DO TAX DIFFERENCES CAUSE THE BRAIN DRAIN?

Don Wagner

It is often argued that high taxes are causing Canadians to move to the United States. By examining a sample of Canadians living in Canada and another sample of Canadians living in the US, it is possible to estimate how much people in each group would have earned and been taxed had they lived in the other country. In fact, those who have the most to gain in tax-savings are the most likely to choose to live in the US, which corroborates the claim that tax differences contribute toward Canada's brain drain. On the other hand, the responsiveness to taxation levels is quite small: Lower taxes would decrease the southward flow of people, but not by much.

On impute souvent à une fiscalité trop lourde la propension des Canadiens à migrer vers les États-Unis. La comparaison entre deux groupes de Canadiens (les uns vivant au Canada, les autres aux États-Unis) permet d'évaluer les revenus que les membres de chaque groupe auraient gagnés (et les impôts qu'ils auraient versés) s'ils avaient vécu dans l'autre pays. En fait, ceux qui choisissent de s'établir aux États-Unis sont vraisemblablement ceux qui ont le plus à gagner en économies d'impôts. Cela confirme l'opinion selon laquelle les écarts d'impôts contribuent à l'exode des cerveaux canadiens. Mais la sensibilité au niveau d'imposition est relativement faible : l'abaissement des taux canadiens d'imposition réduirait certes le flux migratoire nord-sud, mais pas de beaucoup.

Canadian taxes are too high, they are driving out top talent, the Gretzkys of high tech.

John Roth, Nortel's CEO

Do I believe that some people leave Canada and that these are the kind of people we should not lose? Yes … Do I believe that they leave because of taxes? No.

Paul Martin, Canada's Minister of Finance

Over the last two years Canada's brain drain to the US has received much media attention in Canada. The debates reported in the newspapers have centred on two issues—whether the brain drain is big enough to warrant concern, and whether Canada's higher taxes contribute to the loss of talent to the US. A number of political, business and academic leaders have expressed opinions on both these issues. Their opinions are often predictable, and seem to depend mainly on whether the individual expressing the opinion advocates tax reductions or increased government spending. Those who seek tax cuts argue that the brain drain is an important problem and that taxes are a key reason for it. In politics, these arguments have come from the Canadian Alliance and the Progressive Conservative Party. Business leaders, such as John Roth (CEO of Nortel Networks Corp.) and Paul Desmarais Sr. (Chairman of Power Corporation's Executive Committee), have also argued that high taxes are driving Canada's best engineers and entrepreneurs out of the country. These claims are contradicted by people who favour government spending and may see reduced taxes as a threat to that spending. The federal Liberal party, citing a report by Statistics Canada, has argued that the Canadian brain drain is small and largely unrelated to taxes. Meanwhile, the Canadian Association of University Teachers has argued that "the perception that Canada's finest brains are draining south to the United States is a myth being pushed as part of a right-wing tax-cutting agenda."

The first of the two main issues—measurement of the significance of Canada's brain drain—has received considerable attention. Studies by Statistics Canada and by UBC economist John Helliwell (see the September 1999 issue of *Policy Options* at www.irpp.org) conclude that there is a brain drain to the US, but that it is relatively small com-

pared to the historical outflow and is more than offset by a brain gain from the rest of the world.

In this article, I want to try to answer the second of these two brain drain issues: whether taxes contribute to the brain drain. I do this by examining a sample of Canadians living in Canada and a sample of Canadians living in the US. Using information on these individuals' income levels, tax levels and various other personal attributes, I estimate the amount each individual could reasonably expect to earn in the other country and how much tax he or she would pay as a result. I then use these estimates of income and taxes to test whether the people who have the most to gain in income or tax savings have been the most likely to choose to live in the US. My conclusion is that they have been, and that taxes do therefore play a role in the brain drain. On the other hand, their effect is not large.

The most reasonable interpretation of all the studies is that there *is* a brain drain to the US, but that it is not at alarming levels that would require desperate measures. On the other hand, it is significant enough to warrant study that could potentially lead to improvements in Canadian policy.

A study of whether taxes influence the brain drain wouldn't make much sense unless the brain drain actually exists. Six well-publicized studies examine the significance of Canada's brain drain to the US—three by Statistics Canada and three by other academic researchers. Don DeVoretz and Samuel Laryea, writing for the C. D. Howe Institute, and Mahmood Iqbal of the Conference Board concluded that the rate of emigration is substantial. On the other hand, three studies from Statistics Canada (one each in 1998, 1999 and 2000) and the article by UBC's John Helliwell mentioned earlier found more modest levels of emigration. The former studies rely heavily on US immigration data, published by the US Immigration and Naturalization Service (INS), that track how many people are granted permanent or temporary visas in the US. These numbers are substantial. For example, Iqbal calculates that in 1997 the total emigration of highly-skilled Canadians to the United States amounted to 98,000 people.

For their part, Statistics Canada and Helliwell argue that because the INS data can count people more than once as they renew short-term visas, such data should not be used to estimate Canadian emigration. Statistics Canada published a report earlier this year that used three alternative methods to estimate emigration and concluded that between 22,000 and 35,000 Canadians move to the US each year. (In contrast, Canada receives about 6,500 immigrants from the US per year.) Helliwell's work, which is based both on the US Current Population Survey, and on records of University of British Columbia graduates, corroborated Statistics Canada's estimates.

In a 1998 study, Statistics Canada tried to put the size of Canada's brain drain into context. It found that

- the brain drain is small relative to the brain drain of the late 1950s and early 1960s
- in most knowledge occupations the drain is small relative to the total number of individuals working in those occupations
- the drain is small relative to the supply of individuals entering the highly-skilled professions, and
- it is substantially smaller than the brain gain from the rest of the world.

A 1999 report by Statistics Canada based on an extensive survey of 1995 graduates of post-secondary institutions reported that 1.5 per cent of such graduates had moved to the US by March 1999, and that 18 per cent of those who had left had in fact returned to Canada by that date. The most highly-educated graduates were the most likely to move. By level of education, the proportions of graduates who moved were as shown in Table 1.

The study also found evidence that those who move tend to be among the brightest students within their education programs. Forty-four per cent indicated they were in the top 10 per cent of their graduating class, while 80 per cent reported being in the top 25 per cent. Movers also tended to have won more scholarships when they had been in school. Asked about their primary reasons for moving, 57 per cent reported work-related reasons, mainly the higher salaries and greater availability of jobs in the US. Very few interviewees cited lower taxes as a reason for moving, although as the report indicates, tax differences may be implicit in the "higher salaries" response. The main conclusions of this report are that the brain drain is relatively small, but that those who move tend to be among the highest achievers. Moreover, job

Table 1
Percentage of 1995 graduates moving to the US

College graduates	1.4
Bachelor's degree holders	1.7
Master's degree holders	3.2
Ph.D. graduates	12.0

Source: "South of the Border: Graduates from the Class of '95 who moved to the US," Statistics Canada, 1999, Cat. No. 81-587-XIE.

Figure 1
Comparison of US and Canadian tax rates,1996, single person

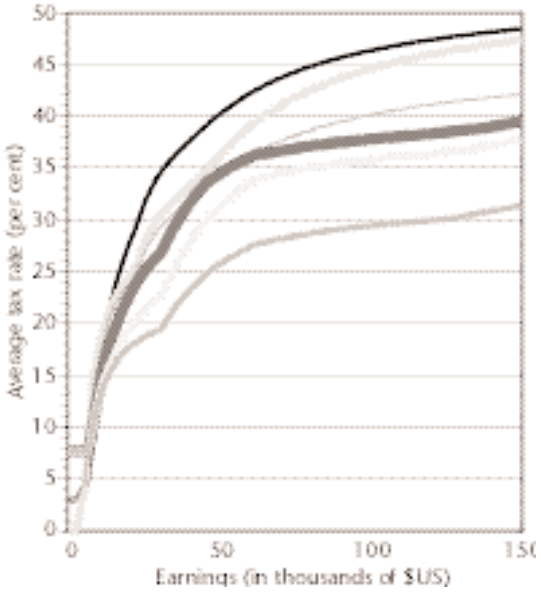
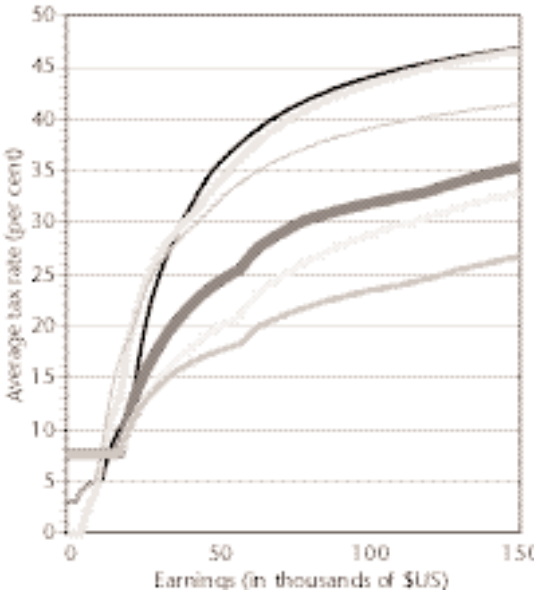


Figure 2
Comparison of US and Canadian tax rates, 1996, married couple, one income-earner



Legend for both figures:
Top line: Canadian high-tax jurisdiction (Quebec)
2nd highest line: Canada's largest jurisdiction (Ontario)
3rd highest line: Canadian low-tax jurisdiction (Alberta)
3rd lowest line: US high-tax jurisdiction (NY City)
2nd lowest line: US's largest jurisdiction (California)
Bottom line: US low-tax jurisdiction (any no-tax state)

Notes:
The taxes computed for these figures include no deductions or credits other than those available to all taxpayers of that profile. The Canadian calculation assumes claims for personal, married, CPP and EI credits. The US calculations assume the appropriate exemption claims and the greater of the standard deduction and itemized deductions (comprising state and city taxes). Unique provincial, state and city deductions and credits are also considered. In Figure 2, the married couple is assumed to have two children.

opportunities are the main reason people move.

What to conclude from these various studies? The most reasonable interpretation is that there *is* a brain drain to the US, but that it is not at alarming levels that would require desperate measures. On the other hand, it is significant enough to warrant study that could potentially lead to improvements in Canadian policy.

There are big differences between Canadian and US taxes—both in effective rates and in the types of individuals that qualify for favourable tax treatment.

Canadian income tax rates are much higher than US rates. Occasionally one sees comparisons between top Canadian marginal rates and top marginal rates in California or New York City, two of the highest-taxed jurisdictions in the US, that suggest the tax differences are small. For example, Canadian top rates ranged between 46 per cent and 54 per cent in 1996, depending on the province, while California's and New York's, were 47 per cent and 48 per cent, respectively, with social security payroll taxes included. (The US social security tax corresponds to Canada's CPP and EI levies. Unlike its Canadian counterparts, however, this US payroll tax is not capped for high-income earners.) But these comparisons fail to take into account differences in how quickly marginal tax rates rise as a taxpayer moves up the earnings scale. In the US, the highest marginal rates only apply to taxpayers with earnings in excess of about $US250,000, whereas the highest basic Canadian marginal rate begins at around $C60,000 (though the recent mini-budget would raise the top-bracket income level to $100,000). Moreover, Canadian marginal rates run as high as 40 per cent at levels of income as low as C$30,000 a year.

Figures 1 and 2 compare average tax rates for income levels between zero and US$150,000 for the year 1996. The first graph shows the rates that applied to unmarried individuals, while the second shows the rates that a married couple

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with two children faced if the family income was all earned by one of the partners. Both graphs show three lines for each country—a high-tax jurisdiction (Quebec for Canada and New York City for the US), the most populous jurisdiction (Ontario and California), and a low-tax jurisdiction (Alberta for Canada and any no-tax state, such as Texas or Florida for the US). Unlike the statistical tests that I describe later, these figures assume no deductions other than personal deductions.

The Canadian taxes considered in these figures include federal and provincial income taxes, as well as Canada Pension Plan (CPP) and Employment Insurance (EI) premiums. The US taxes include federal, state and city income taxes plus Social Security taxes.

Besides featuring generally lower tax rates, the US tax system also targets its tax breaks differently than Canada's does. A legion of factors affect the size of a household's tax savings if it moves from Canada to the US. Some of the more important are:

- *The ability to file joint returns.* The US allows married couples to file joint tax returns; Canada does not. Under the US system married couples move up to higher tax brackets at higher income levels than single individuals. As a result, taxpayers who marry partners who earn little income can gain a significant tax savings, while corresponding Canadian taxpayers gain very little tax savings. Comparing Figures 1 and 2, one can easily see the greater tax benefits of being married in the US *versus* Canada. The Canada-US gap for married couples is widest where only one of the partners earns income. It narrows if both partners contribute approximately equal amounts to family income. Couples where one partner earns most of the income have more to gain from moving to the US than single individuals or couples with near-equal earnings.
- *Deduction of mortgage interest and real estate taxes.* US taxpayers may claim mortgage interest and real estate tax expenses on their home as itemized deductions, whereas Canadian taxpayers cannot. In 1996, US deductions for mortgage interest amounted to 4.9 per cent of adjusted gross income (AGI), while deductions for real estate taxes amounted to 1.6 per cent of AGI. Homeowners—particularly those with debt—may therefore have more to gain from a move to the US than renters.
- *Retirement plan contributions.* Canada offers much more generous deductions for contributions to retirement plans. Canadian taxpayers may deduct contributions up to the lesser of 18 per cent of earned income or $13,500. Meanwhile, in the US deductible contributions to an IRA are limited to at most $2,000 per person and are only available to low-income taxpayers. In 1996, deductible contributions to retirement plans amounted to 4.3 per cent of total income in Canada and 0.2 per cent of AGI in the US. Taxpayers who either cannot or choose not to contribute much to retirement plans clearly have more to gain from moving to the US than those who contribute the maximum deductible amount. Homeowners who direct their investments toward home equity rather than a registered retirement plan may fit this profile.
- *Jurisdictions.* Taxpayers who come from high-tax provinces in Canada, such as Quebec and British Columbia, or taxpayers who move to no-tax states, such as Texas, stand to gain more from moving than other taxpayers.
- *Income range.* The Canada-US tax rate differences vary across income levels. The biggest differences lie in the $50,000 to $150,000 ($US) range. Canadian taxpayers in that range would have the most tax saving to gain from a move to the US.

In sum, there is substantial variation amongst taxpayers in how much tax saving they can realize by moving to the US. From the point of view of someone who wants to test whether tax differences cause people to move, that is a good thing, for it allows us to consider whether those who have the most to gain are the most likely to move.

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My statistical tests involve comparing people's Canadian and US pre-tax income opportunities and their Canadian and US taxes on those respective incomes. The tests use a sample of households in Canada and the US where at least one member of the household has lived in Canada in the past. Survey data on people's income and taxes are readily available for the country in which they actually live, but—for obvious reasons—not for the country in which they do not live. Much of the statistical work I do involves estimating how people would fare in the other country's labour market if they decided to move. It is clearly a hypothetical question, but if labour markets are thought to reward personal characteristics and achievements, then data we have about these characteristics and achievements will allow us to make reasonable

suppositions about these questions.

The statistical tests are based on data from two sources. For people residing in Canada, the data comes from an annual survey conducted by Statistics Canada, called "Individuals—Aged 15 Years and Over With and Without Income." This survey provides fairly detailed economic and demographic data on about 75,000 individuals each year. In the US, the Current Population Survey (CPS) provides similar data on about 140,000 individuals each year. Beginning in 1992, the CPS also reports each individual's country of birth, and since 1994 his or her previous country of residence, which allows researchers to identify which people in the sample came from Canada. Over the five years examined in my study (1992-1996), there are 2,331 Canadians in the CPS sample, 422 of whom arrived in the 1990s. From this data I combine married partners into households, and I only include households that have a positive income—about two per cent of the households reported no income—and whose highest income-earner is of a normal working age (18 to 64). A household residing in the US is treated as Canadian if at least one of the spouses was born in Canada or last resided in Canada. After combining the Canadian and US samples from all five years (1992-96) and making these deletions, my broadest tests use 182,276 households, 1,259 of which are residing in the US. (Data on American residents who did not come from Canada are used to predict the income and taxes Canadians would earn and pay if they moved to the US, but are not included in the 182,276 households whose location choices are studied.) My tests that focus on the current brain drain exclude individuals who moved to the US before 1990. With this exclusion, the data covers 181,246 households, 226 of which reside in the US. This sample of 226 households represents approximately 88,000 Canadian households living in the US while the remaining 181,020 households in the sample represent approximately 11.7 million households living in Canada. Each observation in the sample is weighted based on how many people it represents. (The problem is that a person living in Canada is more likely to appear in the sample than a person living in the US; the weighting corrects for this.)

Table 2
Average ratios of US to Canadian household income

Overall	1.13
Selected high-ratio occupations	
Scientists	1.35
Architects and engineers	1.32
Health diagnosing and treating	1.72
Nursing, therapy and related	1.41
Artistic, literary, recreational	1.50
Selected low-ratio occupations	
Forestry and logging	0.86
Processing (other than food and beverage)	0.70
No occupation	0.88
By education	
No high school diploma	0.89
Only high school diploma	1.19
Non-university post secondary diploma	1.17
Bachelor's degree but no graduate degree	1.24
Graduate degree	1.34

Notes:

(1) In the case of a household located in Canada, the ratio's numerator is hypothetical US income and the denominator is actual Canadian income converted to US dollars at the purchasing-power-parity (PPP) rate. In the case of a household located in the US the numerator is actual income and the denominator is hypothetical Canadian income converted to US dollars at the PPP rate.
(2) US households used for these statistics only include those with at least one member who lived in Canada in the past.
(3) For married couples, the higher-income spouse's occupation and education level are used.

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The first step in determining how much tax savings Canadians have or have not enjoyed as a result of moving to the US is to estimate each person's hypothetical income were they to live in the other country. This computation of hypothetical income has two stages. The first stage involves determining what the average person earns in the other country, given his or her profession, age, sex, marital status, parental status and education. The second stage involves an adjustment to account for the wide range of income levels observed within the same professions and demographic characteristics. It is reasonable to believe that a person who can earn an above-average income in one country can do the same in the other country, as well. Consequently, I assume that a person positioned at a given point in the income range in his/her country of residence will be positioned at the same point in the income range in the opposite country. Suppose, for example, that a person's income is in the 81st percentile in his/her home country for his/her profession, age, sex, marital status,

parental status and education level. I set that person's hypothetical income to be in the 81st percentile in the other country for people with the same profession, age, sex, marital status, and education level. (If instead I were to use only the *average* income computed in stage one, and not make this adjustment, then the hypothetical income of Canadians living in the US would tend to be underestimated, because there is evidence that the people who move tend to be more talented than those who remain in Canada, even among people in the same profession and with the same education level.)

Table 2 (on p. 37) reports some average ratios of US income to Canadian income (translated at purchasing power parity rates) for various groups of people. Overall, the average US/Canadian pre-tax income ratio is 1.13, but the ratio of US to Canadian income varies across occupations. Some of the biggest income differentials are in professions where the brain drain is most acute—amongst doctors, nurses, scientists and engineers. At the other end of the spectrum, there are some professions where Canadian earnings are more attractive than US earnings—such as forestry and logging, and various blue collar professions. Individuals who are not in any profession also have more attractive earnings in Canada than in the US, most likely because of Canada's more generous social welfare programs.

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Taxes the problem ... at bottom?

Table 2 also shows that the earnings benefits of living in the US rise as the level of education increases. People who have not finished high school tend to be better off in Canada, while people with a university education generally can earn substantially more in the US than in Canada.

The hypothetical incomes calculated in stage one of the statistical exercise are then used to compute hypothetical taxes—that is, the taxes a given household would pay if it lived in the other country. Three types of taxes are included—federal income taxes, state/provincial income taxes and payroll taxes. The following factors fed into the estimate of hypothetical taxes:

- hypothetical income
- known deductions (such as personal deductions or credits based on known family characteristics)
- an estimation of other deductions that the taxpayer would qualify for in the "target country," that is, the country he or she is not currently living in. These deductions are computed by determining how much taxpayers of the same demographic characteristics deduct (other than personal deductions or credits already captured) in the target country, and
- the prevailing tax rates in the target country.

For US residents, whose target country is Canada, the hypothetical provincial tax is an average of all the provincial taxes, weighted by population. For Canadian residents, the hypothetical state tax is a weighted average of all the states' taxes, with the weights based on the proportion of Canadian emigrants living in each state. A taxpayer's total hypothetical tax rate is the sum of the hypothetical federal taxes, provincial/state taxes and payroll taxes, all divided by his or her hypothetical income.

After performing the above computations, I have each household's actual income, hypothetical income, actual average tax rate and hypothetical average tax rate. In my final step, I check whether those who have the most to gain in income and tax savings are the most likely to have moved. To do this, I construct a model that predicts the probability that a household has chosen to live in the US based on its income opportunities, its tax savings opportunities and several other factors. Specifically, my model considers the following variables:

- the household's income ratio (that is, its

US income divided by its Canadian income)

- the household's tax ratio (which compares the proportion of US income that is untaxed to the proportion of Canadian income that is untaxed)
- age, on the grounds that older people are less likely to move
- marital status, since a couple's joint decision to move involves some issues that differ from those facing a single person
- whether the individuals are parents, because families may prefer to raise their children in Canada, and
- education, because more highly educated people tend to move farther to find the specialized job for which they were trained.

The outcome of this statistical test answers the main question, "Do taxes contribute to Canada's brain drain to the US?" If the tax ratio makes a positive and significant contribution to how well this model predicts household location choices, then a reasonable inference is that tax differences do contribute to Canada's brain drain.

It turns out that taxes do matter. My econometric tests show that Canadians in my sample who have moved to the US tended to have more to gain in tax savings than those who stayed in Canada. This suggests that taxes enter into the decision on where to live. Statistically, my results are highly significant. (There is less than a two per cent chance that my tests would produce such strong results if taxes truly did not matter.)

Pre-tax income also matters, independently of how much of it people get to keep. People who moved south tended to have more to gain in pre-tax income than those who remain in Canada, a result that is also extremely significant statistically. (There is less than a 0.1 per cent probability that my tests would produce such strong results if pre-tax income truly did not matter.)

In addition, tax savings impact university graduates' migration decisions just as strongly as pre-tax income opportunities. This suggests that university graduates care mainly about after-tax dollars. Whether they earn an extra dollar of after-tax income through an increase in pre-tax earnings or through tax savings doesn't matter. This outcome is reassuring: You would expect a rational decision-maker to use after-tax income as the basis for economic well-being. (So it is disconcerting that this intuitively appealing relationship does not hold for non-university graduates. For non-graduates my empirical tests suggest that income does not matter, but tax matters a lot, which is perplexing. But since the concern here is the brain drain, and the main worry about the brain drain is that Canada will lose its highly skilled workers, the remaining analysis will focus on the results for university graduates.)

One possible objection to the analytical technique I have used here is that it does not account for differences in public services between Canada and the US. As noted, my results imply that, in deciding whether or not to move, a university graduate would not respond to a higher pre-tax income if the income gain were offset by a tax increase of the same amount. Even though the higher taxes might result in better government services, the benefit would be spread out across the nation, and the share of benefits accruing to the particular taxpayer would be negligible, so the individual taxpayer would not "internalize" this benefit.

For Canadians, the archetypal government service is health care. Many Canadians attribute Canada's higher taxes to our government-provided health care system, and believe that Canadians are willing to pay more taxes because the government provides health care in return. Despite this widespread belief my statistical tests ignore health care costs. There are three reasons for this. First, in principle, the Canadian government provides health care equally to everyone. Someone who pays high taxes gets the same benefit as someone who pays little tax. People with large tax-savings opportunities from moving to the US would not have to give up more health care benefits than people with small tax-savings opportunities. To be sure, the prospect of losing these benefits may reduce Canadians' overall willingness to move, but this prospect will not affect high-tax Canadians more than low-tax Canadians.

A second reason why it's not necessary to control for Canada-US differences in health care costs is that in fact Canada's higher taxes are *not* attributable to the Canadian health care system. The US government actually spends more per capita on health care than the Canadian government. (See *Health Care in Canada: A First Annual Report*, by the Canadian Institute for Health Information and Statistics Canada.) Third and finally, in the US jobs for well-educated individuals tend to provide a health care plan. Well-

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educated individuals typically have their health care provided for them in whichever of the two countries they decide to live.

Although higher economic incentives increase the probability that a household will move to the US, the vast majority of Canadians obviously do not move—even those in professional and demographic categories that could realize substantial economic gains by moving. There are clearly other, non-economic factors, presumably including patriotism and a desire to live close to family and friends, that keep most Canadians in Canada.

Having established that taxes matter, the next obvious question is, "How much?" To address this question I carried out three simulation experiments to see how many more Canadian households would have stayed in Canada if Canadian taxes had been lower.

Before reporting these results, I should point out that they likely underestimate how responsive migration is to income and tax differences. This is because the statistical tests rely on hypothetical incomes and taxes and therefore do not capture all the idiosyncratic variations among households. Because the income and tax ratios do not fully capture the income and tax differences that households actually face, the outcome of the statistical tests gets pushed towards insignificant results.

The first experiment explores how much smaller the brain drain would have been if Canadian taxes had been the same as US taxes. Suppose Canada had adopted the same tax rates, tax deductions and tax rules as the US, how much smaller would the southward migration have been? To find out, I substitute a revised tax ratio into my model for predicting each household's probability of living in the US. In the years tested, there were about 50,000 university-graduate households living in the US in which at least one member had arrived from Canada in the 1990s. According to my measurements, had Canada's taxes been the same as US taxes, there would have been about 45,000 such households living in the US. In other words, Canada's southward migration drain would have declined by only 10 per cent, though the true decline may be somewhat higher since, as mentioned, my measurements have a tendency towards underestimation.

Had both incomes and taxes been identical in the two countries, the outflow to the US would have been 41 per cent smaller, which by almost any measure is quite a large reduction. Note that these projections are based on data from 1992-1996, before the declining Canadian dollar widened the US-Canada income gap substantially.

On the other hand, had *both* incomes and taxes been identical in the two countries, the outflow to the US would have been 41 per cent smaller, which by almost any measure is quite a large reduction. Note that these projections are based on data from 1992-1996, before the declining Canadian dollar widened the US-Canada income gap substantially.

It would be interesting to see how these experiments would affect the *net* brain drain to the US (i.e., migration to the US minus migration from the US). Unfortunately, I do not have data on how many US-born university graduates reside in Canada. Moreover, changes in relative incomes and taxes would likely affect northward migration flows. Nevertheless, a back-of-the-envelope calculation suggests that identical incomes and taxes would eliminate most of the net brain drain.

A second experiment involves checking how many fewer households would have moved if Canada's average taxes had been reduced by various percentages. For example, suppose all Canadian income taxes were reduced by 10 per cent (i.e., that households now paying an average tax rate of 30 per cent instead paid 27 per cent). Some results are reported below:

A useful generalization of these results is that a one per cent reduction in Canadian average taxes results in a reduction in migration of about 0.6 per cent. Even allowing for some underestimation, migration levels are not very responsive to tax differences.

The third experiment projects the brain drain reduction resulting from tax cuts offered in the last two budgets, that is, last February's "Budget 2000" and this fall's pre-election mini-budget. The government estimates that the average family's tax bill will be 21 per cent lower by 2004-2005. Applying a 21 per cent reduction to everyone's Canadian tax bill, I calculate that the brain drain would be cut by 12 per cent.

On the whole, what is remarkable in this analysis is how few people move despite substantial economic incentives to do so. In the

Table 3
Simulated effects of tax cuts

Per cent reduction in:

Taxes	Emigration of graduates
5	3
10	6
15	9
20	11
25	14

early 1990s, the average university-graduate household could earn 27 per cent more in the US and could pay 18 per cent less in taxes for a given income level. Yet, only 2.5 per cent of university-graduate households moved.

My goal in conducting this research has been to provide hard evidence on how taxes affect Canadians' decisions on whether to live in Canada or the US. I find that, as has often been alleged, people do indeed consider taxes when deciding whether to move. Yet, they apparently are not as responsive to tax differences as many businesspeople and politicians have claimed. In fact, even if our taxes were *lower* than US taxes, we'd still be losing most of the people we're losing now: The reduction in taxes would not have a large enough effect on emigration to stem the flow.

Do tax differences contribute toward Canada's brain drain to the US? Yes. Can the brain drain be used as a justification for tax reductions? Yes, but only as a secondary argument. At bottom, the brain drain is too small to justify substantial tax cuts on its own. Moreover, large tax cuts would not eliminate it. Still, the brain drain does exist and tax reductions would reduce it somewhat. Proponents of tax cuts can therefore legitimately point to the brain drain in justifying their proposals, but the main thrust of their case should rely on other arguments.

Don Wagner carried out the work reported here as part of his PhD dissertation for the Faculty of Commerce and Business Administration at the University of British Columbia, where he currently lectures. A longer version of this paper is available at http://pacific.commerce.ubc.ca/wagner/papers/BrainDrain.PDF

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The undecided voter There's no denying that a large number of people find [US Vice-President Al] Gore irritating; to prove it, there are polls, to say nothing of the panels of "undecided voters"—that is, clueless, ill-informed citizens who even at this late date cannot summon the mental energy to make up their minds—assembled by the television networks into on-camera focus groups.

Hendrik HERTZBERG, *The New Yorker*, 6 Nov 2000