# Skills Research Initiative
# Initiative de recherche sur les compétences

**Highly Skilled Workers: Build, Share, or Buy?**

John F. Helliwell (University of British Columbia)

Working Paper 2006 D-13

Human Resources and Social Development Canada/Ressources humaines et Développement social Canada
Industry Canada/Industrie Canada
Social Sciences and Humanities Research Council/Conseil de recherches en sciences humaines du Canada

**Working Paper Series / Collection Documents de travail**

Government of Canada Gouvernement du Canada

Canada

In the context of the federal government's innovation strategy, Human Resources and Social Development Canada (HRSDC), Industry Canada (IC) and the Social Sciences and Humanities Research Council Initiative on the New Economy (SSHRC-INE) are partnering to design and fund a multi-year skill-related research program–the HRSDC-IC-SSHRC Skills Research Initiative (HISSRI). The research is grouped into four themes:

A. Labour Market and Skills Implications of Population Aging;
B. Employer-Supported Training;
C. Adjustments in Markets for Skilled Workers;
D. International Mobility of Skilled Workers.

Dans le cadre de la stratégie d'innovation du gouvernement fédéral, Ressources humaines et Développement social Canada (RHDSC), Industrie Canada (IC) et l'Initiative de la nouvelle économie du Conseil de recherches en sciences humaines (INE-CRSH) se sont associés pour concevoir et financer un programme pluriannuel de recherches sur les compétences, appelé Initiative de recherche sur les compétences de RHDSC-IC-CRSH. Ce programme comprend quatre grands thèmes :

A. les incidences du vieillissement de la population sur le marché du travail et la main-d'oeuvre spécialisée;
B. la formation en entreprise;
C. l'adaptation du marché du travail aux travailleurs spécialisés;
D. la mobilité des travailleurs spécialisés dans le monde.

The HISSRI Working Paper Series provides a forum for the discussion of analytical issues related to the themes covered under the research partnership. Working Papers are circulated in the language in which they were written. The papers reflect the views of the authors and no responsibility for them should be attributed to HRSDC, IC or the SSHRC. Comments on the papers are invited and may be sent directly to the authors.

La collection Documents de travail de l'Initiative de recherche servira de tribune où seront abordées plusieurs questions analytiques liées aux thèmes susmentionnés. Les documents de travail sont diffusés dans la langue dans laquelle ils ont été écrits. Les opinions qui y sont exprimées sont celles des auteurs et n'engagent pas RHDSC, IC ou le CRSH. Le lecteur est prié de faire part de ses commentaires aux auteurs.

# Skills Research Initiative
# Initiative de recherche sur les compétences

**Highly Skilled Workers: Build, Share or Buy?**

John F. Helliwell (University of British Columbia)

Working Paper 2006 D-13

Human Resources and Social Development Canada/Ressources humaines et Développement social Canada
Industry Canada/Industrie Canada
Social Sciences and Humanities Research Council/Conseil de recherches en sciences humaines du Canada

To obtain copies of the documents published under the HRSDC-IC-SSHRC Skills Research Initiative, please visit http://strategis.ic.gc.ca/epic/internet/ineas-aes.nsf/en/h_ra01877e.html or contact:

Publications Coordinator
Micro-Economic Policy and Analysis
Industry Canada
10th Floor, East Tower
235 Queen St.
Ottawa, Ontario K1A 0H5

Tel. : (613) 952-6411 ; Fax. : (613) 991-1261
E-mail : mepa.apme@ic.gc.ca

Pour obtenir des exemplaires des documents publiés dans le cadre du Programme de recherches sur les compétences de RHDSC-IC-CRSH, cliquer sur http ://strategis.ic.gc.ca/epic/internet/ineas-aes.nsf/fr/h_ra01877f.html ou s'adresser à :

Coordinatrice des publications
Analyse de la politique micro-économique
Industrie Canada
10e étage, tour Est
235, rue Queen
Ottawa (Ontario) K1A 0H5

Tél. : (613) 952-6411 ; Fax : (613) 991-1261
Courriel : mepa.apme@ic.gc.ca

## Abstract

This paper summarizes some recent empirical research relating to the determination and consequences of the international mobility of highly skilled workers. Building on this base, the paper attempts to compare the costs and benefits of international migration with those of alternative means of developing national pools of applicable skills. The paper integrates a selected body of research while also attempting to place the Canadian research and policy implications into a broader international context. More fundamentally, it is recommended that the evaluation of policies and their effects should be based on their consequences for well-being. Given the substantial extent that well-being depends on much more than conventional measures of incomes and employment, the evaluation of different components of the skills policy agenda differs correspondingly.



## Résumé

L'auteur résume certaines études empiriques récentes sur la détermination et les conséquences de la mobilité internationale des travailleurs hautement qualifiés. À partir de ce travail, il tente de comparer les coûts et les avantages de la migration internationale avec ceux d'autres méthodes de création de bassins nationaux de main-d'oeuvre spécialisée pertinente. Il intègre un certain nombre d'études et tente de placer les conséquences pour la recherche et les politiques du Canada dans un contexte international plus vaste. Plus important encore, il recommande de fonder l'évaluation des politiques et de leurs effets sur les conséquences pour le bien-être. Compte tenu du fait que le bien-être dépend de beaucoup plus que des mesures conventionnelles de revenu et d'emploi, l'évaluation des différentes composantes du programme d'action en matière de main-d'œuvre spécialisée varie en conséquence.

## Executive Summary

This paper summarizes some recent empirical research relating to the determination and consequences of the international mobility of highly skilled workers. Building on this base, the paper attempts to compare the costs and benefits of international migration with those of alternative means of developing national pools of applicable skills.

The paper integrates a selected body of research while also attempting to place the Canadian research and policy implications into a broader international context. More fundamentally, it is recommended that the evaluation of policies and their effects should be based on their consequences for well-being. Given the substantial extent that well-being depends on much more than conventional measures of incomes and employment, the evaluation of different components of the skills policy agenda differs correspondingly.

## 1. Introduction and Previous Research

This synthesis paper attempts to advance the objectives of the skills initiative by placing the data and analysis of international skills mobility into a broader framework of national and international research and policy evaluation. There are three related lines of my own past and current research that contribute to this synthesis.

The first comprises several papers documenting the scale and determinants of the so-called brain drain from Canada to the United States (Helliwell 1999, Helliwell and Helliwell 2000, 2001, Finnie 2001). My assessment, at the turn of the century, based on data from the US Census and the records of UBC's graduates over the previous seventy years, was that there was some evidence of a levelling off of the decades-long decline in the share of the highly educated Canadian-born living in the United States. This evidence of a long-continuing decline in southbound migration, and its historically low level, was in stark contrast with the media and think-tank coverage of this issue at the time, which presumed that the so-called brain drain was high and rising. Another result that showed up clearly in the course of that research, and which is even more relevant now, is that a

major factor underlying the long decline in the southbound brain drain has been the rapid rise in the range and quality of post-graduate training and research in Canada.

This has meant that it is now possible for Canadian BAs and BScs to get their advanced degrees in Canada, hence increasing their involvement in Canadian-oriented research, and increasing the chances of their subsequently living and working in Canada. The creation of high-level graduate research and training has also attracted high quality graduate students from all over the world. It is true that their education is supported in part by Canadian taxpayers, but the direct and indirect value of the research they generate while they are in Canada represents good value-for-money ('building' skills while also expanding the relevant research base). This is because talented researchers are willing to accept very low wages for their teaching and research since they are at the same time acquiring skills and reputations that will in the future open doors for them in Canada and around the world. Furthermore, even though Canadian immigration policies did not until recently facilitate easy transfer directly from graduate student to landed immigrant status, the number of UBC PhD graduates living in other countries is exceeded by the number who were born in other countries and currently living in Canada. A survey of Canada's 3000-odd PhD graduates of 2003-2004 (Gluszynski and Peters 2005) showed that the same thing is true even at the national level, with the proportion of new PhDs planning to leave Canada for their next position being slightly smaller than the share (21% vs 22.8%) who had undertaken their Canadian PhD studies as foreign visa students. Thus the university-based graduate research and training system (building skills) is a net source of imported talent. Not only that, but much recent analysis has shown, unsurprisingly, that those with research degrees from Canada do better in the Canadian labour market than those with foreign credentials. This has been regarded in some quarters as failure to properly recognize foreign training, but a large part of this result is more likely due to the fact that the Canadian research and training is more directly applicable to Canadian problems and institutions.

The second related line of my research is based on my paper prepared for the 2004 Jackson Hole Conference (Helliwell 2004b), where I analyzed the extent to which

international factor mobility, especially of capital and labour, would help to deal with the problems posed by foreseeable demographic transitions, and especially the decline of the share of the population in the 20 to 64 age range in many countries. The surveyed evidence and the new results alike suggest three things relevant to the current topic: first, that migration remains a rare event, supported by established pathways, and reflecting labour market imbalances only slightly, and with long lags (based on the footprint effect from previous migration flows); second, that migration is costly (more on this later); and third, that outsourcing, the name coming to be used as shorthand for skill-rich service imports, can be seen as source (sharing) of high skills providing an alternative to migration (buying).

The third line of research relates to well-being. Results from many countries accruing over the past several years have convinced me (Helliwell 2001, 2002, 2003, 2004a, 2005 Helliwell and Putnam 2004, Helliwell and Huang 2005a, 2005b), and some others (e.g. Layard 2005a, 2005b), that the objectives and consequences of public policies should be evaluated using broader measures of subjective well-being to supplement or even replace more conventional indexes of per capita incomes and productivity. This is true even where the latter are augmented by adjustments for non-marketed parts of GDP and other variables built into the UNDP measures of the quality of life. Direct measures of well-being permit evidence-based estimation of the extent to which various features of the economic and social environment influence well-being. How do these lines of research relate to the evaluation of alternative ways of providing timely Canadian matching of the supply of and demand for skills over the coming decades?

First, as already suggested above, there is much evidence that migration is costly for the migrants, for the communities they leave behind, and for their new communities. Many of these costs relate to the pace of migration, and are lower where the pace is moderate enough to permit the necessary adjustments to be made in both the receiving and sending communities. This is true even in a narrow economic calculus, but becomes much more obvious when the analysis is extended to broader measures of well-being (Helliwell 2004a, 2004b). This invites more explicit comparisons of the well-being effects of

'buying' (migration) and 'sharing' (outsourcing, or factor-embodied trade in goods and services) skills as means of providing for emerging domestic and global requirements.

Second, well-being research is now being focussed directly on the workplace (Helliwell and Huang 2005a) and shows that overall life satisfaction depends very much on the extent of workplace trust as well as on a number of other elements of workplace social capital. Workers value jobs that require skills, and that offer them a variety of tasks, along with an absence of conflicting demands. All of this suggests that building skills on the job, which has long been the most frequent route to high-tech occupations, is likely to require a collaborative workplace environment, but in the right circumstances is likely to help to build and maintain such an environment. A recent Canadian study (Chowan 2005, Table 4) based on the 1999 Workplace and Employment Survey (WES), found that more training of almost every type is delivered on-the-job than in a classroom environment. Unfortunately, there has as yet been insufficient integration of well-being measures into workplace-based surveys, so that is thus far not possible to untangle the overall effects of building skills in different types of workplace environments. By the same token, the larger national surveys that do include measures of well-being (especially the 2002 Ethnic Diversity Survey and the 2003 General Social Survey) have little information about the workplace environment. The GSS does have some measures of the quality of the workplace environment, and the earlier SSHRC-sponsored ESC survey (see Soroka et al 2005 for a description) does have a number of job satisfaction questions in its second wave. However, in neither case is there sufficient detail to plumb carefully the relations between workplace skills development and the well-being of employees and management.

It will be an even larger task to make more explicit evaluations of the circumstances in which building, sharing and buying skills are to be preferred. Thus this paper can offer only a review of some of the relevant evidence in hand plus some suggestions for an appropriately broadened research agenda that might provide a more evidence-based guide to policies for supporting the evolution of skills in Canadian workplaces and communities.

The remainder of the paper will be divided into two main sections, the first a selective review of the evidence relating to domestic and international mobility of the highly skilled, and the second sketching some of the possible implications for public and private policies relating to the development and effective use of skills.

**2. Migration of the Highly Skilled: Scale, Causes and Consequences**

This section will provide some representative data on the dynamics, extent, causes and consequences of large-scale international migration, with special emphasis on the highly skilled. The broad nature of the evidence is that migration is much more common for those with higher levels of education. The increasing prevalence of higher education thus tends to increase mobility. On the other hand, for Canada at least, there has been a century of evidence of broadly declining migration rates between Canada and the United States, even among those with high skill levels. These trends need to be seen as the net result of the various push and pull factors governing migration decisions.

On the push side, most movements of refugees, and many broader population movements have been driven by persecution, warfare, starvation, unemployment, or an otherwise low quality of life in the source country or region. How many people move, and where they go, then depends on the options and doors that are open, the information and incentives on offer, and most importantly on the links already in place from previously migrations down the same pathways. The importance of this last factor explains why migration flows from one point to another tend to grow long after the peak values of the incentives to move, since the earlier migrants pave the way for their successors.

On the pull side, countries become destinations of choice when they offer potential migrants realistic possibilities for a better life, with the latter increasingly found to depend less on material standards of living than on the scope provided for migrants to be engaged and efficacious in their new communities. Since these possibilities depend very much on the local context, this provides further rationale for the heavy dependence of migration on the existence of pre-trodden pathways and established communities of

previous migrants from the same source countries, and, more tellingly, from the same families and towns.

The combination of push and pull helps to explain why Canada had such large migrant inflows from Europe at a time when Canada was opening up, and times were tough in many source countries. Canada was at that time a less established country than the United States, and many of the mid 20th century migrants were fleeing something bad rather than choosing Canada in particular. This combination of circumstances may help to explain why Canada was to such a large extent a pass-through destination, with southbound flows to the United States being several times larger than they are today. As Canada and its institutions became more established, and as these institutions developed their own particular features, it should perhaps have been expected that the Canada-bound and the Canadian-born would be increasingly likely to remain in Canada in preference to moving on to the United States. This presumably reflects the emergence of a more stable sorting of migrants, and deeper roots in communities of birth, because the north-bound and southbound flows of migrants across the Canada-US border have both fallen substantially, and fairly steadily, as shares of population, and often in absolute numbers as well.

One research puzzle is why the scale and nature of flows of the highly skilled from Canada to the United States continue to be the central focus of Canadian studies of the broader topic of skill mobility. This is apparent even in background papers for the skills research initiative (Gera et al 2004, Harris 2004 and Hart 2004). A similar puzzle was found by Davenport (1999) for New Zealand, where the media reports of a brain drain and eventual resulting shifts in the focus of public policy were unsupported by corresponding changes in the underlying data. In the Canadian context, this has usually involved statistics that give the impression that large and growing numbers of highly skilled Canadians are moving to the United States. Some commentators see this as a serious problem requiring, among other remedies, reductions in Canadian tax rates to keep these mobile resources in Canada (e.g. Nankivell 1998). There may have been some weakening of these sentiments in the wake of fuller studies (e.g. Helliwell 1999, Finnie

2001) of the data showing a long downward trend in the number of Canadian-born choosing to live in the United States, from a high of about 20% of the Canadian population at the beginning of the 20th century to about 2% at the beginning of the 21st century[1]. Studies of the locations of many decades of graduates of all of UBC's graduate and undergraduate students (Helliwell and Helliwell 2000, 2001) showed similar patterns for all skill levels and types. As expected, the extent of post-graduation migration increases with the level of training, as does the number of students coming to Canada for training. Even at the highest level of research degree, the UBC data showed that PhD graduates living in Canada easily outnumbered those who had been born or raised in Canada. This is also true at the national level, where a recent Statistics Canada report (Gluszinski and Peters 2005) shows a very high proportion of PhD graduates wishing to work in Canada, greater than the Canadian resident share of the same cohort. This suggests that foreign graduate students have already become an important source of skills in Canada, despite policies that often discourage foreign graduate students from staying in Canada. More on this issue later.

Despite these facts, specific focus on the United States as a competing marketplace remains. Hence the concern with the size of the gross south-bound flows, as when Gera et al (2005, 21) suggest that recent data 'do not support the Finnie-Helliwell contention that the Canada-US outflows were small' In particular, Gera et al report that 'by 2002 the stock of Canadians resident in the United States approached 935,000 which represented approximately 400,000 or 80% increase in five years (1997-2002)' (Gera et al 2005, 21, quoting McHale 2002). Before seeing this reference, I had already made use of subsequent research on these same numbers by their collectors, the Current Population Survey (CPS) of the US Census Bureau. The Census Bureau authors were able to build up more precise estimates of the number of the Canadian-born living in the United States by making use of the full set of monthly CPS surveys. In my presentation based on their data (Helliwell 2004c) I contrasted the Mexican and Canadian presence in the United States in the following terms: the number of Mexican-born living in the United States is

[1] For comparison, the number of New Zealand-born living in Australia in the 1990s was estimated to be more than 10% as large as the New Zealand population (Davenport 1999, 625).

estimated by the CPS to have grown from 8.405 million in 2000 to 9.419 million in 2002, an increase of over 1 million (t=25.4). By contrast, the number of Canadian-born living in the United States is estimated to have fallen from 693 thousand in 2000 to 667 thousand in 2002, a decrease of 26 thousand (t=1.9) (Schmidley and Robinson 2003, Table A-3). I asked the CPS to update these data, but they did not have the resources, so the 2002 numbers will have to do. But since these numbers are substantially smaller than the figures from earlier decades, they obviously do not support the idea of large and growing net movements of the Canadian-born from Canada to the United States[2]. Southbound flows of graduates should if anything have been expected to grow substantially, as mobility increases with the degree of education, and graduation class sizes have been rising dramatically for all degrees over the past decades.

What explains the long-term decline of southbound flows in the face of greater mobility? The primary reason is that graduate-level education and research opportunities have been expanding much faster in Canada than in the United States over the past forty years, as Canada moved from a position of almost complete foreign dependency for graduate level training and research to a position where it is a net producer for export. As a result, many fewer Canadians have to go abroad for their graduate education, and hence they are more likely to have their subsequent careers in Canada, based on roots established in the communities where they are educated. Because this development is by now largely complete, we should expect the downward trend to be reversed, and the southbound

[2] That leaves an unexplained discrepancy with the numbers quoted from McHale. Without access to his study I must leave that reconciliation to others. One reason may lie in his (and my previous) use of the smaller and less representative samples drawn from the March CPS, which may be skewed by students and snow birds. The annualized averages quoted here have standard errors half as large as those of the March estimates (compare Tables A-2 and A-3 of Schmidley and Robinson 2003). The March numbers show an insignificant increase from 2000 to 2002 in the number of Canadian-born living in the United States. It is also worth noting the decennial US census data for the number of Canadian-born living in the United States (as reported in OECD 2003, Table B.1.4), which went from 843 thousand in 1980 to 745 thousand in 1990 and 821 thousand in 2000. That made Canada in 2000 the seventh-largest country source for the US stock of foreign-born, and the only one of that top group not to show a large increase over the previous twenty years. The Census numbers cover group homes, which are not in the CPS sample universe, and that accounts for most of the reason why the CPS gives lower estimates of the foreign-born than does the census, according to Schmidley and Robinson (2003, 21). In any event, further detailed demonstration that there has not been any notably increased recent brain drain from Canada to the United States is not likely to convince those who still think otherwise. It would also lie beyond the purpose of this paper, which is to address the broader and questions that are often ignored when attention is more narrowly focused on population mobility between Canada and the United States.

movements to increase somewhat more in line with those among otherwise comparable countries.

What do the international data show? A recent OECD study (Dumont and Lemaître 2004, Table 1) shows that the percentage of foreign-born living in OECD countries, based on census data, mainly from the year 2001, ranged from a low of 0.5% in Mexico to a high of 32.6% in Luxembourg, with Canada at 19.3% being more than double the weighted mean of 7.8%. Since the more educated are more mobile than the less-educated, reflecting the greater extent of their specialization, breadth of interests and contacts, and attractiveness to foreign employers, the percent of foreign-born tends to be even higher when one considers only the population with higher educational qualifications[3].

Countries with high levels of educational attainment also have large and highly skilled expatriate populations. What do the data show in terms of net migration of the highly skilled? It is worthwhile considering separately movements among the OECD countries and those between the OECD countries and the rest of the world. Movements from non-OECD to OECD countries are very large, while those in the reverse direction are unevenly measured, but likely to be small. This is partly because migration flows tend to be from lower to higher income countries[4] , and partly because skills are seen to be a ticket to a better life abroad. This net skill flow from the non-OECD countries to the industrial countries underlies most of the modern 'brain drain' literature. Most theoretical and empirical studies still take a negative view of the resulting skill loss for the developing countries. There are two recent counter-currents, one emphasizing the possible positive spillovers from having a highly skilled diaspora ready to make contacts and send ideas back from the scientific and commercial centres (Meyer and Brown 1999),

[3] In the countries selected by Dumont and Lemaître (2004, Table 4), the United States and Germany are the only exceptions to this, in the US case because of the sharp rise in migration from Latin America, and especially Mexico. For all of the selected countries, the expatriate stock has higher education levels than either the foreign-born or the remaining domestically-born residents. Of their selected countries, only Canada has a degree-intensity among the foreign-born (38.0%) that is close to the level among expatriates (40.6%). However, data in their Annex Tables A4 and A6 shows that the balance is even closer in Australia, where the degree share is 42.9% among the foreign-born and 43.6% among the ex-patriates.

[4] See, for example, the global net migration equations in Table 2b of Helliwell (2004b). Following the well-being results in Helliwell (2003) and Helliwell and Huang (2005b), the effects of governmental quality on net migration might be expected to be as large as or larger than those of per capita income.

and the other arguing (e.g. Beine, Docquier, and Rapoport 2001) that even the possibility of skills-based migration might encourage those in the developing countries to acquire enough extra education that the country would have a higher skill level even after the removal of the emigrating winners. The diaspora effect is supported by case study examples, e.g. the role of the Indian IT diaspora in Silicon Valley in establishing the trust-based networks required at the outset of the growth of IT service exports from India itself (Kapur 2001). The training incentive effect, while a theoretical possibility, seems unlikely to hold on balance, despite the well-established human propensity to over-estimate the probability of rare events.

Taking the narrower position defined by net skill balances for individual OECD countries, the net flows from poor to richer countries mean that even most OECD countries, including those having negative skill balances with other OECD countries, have positive global balances. Thus Dumont and Lemaître (2004, Chart 3) show that only a few OECD countries have negative global skill balances, with these being mainly new OECD countries (e.g. Mexico, Poland, Korea, Hungary, Slovakia) plus a few older ones, e.g. Finland and Ireland, where recent net inflows have not yet offset the stock effects of earlier skill emigrations. New Zealand is about balanced, with substantial immigration roughly offsetting the large number of New Zealand-born living abroad, especially in Australia. At the other end of the scale, the three largest net global skill gainers are the United States, Canada and Australia, in that order if the data are measured in thousands of migrants, but in reverse order if the measurement is done in terms of population shares, with Australia first, Canada second, and the United States third.

What happens when the focus is limited to migration of the highly skilled among OECD countries? "Within the OECD area, only the United States, Australia, Canada, Switzerland, Spain, Sweden, Luxembourg and Norway (in this order, measured in thousands) are net beneficiaries of highly skilled migration from other OECD countries. The United Kingdom has 700,000 more highly skilled expatriates in OECD countries than it has highly skilled immigrants from other OECD countries" (Dumont and Lemaître 2004, 11).

In some settlement countries (Dumont and Lemaître 2004, 19, single out especially Australia, Canada and New Zealand in this context) this general feature of higher educational levels among the foreign-born population has been amplified by immigrant selection criteria increasingly focussed on education and skills. The move towards skills-based immigration policies has gone furthest in Australia, with the Canadian points-based system close behind. These skills-based criteria have been adopted in recognition of the fact that immigration is seen to have strong labour market consequences. This has given policy-makers an incentive to tailor their national immigration criteria to select immigrants with skills and occupations in short supply[5].

The move towards more selective immigration rules has been accelerated by accumulating evidence in several countries that labour-market success rates of migrants have been dropping over recent decades. This has reflected some combination of factors: the abandonment of area preferences, the rise of refugee and illegal migration from countries with low levels of skills, education and social capital, the decline of migration supply from traditional Western European sources (now enjoying relatively high incomes and globally top levels of life satisfaction), and the increasing numbers of potential migrants with sufficient resources and contacts to facilitate migration, whether legal or clandestine.

Analysis of Canadian census data shows that recent immigrants have faced lower incomes at entry, and have converged less fast to the income levels of the native-born, than was true of earlier cohorts (Picot and Sweetman 2005). For example, male immigrants to Canada in the first half of the 1970s saw their earnings converge fully to those of Canadian-born males within a period of less than 15 years following arrival. By contrast, male immigrants in the latter half of the 1980s had earnings after fifteen years that were on average 12 percentage points below those of Canadian-born males of the same age and education, mostly because of a lower relative entry wage (Frenette and

[5] The following two paragraphs are drawn directly from Helliwell (2004b), since they are if anything more relevant here than there. They have been updated only to include new references.

Morissette, 2003, 8). These calculations hold constant the ages, education levels and work experience of the immigrants and native-born workers, but do not differentiate immigrants by source[6]. Thus the lower success rate for recent Canadian immigrants is not due to lower levels of education, since education levels have been held constant in the calculations. In any event formal education levels of immigrants are on average high and increasing, reflecting the operation of the points system used to select Canadian immigrants. For example, in the 2000 census, 13% of Canadian-born men and 15% of Canadian-born women had bachelor's degrees, while 23% of recent immigrants, both men and women, had bachelor's degrees (Frenette and Morissette, 2003, 4).

Australian studies of post-immigration workplace experience have found large differences between those coming from an English-speaking background (ESB) and those from a non-English-speaking background (NESB). In 1990, ESB immigrants had employment outcomes that were better than those of the native-born, and much better than those of the NESB immigrants (Foster et al 1991). Policy changes in the mid-1990s were aimed at increasing the labour market success of new migrants, principally by raising English language proficiency requirements, pre-testing professional competencies, giving points for education in Australia, for job offers and other measures of labour market demand (Hawthorne 2003). In the skill-related categories of migrants, the consequences for outcomes have been substantial: the median personal income doubled in the subsequent cohort, the average duration of unemployment was halved, and there were increases in average job satisfaction and the extent to which earlier qualifications were being put to use (Richardson, Robertson and Ilsley 2001, as presented by Hawthorne 2003, 27). Pre-selecting migrants for success in Australian labour markets thus had the intended effect, although presumably with the consequence of increasing the average 'brain drain' effect of the migration when seen from the perspective of the source countries.

[6] The relative decline of Canadian immigrant earnings is even larger if the comparison group is taken to be longer-established Canadian-born workers, since over the past 20 years there has been a parallel but smaller decline in the earning of all new entrants to the labour market (Green and Worswick 2004).

One reason for thinking that recent Australian initiatives may have increased welfare in both Australia and in the sending countries is that the changes have been explicitly targeted to ensure that the new arrivals have happy landings, or at least achieve better rates of economic and social integration. Recent well-being research shows that economically unsuccessful migrants also tend to be less satisfied with their lives as a whole. In some cases they might nonetheless prefer their new circumstances to those they left behind, but for many more it is likely that high personal and social costs of dislocation combine with their disappointed expectations to make them less happy than they were before. This possibility increases the chance that Australian-type efforts to ensure soft landings for new migrants are advantageous for the unselected as well as for the selected, and hence good for Australia and for rest of the world.

The issue is important, since global migration cannot ever be seen as the principal means for improving welfare in those places where the quality of life is low, for two reasons. First, the size of the world's disadvantaged populations vastly exceeds the receiving capacity of the relatively few immigrant-receiving countries. Second, and more fundamentally, migration is costly for the migrants and for the sending and receiving communities, so if it is to improve life for all concerned it needs to be well understood and well executed. To advertise in South Africa to find doctors for remote Canadian communities may seem an attractive short-term solution for those doing the advertising, but in the larger picture is surely a negative-sum game when one considers the costs of dislocation and the social returns to medical skills in the two countries. A brief look at some of the recent well-being evidence might help to illustrate both the problems and the possibilities.

Earlier studies have found that community and family support, and a climate of trust, are central to life satisfaction, and that these are easier to achieve in stable communities where repeated contacts build and sustain trust. The fact that average levels of life satisfaction in Canada drop slightly but steadily as one moves west from Newfoundland to British Columbia shows the extent to which stable and supportive families and communities trump income as sources of life satisfaction. But these interprovincial

differences are far smaller than either international or inter-neighbourhood differences. On a scale of 1 to 10, national average measures of life satisfaction differ from less than 5 in Russia to more than 8 in Denmark. These differences appear to be explainable principally by differences in the extent to which there is a stable and trustworthy environment at all levels. The quality of government, the general level of social trust, the divorce and unemployment rates, and the degree of involvement in community organizations all play a part. Differences in per capita incomes only enter the explanation significantly if other key variables (especially the quality of government) are excluded (Helliwell 2003, Helliwell and Huang 2005b). In the first global samples, measures of ethno-linguistic fractionalization (Alesina et al 2001) had no significant effects on individual life satisfaction or suicide (Helliwell 2004a, Table 6).

Earlier work has established (Helliwell 2004a) a strong parallel between the determinants of life satisfaction and suicide, with the signs of course reversed. Previous research on suicide rates among different demographic groups showed that migrants tended to have suicide rates that were influenced by the suicide rate in their country of origin (Burvill 1998) but were often above those in either the source or destination country (Hjern et al 2002), providing an alternative measure of the costs of migration. Over time, the suicide rates of the immigrant groups tended to approach those of the country of settlement (Hjern and Allebeck 2002).

Given the strong links established between trust and well-being, the Canadian social capital results of Soroka et al (2005) may also be relevant. They found that immigrants tend to have general levels of social trust that are between those of their country of birth and those prevalent among the Canadian population as a whole, holding constant a whole range of personal and neighbourhood characteristics. There was some footprint of this imported trust in the subsequent generation, but not nearly as much as was found by Rice and Feldman (1997) for the United States. In recent larger global samples, greater ethno-linguistic fractionalization (Alesina et al 2002) is associated with lower average life satisfaction, but this effect disappears among those countries with higher-than-average quality of government (Helliwell and Huang 2005b, Table 7).

Canada now has an exceptionally large sample of data for life satisfaction, especially if data are combined for the 2002 Ethnic Diversity Survey and the 2003 General Social Survey. It is too early to draw any firm conclusions from these data, but even at this early stage they show that community matters a great deal, and especially the extent to which individuals feel themselves to be in a trustworthy environment. There are strikingly large differences in average levels of life satisfaction across census districts in Canada, enough to justify serious efforts to find out what makes some communities work better than others.

How are these data, and the related issues of community structure, tied to mobility of the highly skilled? There are two obvious lines of connection, and no doubt more waiting to be found. First, studies of the determinants of migration decisions have long showed (e.g. Winchie and Carment 1989) that the structure of the receiving community, including the quality of its institutional fabric, is central to migration decisions, particularly those of highly skilled migrants, who are better informed and have more options from which to choose. Second, there is evidence that the ability of communities to attract and embrace newcomers is itself likely to be determined by the scale and structure of the migration flow. What is apparent in recent history is the extent to which recent international migration is urban-centred, accelerating an urbanizing trend already in progress.

There is a lot of evidence that it is harder to maintain levels of trust and community engagement in larger than in smaller centres (Putnam 2000). That this has a counterpart in life satisfaction is suggested by Figures 1 and 2, which show average levels of life satisfaction in the lower mainland of British Columbia and in the environs of Lake Ontario. Figures 3 and 4 are maps for the same regions showing average answers to questions asking the extent to which respondents have trust in their neighbours. There are several striking features of the data.

First, there is a doughnut shape in each urban area, including the areas shown as well as Calgary, Edmonton, Montreal and Ottawa/Hull, with life satisfaction being lower in the

hole of the doughnut and higher on the outer edges. The same is true for trust in neighbours, which is the census tract variable most highly correlated with life satisfaction.

Second, these differences among neighbourhoods in average life satisfaction are far greater than among provinces, and even among nations. That these differences are due to the structure and quality of life in these neighbourhoods, even in the context of a commuting society, is shown by the matching differences in neighbourhood trust. This strong cross-census-tract correlation between trust in neighbours and life satisfaction is not simply a consequence of people with intrinsically happy personalities being more inclined to be trusting, since the data are already averaged across entire census tracts, and the effect still appears if general social trust is separately accounted for.

A third important feature of the data is not apparent from the figures, but is perhaps even more important. It is the contrast between the community-level effects of income and trust, with negative externalities evident for income but not for trust. When the Canadian life satisfaction data at the individual level are explained simultaneously by individual-level and community-level variables, the log of one's one or family income attracts a significant positive coefficient, while the corresponding average census-tract income takes a significant negative coefficient of roughly the same size (Helliwell and Huang, 2005a, Table 1).

Hence the well-being effect of income appears to be almost entirely in relative terms, even when the comparison group is defined in geographically narrow terms. This relative effect does not appear for the trust or engagement factors that are correlated with well-being. For these social capital variables, the individual-level effects are if anything amplified at the community level. People are happy when they are themselves actively engaged in their communities, and tend to be even happier when others are also actively engaged (Helliwell and Putnam 2004). That social engagement should have positive externalities as well as positive direct effects is not surprising, but the contrast with the effects of income is striking. This contrast explains why differences of average levels of

life satisfaction among census tracts are much better explained by average trust in neighbours than by average incomes[7].

How do these results affect the relative advantages of making, sharing or buying skills? First, the fact that engagement trumps income when determining life satisfaction means that a premium should be attached to ways of accessing skills that sustain family and community engagement. Since Canada already has inbound and outbound diasporas of considerable size and quality, this suggests that 'sharing', to use the language of the paper's title, is likely to become an increasingly cost-effective way for Canada to import and export skill-intensive services. Second, to the extent that Canada continues to wish to attract skilled immigrants, and to convince highly skilled Canadians to stay, building and maintaining the quality of communities, including the all-important fabric of public and private institutions, will be of ever greater importance. Third, the data and literature hint that there is likely to be a maximum rate of turnover that communities can manage without putting excessive pressure on their social and institutional fabrics. Research to date does not indicate clearly what this maximum sustainable rate is, but there are enough signs of strain in the key metropolitan areas to suggest careful attention to the state of the social fabric in these highly diverse and mobile communities.

**3. Does Using A Different Lens Imply a Different Focus for Policy and Research?**

In a word, yes. Viewing migration through the lens offered by recent research on social capital and well-being forces researchers and policy-makers to abandon the idea of homogeneous global labour markets with potential employees as mobile as an ad slogan or a news headline in the new era of cheap bandwidth and widespread satellites. Economists have often assumed (using the so-called small open economy model) that goods and capital are internationally fully mobile, while workers are not. All of these assumptions are convenient but mistaken. Nothing ever moved as frequently or as far

[7] If average life satisfaction in each of the 4,000-odd census tracts (or combinations thereof sufficient enough to give survey response sample sizes larger than 15 in each agglomeration) is regressed only on trust in neighbours and median income in the census tract (with robust standard errors calculated using weight based on approximate sample size in each of the 4123 census tracts or agglomerations), the standardized coefficient is five times as large for trust as for income (.29 vs .058), and also of much greater statistical significance (t=11.4 vs t=2.3). If mean income in the census tract is used, the dominance of trust is even more pronounced (beta =.31 vs .015, t=12.1 vs 0.4).

from home as the open-economy assumptions presumed for goods and capital, and labour has always been on the move when circumstances so demanded. If there is anything special about the first decades of the 21st century, it is that a greater number of people than ever have, or will have, the knowledge and capacity to decide where they might want to live. If life is sufficiently bad in large parts of the world, this puts pressures on the refugee and immigration policies of countries where life is perceived to be better. The capacity to have better lives exists everywhere; large-scale migrations are likely to result only where the local improvements lag too far behind rising expectations of what life could be if lived elsewhere.

One interpretation of the evidence in the preceding sections is that for the world as a whole to find a peaceful and prosperous equilibrium will require broadly based human, social, governmental and economic development in those parts of the world where it is now stagnant or falling. Those parts of the world need all the human resources they can muster and the more highly skilled the better. What are the implications for the main immigrant-receiving countries? The biggest immigrant receiving countries, by share of population, are the oil-rich countries of the Middle East, with longer-term consequences relatively unstudied. More familiar, and more relevant to Canada, are the experiences of the older industrial countries of the OECD, especially the United States, Canada, Australia and New Zealand. All four countries have gone through the nation-building phases of migration, and are now trying to develop migration and skill-development policies that are consistent with responsible international citizenship and good domestic outcomes. In all cases, and most deliberately in the Commonwealth countries, the focus for migration is turning to the development of skills, both for domestic use and for export, especially in the context of the domestic educational systems. Migrants are being chosen for their educational attainment, and international students are being recruited into the university systems, whether as undergraduates, graduate students, or directly into the professoriate. Increasingly, as the quality of university-level research institutions continues to rise both in the host and source countries, migration flows are increasingly two-way and even multi-polar, with students coming from many countries, taking part in

Canadian education, research, and community life, and then staying, returning home, or moving on to other destinations.

**3.1 Implications for Policy: Build, Share and Buy.**

What should determine the appropriate policy stance for migration and education policies in Canada? From the point of view of the source countries, there is a natural desire to achieve return flows of talent, remittances and new trade and investment opportunities. Countries like Canada with well-developed institutions are natural places for international education and research to take place. They also send their own students and researchers to other countries, whether to learn, teach or live.

What is the right scale of skill-based immigration for a country like Canada? The well-being lens adopted here counsels that the absorptive capacity of the receiving communities is a key determinant. If migrants, especially the highly skilled, are too numerous to be imbedded in community life, then they are less likely to be satisfied, less likely to be successful, less likely to make a net contribution to Canadian life, and less likely to provide positive linkages back to their origins, whether these are elsewhere in Canada or abroad. In earlier times, when most migration in Canada was into small rural communities, the need for mutual support was more likely to be forthcoming as a matter of course. In recent decades, as migration has flowed primarily into large metropolitan areas, there has also been some fraying of the supporting fabric provided by traditional sources: established churches, families, and stable neighbourhoods. Where everyone is a newcomer, the responsibility and initiative for welcoming newcomers may fall to no one. Precisely the same situation can arise within workplaces.

The well-being focus shows that the range of policies required to support the supply of high skills really covers the same set of policies required to support a high quality of life for all Canadians. If there is a special twist given by the focus on the highly skilled, it is because they are much more likely to be mobile, to understand the quality differences among communities, and to vote with their feet in the search of a better life. This way of putting the issue has parallels with the recent Canadian invocations to stop the outflow of

Canadian brains by raising their after-tax incomes. The well-being research shows that in both private and social terms this specific advice is almost certainly wrong. The non-financial features of jobs have been shown to be much more important than income in providing both job and life satisfaction (Helliwell and Huang 2005b), and it is to these that primary attention should be devoted.

Trust and engagement are important to all workers and especially the highly skilled. These are put at risk where jobs are short-term and where there is excessive reliance on short-term performance evaluations and pay incentives. Trusting workplaces take time to build and care to maintain, and they are likely to be of special importance to those who are themselves inclined to choose jobs and communities for the longer term. For these individuals and families, the structure of the communities, schools, health and social services and social trust become of even greater importance.

There are feedback loops that can work either in positive or negative directions. On the negative side, when involvement and trust decline below certain levels, then individuals and families respond in defensive ways, becoming risk averse, disengaged from their workplaces and communities, and generally less inclined to reach out to others. On the positive side, engagement breeds trust, and trust encourages further engagement; commitments are made and kept without expensive legal protections, and all reap well-being dividends from the resulting feelings of engagement and efficacy. As has been seen in many countries, once trust and engagement cycles start to move strongly in the negative direction, they can reach tipping points and create downward spirals that are very difficult to reverse. This counsels early and sustained attention to reversing disengagement, and to restoring trust when and where it starts to fray.

Migrants are attracted to communities that provide them the family, economic and social structures that support well-being; hence the longstanding importance of established immigrant pathways, and the long time lags involved in starting and reversing these flows. It is easier for communities to greet and integrate newcomers when the pace is not

too hectic, and when the basic framework of educational and social services is in good condition.

The above comments relate to building and maintaining communities that attract and keep the highly skilled. Of special relevance to the highly skilled are the quality of education and research, both for migrants and for their current or intended families. On the policy front, this means keeping education and research institutions flexible and reasonably well-endowed, an issue with both federal and provincial implications. In most areas of research and educational capacity and quality, Canada does well, as evidenced by its ranking as a leading destination for highly skilled migrants from OECD and other countries alike. As noted in the background paper by Harris (2004), the most obvious research area where Canada lags behind other OECD countries is industrial R&D. This has long been a focus of concern for Canadian policy-makers, as evidenced by the fact that Canada's corporate tax treatment for R&D more generous than any. The fact that the tax generosity has not been matched by R&D is one more bit of evidence about the relative unimportance of taxes in choice of locations. There is no definitive research answer to the low levels in industrial R&D in Canada. It is no longer possible, as it might have been forty years ago, to treat it as a lack of research training, research talent, or research universities. All of these are now of high international standard. I suspect that the primary reason will be found to be related to head office effects combined with the unusually high degree of US ownership and control in many of the research-intensive industries. In any event, this issue is likely in the longer term to be resolved naturally as the home-grown domestically owned high tech sector continues to acquire relative heft, and more Canadian research areas establish critical mass. Much more of this has already happened than is recognized. For example, a study (Laurier Institution 2001) of high-tech employment in British Columbia was widely cited in the media as showing a large number of high-tech employees moving from BC to the United States. The more important and newsworthy part of the evidence, which received no attention, was the even larger size of the northbound flows. Thus even at the peak of the high-tech boom in the Washington-California west-coast research nexus, the net movement of skilled high tech workers was from the United States to Canada.

This leads to a more general conclusion that Canadian skills policy should be more focussed on making and keeping Canada an attractive place to live and work, and should pay less attention to bilateral relations with and comparisons to the United States. Undue attention to bilateral linkages with the United States takes two forms. One is to concentrate on the number of Canadian-born working in the United States, and to argue for policy changes designed directly to stem this flow. This strategy is mistaken in two ways. First, the relevant flows have been on a long downward trajectory so substantial that no plausible reversal is likely to changes Canada's position as a net importer of skills. Second, the policies that are usually recommended (e.g. the personal tax reductions favoured by Nankivell 1998) are usually of a sort that research shows have only tiny effects of the southbound flows (Wagner 2000) while threatening the higher governmental quality and social fabric that have been found to be more important determinants of well-being (Helliwell 2003, Helliwell and Huang 2005b), and hence a stronger incentive for stable long-term migration.

The second form of US-centric policy advice takes the form (Harris 2004, Hart 2004) of advocating preferential bilateral labour mobility between Canada and the United States. This seems unlikely to solve any of the main issues related to skills supply in Canada, and likely to diminish Canada's own comparative advantage as a global attractor of skilled workers. As I have argued, the central problems relate to finding a skill migration policy that achieves a net inflow whose size does not exceed the capacity of communities and firms to build and maintain trust and engagement, while ensuring that immigrants are selected in ways that increase their chances of happy landings, with having a fulfilling job being just one of many factors. Canada's ability to do this would be lessened by any moves designed to get the United States to form a bilaterally based labour market.

### 3.2 Implications for Research

The existence of the EDS and GSS survey data on well-being, and the possibility of using them to augment the range of community-level data, has made it feasible to discover how the pace and structure of mobility affect well-being. There is already a range of census-

based analysis of the nature and employment consequences of ethnic and immigrant clustering of residences (e.g. Warman 2005). The evidence is mixed about the economic consequences of such clustering, and this should be no surprise, since such networks frequently precede and accompany all types of migration. If the receiving communities are themselves already dysfunctional, then they are unlikely to provide a good springboard from which to launch immigrants and their children into broader Canadian society. One of the hot topics for future research must be to discover what if anything distinguishes communities in their capacity to support successful migration.

Even less is known about the linkages between migration and workplace satisfaction. Are ethnic and immigrant diversity in workplaces good or bad for their harmony and effectiveness? Or are they irrelevant, as many would argue should be the case? If pre-existing trust networks are the basis for successful new ventures, and if such networks differ in their degree of heterogeneity, then why should we expect any systematic differences in workplace satisfaction to be found? The data available for such research is still very limited. My hunch is that fuller analysis of the determinants of workplace trust and job satisfaction will show them to be unrelated to where workers have come from. But there is no clear evidence in hand, so the implications for skills management are not yet there to be drawn. It is well-established, however, that continuity and shared values are important to building in maintaining trust, so that shorter job tenures and lesser mutual commitments among workers, and between workers and management, are likely to make workplaces less able to integrate newcomers.

Another set of research questions relates to the nature and consequences of international knowledge-sharing networks based on diasporas of the highly skilled. If the externalities should turn out to be important, then perhaps it is worth considering more systematic ways of encouraging Canadian universities, government departments and enterprises to make use of the skills of non-resident Canadians. Some preliminary programmes aimed at recruiting high-flying Canadian students studying abroad back into the public service have shown the power of something as simple as an expression of interest from back home.

**4. Conclusion**

In summary, to return to the choice offered in the title of the paper, Canada has been a leading and successful buyer of the highly skilled. However, the pace of these flows, growing awareness of the costs imposed by migration, and the economic difficulties faced by recent immigrant cohorts, have raised the perceived attractiveness of the build and share options.

Over the past forty years, Canada has developed a large capacity for high level graduate teaching and research, to the extent that it is now one of the leading destinations for internationally mobile graduate students. Recent changes in the climate for foreign graduate students in the United States have if anything accelerated this transformation, but it was essentially complete in any case. So building skills will increasingly be the primary option. This will take place in part with imported inputs, in the form of foreign graduate students and of the children of immigrants, who on average attain one more year of education than do the children of otherwise similar parents born in Canada (Bonikowska 2005).

Sharing is likely to play an increasing role as well. International trust-based networks, frequently fuelled by past migration or student exchange, facilitate trade in services and skills once regarded as too complex to organize on an international basis. Canada, with its almost unparalleled international skill networks (only Australia is comparable in proportionate terms), is very well placed to benefit from these new forms of skill exchange. From a well-being perspective, they offer great advantages, as workers can stay and build their source communities while simultaneously using their comparative skills advantage in the broader world.

In terms of current scale, the build option is by far the largest source of skills, and is also the one that most easily can be used to prepare the existing labour force to face new opportunities. Of the other two sources, migration is currently much larger than sharing, and is likely to remain so despite the predicted rapid growth of off-shoring. For example, a recent McKinsey study of global offshoring (Farrell et al. 2005) suggests that the total

number of developed country jobs resourced offshore will rise from 1.6 million in 2003 to about 4.1 million in 2008. The implied annual increase, while large in proportionate terms, is relatively small as a share of total non-agricultural employment, about .12% per year. For a high immigration country like Canada, this is much less than the annual addition to the labour force from new migrants. Nonetheless, the growth in offshoring can be seen as providing the same amount of skills as would be represented by a substantial increase in immigration over the same period. Thus offshoring can be seen, to the extent that it takes place in sectors that might otherwise have faced domestic skill shortages, as reducing the pressures to expand immigration to meet those shortages.

However, it must be emphasized that the currently available research results do not yet provide clear evidence on the key questions: what is the best pace of immigration for maintaining the vibrancy, trust and social connectedness in the receiving communities? What is needed to ensure happy landing for today's immigrants? To what extent are offshoring and immigration substitutes for meeting skill shortages? Is it likely, as I have surmised, that admission and retention of foreign-born graduate students is likely to be an increasing, and increasingly cost-effective, way of meeting Canadian research and employment needs?

Building and rebuilding skills in Canadian schools, universities and workplaces is likely in any event to remain the largest and most robust tool for matching resources with opportunities.

Finally, all of these issues are best addressed with matching local, national and global perspectives. I have argued that to preferentially increase labour market integration between Canada and the United States, is unlikely to represent good policy for Canada, for the United States, or especially for the world as a whole. This would have been true even if the US war on terror had not so sharply changed the global accessibility and desirability of the United States and Canada as destinations for highly skilled students and professionals. The resulting increased relative attractiveness of Canada both reflects

and depends on Canada continuing to tailor its social, labour market, and migration policies to meet Canadian needs and preferences.

## References

Alesina, A., A. Devleeshauwer, W. Easterly, S. Kurlat, and R. Wacziarg (2002) "Fractionalization." **NBER Working Paper** 9411. (Cambridge: National Bureau of Economic Research)

Beine, Michel, Frédéric Docquier, and Hillel Rapoport (2001) "Brain Drain and Economic Growth: Theory and Evidence." **Journal of Development Economics 64**: 275-89.

Bonikowska, Aneta (2005) "Education Attainment of Three Generations of Immigrants in Canada: Initial Evidence from the Ethnic Diversity Survey." **UBC Department of Economics Working Paper**.

Bundred, P.E. and C. Levitt (2000) "Medical Migration: Who are the Real Losers?" **The Lancet 356**(July 15): 245-6.

Burvill, P.W. (1998) "Migrant Suicide Rates in Australia and in Country of Birth." **Psychological Medicine 28**(1): 201-8.

Chowan, James (2005) "Who Trains? High-Tech Industries or High-Tech Workplaces?" (Ottawa: Statistics Canada 11-622-MIE No. 006)

Cobb-Clark, Deborah A., and Marie D. Connolly (1997) "The World-Wide Market for Skilled Immigrants: Can Australia Compete?" **International Migration Review 31**(4):

Davenport, Sally (2004) "Panic and Panacea: Brain Drain and Science and Technology Human Capital Policy." **Research Policy 33**: 617-30.

Docquier, Frédéric, and Hillel Rapoport (2004) "Skilled Migration: The Perspective of Developing Countries." **Policy Research Working Papers Series 3382** (Washington: World Bank)

Docquier, Frédéric, and Abdeslam Marfouk (2004) "Measuring the International Mobility of Skilled Workers (1990-2000) – Release 1.0." (World Bank)

Dumont, Jean-Christophe, and Georges Lemaître (2004) "Counting Immigrants and Expatriates in OECD Countries: A New Perspective." **Social, Employment and Migration Working Paper**. (Paris: OECD).

Farrell, Diana, et al (2005) **The Emerging Global Labor Market: Part I – The Demand for Offshore Talent in Services; Part II – The Supply of Offshore Talent in Services; Part III – How Supply and Demand for Offshore Talent Meet**. (San Francisco: McKinsey Global Institute)

Finnie, Ross (2001) "Brain Drain: Myth and Reality." **Choices 7**(6). (Montreal: Institute for Research in Public Policy).

Foster, L., A. Marshall and L. Williams (2001) **Discrimination against Immigrant Workers in Australia** (Canberra: Australian Government Printing Service)

Gera, Surendra, Samual A. Laryea, and Thitima Songsakul (2004) "International Mobility of Skilled Labour: Analytical and Empirical Issues, and Research Priorities." **Working Paper D-01** (Ottawa: Skills Research Initiative)

Gluszinski, Tomasz, and Valerie Peters (2005) "Survey of Earned Doctorates: A Profile of Doctoral Degree Recipients" (Ottawa: Statistics Canada 81-595-MIE No. 032)

Green, David A. and Chris Worswick (2004) "Earnings of Immigrant Men in Canada: The Roles of Labour Market Entry Effects and Returns to Foreign Experience." (Ottawa: Department of Citizenship and Immigration).

Harris, Richard G. (2004) "Labour Mobility and Global Competition for Skills: Dilemmas and Policy Options." **Working Paper D-02** (Ottawa: Skills Research Initiative)

Hart, Michael (2004) "Is There Scope for Enhancing the Mobility of Labour Between Canada and the United States?" **Working Paper D-04** (Ottawa: Skills Research Initiative)

Hawthorne, Lesleyanne (2003) "'Picking Winners': The Recent Transformation of Australia's Skill Migration Policy." (paper given at November 2003 Montreal conference sponsored by the Canadian federal Policy Research Initiative, and the OECD.)

Helliwell, John F. (1999) "Checking the Brain Drain: Evidence and Implications", **Policy Options** 20(7), September 1999, pp. 12.

Helliwell, John F. and David F. Helliwell (2000) "Tracking UBC Graduates: Trends and Explanations" **Isuma: Canadian Journal of Policy Research** 1(1), Spring 2000, pp. 10.

Helliwell, John F. and David F. Helliwell (2001) "Where Are They Now? Migration Patterns for Graduates of the University of British Columbia", in P. Grady and A. Sharpe, eds., **The State of Economics in Canada: Festschrift in Honour of David Slater**, Montreal, McGill-Queen's University Press, 2001, pp. 291-324 .

Helliwell, John F. (2001) "Social Capital, the Economy and Well-Being". In Keith Banting, Andrew Sharpe and France St-Hilaire, eds., **The Review of Economic Performance and Social Progress** 43-60. 2001. Available on www.csls.ca/repsp/1/03-helliwell.pdf

Helliwell, John F. (2002) **Globalization and Well-Being**. (Vancouver: UBC Press)

Helliwell, John F. (2003) "How's Life? Combining Individual and National Variables to Explain Subjective Well-Being." **Economic Modelling 20**(2): 331-60. (Previously **NBER Working Paper** No. 9065)

Helliwell, John F. (2004a) "Well-Being and Social Capital: Does Suicide Pose a Puzzle?" (**NBER Working Paper** 10896)

Helliwell, John F. (2004b) "Demographic Changes and International Factor Mobility" **Global Demographic Change: Economic Impacts and Policy Challenges** (Symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 26-28, 2004. **NBER Working Paper** 10945).

Helliwell, John F. (2004c) "Trade and Migration: Historical and Global Perspectives." Presentation to the IRPP/Tower Conference on North American Integration, Ottawa, April 1, 2004. (available on the irpp.org website)

Helliwell, John F. (2005) "Well-Being, Social Capital and Public Policy: What's New?" Paper presented to a special session of the Annual Meetings of the Royal Economic Society, Nottingham, March 21, 2005. Forthcoming in **The Economic Journal**.

Helliwell, John F., and Robert D. Putnam (2004) "The Social Context of Well-Being." **Philosophical Transactions of the Royal Society of London, Series B. 359**: 1435-46 (Discussion Meeting Issue on "The Science of Well-Being: Integrating Neurobiology, Psychology and Social Science")

Helliwell, John F., and Haifang Huang (2005a) "How's the Job? Well-Being and Social Capital in the Workplace" (Paper presented at the Annual Meetings of the Canadian Economics Association, Hamilton, May 2005). **NBER Working Paper** (forthcoming). (Cambridge: National Bureau of Economic Research)

Helliwell, John F., and Haifang Huang (2005b) "How's your Government? International Evidence Linking Good Government and Well-Being" (Paper for the Oxford conference in memory of John Flemming, September 2005, and the Göteborg conference on the quality of government, November 2005).

Hjern, Anders, and Peter Allebeck (2002) "Suicide in First- and Second-Generation Immigrants in Sweden: A Comparative Study." **Social Psychiatry and Psychiatric Epidemiology (Abstract Volume) 37**: 423-29

Hjern, A., F. Lindblad and B. Vinnerljung (2002) "Suicide, Psychiatric Illness and Social Maladjustment in Intercountry Adoptees in Sweden: A Cohort Analysis." **The Lancet 360**: 443-8

Kapur, Devesh (2001) "Diasporas and Technology Transfer." **Journal of Human Development 2**(2): 265-86.

Layard, Richard (2005a) **Happiness** (London and New York: Penguin)

Layard, Richard (2005b) "Happiness and Public Policy: A Challenge to the Profession." Paper presented to a special session of the Annual Meetings of the Royal Economic Society, Nottingham, March 21, 2005. Forthcoming in **The Economic Journal**.

Li, F.L.N., A.M. Findlay, A.J. Jowett and R. Skeldon (1996) "Migrating to Learn and Learning to Migrate: A Study of the Experiences and Intentions of International Student Migrants." **International Journal of Population Geography 2**: 51-67.

Liu, X.F. (1997) "Refugee Flow or Brain Drain: The Humanitarian Policy and Post-Tiananmen Mainland Chinese Immigration to Canada." **International Journal of Population Geography 3**(1): 15-30.

Massey, Douglas S. (1990) "Social Structure, Household Strategies and Cumulative Causation." **Population Index 56**: 3-26.

McHale, John (2002) "Canadian Immigration Policy in Comparative Perspective." In C.M. Beach, A.G. Green and J.G. Reitz, eds. **Canadian Immigration Policy for the 21st Century** (Kingston: John Deustch Centre for the Study of Economic Policy)

Meyer, J.B. and M. Brown (1999) **Scientific Diasporas: A New Approach to the Brain Drain** (UNESCO World Conference on Science, Budapest)

Nankivell, Neville (1998) "Brain Drain Reason Enough to Cut Taxes: Problem Has Reached 'Crisis Proportions'." **The Financial Post** (June 11, 1998): 21.

OECD (2003) **Trends in International Migration 2003** (Paris: OECD)

Picot, Garnett, and Frank Hou (2003) "The Rise of Low Income Rates Among Immigrants in Canada." **Analytical Studies Research Paper Series** 11F0019MIE2003198. Analytical Studies Branch. (Ottawa: Statistics Canada.)

Picot, Garnet, and Arthur Sweetman (2005) "The Deteriorating Economic Welfare of Immigrants and Possible Causes: Update 2005." **Analytical Studies Research Paper Series** 11F0019MIE2005262. Analytical Studies Branch. (Ottawa: Statistics Canada.)

Putnam, Robert D. (2000) **Bowling Alone: The Collapse and Revival of American Community**. (New York: Simon & Schuster).

Rice, Tom W., and Jan L. Feldman (1997) "Civic Culture and Democracy from Europe to America" **Journal of Politics 59**(4): 1143-72.

Richardson, S., F. Robertson and D. Ilsley (2001) **The Labour Force Experience of New Migrants** (Canberra: Department of Immigration and Multicultural Affairs).

Rowlands, D. (1999) "Domestic Governance and International Migration." **World Development 27**(8):1477-91.

Schmidley, A. Dianne, and J. Gregory Robinson (2003) "Measuring the Foreign-Born Population of the United States with the Current population Survey: 1994-2002." **Population Division Working Paper 73**. (Washington: US Bureau of the Census)

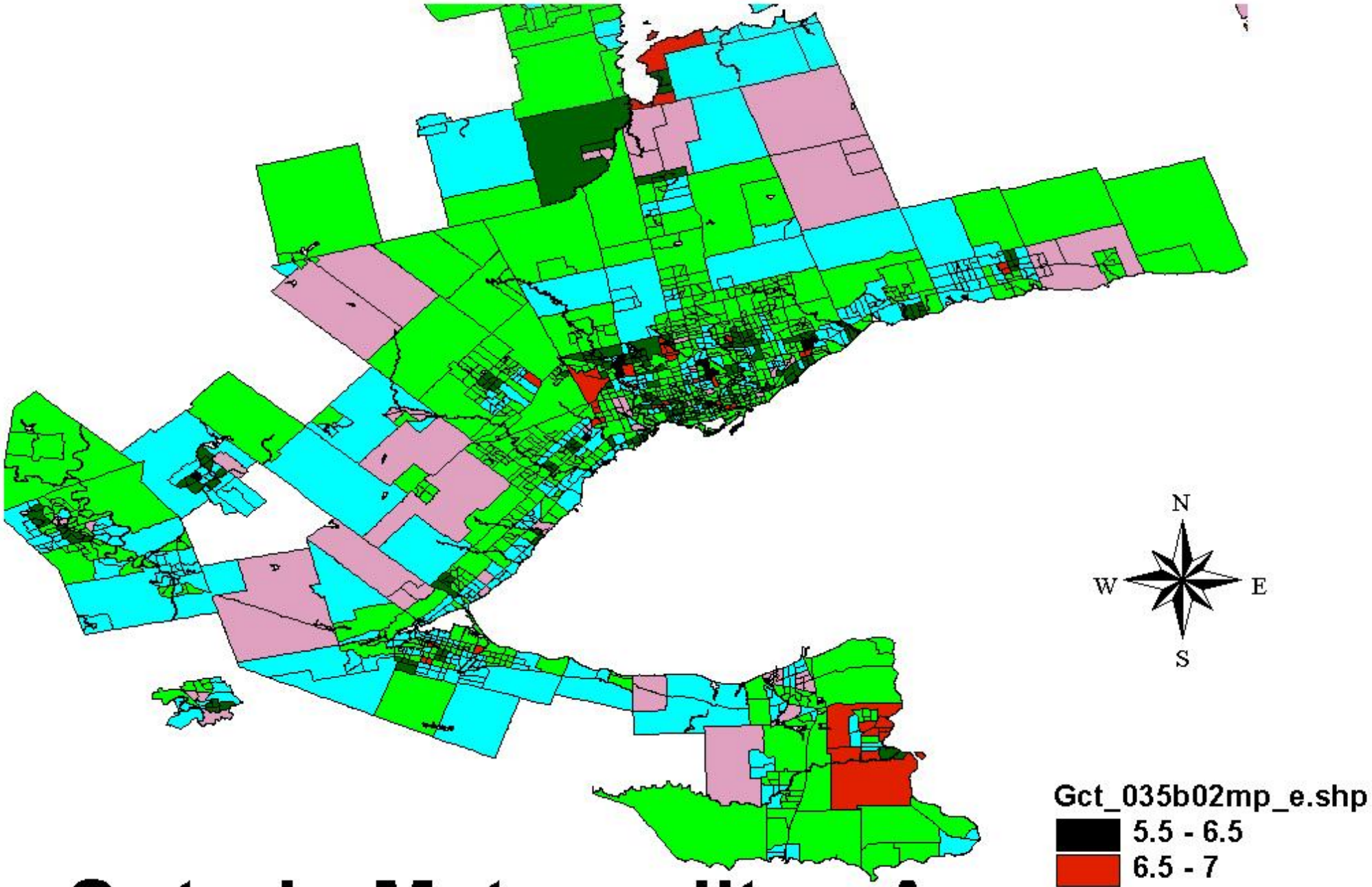
Soroka, Stuart, John F. Helliwell and Richard Johnston (2005) "Measuring and Modelling Interpersonal Trust" In Fiona Kay and Richard Johnston, eds., **Diversity, Social Capital and the Welfare State** (Vancouver: UBC Press) forthcoming. On http://upload.mcgill.ca/politicalscience/MeasureModelTrust.pdf

Wagner, Don (2000) "Do Tax Differences Cause the Brain Drain?" **Policy Options 20** (December 2000): 33-41.

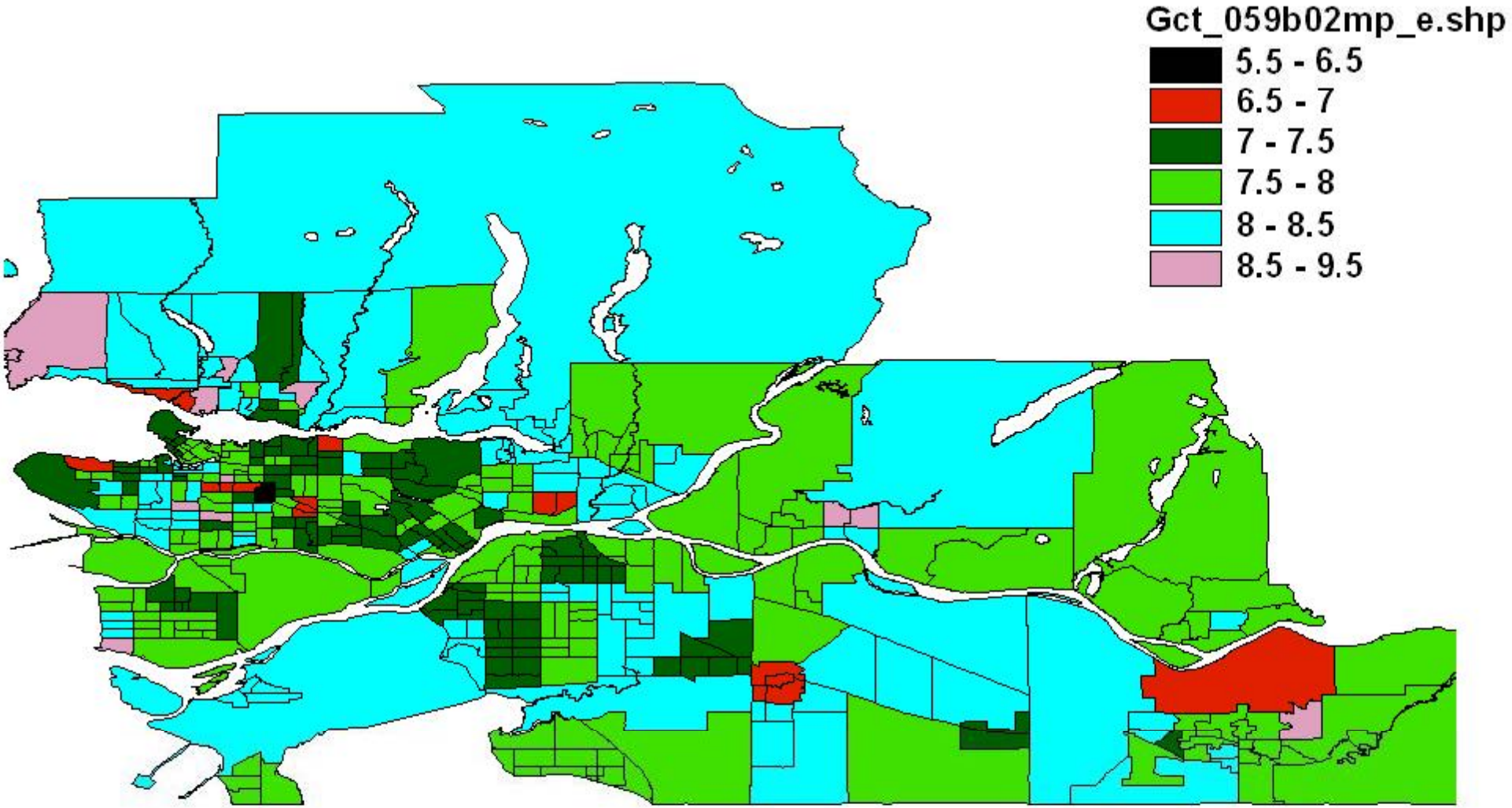
Warman, Casey R. (2005) "Ethnic Neighbourhoods and Male Immigrant Earnings Growth: 1981 Through 1996." **Analytical Studies Research Paper Series** 11F0019 No. 241. (Ottawa: Statistics Canada.)

Winchie, D.B., and D.W. Carment (1989) "Migration and Motivation: The Migrant's Perspective." **International Migration Review 23**(1): 96-104.

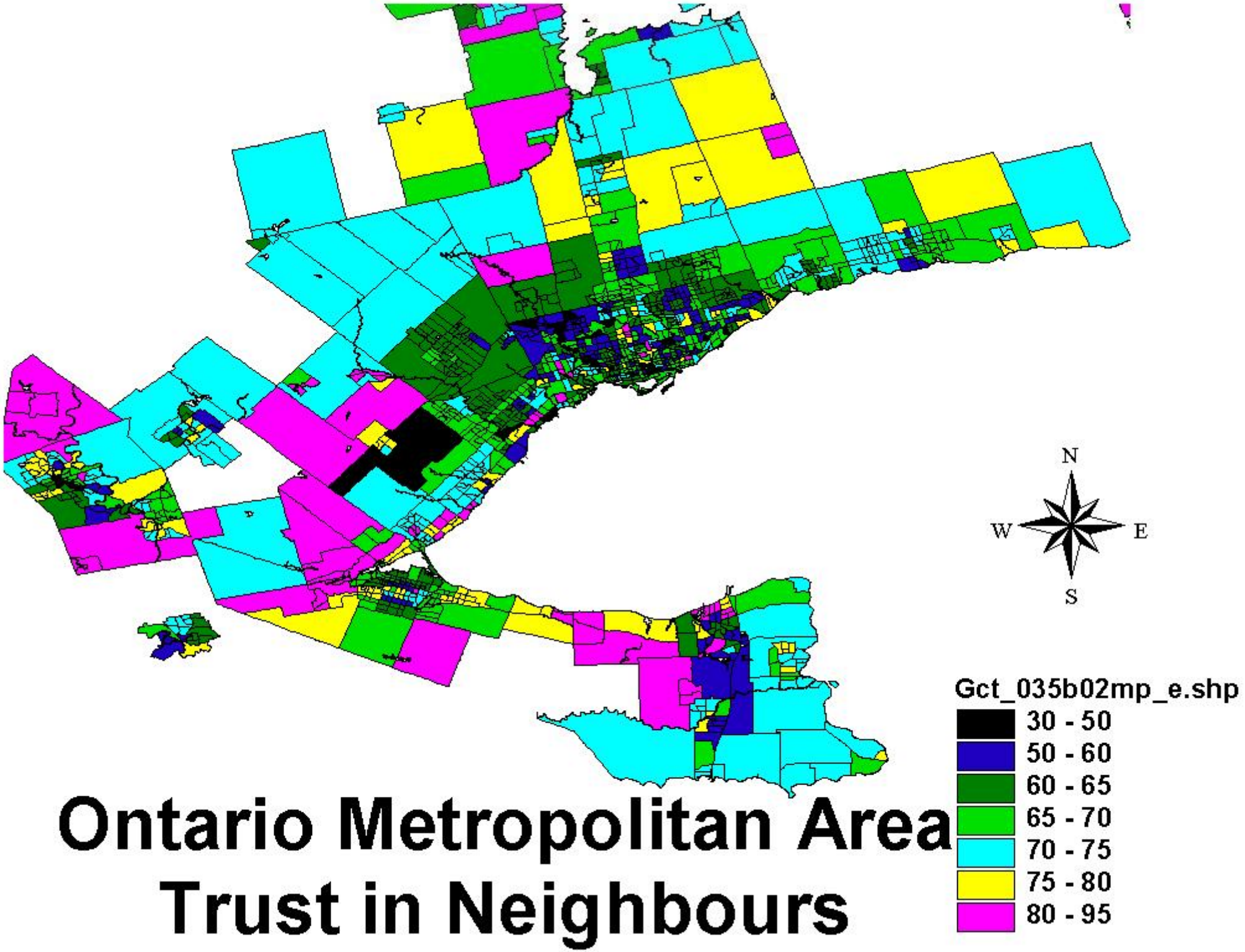
Zhao, John, Doug Drew and T. Scott Murray (2000) "Brain Drain and Brain Gain: the Migration of Knowledge Workers to and From Canada." **Education Quarterly Review 6**(3): 8-35.



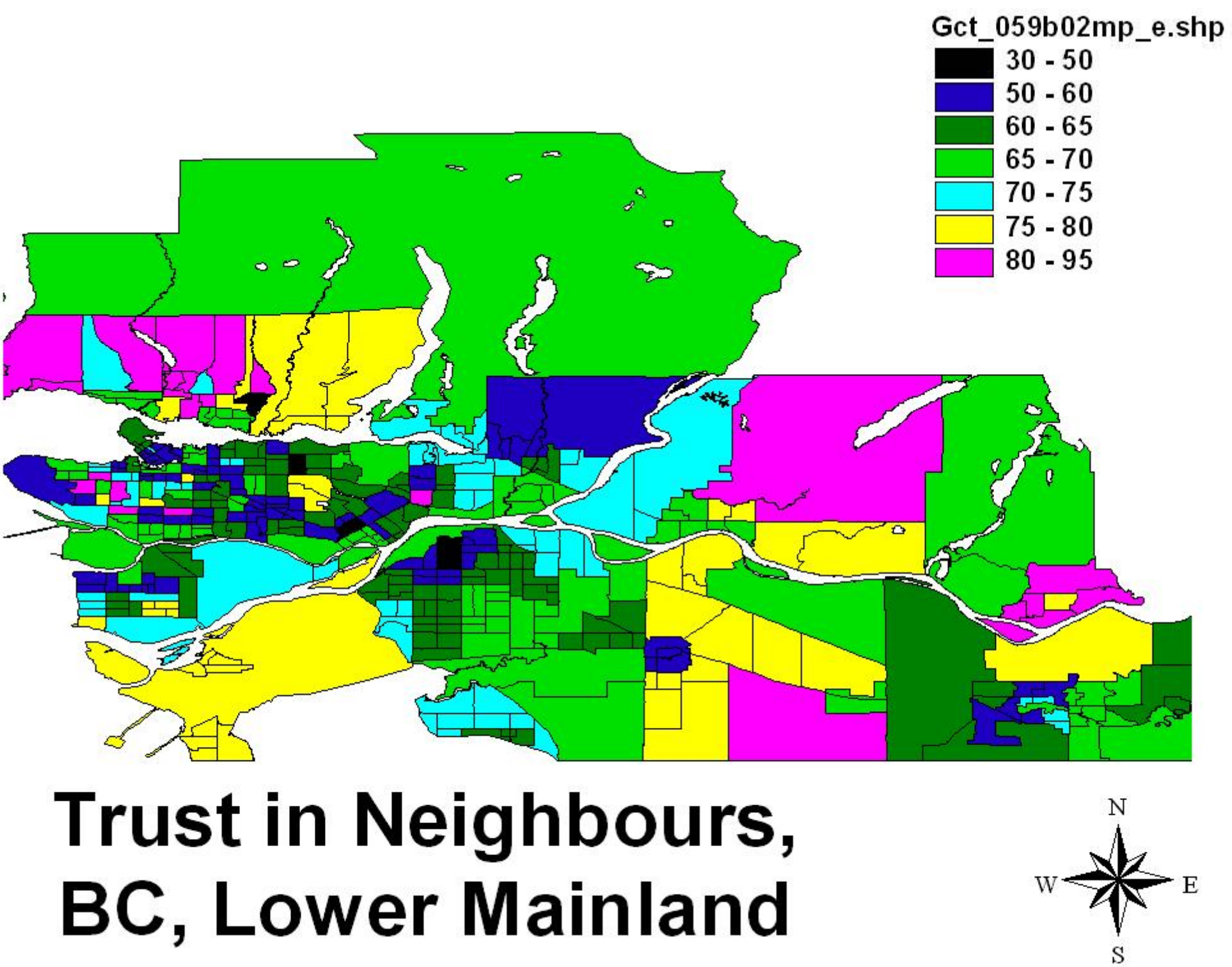

# Ontario Metropolitan Area Life Satisfaction




# Index of Life Satisfaction, BC, Lower Mainland




# Ontario Metropolitan Area
# Trust in Neighbours




# Trust in Neighbours, BC, Lower Mainland