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Canada's Brain Drain, Gain or Exchange?
POLICY OPTIONS

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CANADA'S BRAIN DRAIN, GAIN OR EXCHANGE?
POLICY OPTIONS

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The existence of a transfer of highly skilled Canadians to the United States after 1989 is not in doubt. The net flow of highly trained permanent and temporary movers between Canada and the United States after 1989 is largely one way and constitutes a substantial Canadian taxpayer subsidy to the richest country in the world and Bill Gates. Moreover, recent changes in United States immigration law and the signing of NAFTA with its attendant mobility provisions, which are exclusively reserved for highly educated Canadians movers, will accelerate this trend. Given the substantial taxpayer subsidy inherent in the Canadian educational system and the long-term economic growth and productivity consequences of this one-way movement to the United States, important policy issues arise. These include the trade-off of an accessible, subsidized post-secondary Canadian educational system versus the loss of productive, highly subsidized immigrants to the United States. Questions also arise as to the most effective manner by which to address the short-run or public finance issues: reduction in selected educational subsidies for potential émigrés and/or an exit tax on emigrants? In addition, should we be seeking replacement of skilled workers from the rest of the world, productivity and administrative costs notwithstanding, or bribe highly skilled Canadians to stay or to return home as we did in the 1970s? Furthermore, we must ask, what is the short-run loss in reduced tax revenues versus the resulting long-run economic growth gained by seducing the "best and the brightest" to return under a regime of tax rebates?

In order to address these questions, this essay will first present the extant evidence of the post-1989 permanent flows to the United States, supplemented by evidence on the significant NAFTA and intra-company temporary flows to argue that this total movement constitutes a substantial portion of recent relevant Canadian graduating cohorts. Next, to document the “best and brightest” argument, I will present evidence to demonstrate that Canadian emigrants, once resident in the United States, economically outperform comparably educated United States residents. Next, a brief description of the “alphabet soup” of United States visa classifications will be given to suggest that the number and breadth of United States immigration doors for Canadian immigrants are growing and widening to facilitate the emigration of the highly skilled. Finally, I will suggest policy measures that may mitigate the impact of this brain drain.

Evidence: Post-1989

Movement to the United States of talented Canadians has a century-long history with such luminaries as Alexander Graham Bell leading the way followed by a cadre of talented but less-glamorous émigrés. By the late 1950s Canada was in the midst of its first legitimate “brain drain” to the United States. Approximately 10,000 highly skilled Canadians left, on net, for the United States each year between 1950-1963. However, between 1965 and 1990, Canadian-skilled movement to the United States virtually halted when United States immigration policy became family based with hemispheric quotas. This policy placed Canadians at a disadvantage in the queuing process. Moreover, expansive Canadian immigration policies, including tax incentives coupled with unpopular United States foreign policy adventures, briefly reversed the “brain drain” to a “brain gain” for Canada from the United States. From the mid-1970s until the late1980s, bilateral immigration between Canada and the United States was in a period of quiescence. Thus, the choice of modern benchmarks by which to measure the existence of a brain drain is essential.

In the 1990s, two major immigration policy measures were initiated in the United States, which both subsequently changed the skill content and size of Canadian emigration flows to the United States. First, the 1990 United States Immigration Act increased the number of employment based slots (E and H visas) so that Canadian highly skilled immigrants no longer had to queue in the overcrowded family reunification entry category. Next, the mobility provisions of at first the FTA (1989) and then NAFTA (1993) agreements with their unique TN visas for highly skilled Canadians (BA degree or higher) structurally altered the filter that Canadians faced when contemplating temporary emigration to the United States. Finally, the L visa, which allowed intra-company transfers to the United States by Canadian-based companies, began to efficiently operate in the post-NAFTA era. Under this new United States immigration policy regime, two points emerge. Reference to the pre-1989 era for evidence of a Canadian "brain exchange or drain" is irrelevant and mistakenly misses the crucial United States immigration policy changes after 1989. Secondly, United States immigration policy ultimately determines the number of highly skilled Canadian émigrés to the United States.

Canadian domestic economic conditions are secondary push factors, which just increase the size of the Canadian highly skilled queue awaiting admittance to the United States. Unlike in the past, this Canadian-induced queue now forms both in Canada for Canadians awaiting permanent admittance to the United States and in the United States itself. In the latter case, temporary Canadian émigrés seek permanent visas while residing in the United States. The Canadian push factors, which induce this movement, are both the oft-cited differential tax rates and a host of other economic forces. These non-tax forces include dramatically different post-secondary educational subsidy levels between the two countries; macro employment conditions in Canada and restrained Canadian fiscal policies (federal and provincial) in the health, education and the science sectors.

The primacy of United States immigration policy as a key conditioner of Canadian emigrant flows is made clear if we look to the recessionary periods of the 1980s. This was a period of immigration quiescence even though Canadian post-secondary graduates had strong economic incentives to move to the United States with its lower tax levels, higher income and greater prospects for career advancement. However, a virtually closed immigration door for Canadians led to only 215 net managerial emigrants in 1982. Contrast these numbers to those under the post-1989 immigration legislative changes in the United States when, on a net basis, 1,655 managers left in 1993.

CHART 1: Canadian Gross and Net Emigration to the United States by Occupational Groups (Professionals and Managers: 1982-1997)

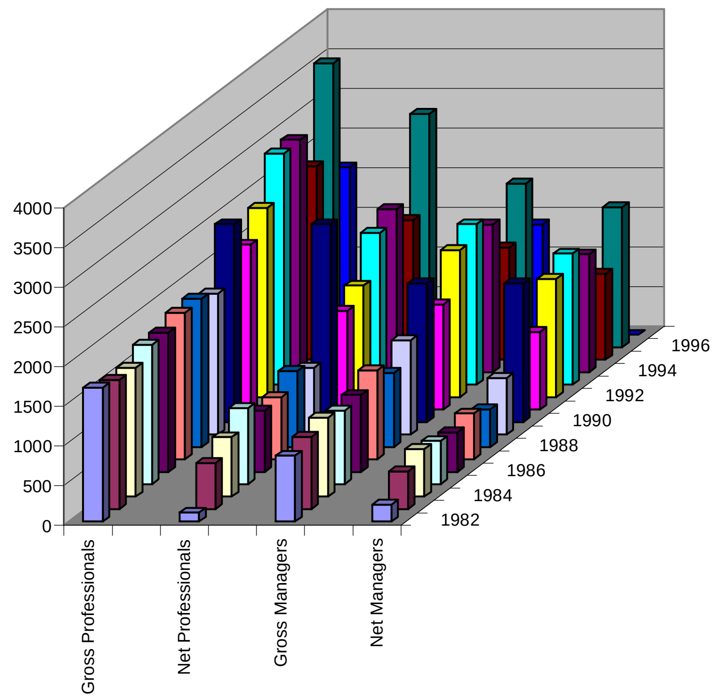
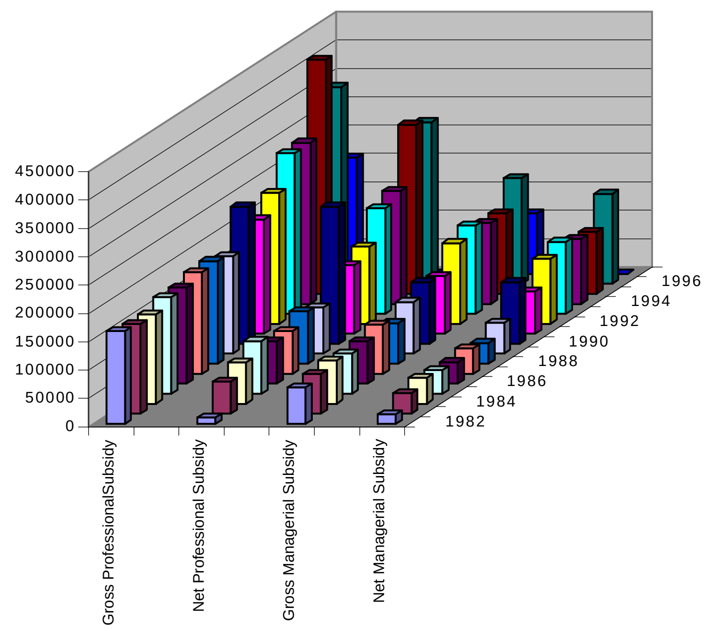


Chart 1 depicts the gross and net permanent highly skilled flows between two epochs, pre- and post-1989 and clearly demonstrates that when a wider door has opened in the United States for Canadians, they filed through it. Two detailed facts must be highlighted. First, the flow of managers grew after 1989 and became virtually one way, Canada to the United States. Secondly, within the highly trained professions the out movement from Canada is highly selective with nurses, physicians and engineers representing the majority of movers by 1996–97.

Chart 2 also expands the immigration flow concept beyond the balance of trade or raw numbers approach to measure the public finance cost of this movement. The total

CHART 2: Canadian Gross and Net Subsidies (1993/94 000's dollars) to the United States by Occupational Groups (Professionals and Managers: 1982-1997)



resources embodied to train this net out movement (total social costs) and the portion born by the taxpayers' post-secondary financial subsidy is large and growing over time. Between 1989-1996 over $6.6 billion (1994) in educational resources flowed to the United States on a net basis. The Canadian taxpayers' portion of this bill was a $ 2.9 billion (1994) subsidy. This $2.9 billion (1994) transferred subsidy is especially worrisome since the Canadian intergenerational education contract is clear. Any tax subsidy embodied in these post-1989 Canadian émigrés to the United States was to be reimbursed by these newly educated workers when they entered the Canadian labour market and paid taxes to finance the education of successive generations. To put the 1989-96 skilled outflow into perspective, we first refer to history and then to contemporary educational finances. The

$6.6 billion (1994 dollars) in transferred educational resources (social total cost) is more than three times the $2.1 billion (in 1994 dollars) transferred during the last “brain drain” (1950-1963). From a more contemporary perspective, the size of the post-1989 annual taxpayer subsidy flowing to the United States, amounts to the equivalent of 2.5 times the Simon Fraser University annual operating budget circa 1996-97.

Best and Brightest

Evidence is now mounting that the permanent Canadian movers to the United States outperform similarly trained United States-born workers. Immigration is always highly selective and a few salient economic performance measures of recent Canadian émigrés to the United States makes this truism evident. First, an analysis of the 1990 U.S. Census indicates the high degree of occupational segmentation of Canadians in the United States, with 55 per cent of resident Canadians aged 16-59 in the managerial, professional, technical or administrative professions. Moreover, when you control for a variety of factors, being a Canadian immigrant alone raised all resident Canadian earnings (circa 1990) in the United States by 10 percent. Moreover, unlike other immigrant groups in the United States, more recent Canadian-born immigrants earn more than the older stock of Canadian immigrants resident in the United States. In sum, recent Canadian immigrants in the United States are the best and the brightest in terms of occupational choice and earnings performance relative to resident Americans or previous Canadian immigrants in the United States.

Temporary Movers

Canadian émigrés form a unique set of quasi-temporary entrants to the United States economy given the exclusive entry provisions under NAFTA. In short, to date a TN visa is available to only highly skilled Canadians with a bona fide job offer on a near immediate basis with no quota limitations and no labour market displacement tests. The latter waiver is crucial. Canadian TN visa holders do not require expensive and lengthy certification to insure that their appearance would not displace a similarly qualified United States citizen.

Moreover, this TN visa is presently only available to highly skilled Canadians and thus represents a unique low-cost entry door of unlimited width with a renewable feature that allows stays of indeterminate duration. In short, with a TN visa — no lawyers and no wait. This NAFTA-based entry door represents a clear structural break from the pre-1989 period when only permanent visa entry or expensive and time-consuming applications possibly leading to traditional temporary visas (H and L) were available. Moreover — and this is important — the non-TN visas available to Canadians (and others) prior to 1989 had both annual quotas and duration restrictions with time-consuming and expensive labour market tests. What do we conclude about the immigration process with the creation of this unique TN visa for Canadians? Again, it points to the fallacy of using 1980s permanent Canadian emigrant data as a sole measure of Canada's contemporary brain drain since it underestimates the size and complexity of the 1990s total drain.

Canadians are not restricted to using the TN visa. They (or their lawyers) can compete with the rest of the world for other temporary visas for the more traditional L visa for intra-company transfers and H-1 visas. Even given the low cost, TN visa Canadians continue to use these traditional and more restrictive temporary visas. Between 1994 and 1996, over 20,570 intra-company transfers or visas have been issued to Canadians. The L visa has become, for some Canadians, a transitional or probationary state of movement after being transferred by a parent Canadian company to its United States outlet. For example, over 30% of 1994–96 intra-company transferees have adjusted their temporary status with an L visa to a more permanent status (E visa). Hence, it is possible to be transferred by your Canadian company with a temporary visa, work in the United States and search for a better position and have your new employer assist you in obtaining an employment-based permanent visa.

This alphabet soup of temporary visas, far from diluting Canadian movement, has led to two new phenomena. First, Canadians who choose not to wait in Canada (as in the 1980s) in the permanent queue now can enter the United States with a temporary visa and wait in the queue inside the United States. A portion of this temporary movement represents part of the modern brain drain and can not be dismissed as a simple trade-facilitating short-term move.

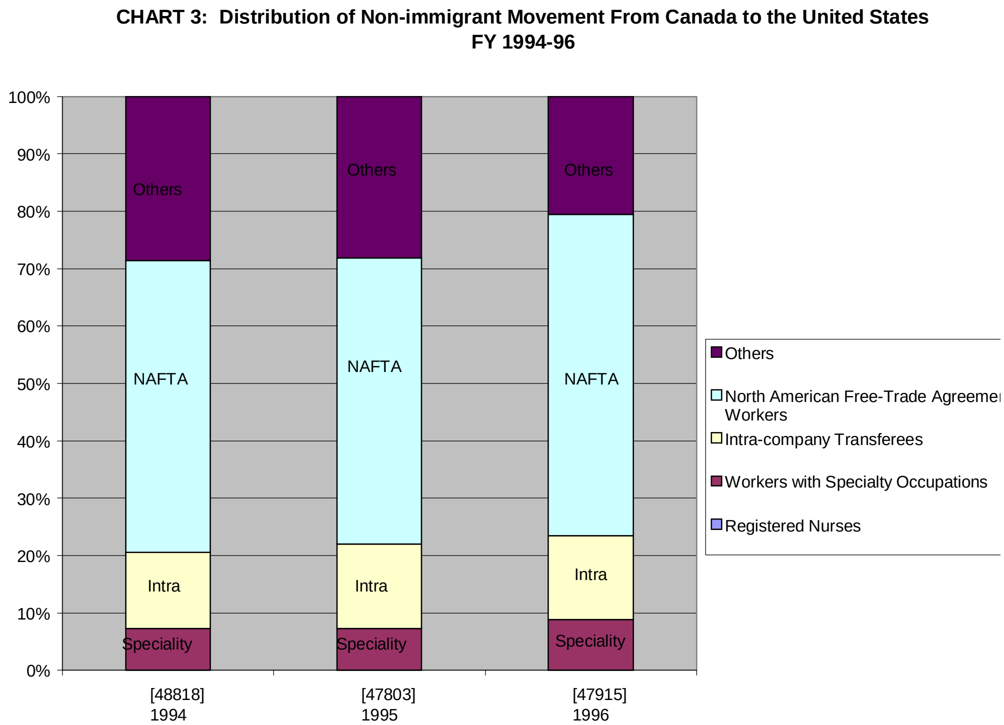


Chart 3 reinforces this depiction of the importance of temporary movement in more detail. What must be kept in mind is that only an unknown fraction of these approximately 48,000 yearly temporary visas, circa 1994-96, will be converted into permanent movers. Given this caveat, trends still emerge. First, NAFTA (FTA) visas grew from zero to almost 27,000 per annum by 1996. L visas (intra-company transferees) and H-1 visas (others) now represent an additional 20,000 visas. How many full-time work years this temporary visa count represents is in doubt. Nonetheless, a new form of temporary movement has arisen in the 1990s, which facilitates the brain drain.

Motivations to Move

Often the modern brain drain debate transcends the rhetoric of number counting, and there is a candid admission that the most highly skilled Canadians leave for the United States or Hong Kong. This apologia is couched in the form that exceptionally highly skilled Canadians have always been drawn by the siren call of career improvement, which is beyond Canada's small market ability to provide. In other words, critics of the brain drain concept argue that the movement is small and exceptional and beyond Canada's ability to counteract. Is this trivializing of the United States pull factor to one force accurate? Is it truly only a problem of a few superstars moving to a larger market? Clearly not. First, Canadians are not over represented in the exceptional H class visa reserved for world-class talent entry into the United States. Next, in the early 1980s, Canadian emigration to the United States was small or trivial, hence putting the lie to the argument that Canada has been an historical victim to the career development pull of the United States. In the late 1980s after immigration policies changed in the United States, post-secondary Canadian emigrants left in large numbers across a variety of fields (nurses, physicians and professors). In interviews I conducted with 134 Canadian private firms experiencing the brain drain in the 1990s, all firms mentioned the prospect of career improvement in the United States as a motive to transfer their professionals. The interviewed vice-presidents of human resources also strongly noted that career improvement is simply a road to greater income for mid-level professionals. Thus, career improvement, far from being a unique event reserved for a few superstars seeking career improvement, is simply another mundane pull force.

In addition, other forces beyond career improvement hasten modern Canadian emigration. For example, when recent Canadian graduates emigrate, they avoid repaying their subsidy while enjoying the rewards of a tight United States labour market. Examples make this broad-base movement at both ends of the age spectrum more obvious. Consider the fact that 40% of the 1990-91 entire Canadian graduating class of nurses left for the United States by 1993-94 or that often entire university graduating classes of electrical engineers are recruited by Americans. In the case of nurses, why would these young people continue to receive this training in light of a shrinking Canadian labour market? Two reasons are apparent. First, the training is highly subsidized, and next, the movement to the United States has become easier. Now, a clear case of moral hazard exists that requires a policy response. Nursing students in particular exhibit strategic behaviour predicated on provincial educational subsidies, which they can avoid repaying with emigration to a more secure United States labour market. These subsidies were partially put in place to encourage Canadian student nurses to continue to enter the faltering Canadian publicly financed health field. The prospect of a now-accessible nursing job in New York or Hawaii for Canadians, allows graduating nurses to break this implicit contract. Low pay, unemployment and long hours along with repaying the taxpayer loan are avoided when Canadian nurses emigrate to the United States.

What is the motivation to move for the newly trained engineer? This labour market currently exhibits excess demand, thus any Canadian taxpayer educational subsidies will have little influence on career choice or place of residence. In this unique market, post-tax income and career development in the United States are the pull factors. Finally, mature Canadian professionals who have repaid their educational subsidy emigrate to avoid higher marginal tax rates. The point of these examples under widely different labour market conditions is to illustrate that the motivation to move and the possible remedial measures to repatriate highly skilled Canadians differ by occupation. It also illustrates that highly trained Canadians move for a variety of reasons beyond satisfying career aspirations presumably only available in the larger United States labour market. In sum, the motivations to move to the United States are abundant and complex and vary by stage in career and occupation. Thus, when later pondering policy adjustments to stem the outflow, this complexity must be kept in mind. Rarely is Canadian highly skilled emigration motivated by unique advantages in a foreign market which can not be replicated in Canada.

Skilled Inflows to Canada

Why should we be concerned about this modern "brain drain" to the United States if Canada receives skilled inflows from the rest of the world? A valid question which requires a detailed answer. Again, a simple head count comparing outflows to the United States with Canadian inflows generates a dismissive and naïve answer. Consider the following points. First, compensating immigrant inflows from the rest of the world may be an imperfect match for the Canadians emigrating to the United States and the resulting immigrant settlement and productivity costs may be substantial. Next, the importation of human capital from the rest of the world does not address the underlying economic forces that initiated this latest movement of Canadians to the United States. Finally, there exists a serious ethical problem with using the rest of the world to solve Canada's brain drain to the United States. Given the fact that India and China are major source countries for engineers and graduate students to Canada (as in the United States), in essence Canada is asking the peasant taxpayers in these two poor countries to reimburse the Canadian taxpayers for their lost human capital, which has flowed to the United States.

More worrisome than this ethical stance is the more fundamental observation that Bill Gates and other extremely rich American entrepreneurs are being subsidized directly or indirectly by these very poor countries' taxpayers. If we dismiss this ethical question and ignore the fact that we have not addressed the fundamental problem which led to the brain drain, what is the economic verdict of using rest-of-the-world human capital to substitute for Canadian flows to the United States? Is this rest-of-the-world inflow a costless substitute to repatriating or keeping highly skilled Canadians at home? Moreover, do highly skilled immigrants from the rest of the world only accelerate the outflow of the Canadian-trained by keeping wages low? Is there a productivity differential between Canadian levers to the United States and their presumed replacements from the rest of the world which results in declining Canadian GDP? What is the size of the associated "churning costs" of settlement and retraining of these immigrant replacements? Would these settlement costs, absorbed by Canadian taxpayers, be better spent to entice Canadian-trained professionals back from the United States? Finally, what would be the size of necessary rest-of-the-world compensating inflows if we removed the educational subsidy as an incentive to emigrate to the United States? All of these questions must be addressed before we can naïvely play the numbers game and state that a skilled immigrant to Canada can replace a skilled emigrant to the United States. We turn to Table 1 to provide us with answers to the above queries.

Table 1: Balance of Human Capital Payments for Canada 1989-96

Occupations	Immigrant Inflow ROW (1)	Cdn Immigrant Outflow to USA (2)	Net Flow Into Canada (3)=(1)-(2)	Net Transfer (1994$) (4)
Managers	25,443	20,177	5266	$948 million
Health Sciences	4,409	7,835	(-4409)	(-1.2 billion)
Scientists/engineers	20,726	20,595	131	$33 mill1ion
Total	50,578	48,607	1,971	(-$285 million)

DeVoretz and Laryea 1998, Table 17

Table 1 summarizes the absolute flows and associated values derived from these human capital transfers to Canada circa 1989-96. We report only the key occupations (managers, health and sciences) and first calculate a net balance of trade figure in column 3. Only for managers does there appear a balance of trade surplus or an excess of immigrants from the rest of the world into Canada versus emigration to the United States. For health sciences (physicians and nurses), there is a substantial net outflow while degree equivalent scientists have a small positive inflow. If we value all this exchange in terms of educational replacement costs, there is a deficit of $285 million (1994) when we sum column (4) since high-valued doctors are leaving in relatively large numbers. There are two additional “churning costs” owing to this movement — public expenditures for settlement, which are minor ($13,400) and the substantial dead weight productivity losses ($229,000) per immigrant arrival. The latter cost is calculated as the difference in the life-time earnings of post-secondary trained immigrants and comparable Canadian stayers. For the 50,578 replacement immigrants that arrived circa 1989-96, the total costs arising from productivity loss, settlement and educational replacement costs is $11.8 billion (1994 dollars).

How do we reduce “churning” and other costs arising from the brain drain? Three avenues are open: reduce the skilled outflow to the United States (and Hong Kong), increase the quality of immigrant replacements, or both. In the late 1960s we reversed the outflow of Canadian professionals by offering a three-year federal tax rebate in the fourth year after Canadian émigrés returned for at least three years. This once-and-for-all loss of three years in federal taxes was more than offset by the future tax payments collected. In addition, each returning émigré saved the Canadian taxpayer settlement costs and, of course, no productivity loss was incurred.

Policy must also address the paradox of high-skilled immigration levels into Canada versus the repeated statements by industry of a high-skilled shortage. Clearly there exists a job mismatch when firms judge that these immigrant arrivals do not replace Canadian emigrants to the United States. Rather than berating the industry claims of a shortage, a policy of allotting visas to recognized high technology firms who in turn would recruit their own workers would insure a near perfect match. Bonding the firm and leaving health and security clearance in the hands of government would maintain the integrity of the immigration process. If these measures fail, then a contingent loan scheme for professional degrees would reduce the incentive to move. Simply stated, if you left Canada, the subsidy portion of a professional degree would have to be repaid. Otherwise not.

In sum, Canada has a serious highly skilled emigrant outflow to the United States, which is being offset by an inflow from the rest of the world at a cost of $1.5 billion per year. This is only part of the story. The outflow would be even more serious if the recent return flow of the highly skilled to Hong Kong were brought into the debate. Thus, Canada must implement policies to retain Canadians and entice émigrés to return.

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