changes in U.S. immigration policies. The recent economic slowdown in the U.S., coupled with renewed employment opportunities north of the border, will likely mitigate some of this in the future.

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Transmigration from Canada to the United States: How Many “Foreigners” are Leaving the Country?

Background

The so-called “brain drain” from Canada to the United States attracted a lot of attention from the Canadian media, policy makers, and the public-at-large in the late 1990s.¹ Some observers (DeVoretz and Laryea, 1998) argued that a large number of Canadians immigrated to the United States during this period, largely due to the increased ease of entry to the U.S. in the post-free trade era. In addition, recent evidence (Frank and Bélair, 1999; Zhao, et al., 2000) has shown that these individuals have been amongst the country’s best and brightest, and its highest income earners. Schwanen (2000) also noted this and added that the southward flow is especially worrisome because it includes knowledge workers in the sciences and engineering; individuals that are needed in Canada to spur productivity and incomes in the new information economy. Mueller (1999, 2000, 2002) has argued that qualitative improvements (in terms of education and earnings) in Canadian migrants to the United States began as early as the 1980s, owing to the relative spread of the distribution of earnings in the United States and the related increase in returns to education. Much of this research has focused on domestic Canadian policies and economic performance, particularly relative marginal income tax rates and employment growth in key sectors, which have provided the impetus for migration south.

Others have noted that the loss of talent to the United States may not be problematic. Zhao, et al. (2000) showed that permanent migration to the United States in the 1990s as a percentage of the Canadian population is at a historic low. They also find that temporary migration, although ostensibly increasing during the decade, is hard to measure accurately. Furthermore, Canada still attracts a large number of highly educated individuals from third countries, more than offsetting the migration of educated Canadians. In a similar vein, Helliwell (1999) argued that the historically low migration in the 1990s was surprising given the high income and unemployment rate differentials between the countries, both of which favoured higher migration to the U.S., especially amongst highly skilled individuals.² Globerman (1999) observed an increase in temporary migration, but said that this could be beneficial to the Canadian economy since it fosters economic integration with the U.S., and because individuals who return will do so with knowledge and experience that could benefit the country. Finally, Mueller (2001) showed that changes in Canadian permanent and temporary migration patterns to the United States do not differ markedly from those of other G-7 countries over the 1990s. The implication is that if Canada has been experiencing a brain drain, then so too have these other countries, pointing to the importance of U.S. immigration policies and economic conditions rather than the domestic policies of these other countries.

Canada is also a nation of immigrants and recent Canadian immigration policy has been biased in favour of highly educated and skilled immigrants. While this has arguably had a favourable impact on the Canadian economy, it may also be these individuals who are most likely to remigrate, thus mitigating some of this positive economic impact. The number of these individuals who choose to remigrate to the United States, however, is not known. Some evidence suggests that this number could be sizeable. For example, Rao (2001) interviewed a number of Asian immigrants in Ottawa’s information technology sector. He found that upwards of 50 per cent of these workers said they were thinking of moving to the U.S. Although the author points to the fact that the sample size is small, and that many of these workers had overly optimistic information about the U.S. (e.g., regarding low taxes and real cost of living)³, the results are still indicative of, at the very least, the potential for transmigration. Other evidence, however, suggests that immigrants to Canada do come with the intention of remaining in the country. Statistics Canada (2003) for example, interviewed some 12,000 immigrants in 2001 and 2002, about six months after arrival in Canada. Of these, 98 per cent said that Canada was the only country to which they applied to emigrate, and 91 per cent expressed their intention to remain in Canada permanently.⁴

Foreigners in Canada who ultimately move to the United States provide an interesting group to study for three main reasons: First, migrants may view Canada and the United States as being similar; at the very

least they are likely to view the two countries as being more similar than native Canadians. Second, foreigners may not have developed a strong attachment to the country, thus removing one of the primary obstacles to migration to the United States. In other words, compared to native-born Canadians, transmigrants, in essence, provide us with a cleaner picture of migration between the two countries compared to the Canadian-born who are likely better aware of the differences between the two countries and have deeper roots in the country. Thirdly, given declining birth rates in Canada, immigrants to Canada are providing an increasing share of labour force growth.⁵ Thus, if Canada is losing an increasing proportion of its recent immigrants to the United States, this could potentially result in labour supply problems that had not been planned for in the federal government's annual immigration targets. Since Canada's immigration program is costly to operate, quantifying the extent of transmigration through Canada would seem to be an important first step in designing more efficient immigration policies.

We find that patterns of transmigration appear to be similar regardless of the geographical source region of migrants, sex, age, or professional and managerial occupational status. These patterns suggest that U.S. immigration policy exerts a stronger influence on migration flows through Canada than Canadian economic conditions or policy. The exception to this is the increase in transmigration of various types of professionals in the 1990s whose migration coincided with cutbacks in funding to education and medicine at the provincial level, as well as the boom in the information technology sector in the U.S.

Research Questions and Data

The research questions to be addressed below are: (1) To what extent is migration from Canada to the United States due to the transmigration of individuals entering Canada from third countries before ultimately going to the United States? (2) Has transmigration, as a proportion of those being admitted to Canada, been changing (in particular, increasing) over time? (3) What is the composition of these individuals in terms of their source regions and labour market characteristics? (4) What are the probable causes of any changes in the transmigration composition? (5) What will happen in the future?

There certainly has been a popular perception that many migrants, especially highly skilled individuals, coming to Canada are simply using the country as a temporary home before migrating to the United States. And there are firm theoretical reasons to believe that transmigration may have in fact increased in the 1990s. First, the number of immigrants admitted to Canada increased during this decade. Following admittances which averaged fewer than 100,000 per year from 1983 through 1986, immigration has averaged over 200,000 persons per year since (CIC, 2003). Second, due to Canadian immigration law, many of these individuals admitted are highly skilled and well educated; the same types of individuals that are also in demand in the United States and thus more likely to be welcomed to that country. Third, the implementation of the U.S.-Canada Free Trade Agreement in 1989 made it easier for Canadian citizens to enter the United States.⁶ Similarly, changes to the U.S. Immigration Act in 1990 increased the number of temporary employment-based admissions and allowed for easier adjustment of status to permanent residency.⁷ Finally, the U.S. economy outperformed the Canadian economy in a number of areas throughout the first half of the decade, making the U.S. an increasingly attractive destination for individuals. The migration literature (e.g., Borjas, 1994; Liaw, 1990; Newbold, 1996) is quite clear on this. It suggests that individuals who migrate are not randomly drawn from the population but rather are self-selected based on age, education, potential returns, etc. Furthermore, it is these individuals that are more likely to onward migrate (i.e., transmigrate) than return to their place of origin.⁸ Recently, HRDC/IC (1999) noted that as many as 30 per cent of skilled workers (i.e., managers and professionals) who permanently migrated to the U.S. from Canada in 1997 had previously immigrated to Canada, thus further exacerbating the net loss of talent to the U.S.

The changes mentioned above unambiguously suggest that transmigration should have increased in the 1990s. Furthermore, the flow of highly skilled, foreign-born individuals should also have increased. These are the propositions that will be examined in this research. This will be done by a series of cross-tabulations on annual cross-sectional data. The United States Immigration and Naturalization Service (INS) collects data on all individuals admitted on a permanent basis in each year.⁹ Permanent residency status in the U.S. grants recipients what is commonly known as a "green card," and is the first step towards becoming a U.S. citizen.

These INS microdata sets include information on each individual's country of birth and country of last permanent residence, as well as information on age, sex and occupation. These annual data are available for each year from 1972 through 2000. These data will allow an analysis of transmigration through Canada by foreign-born individuals and can be further disaggregated by country of birth, age, gender, occupation, etc. A second source of data is from Citizenship and Immigration Canada (CIC, various years).¹⁰ These data are generally comparable to INS data.¹¹ By coupling this information with Canadian migration data, the results should give a better understanding of which groups might be most likely to remigrate after entering Canada.

We will focus on permanent immigration to the United States for a number of reasons: (1) the data are much more reliable as we are able to differentiate between country of last permanent residence (i.e., Canada) and country of birth. This is not possible using INS data on temporary migration;¹² (2) permanent residency is a signal of intention to reside permanently in the United States and is in fact a prerequisite to citizenship in that country; (3) permanent residency status eases entry into the United States by minimizing the red tape necessary with temporary residency visas; and (4) there are generally limits on the number of temporary visas issued, limits on the duration of stay,¹³ and visas tend to be employer-specific which limits movement between jobs. Thus, obtaining permanent residency status, while time consuming and often a costly procedure, does offer a number advantages over temporary residency, especially if an individual's intention is to remain in the U.S.

Data Problems and Limitations

We should note that the INS data contain a number of problems, but these can easily be corrected without introducing bias into the data. First, the data for 1979 contain only about 85 per cent of the actual number of individuals admitted in that fiscal year. Second, for the fiscal years 1980 through 1983, a number of variables on various observations are missing. According to Greenwood and McDowell (1999), between 4.1 per cent and 25.0 per cent of the records contain missing data on key variables such as occupation, gender, and country of last permanent residence. Still, after careful examination, the authors conclude that, at least at the aggregate level, bias is not introduced into the data as a result of these missing or incomplete records.

Another potential problem is the fact that occupation is self reported amongst permanent immigrants. An occupation is often not reported for many migrants (Greenwood and McDowell, 1999), but when it is included it would be recorded as the occupation held in the country of last permanent residence or the occupation held in the United States in the case of immigrants who adjust their status once in the United States. We have no reason to believe that the underreporting of occupation would be any more prevalent amongst individuals from any source region.

We also note that these data do not include individuals granted permanent residency status under the terms of the 1986 Immigration Reform and Control Act (IRCA). This law granted permanent resident status to individuals who were in the U.S. illegally, most originating in Mexico and other Latin American countries. Few of these individuals likely had Canada as their country of last permanent residence before moving to the United States. We will assume that the effects of IRCA do not introduce any bias into our results.

Of greater potential consequence is that increasing numbers of individuals are adjusting status while in the U.S. This has increased the number of cases pending (i.e., permanent residency has been applied for but not adjudicated) since 1994. Before 1994, about 120,000 cases were pending adjustment of status decisions. This number had increased to about one million by the end of FY 2000.¹⁴ This number of backlog cases could obviously result in the underestimation of the actual number of legal permanent immigrants, especially since employment-based preferences have historically had one of the highest percentages of adjustment of status applications (and this is likely how many skilled transmigrants would enter the U.S.). However, pending cases also include refugees and asylees (all of whom adjust status while in the U.S.) as well as other groups (e.g., spouses of U.S. citizens), and this could mitigate some or all of this underestimation. Unfortunately, little can be done about this problem. Still, readers should keep it in mind.

Finally, only individuals with Canada as the country of last permanent residence are included. This is a limitation in the data since it precludes us from addressing migration through third countries before entry into the U.S. Thus, we implicitly assume that individuals migrate from their country of birth and reside in Canada on a permanent basis for a period of time before being granted permanent residency status in the United States.

Our final sample size is 157,649 individuals. Of these 80,094 are male, and the remaining 77,555 are female.

Results

Has the Magnitude of Transmigration Changed?

Figures 1 and 2 show the numbers of foreign-born individuals who have received permanent residency in the United States and have claimed Canada as their country of last permanent residence.¹⁵ We have also aggregated countries of birth into regions, consistent with CIC definitions.

For both males and females, the trends for transmigration are similar throughout the 1972 to 2000 period: fewer foreign-born migrants from Canada in the 1980s, compared to both the 1970s and 1990s. Regarding changes in source regions, the only real discernible trend is the general decline in European migration from Canada and the general increase amongst Asian-born individuals; not surprising given the change in source countries amongst Canadian immigrants over this period (Bloom and Gunderson, 1991; Baker and Benjamin, 1994). In other words, this result is simply due to a larger (smaller) pool of Asian-born (European-born) in Canada. With this exception, there do not appear to be any dramatic differences in the trends by source region.

How do Transmigrant Flows Compare to Related Migration Flows?

The year-to-year trends shown here are comparable with the total immigration to the United States (from all source regions included) over this period, and the total number of Canadian-born who migrated to the U.S. This is shown in Figure 3 with the year 1972 indexed to 100 for each data series. However, the increase in the number of Canadian-born has been less dramatic over this 28-year period compared to total immigration, although it has been increasing again in the 1990s. The numbers of foreign-born also have been decreasing relative to the base year of 1972, although here too we see an increase in the early 1990s relative to levels in the 1980s.

Next we look at the number of foreign-born individuals who migrated to the United States, relative to the number of Canadian-born, both of whom claimed Canada as the country of last permanent residence. Figure 4 shows the ratio of foreign-born migrants to Canadian migrants. In the early 1970s, about 0.85 foreign-born males left the country for every Canadian-born male who did likewise. For females, the ratio is approximately 0.6 at this time. For both sexes, however, this declines to slightly less than 0.4 in the late 1980s before increasing again to around 0.5 in 1998 and 1999. Given the increase in the foreign-born population over this period, this then implies that the Canadian-born were more likely to migrate to the United States than the foreign-born, and this has occurred at an increasing rate over the period of analysis. However, for our purposes, it is simply the number of individuals migrating through Canada on their way to the United States that is of importance. Still, it is interesting to note that the foreign-born were less likely to leave for the United States compared to their Canadian-born counterparts.

Another comparison is the number of foreign-born leaving Canada for the United States, versus the number entering Canada. Some recent research (e.g., Zhao, et al., 2000) has shown that the number of immigrants to Canada far exceeds the number of emigrants from Canada to the United States in all but a few occupations (e.g., medicine). Thus, in most occupations, Canada has experienced a net gain in talent from abroad. We compare the INS numbers on the number of transmigrants through Canada with data from CIC on the number of immigrants to Canada from the same source region. Unfortunately, in the CIC data the country of birth variable is only available since 1980. Thus, we have 21 years of data with which to

compare immigration and transmigration by source region. These comparisons are presented in Figures 5 and 6 for males and females, respectively. Both sexes show increases around the mid-1980s. This, however, is not entirely due to an increase in the numbers of transmigrants, but rather due to the low levels of immigration to Canada during the period following the Canadian recession of the early 1980s when immigration targets were greatly reduced.¹⁶ The early 1990s also witnessed a modest increase in the ratio of transmigrants to the United States from all source regions combined. During this period, however, this increase cannot be blamed on low levels of immigration to Canada; rather, it is the result of increased transmigration.¹⁷ This result is expected given the four-percentage point differential in unemployment rates between the two countries during this period. Still, this increase is surprisingly modest at the beginning of the 1990s and remains stable throughout the remainder of the decade. This aggregate, however, masks some differences in transmigration patterns: For both males and females, there were increases in the relative proportion of transmigrants from all regions during the 1990s, with the exception of Asia.

Has the Composition of Transmigration Changed?

We are not only interested in knowing the total number of immigrants to the U.S.; we are also interested in the composition of these individuals. In particular, in the context of the brain drain there has been much concern over the types of labour market characteristics that individual migrants possess.¹⁸ We now limit our focus to include only individuals who entered the United States between the ages of 25 and 54. For our purposes, this is the most important group since they are at the prime of their working lives and presumably contributing to the U.S. economy an amount equivalent to the loss incurred by the Canadian economy. Figures 7 and 8 summarize these data. Comparing these two figures with Figures 1 and 2, they display the same pattern. In other words, there does not appear to be a larger or smaller proportion of working-age individuals migrating to the United States compared to the total number of individuals migrating.

The INS data also contain detailed information on the occupations of permanent migrants. This coding has changed somewhat between years, making it difficult to construct a detailed time series. Still, we can aggregate at least some of these data. It is the loss of professionals to the U.S. that is of the most concern to Canadian policymakers, and since these are the easiest data with which to make comparisons, we aggregate various occupations into this classification.¹⁹ Figures 9 and 10 present the proportion of transmigrants from each region who are professionals. Although there is a definite downward trend over the 29-year period, for males there is an increase in the proportion of professionals admitted in the late 1970s, and for both sexes in the mid-1990s. For individual source regions, however, no discernable pattern is evident from these data.

Schwanen (2000) is concerned about the loss of scientists, engineers, and workers in high-tech industries. He argues that these workers are essential for economic growth, and that Canada's R & D spending which involves employment of these workers is considerably smaller than that in other OECD countries. Furthermore, the stock of these workers in Canada is proportionately less than in the United States and qualitatively (i.e., in terms of advanced degree holders in these fields) Canada also is behind the U.S. Part of this gap is made up by immigration of these workers into Canada, but there are still costs associated with this churning of skilled labour. Frank and Bélair (1999) show that among the graduating class of 1995, those who moved to the United States were more likely to have post-graduate degrees and were more likely to be in the fields of health, engineering and mathematical fields than those who remained in Canada. Furthermore, these same individuals were more likely to rate themselves at the top of their graduating class. Thus, it is worthwhile to address the issue of transmigration to see if the above results also apply to this group of professionals.

Figures 11 and 12 outline the number of transmigrants in various occupations.²⁰ The INS data is consistent in its classification of occupations since 1983, so we will use data beginning in this fiscal year. Zhao, et al. (2000) argued that the number of Canadians leaving for the United States in knowledge-based occupations such as engineering, education, natural sciences, etc. has been high, but that Canada still attracts enough immigrants from third countries which more than offsets the loss of Canadians. Still, the loss of foreigners in these key areas may mitigate some of the benefits of attracting new individuals to Canada. These data reflect what we already know about occupational distribution of skilled Canadians to the United States. For males, the largest group of professionals migrating through Canada is engineers, although there numbers

have been falling since 1992, with an up tick again in 2000 which is undoubtedly due to the record number of admittances in this fiscal year. The other group that has shown a dramatic increase is physicians, increasing from near zero in 1983 to over 100 in the mid-1990s before decreasing. For females, there has also been an increase in the numbers of individuals in the health professions, including physicians, although the largest increase came from nurses whose numbers increased to over 200 per year in 1993 and 1994 before falling again thereafter. This is hardly unexpected and is certainly related to provincial governments reducing spending in the early to mid-1990s, when the health and education sectors were hardest hit, and this is reflected, as least in part, in these migration figures. Similarly, the reduction in flows of these individuals in the latter part of the decade coincides with increased provincial spending in these areas.²¹

How are Temporary Migration Flows Related to Transmigration?

Finally, we wish to address the role of temporary migration. Lowell (2001) has shown that a sizeable proportion of individuals on temporary visas stay, apply for, and receive permanent residency in the United States. The Immigration Act of 1990 increased the number of permanent-resident slots available to all immigrants, including those temporarily residing in the United States. Individuals temporarily residing in the United States are able to adjust their immigration status to permanent residency without leaving the country. Since the 1990 Act was implemented in 1992, there has been a dramatic increase in the proportion of individuals adjusting status with the INS. According to Lowell (2001), there was an initial increase in the number of non-immigrant visa holders adjusting to permanent resident status that was partially due to an existing backlog, but also due to the 1995 implementation of Section 245(i) of the Immigration Act (which made it easier to adjust to permanent residence status while in the U.S.), coupled with the general increase in the number of temporary visas approved over this period. Figure 13 reflects this pattern in our data. It shows the proportion of permanent migration that is the result of adjustments of status has been steady increasing since the early 1990s. Furthermore, as mentioned above, these numbers are likely to be significantly higher given the backlog in adjustments between 1995 and 2000. In other words, it is probable that a larger number of migrants from third countries are entering the United States via Canada.

Discussion and Conclusions

What Factors are Responsible for these Transmigration Patterns?

We have shown above that the transmigration of foreigners through Canada to the U.S. has ebbed and flowed since the early 1970s, but has generally been decreasing as a proportion of the same foreigners admitted to Canada. This result generally holds regardless of the source region. Relative to the number of immigrants entering Canada, the numbers from the same source regions remigrating to the U.S. is small. Still, this proportion has increased since the early 1990s and may have continued through to the late 1990s owing to the large backlog in the number of adjustment of status applications, coupled with the general increase in the number of temporary visas issued. These migration trends do not appear to differ amongst prime-working age professionals, the group with which we are the most interested. Certain professionals did experience an increase in numbers, especially in the early 1990s. This, however, can be explained by the dramatic expansion of information technology in the U.S., coupled with higher unemployment north of the border and provincial government cutbacks in education and health care.

Another potential cause of transmigration is that recent arrivals to Canada have difficulties assimilating into the Canadian labour market. One explanation for this is that the foreign credentials (i.e., education and experience) of immigrants are not always recognized. Statistics Canada (2003) said that among recent immigrants, six in ten were not working in the same occupational field six months after arriving in Canada as they did before coming to Canada. In fact, many were working in manufacturing compared to the management and professional positions they held before coming to Canada. Furthermore, about one-quarter of the individuals with foreign credentials said that they had a difficult time having these recognized by Canadian employers. Similarly, Fellegi (1999) noted that about 20 per cent of those who had declared science and engineering as their intended occupations in the 1990-94 entry cohort were not working in those fields at the time of the 1996 census. This lack of recognition is reflected in the earning of immigrants. Hum and Simpson (1999) found that the rates of return to both foreign education and

foreign experience were essentially zero. Furthermore, the situation may be getting worse for recent immigrants. Using the Canadian born as a control group, McIsaac (2003) has shown that the recent arrival cohorts captured in the 2001 Canadian census have fared much worse in the Canadian market in terms of earnings and unemployment rates compared to comparable cohorts 20 years earlier. This is surprising considering the fact that recent arrivals are better educated compared to both the Canadian born and earlier immigrant cohorts. While these differences might simply reflect a decline in the quality of immigrants arriving in Canada, they might provide an impetus for remigration to the United States.

Looking Ahead

What will happen in the future? Theoretically at least, the number of transmigrants may increase or decrease. The cap on the number of H-1B petitions increased in the late 1990s. According to the INS, the American Competitiveness and Workforce Improvement Act of 1998 provided for a temporary increase in the number of H-1B petitions valid for initial employment from 65,000 per year to 115,000 per year in fiscal years 1999 and 2000, and to 107,500 in fiscal year 2001. Following this, in October 2000 the American Competitiveness in the Twenty-First Century Act temporarily raised the H-1B cap on petitions to 195,000 in fiscal years 2002 and 2003 and exempts continuing workers from these numerical limits.²² According to Mulder, et al. (2001), this increase in the number of H-1B visas increased net temporary migration flows to the U.S. by more than 70,000 by the end of the 1990s.²³

This increase in the number of petitions is important because H-1B visas are issued to professionals and generally require a bachelor's degree or higher, are valid for up to six years (i.e., two three-year terms), and are often used as a means of attaining permanent residency status in the United States. Still, even though the numerical limits on these visas have been increased, the actual number of petitions filed (and subsequently approved) has been declining. In 2002, for example, 215,190 petitions were filed, and 197,537 approved. Of this latter number, some 109,576 were for initial employment. However, this number of filed petitions represents a 37 per cent drop compared to the 342,000 petitions (202,000 for initial employment and 142,000 for continuous employment) filed in the previous fiscal year, and also a 40 per cent drop from the 331,000 H-1B workers approved in 2001.

As we have seen above, adjustments of status applications approved have been increasing in recent years, at least in part due to the increase in the number of temporary visas issued, and also because of the law which facilitates adjustments from H and L visa categories (Lowell, 2001; North, 1999). Furthermore, many of these employers petition for these visas with permanent residency status in mind. Still, counting petitions (or even approvals) certainly overestimates the number of individuals represented since multiple petitions may be filed by employers on behalf of one individual and approvals don't necessarily mean that the individual will ever use the visa.²⁴

Also confounding an accurate accounting is the fact that we have no way of knowing how many of these transmigrants have returned to Canada (or migrated to a third country including the individual's country of birth). Still, there is good reason to believe that a number of these individuals may have returned to Canada given that emigration tends to be concentrated in the initial years of U.S. residence. Duleep (1994), for example, calculated that 80 per cent of all immigrants to the U.S. who emigrate, do so within the first 10 years of entering the U.S. (and most of these within the first five years). This compares with only 13-20 per cent who leave after 10 years. In other words, a number of individuals who entered the U.S. in the 1990s may have already left the U.S., although our data, as well as any other available data, would not be able to capture this movement. In addition, there has been a decline in employment in the technology sector in the United States since the beginning of 2000. Furthermore, the numbers of individuals in health and education who have been granted permanent residency in the United States also appear to be declining in the late 1990s, likely related to spending increases in these areas by provincial governments.

Although our analysis of these data does not provide an unambiguous answer about the extent of transmigration through Canada to the United States, it does provide us with a clearer picture about what influences this migration. While various labour market differentials between the two countries have appeared to influence the movement of certain occupations in the 1990s, the aggregate trends by source region are very similar over this period of time, no matter how we cut the data. This points to the influence

of U.S. immigration policy. Here we agree with DeVoretz and Iturralde (2001, p. 63), in their analysis of Canadians migrating to the U.S.:

. . . the brain drain that is causing the departure of many of Canada's high income earners remains a by-product, not mainly of Canadian conditions, but of the state of the US economy and the immigration policies of the US government. Changes in either have the potential of slowing the southward movement faster than any Canadian policies could.

Indeed, as we have shown above, there has recently been a slowdown in both the number of permanent immigrants admitted to the U.S., as well as the number of temporary admissions. This is undoubtedly due to the decrease in economic activity in the U.S. compared to Canada during the past few years. Thus, the business cycle may be accomplishing that which neither U.S. nor Canadian immigration policies have: stemming the flow of highly skilled migrants through Canada.

References

- Baker, Michael, and Dwayne Benjamin. 1994. "The Performance of Immigrants in the Canadian Labor Market," *Journal of Labor Economics*, 12, pp. 369-405.
- Bloom, David E., and Morley Gunderson. 1991. "An Analysis of the Earning of Canadian Immigrants," in *Immigration, Trade, and the Labor Market*. Ed. John M. Abowd and Richard B. Freeman (Chicago: University of Chicago Press).
- Borjas, George J. 1994. "The Economics of Immigration," *Journal of Economic Literature*, 32, pp. 1667-1717.
- _____, and Bernt Bratsberg. 1996. "Who Leaves? The Outmigration of the Foreign-Born," *Review of Economics and Statistics*, 78, pp. 165-76.
- Cassidy, Rachel, and Lucinda Pearson. 2001. "Evaluating Components of International Migration: Legal Temporary Workers," mimeo, U.S. Census Bureau, Population Division (November).
- Citizenship and Immigration Canada (CIC). Various. *Citizenship and Immigration Statistics* (Ottawa: Minister of Public Works and Services Canada).
- _____. 2003. *Facts and Figures 2002: Immigration Overview*. (Ottawa: Minister of Public Works and Government Services Canada).
- Da Vanzo, J.S. 1978. "Does Unemployment Affect Migration? Evidence from Microdata," *Review of Economics and Statistics*, 60 pp. 504-14.
- DeVoretz, Don J., and Samuel A. Laryea. 1998. "Canadian Human Capital Transfers: The United States and Beyond," *Commentary No. 115* (Toronto: C.D. Howe Institute).
- DeVoretz, Don J., and Chona Iturralde. 2001. "Why Do Highly Skilled Canadians Stay in Canada?" *Policy Options*, 22, pp. 59-63.
- Duleep, Harriet. 1994. "Social Security and the Emigration of Immigrants," *Social Security Bulletin*, 7, pp. 37-51. Cited in Tammany J. Mulder, et al. 2002. "Evaluating Components of International Migration: Foreign-Born Emigrants," *Population Division Working Paper No. 62*, U.S. Census Bureau.
- Fellegi, Ivan P. 1999. "'Brain Drain': What We Know and What We Don't." Presentation to a joint seminar of the Toronto Association for Business Economists and the C.D. Howe Institute, Toronto, September 23. Cited in Schwanen (2000).
- Finnie, Ross. 2001. "The Brain Drain: Myth and Reality – What It Is and What Should Be Done," *School of Policy Studies, Queen's University, Working Paper 13*.
- Frank, Jeff, and Éric Bélair. 1999. *South of the Border: Graduates from the Class of '95 -Who Moved to the United States*. Statistics Canada Catalogue No. 81-587-XIE. Human Resources Development Canada and Statistics Canada (Ottawa: Minister of Public Works and Government Services Canada).
- Globerman, Steven. 1999. "Trade Liberalization and the Migration of Skilled Workers," *Industry Canada, Research Publications Program, Perspectives on North American Free Trade, Paper No. 3*.
- Greenwood, Michael J., and John M. McDowell. 1999. *Legal U.S. Immigration: Influences on Gender, Age, and Skill Composition* (Kalamazoo, Michigan: W.E. Upjohn Institute).

- Grant, E. Kenneth, and John Vandercamp. 1986. "Repeat Migration and Disappointment," *Canadian Journal of Regional Science*, 9, pp. 299-322.
- Helliwell, John F. 1999. "Checking the Brain Drain: Evidence and Implications," *Policy Options*, 20, pp. 6-17.
- Hum, Derek, and Wayne Simpson. 1999. "Wage Opportunities for Visible Minorities in Canada," *Canadian Public Policy*, 25, pp. 379-94.
- Human Resources Development Canada (HRDC) and Industry Canada (IC). 1999. "International Migration of Skilled Workers: Facts and Figures," mimeo.
- Immigration and Naturalization Service (INS). 2003. 2001 Statistical Yearbook of the Immigration and Naturalization Service (Washington, D.C.: U.S. Government Printing Office).
- LaLonde, Robert J., and Robert H. Topel. 1997. "Economic Impact of International Migration and the Economic Performance of Immigrants," *Handbook of Population and Family Economics*. Ed. M. R. Rosenzweig and O. Stark (New York: Elsevier Science).
- Liaw, K.L. 1990. "Joint Effects of Personal Factors and Ecological Variables on the Interprovincial Migration Patterns of Young Adults in Canada," *Geographical Analysis*, 22, pp. 189-208.
- Lowell, B. Lindsay. 2001. "Skilled Temporary and Permanent Immigrants in the United States," *Population Research and Policy Review*, 21, 22-58.
- McIsaac, Elizabeth. 2003. "Immigrants in Canadian Cities: Census 2002 – What do the Data Tell Us?" *Policy Options*, 24, pp. 58-63.
- Mulder, Tammany J., et al. 2001. "U.S. Census Bureau Measurement of Net International Migration to the United States: 1990 to 2000," U.S. Census Bureau, Population Division Working Paper No. 51.
- Mueller, Richard E. 1999. "Changes in the Wage Distribution and the Quality of Immigrant Flows Between the United States and Canada," *American Review of Canadian Studies*, 29, pp. 621-49.
- _____, 2000. "Is Canada Losing Her Best and Brightest? Qualitative Changes in Migration to the United States," *Revista Mexicana de Estudios Canadienses*, 1, pp. 105-132.
- _____. 2001. "Is Canada Alone in Exporting Her Best and Brightest to the United States?" *Revista Mexicana de Estudios Canadienses (Nuevo Epoca)*, 3, pp. 73-94.
- _____, 2002. "A Note on Canadian Migration to the United States During the 1980s," mimeo.
- Newbold, K. Bruce. 1996. "Income, Self-Selection, and Return and Onward Interprovincial Migration in Canada," *Environment and Planning A*, 28, pp. 1019-34.
- _____. 1997. "Primary, Return and Onward Migration in the U.S. and Canada: Is There a Difference?" *Papers in Regional Science*, 76, pp. 175-98.
- _____, and Martin Bell. 2001. "Return and Onward Migration in Canada and Australia: Evidence from Fixed Interval Data," *International Migration Review*, 35, pp. 1157-84.
- North, David S. 1999. "Some Thoughts on Nonimmigrant and Student Worker Programs," in *Foreign Temporary Workers in America: Policies That Benefit the U.S. Economy*. Ed. B. Lindsay Lowell. (Westport, Connecticut: Quorum Books).

- Rao, Badrinath. 2001. "Economic Migrants in a Global Labour Market: A Report on the Recruitment and Retention of Asian Computer Professionals by Canadian High Tech Firms," Canadian Policy Research Networks Discussion Paper No. W13.
- Schwanen, Daniel. 2000. "Putting the Brain Drain in Context: Canada and the Global Competition for Scientists and Engineers," Commentary No. 140 (Toronto: C.D. Howe Institute).
- Statistics Canada. 2003. "Highlights of the Longitudinal Survey of Immigrants to Canada, 2000-2001," Statistics Canada Catalogue No. 89-611-XIE.
- U. S. Department of Homeland Security. 2003. 2002 Yearbook of Immigration Statistics (Washington, D.C.: U.S. Government Printing Office).
- 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*, 6, pp. 8-35.

Endnotes

- ¹ Finnie (2001) provides a good review of the literature and evaluates some alternative policy options to stem the flow of talented individuals from Canada to the U.S.
- ² Da Vanzo (1978), for one, has shown the positive relationship between unemployment and migration in the U.S.
- ³ Borjas and Bratsberg (1996) also find that immigrants often based migration decisions of erroneous information about the United States.
- ⁴ As an aside, this result is interesting considering the language barriers and problems with credentials recognition that forced many of these immigrants to work in manufacturing, rather than in the management and professional occupations they had before coming to Canada.
- ⁵ According to a recent article in the *National Post* ("Ottawa Fears Labour Time Bomb," June 25, 2001), Canadian-born workers accounted for 87 per cent of the growth in the work force in the first half of the 1980s, but this had declined to only 29 per cent by the first half of the 1990s.
- ⁶ These immigration provisions were retained under the North American Free Trade Agreement (NAFTA) which came into effect in 1994. As mentioned above, individuals who are eligible for these "free trade" or TN visas must be Canadian citizens. However, the minimum time from permanent residency status to citizenship in Canada is only three years (compared to five years in most cases in the U.S.).
- ⁷ See Lowell (2001) for discussion of these changes to U.S. immigration policy. The increase in the use of TN visas, plus an increased in the number of employment-based temporary visas (generally H1-B visas) implies that increasing numbers of foreign born may be entering the U.S. via Canada through the "back door" and changing their immigration status while residing in the U.S.
- ⁸ In addition, Grant and Vandercamp (1986) and Newbold (1997) show that rates of native (i.e., domestically born) onward migration are higher than rates of primary migration in North America. In other words, a migrant is more likely to move than one who has never migrated. LaLonde and Topel (1997) cite previous studies and estimate that 30-40 per cent of immigrants to the U.S. will eventually migrate (both return and onward migration). For other evidence on the self-selection of migrants see Newbold and Bell (2001).
- ⁹ United States Department of Justice, Immigration and Naturalization Service, *Immigrants Admitted to the United States, 1972 through 2000* [Computer files]. ICPSR version. Washington, DC: U.S. Dept. of Justice, Immigration and Naturalization Service [producer], various years. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], various years. These 29 microdata files are available at <http://www.icpsr.umich.edu>.
- ¹⁰ Published data from CIC are only available up to 1996. Data for 1997 through 2000 were obtained by special request.
- ¹¹ It should be noted the INS uses fiscal year data. This fiscal year currently runs from October 1st through September 30th. Prior to 1976, the fiscal year was July 1st through June 30th. Given the change in definition in 1976, the INS also compiled has data on this transition quarter in that year (i.e., July 1st through September 30th). Although some studies have chosen to adjust the annual data taking this transitional

quarter into consideration, we have decided to ignore it in the empirical work below. Given the number of years of data that we have, it seemed unlikely that this would cause any problems in interpreting the results. The CIC data are for the calendar year in each case.

¹² Information on the number of temporary admission visas issued is contained in various issues of the *Statistical Yearbook of the Immigration and Naturalization Service*, the most recent issues of which are available online from the U.S. Citizenship and Immigration Services (formerly the INS) website at uscis.gov.

¹³ Although movement between visa categories can extend the “temporary” stay. See North (1999) for details.

¹⁴ The increase in adjustments of status is largely attributable to the Section 245 (i) provision of 1995. This allowed illegal immigrants to pay a fee and apply for adjustment to permanent residency status while continuing to reside in the U.S. Previously, such individuals would have had to leave the country and apply for permanent residency status from abroad. The result of this has been the shift of caseload from new applications (processed at U.S. embassies abroad) to adjustment of status applications (processed by INS centres in the U.S.). See various issues of INS, *Legal Immigration* for current information on U.S. immigration policies and numbers (again, these are available at uscis.gov).

¹⁵ The raw data used to calculate all of the following figures are available from the author upon request.

¹⁶ For the 11-year period from 1972 through 1982, immigration to Canada averaged 142,562. For the four-year period from 1983 through 1986, it averaged only 90,229, a drop of almost 37 per cent. See Citizenship and Immigration Canada (1999: Table G2) for details on the total numbers of permanent residents admitted to Canada by year.

¹⁷ Over the seven-year period from 1990 to 1996, Canada admitted an average of 230,832 permanent residents (CIC, 1999: Table G2).

¹⁸ The INS data are only of limited use here since they do not contain a number of useful variables (e.g., salaries, years of education, etc.). Still, we will do what is possible given this constraint.

¹⁹ This category includes medical and health professionals, teachers, university faculty and teachers, natural and social scientists, engineers, etc.

²⁰ The occupational variable is not defined for many individuals in these data during the 1980-83 period. But, as mentioned above, Greenwood and McDowell (1999) have shown that this will not introduce bias into comparisons, although the absolute number of individuals in each category is underestimated in 1983. Unfortunately, we are unable to compare this to CIC data since an occupational variable is not included.

²¹ Responsibility for education and health care fall under provincial jurisdiction in Canada, although these programs are also funded in part by the federal government. The federal government too was cutting back on spending in all areas at the same time, further exacerbating the funding of these programs at the provincial level.

²² See INS (2003) and U.S. Department of Homeland Security (2003) for details on these numbers and policies.

²³ Net flows remove emigrants, death, and adjustments to permanent immigration status.

²⁴ New arrivals have visas issued through the U.S. Department of State, while adjustments of status are processed in the U.S. by the INS. In the former case, not all visas issued to individuals are used to enter the U.S. In the latter case, the INS records actual admissions (not visas) and thus individuals may be counted multiple times as they enter the U.S. Not included in INS or in DOS data are those who extend their current visa or adjust to a new temporary admissions class while residing in the U.S. See Cassidy and Pearson (2001) for details.

Figure 2: Total Number of Permanent Residents Admitted to the U.S. with Canada as Country of Last Permanent Residence, by Region and FY, Females

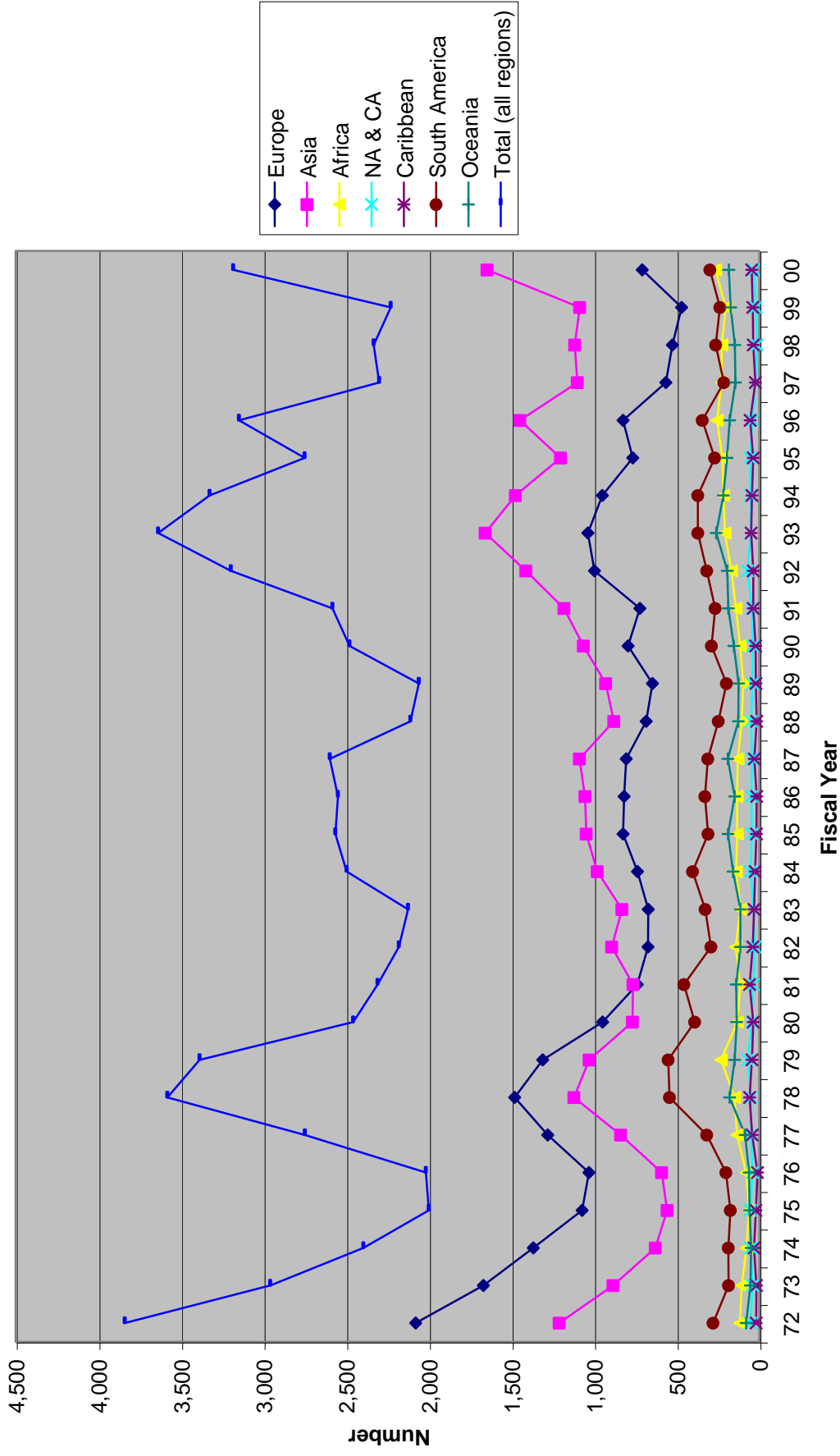


Figure 3: Permanent Immigration to The United States, Total, Foreign-Born and Canadian-Born with Canada as Country of Last Permanent Residence, by FY, Males and Females

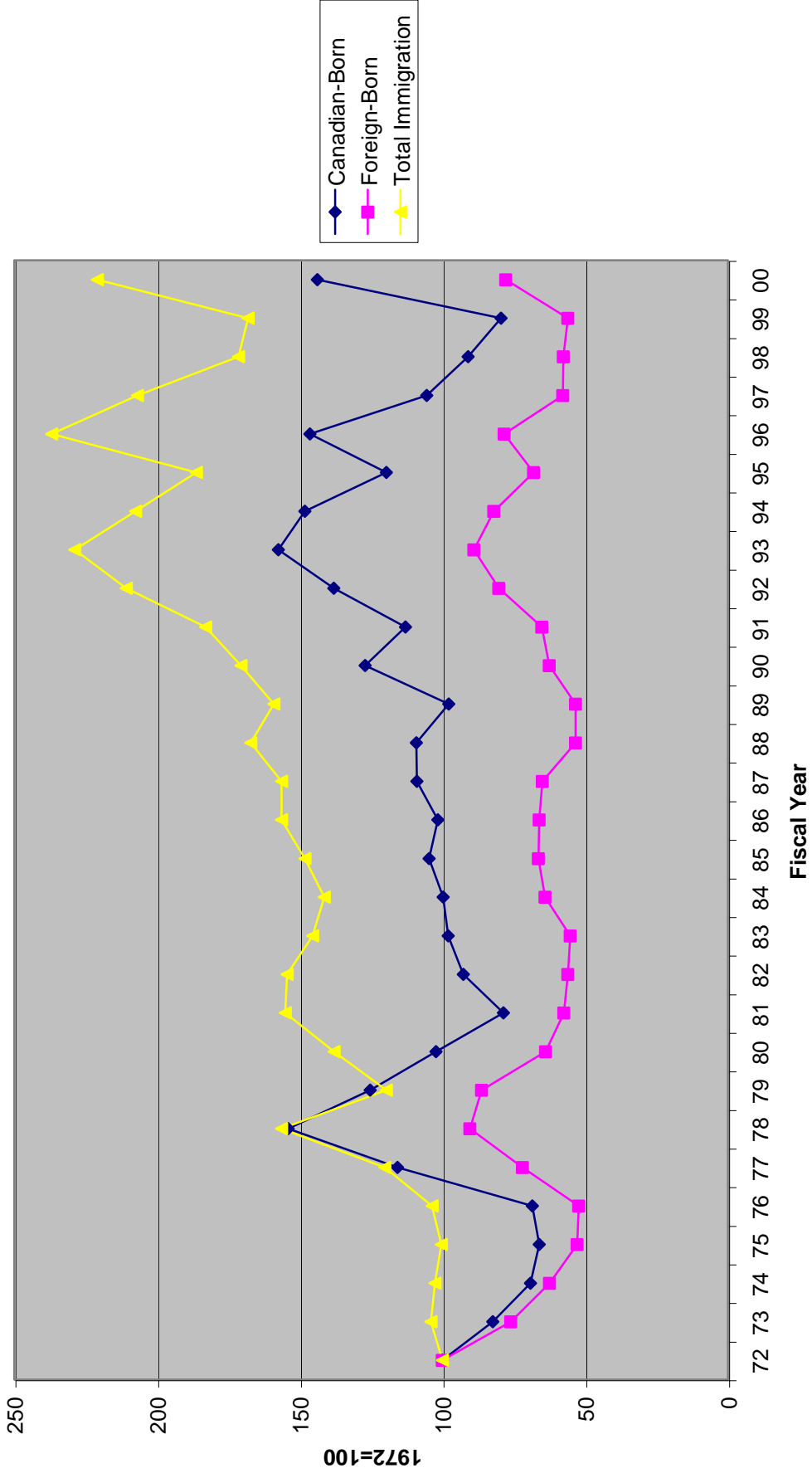


Figure 4: Ratio of Foreign-Born to Canadian-Born With Canada as Country of Last Permanent Residence Permanently Migrating to the United States, by FY, Males and Females

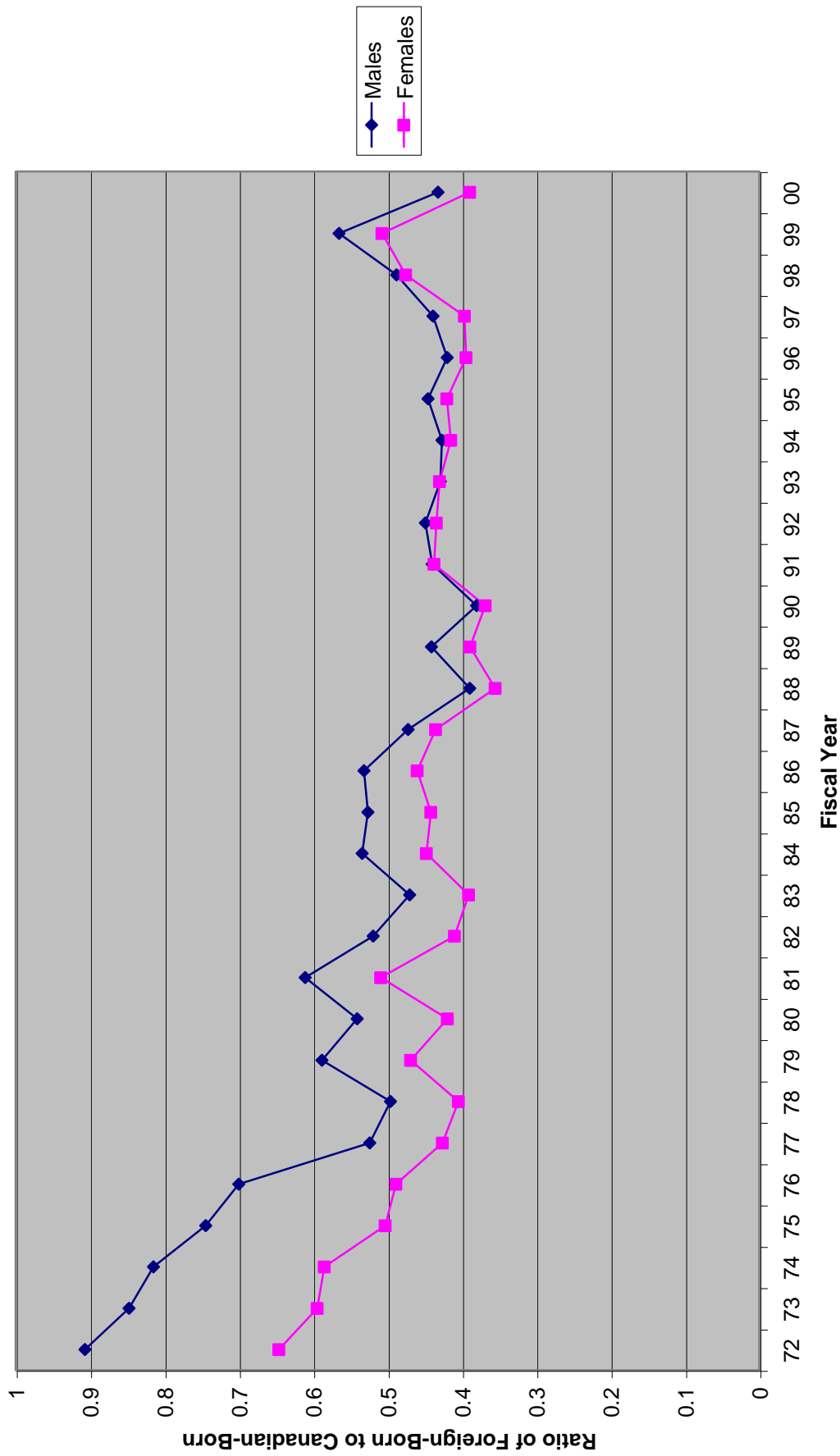


Figure 5: Permanent Residents Admitted to the United States With Canada as Country of Last Permanent Residence as a Proportion of Canadian Admissions, by Region and FY, Males

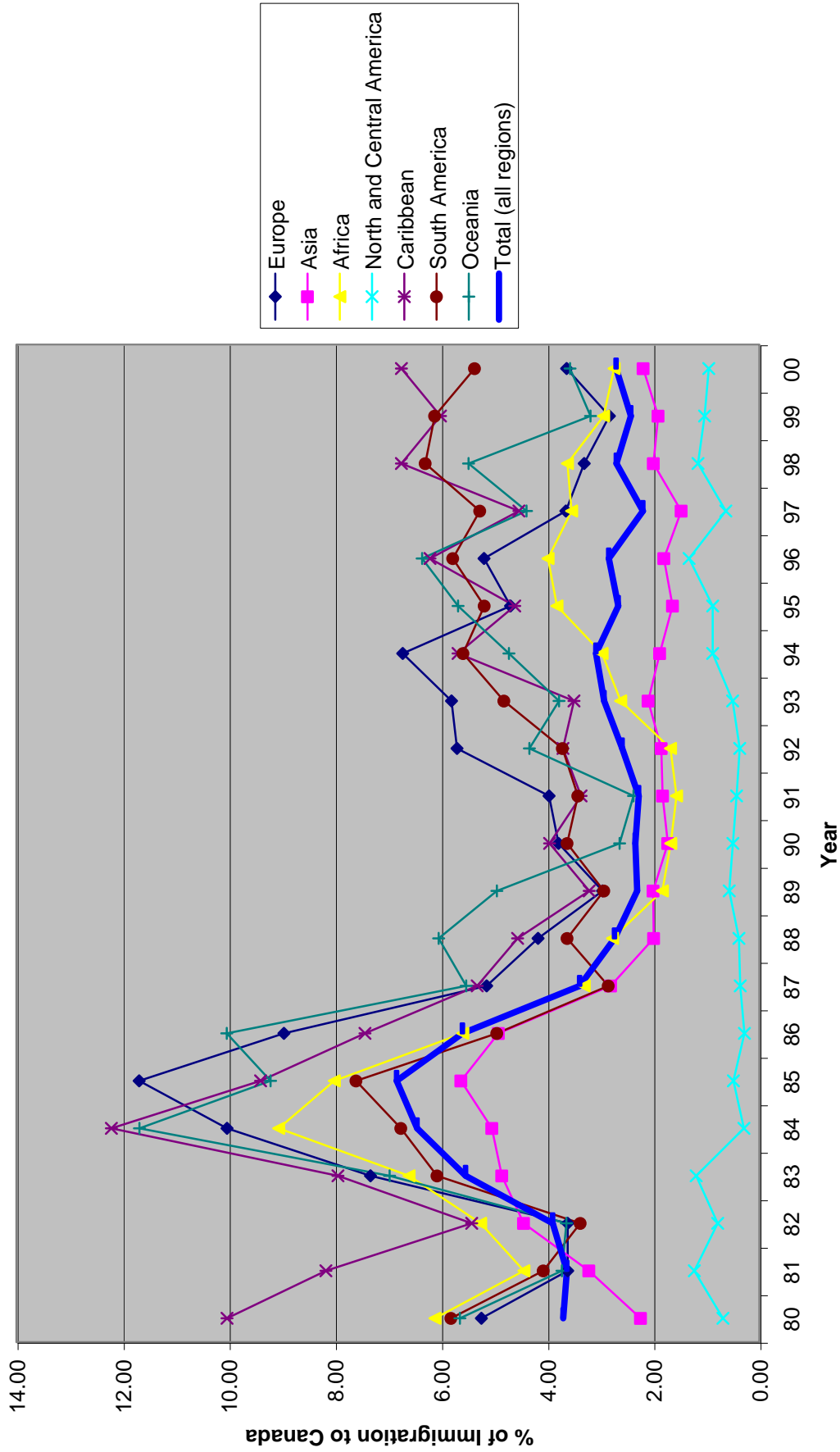


Figure 6: Permanent Residents Admitted to the United States With Canada as Country of Last Permanent Residence as a Proportion of Canadian Admissions, by Region and FY, Females

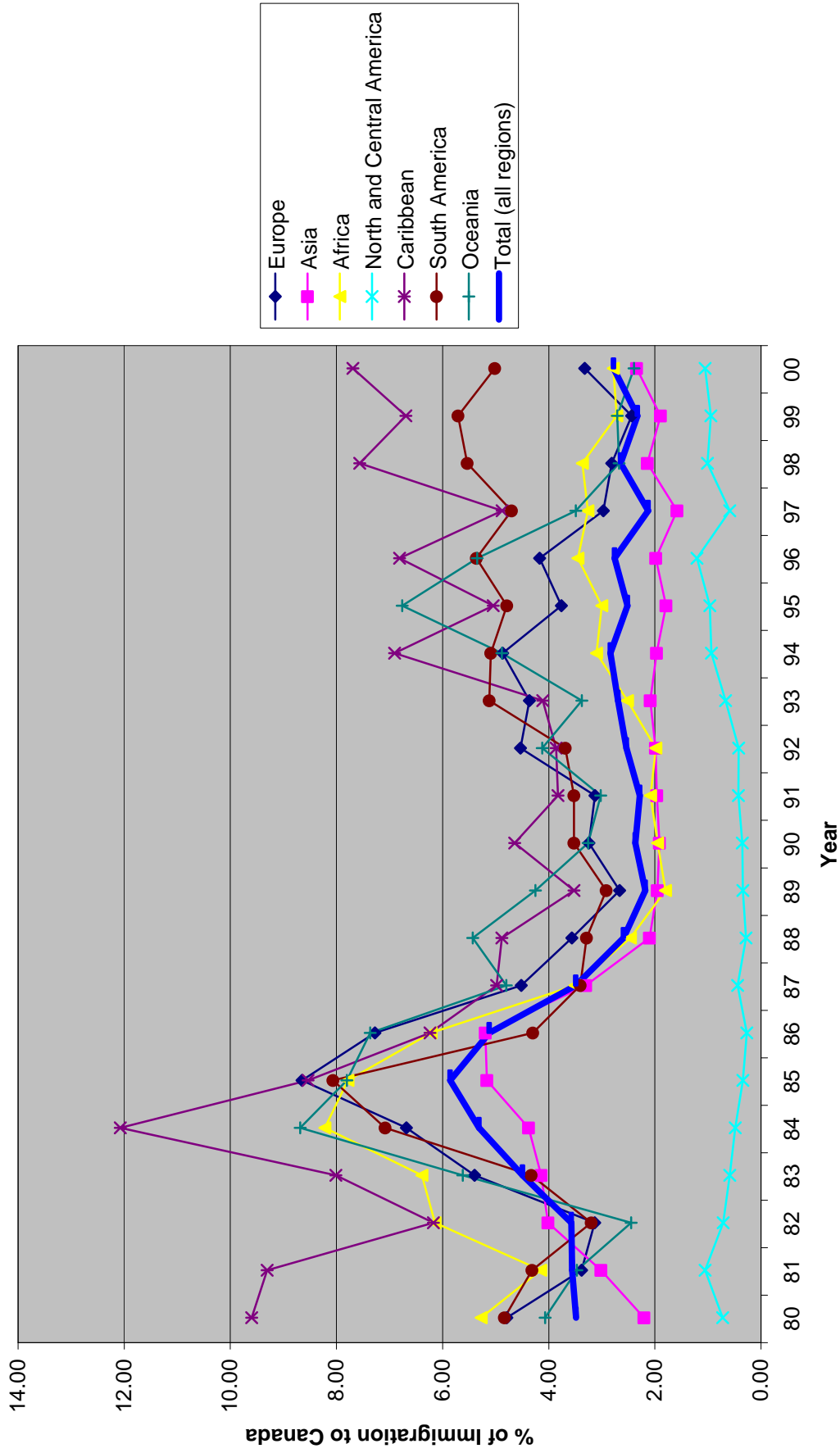


Figure 7: Total Number of Permanent Residents Admitted to the U.S. with Canada as Country of Last Permanent Residence, by Region and Fiscal Year, Males, 25-54

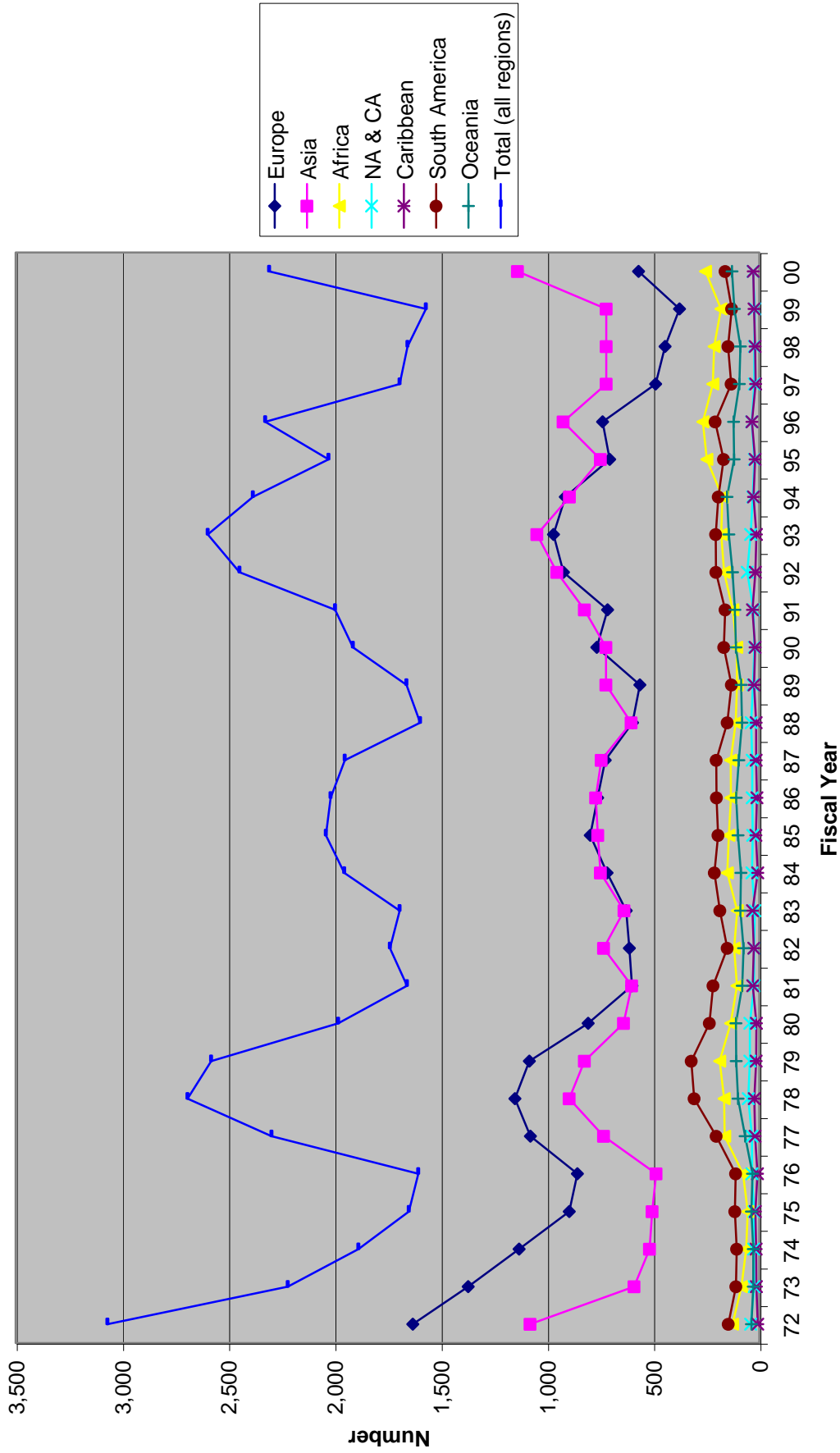


Figure 9: Proportion of Professionals Admitted as Permanent Residents to the U.S. with Canada as Country of Last Permanent Residence, by Region and Fiscal Year, Males, 25-54

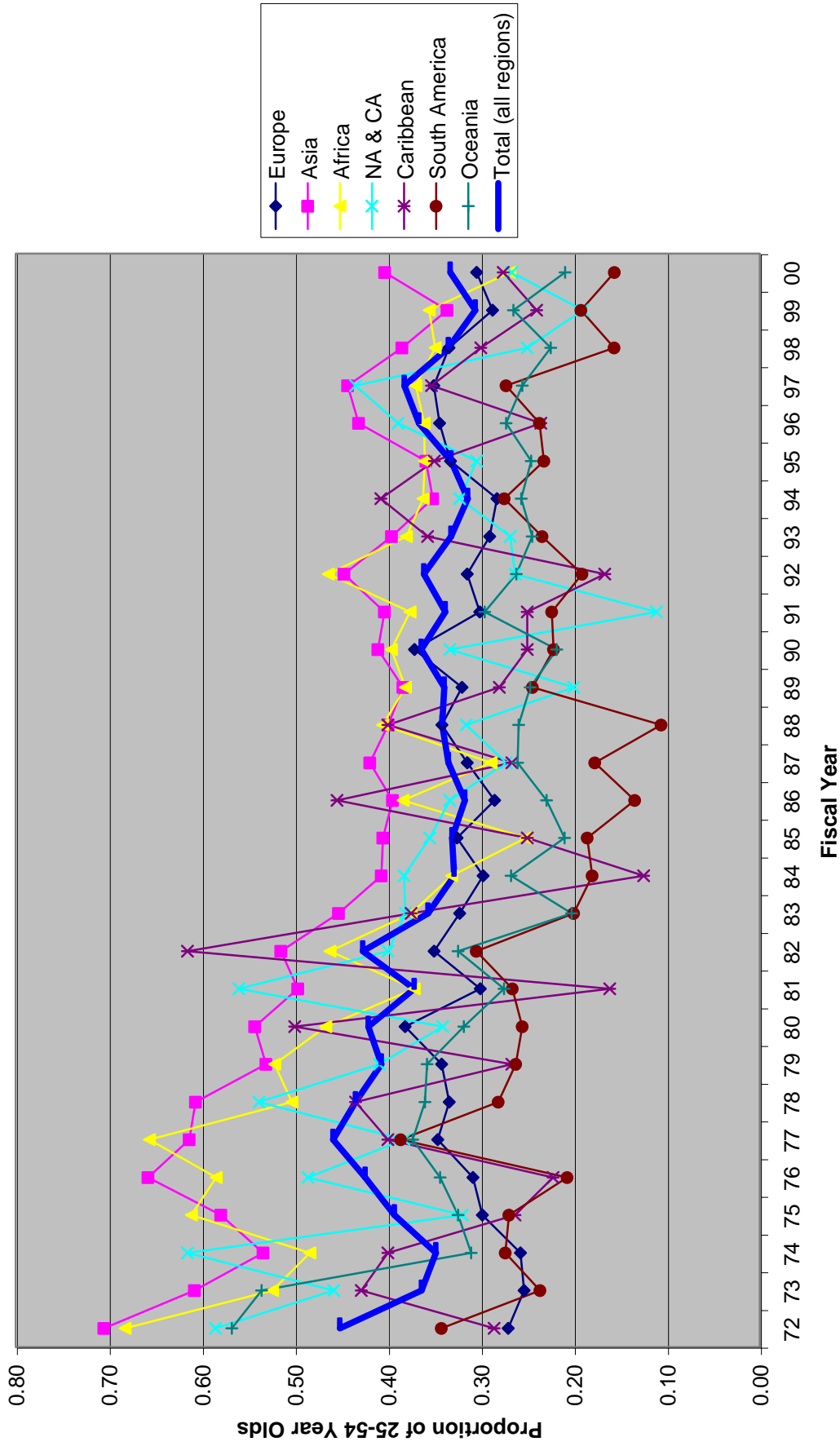


Figure 10: Proportion of Professionals Admitted as Permanent Residents to the U.S. with Canada as Country of Last Permanent Residence, by Region and Fiscal Year, Females, 25-54

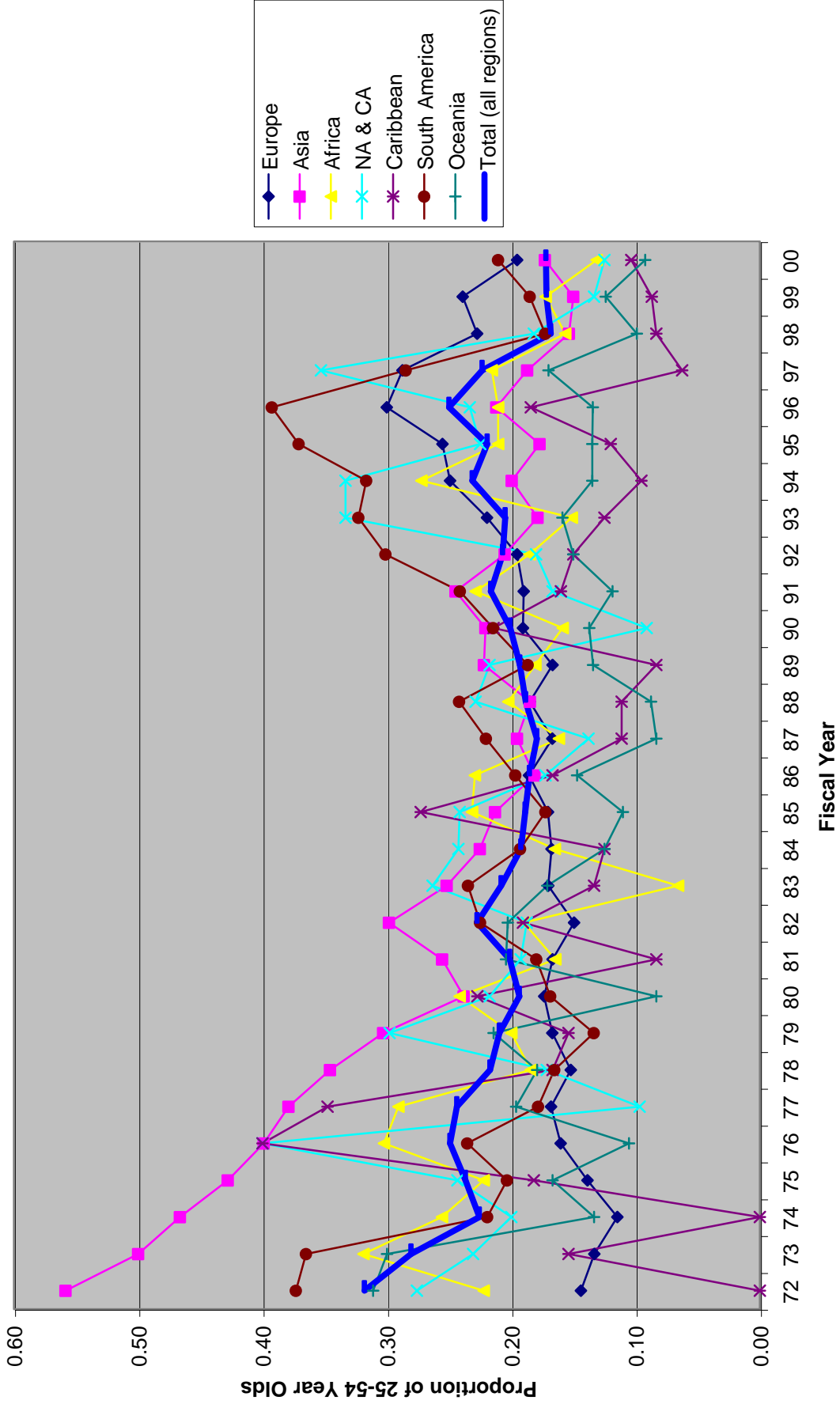


Figure 12: Numbers Admitted as Permanent Residents, Various Professions, by FY, Feales, Ages 25-54

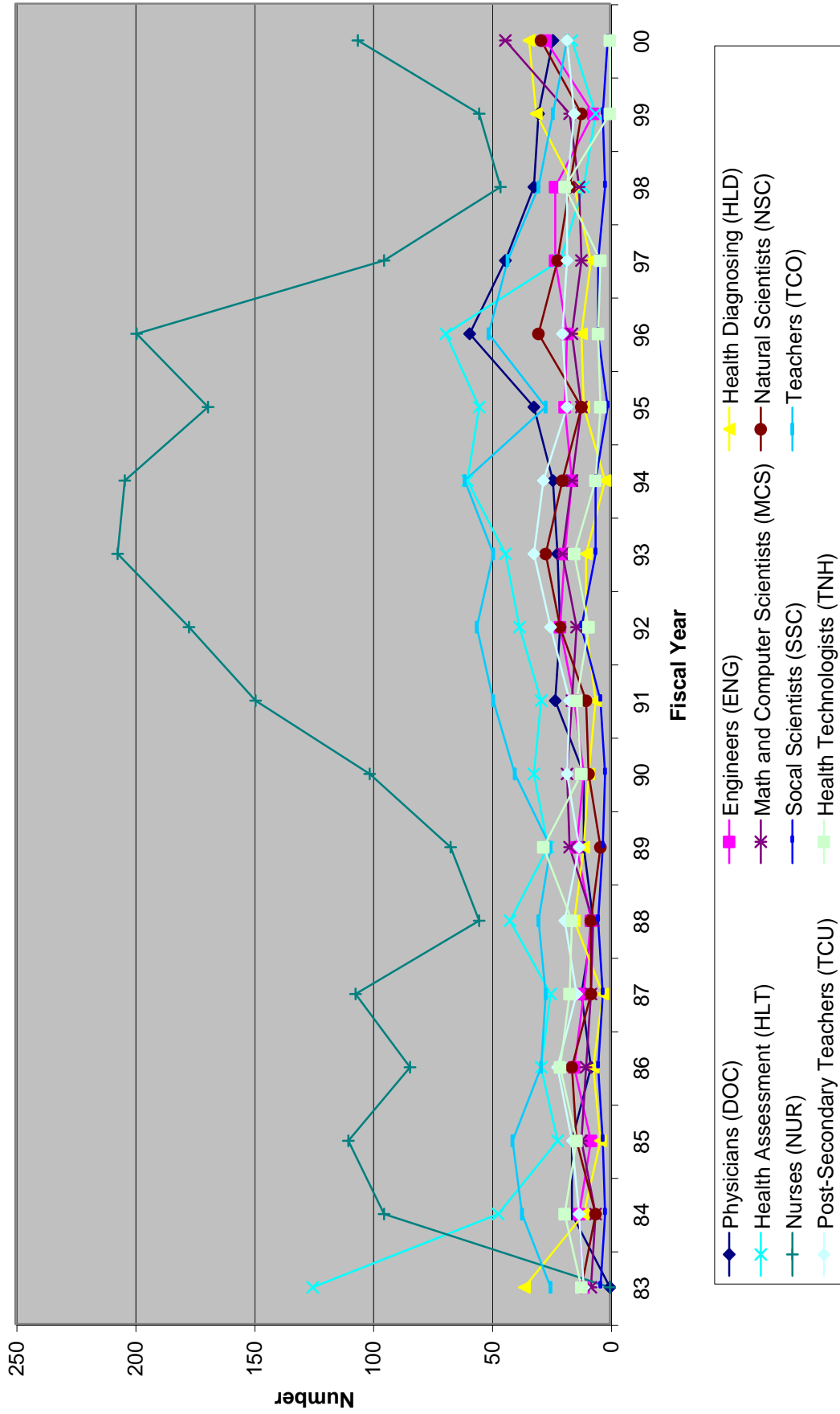


Figure 13: Adjustments of Status as a Percentage of Permanent Migration with Canada as Country of Last Permanent Residence, by FY, Males and Females, Ages 25-54, Total and Professionals Only

