International Mobility of Highly Skilled Workers: A Synthesis of Key Findings and Policy Implications
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This document presents Skills Research Initiative (SRI) research and summarizes its findings and implications as discussed at SRI workshops. The report represents the views of the researchers and workshop participants and as such does not necessarily reflect the policies and opinions of Industry Canada, Human Resources and Social Development Canada or the Government of Canada.
Executive Summary

Highly skilled labour is an essential input to an innovative economy. In recent decades, highly skilled workers have become more mobile internationally. Furthermore, high demand for skills in industrialized countries has led to intense international competition for these mobile workers. Immigration and emigration, either temporary or permanent, of highly skilled workers can help provide Canada with people with needed skills; but if Canada's overall attractiveness to these workers is insufficient, they will go elsewhere. Canada needs to adjust to new skills requirements and global skills competition in order to support a more innovative knowledge-based economy. An essential element of this adjustment is to increase Canada’s ability to attract and retain highly skilled workers.

The chief issue challenging policymakers is how to structure policy responses to benefit from the international mobility of highly skilled workers, taking into consideration the variety of ways the mobility of the highly skilled affects the domestic labour market and the economy. The aim of this synthesis report is to support policy development by drawing on the research findings from the projects conducted under the Skills Research Initiative (SRI) supplemented by other research.

These research projects concerned three areas of research:

1. Develop methods for more accurate assessment of global trends in the migration of highly skilled labour as well as better ways of determining Canada’s position in this global market relative to other industrialized countries;
2. Improve our understanding of the fundamental factors underlying the increased migration of highly skilled labour, especially among advanced countries;
3. Improve our understanding of the economic costs and benefits associated with the international mobility of highly skilled labour and of the main factors influencing these costs and benefits.

The key “stylized facts” that emerge from SRI research and other research on these subjects are:

- International flows of highly skilled labour have increased; and highly skilled workers already move fairly freely between many countries.
- These flows tend more and more to be temporary movements, rather than one-time permanent migration.
Canada has done less well than other advanced economies in attracting highly skilled temporary workers; and burdensome administrative processes and tax barriers may be key factors in this relative lack of success.

These trends towards increased mobility of highly skilled workers are part of overall economic globalization and are closely related to international capital flows and to relocalisation of production.

Skilled workers have fewer barriers to legal immigration than unskilled workers.

Highly skilled workers are attracted to areas with high wage levels for their skills (but it is not clear that they are attracted by high dispersion in wages).

Other factors, including career opportunities, quality of life, social and cultural “distance” and administrative barriers are also important to the mobility decisions of highly skilled workers.

Educational level is frequently used as a measure of skills in examining international mobility, often because it is the only available measure. There are significant differences in the quality of educational systems between different countries, so that educational levels tend to over-estimate the skills of workers from countries with lower quality educational systems, typically poorer countries. Relatedly, questions such as whether Canada suffers from a “brain drain” cannot be answered simply by counting exits of Canadians and entries of immigrants with high levels of educational credentials.

Canada has done well compared to other countries in attracting permanent immigrants who are post-secondary graduates, but a relatively low proportion of these have doctoral degrees. Despite their high levels of educational attainment, recent immigrants have had poor levels of economic success. This is due in part to a lack of skills suitable to the Canadian economy, for example, low levels of English or French literacy skills.

The main potential benefits of an internationally mobile skilled labour force to recipient countries stem from their production externalities which include an increased ability to build knowledge clusters and increased access to leading-edge ideas and technologies through participation in networks.

If one accepts these “stylized facts”, what are the implications for policy formation? What are the further implications of the more detailed research findings?

1. Canada’s strategy for issues related to the international mobility of highly skilled workers cannot be viewed in isolation from Canada’s strategy for North American and global economic integration. For example, if foreign direct investment (FDI) is closely related to the international movement of highly skilled workers, restrictions on FDI may limit Canada’s ability to realize the benefits of this movement.

2. Competition in global markets for highly skilled workers is likely to become more intense, due to continued globalization, the related rapid economic growth in India, China and other less-developed countries, and increased competition for skilled workers among advanced economies with aging populations. It is certainly worthwhile to implement policies that make it easier for highly skilled workers to enter Canada and that make it easier for employers to bring highly skilled workers to Canada. But with increasing international competition for the most highly skilled
workers, if the overall attractiveness of Canada as a destination is not sufficient for these workers, they will go elsewhere.

3. Policy relevant to skilled worker immigration needs to go beyond the notion that skilled immigration serves primarily as one method (among several) for alleviating pre-existing skill shortages. Instead, one of the most important lessons of the “new growth” theory is that, because of agglomeration economies and related externalities, an inflow of skilled workers creates demand for additional skilled workers in a way that makes both the new and the original workers more productive. Thus, rather than simply “filling gaps” by responding to existing specific skills shortages, Canadian immigration policy should think more broadly and creatively about fostering the kinds of localized knowledge clusters that make skilled workers and others more productive, and that in turn serve to attract additional skilled workers and raise the rate of economic growth. Given the importance of clusters, policies aimed at dispersing skilled immigrant workers could be counterproductive.

4. If Canada aims to increase the skills level of its workforce through economic immigration, better ways of recruiting and selecting skilled immigrants are needed. Economic immigration has costs for Canada as well as potential benefits in terms of skills. The costs and benefits of investing public funds in recruiting, retraining and integrating immigrants need to be weighed against the costs and benefits of further public investments in the skills of the Canadian-born population.

5. Temporary international movements of highly skilled workers may become increasingly the typical form of international labour mobility, replacing long-term migration. This would require a shift in policy emphasis towards making temporary entry mechanisms the central focus of policy aimed at benefiting from the increased international mobility of highly skilled labour.

What policy questions flow from these “stylized facts” and their implications?

- Should immigration policy aimed at providing skills for the Canadian economy move towards increased emphasis on temporary entries, reflecting the increasingly temporary character of migratory movements of highly skilled workers?
- Should Canada actively use policy on temporary entries to seek to build innovative clusters? Combine removal of restrictions on FDI with policies to facilitate temporary entries of the employees of foreign companies?
- Should Canada actively seek to expand mobility provisions for highly skilled workers in trade negotiations? If so, how can administrative barriers, tax law barriers, social insurance barriers and credentials barriers to temporary entries be reduced?
- Does policy for selecting skilled immigrants need to be changed, in light of a system that has led to immigrants with a higher-than-Canadian-average level of educational credentials, but lower levels of literacy skills? If so, in what directions?
  - Towards a system where temporary entry could be a step towards permanent residence as a skilled immigrant?
  - Towards a system of pre-testing language skills and professional credentials, like that implemented by Australia?
Towards integrating a policy that encourages foreign students to study in Canadian universities and community colleges, then provides preferential access to permanent residency after they graduate?

- Would policies that seek to direct or attract immigrants to areas other than the traditional urban centers tend to lessen the economic contribution of high-skilled immigrants?
- How should public investment aimed at increasing the skills level of the Canadian workforce be allocated between recruiting and integrating skilled immigrants and investing in the skills of Canadians?
- Increased international mobility implies increased competition for high-skilled Canadians who have benefited from high levels of subsidies to their education. Does this mean we should move towards a system where post-secondary students and their families bear a larger part of the costs of post-secondary education, since other countries may reap the benefits of any externalities and of taxes on the higher incomes that result from this education?
- What is the appropriate balance between policies aimed at increasing the supply of skills (such as the immigration policies discussed in the preceding bullets) and policies aimed at increasing the demand for skills through greater innovative activity by Canadian firms and through increased direct investment by highly innovative foreign firms?
1. Introduction

Highly skilled labour is an essential input to an innovative economy. In recent decades, highly skilled workers have become more mobile internationally. Furthermore, high demand for skills in industrialized countries has led to intense international competition for these mobile workers. Immigration and emigration, either temporary or permanent, of highly skilled workers can help provide Canada with people with needed skills; but if Canada's overall attractiveness to these workers is insufficient, they will go elsewhere. Canada needs to adjust to new skills requirements and global skills competition in order to support a more innovative knowledge-based economy. An essential element of this adjustment is to increase Canada’s ability to attract and retain highly skilled workers.

The key issue challenging policymakers is how to structure policy responses to benefit from the international mobility of highly skilled workers, taking into consideration the variety of ways the mobility of the highly skilled affects the domestic labour market and the economy. The aim of this synthesis report is to support policy development by drawing on the research findings from the projects conducted under the Skills Research Initiative (SRI) supplemented by other research.

The SRI is a medium-term policy research program undertaken in response to concerns that the development of Canada’s knowledge-based economy and innovative capacity may be hampered by persistent shortages of skilled labour.

The subject of this synthesis report is “International Mobility of Highly Skilled Workers”. The areas of relevant research for this theme were identified and discussed in an expert roundtable held in early 2004. The three research areas are:

1. Develop methods for more accurate assessment of global trends in the migration of highly skilled labour as well as better ways of determining Canada’s position in this global market relative to other industrialized countries;

2. Improve our understanding of the fundamental factors underlying the increased migration of highly skilled labour, especially among developed countries;
3. Improve our understanding of the economic costs and benefits associated with the international mobility of highly skilled labour and of the main factors influencing these costs and benefits.

Skills Research Initiative (SRI)
The Skills Research Initiative was established in 2003 by a Memorandum of Understanding between Industry Canada, Human Resources Development Canada and the Social Sciences and Humanities Research Council. The SRI sought to:

- Foster policy-relevant research on skills, organized around four themes:
  - Labour market and skills implications of population aging in Canada;
  - International mobility of highly skilled workers;
  - Employer-supported training in Canada;
  - Adjustments in markets for skilled workers in Canada.
- Encourage dialogue between researchers, policy makers, and practitioners through conferences and publications;
- Support the dissemination and application to policy of research on skills, particularly within government, in the academic community and among other stakeholders.

Three policy workshops were held in the National Capital Region in 2006: Labour Market and Skills Implications of Population Aging, International Mobility of Highly Skilled Workers, and Adjustments in Markets for Skilled Workers (which included the theme of Employer-supported Training). Following the workshops, final versions of the synthesis report for each workshop and an SRI overview report were prepared. The synthesis reports present the research results of the theme, and discuss their policy implications. The overview synthesizes the findings of all the themes and presents the broad policy implications including an overall diagnostic.

The SRI research project on “International Mobility of Highly Skilled Workers” sought to improve our understanding of these three areas. This synthesis report summarizes SRI and other research findings related to the theme, and brings out the policy implications of the research findings.

The report is organized in six sections covering the three research areas identified above. Section 2 deals with first research area: trends in the international mobility of highly skilled workers and Canada’s position in the market for this kind of labour. The following three sections cover the second research area: the factors underlying mobility. First, Section 3 examines non-policy drivers of international skilled labour mobility and socio-economic factors affecting cross-country movements of the highly skilled. Section 4 takes up the labour market situation of skilled foreign workers in different sectors of the Canadian economy. Section 5 discusses policy factors affecting the mobility of highly skilled workers. The last research area, the costs and benefits of the mobility of highly skilled workers, is covered in Section 6. Section 7 discusses the policy implications of the research work reviewed.
2. Macro evidence of global trends and Canada’s position

International exchange of high-skilled people significantly affects the stock of human capital in Canada. The mode of exchange includes not only traditional permanent immigration/emigration of highly skilled workers but also temporary movements of knowledge workers and of students at advanced education levels.

It is most important to first clarify what one means when speaking of “skills” and “highly skilled workers”. Kuhn (SRI-2005) categorizes various metrics of “skill” by the method of skill measurement; there are input-based, test-based, wage-based, and job-content-based measures. Following these categories, highly skilled labour can refer to a group of people who are well educated, or who have relatively high scores in cognitive tests, or who earn high incomes, or who work (or have work experience) in professional or managerial occupations. In an even larger sense, the highly skilled are those who enhance the innovative ability of the economy. In various studies, the skills measures used depend heavily on data availability and the specific group of interest. This section gives a global picture of the implications for Canada’s labour market of the current situation and recent trends in, the international movement of highly skilled people.

Trends since the 1990s show a noticeable increase in flows of highly educated workers from Asia to developed countries, and an increase in the exchange of skilled workers among industrialized countries (Organisation for Economic Co-operation and Development (OECD), 2002; Gera, Laryea and Songsakul, SRI-2004). According to the new OECD database on immigrants and expatriates in 2000-2001, major OECD countries including the United States, Canada, Australia, France, the United Kingdom and Germany are net importers of highly educated workers (Dumont and Lemaître, 2005).

Temporary migration, such as work and study visas, is also becoming an important mode of migration for highly skilled workers in high-mobility OECD countries like the United States, Australia, the United Kingdom, and Canada. Even migration with the right to permanent residence is often temporary, for example, Aydemir and Robinson (2006) show that about one third of male immigrants leave the country within 20 years, and 60% of the leavers have left during the first year since arrival.1

Immigration Policies Favour Highly Educated

Recent policies regulating immigration and entries of temporary workers in major OECD countries are selective towards highly educated workers. Canada, Australia, and recently the United Kingdom have comprehensive skill-based points system used to select immigrants who are highly educated and possess skills deemed applicable to the domestic labour market (Gera and Songsakul, 2005). The U.S. skilled immigration program does not use the point-
based system. The main criterion for selecting economic immigrants in the United States (that is the employment-based preference classes) is a certified job offer. This system tends to favour occupations with high educational requirements. Shortages of certain occupations, coupled with provisional work permits specially designed to attract foreign professionals in high demand fields, have also led to significant changes in occupational profiles of foreign workers. This phenomenon is apparent, for example, in the large inflows of temporary workers with computer-related occupations from India and China to the United States and Canada in the 1990s.

Temporary foreign workers and highly educated immigrants constitute a significant share of the Canadian labour market. In 2000, one fifth of Canada’s labour force was born outside Canada (Statistics Canada, Census 2001). High concentrations of foreign-born employment are observed in high-tech industries (Hall, SRI-2006) and in health professions (Bourgeault, SRI-2006). When comparing Canada’s position against other major OECD countries, Gera and Songsakul (2005) find that circa 2000 Canada performs exceptionally well in attracting highly educated permanent immigrants relative to competitor countries (i.e., Australia, the United Kingdom, the United States, Germany, and France). However, it does not compete well when temporary inflows of highly skilled workers are considered.

According to McHale (SRI-2006) and Ellis (2006), Canada performs poorly in attracting international students in higher education when compared to competitor countries such as Australia and the United Kingdom. The United States remains the prime destination for advanced students and highly skilled workers under non-immigrant visas, such as H-1B and NAFTA-TN. Gera and Songsakul (2005) note that Canada’s relative position in terms of high-skilled expatriates is worse than all other countries in their comparison, except the United Kingdom. Canada’s ability to retain high-skilled workers, both Canadian-born and foreign-born, also remains a challenge. This leads us to the issue of brain drain.

Brain Drain from Canada

Research on the issue of Canadian brain drain remains divided. One view is that southward migration does not seem to pose a problem when it comes to the number of movers. This is supported by Zhao, Drew and Murray (2000) and more recent research by Helliwell (SRI-2006) and Finnie (SRI-2006a). The flow number is relatively small; much less than one per cent of the population per year\(^3\), and the departure rate is decreasing, while return migration has been increasing since 2000.\(^4\) Data from the U.S. census supports the notion of brain drain.

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\(^2\) H-1B is a temporary working visa issued to a foreign professional in a specialty occupation such as computer scientist, physician, engineer and professor. The annual cap in fiscal year 2005 was 65,000 petitions. A special Treaty Nationals status called NAFTA (North American Free Trade Agreement)-TN, which a Canadian or American professional can apply for at the border, is infinitely renewable. See extensive discussion of the scope of NAFTA in Canadian and U.S. labour markets in Hart (2004).

\(^3\) Evidence from the OECD immigrants and expatriates stock database (2005) shows that 80% of Canadian high-skilled expatriates to OECD countries, or about 343,000 people, lived in the United States in 2000-2001. In the reverse direction, Canada is the top host country for U.S. emigrants with tertiary education, hosting more than 124,000 American expatriates or about 30% of total U.S. high-skilled expatriates to all OECD countries.

\(^4\) Finnie (SRI-2006a) finds that each year during 1982-2003 between 0.04% and 0.15% of Canada’s adult population left the country and the leaving rates decline sharply since its highest peak in 2000. On the other
exchange or brain circulation. It shows an increase in the temporary stays of Canadians in the United States since the 1990s. More Canadian-born people, especially those with university education, are living in the United States under temporary working arrangements. On the other hand, Canada receives large inflows of highly educated immigrants from non-OECD countries that are much larger than outflow of highly educated Canadian-born emigrants to the United States (Gera and Songsakul, SRI-2005). From this perspective, the brain drain problem is marginal.

On the other side of the Canadian brain drain issue, researchers including Harris (SRI-2004) and Harris, Easton and Schmitt (2006) see it as the “quality” concern arising from imperfect substitution between immigrant professionals (mainly from developing countries) and emigrating Canadians. This is particularly pertinent in certain occupations such as physicians and scientists where the idea of “superstars” leaving Canada for the United States remains a contentious issue. It is nevertheless clear that the number of these workers was small, relative both to the total Canadian labour force and to historical rates of out-migration. There are not many “superstars”; what makes these workers potentially so important is that, because of production externalities, they may make many of the workers around them more productive. A top executive who creates and chooses product lines that other entrepreneurs do not see, can generate immense amounts of wealth, not just for himself or herself, but for many thousands of workers, suppliers and customers associated with him.

The Canadian labour force is subject to the immigration and emigration of the mobile workers, particularly in the high-skilled segment, as outlined above. The next question is what motivates highly skilled workers to move and what influences their choice of location. The next section reviews and discusses the fundamental drivers of skill migration.
3. Drivers and related socio-economic factors

Research confirms positive influences of earnings gains, international trade and foreign direct investment (FDI), and knowledge clusters in attracting highly skilled people. While immigration policy has a direct impact, other policies influencing these socio-economic drivers also screen potential movers via self-selection mechanisms.

What motivates highly skilled people to move from one country to another? Do the same influences affect the decisions of lower-skilled and higher-skilled labour equally? What Canadian socio-economic factors serve to attract or retain the talented?

Earnings Level and Earnings Dispersion

Earnings remain an important driver of migration as many of the SRI studies confirm (Mueller and Hunt, SRI-2006; Gross and Schmitt, SRI-2006; Globerman and Shapiro, SRI-2006). Generally, high-income earners tend to be more sensitive to differences in income levels than lower income earners (see Finnie, SRI-2006a), as are highly educated people as compared to lower educated people (see Globerman and Shapiro, SRI-2006), and highly skilled individuals relative to the lower skilled individuals (skills as measured by combined education and experience, see Mueller and Hunt, SRI-2006).

It has been argued since Roy (1951) and Borjas (1987) that highly talented workers are attracted to the region where income inequality (or earnings dispersion) is greater, independent of the difference in average income. If this is true, then the lower level of inequality in Canada would make the United States more attractive to highly skilled Canadians, resulting in more brain drain. Two studies found the effect of earnings dispersion to be important, but secondary to the absolute difference in earnings levels. Gross and Schmitt (SRI-2006) find little role of relative income distribution on the migration of professional workers to France during the 1983-2000 period and that the relative income level tends to matter more. On the other hand, Mueller and Hunt (SRI-2006) show that the migration of highly skilled workers between the United States and Canada in late 1990s and early 2000s is affected by both higher dispersion in wages and higher (after-tax) mean wages, however the latter effect is stronger.

Dostie and Léger (SRI-2006) argue, following the Roy and Borjas hypothesis, that it is not earnings differences as such that attract the highly skilled, but the “productivity premium”. They decompose earnings of physicians in Canada (during 1989-1997) into a component explained by observable characteristics such as age, gender and educational degree, and a residual component (due to unobservable characteristics and random variance). They refer to the residual component as “productivity”, which contributes to the earnings beyond the physicians’ observable characteristics. According to their findings, physicians who are more productive (have a higher residual) will tend to migrate to the region where there is higher variation of productivity-based earnings (the productivity premium). If so, policies affecting the productivity premium will be more effective in influencing migration decision of physicians than other policies affecting returns to the observable characteristics of physicians (for example, specialty).
As is illustrated by interview findings in Richardson (SRI-2006) and Richardson, McBey and McKenna (SRI-2006), and Dostie and Léger’s quantitative results, skilled workers are also attracted to settings in which they have an opportunity to raise their level of compensation by working harder, smarter, or better. In other words, the availability of performance-based pay attracts skilled workers; workplace environments in which pay is independent of performance attract unskilled (or unmotivated) workers. A recent, but dramatic example of this is Lazear’s (2000) well-known case study of the introduction of performance pay in a manufacturing company (Safelite Glass). It is perhaps obvious that adding an element of performance pay induced many of Safelite’s existing workers to produce extra output and earn more. What is more surprising is the fact that fully half of the dramatic productivity increase attributed to the introduction of performance pay in this case took the form of employee self-selection rather than a change in effort by the firm’s existing workers. In other words, the availability of incentive pay made it more attractive for talented workers to stay at Safelite, and made Safelite a more attractive place for such workers to seek employment. This selection effect had a substantial positive impact on Safelite’s bottom line.

Other Economic Factors

Clearly, the overall level of business conditions, especially the state of demand in certain key industries, affects flows of highly skilled workers. Finnie (SRI-2006a) finds a decline in Canada-to-U.S. flows after the dot-com crash earlier this decade. Some natural, cyclical variation is to be expected in international flows of skilled workers; in fact the ability of these flows to smooth cyclical fluctuations in demand is an advantage of greater international economic integration.

There is also support in the research literature for the view that international trade and FDI influence international movements of highly skilled workers. Policy affecting one of these elements will create an impact on the others (Head and Ries, 2004). Globerman and Shapiro (SRI-2006) find empirical evidence of a positive relationship between trade and movement in financial capital and human capital. They find that bilateral FDI and trade are complementary to the migration of highly educated workers across OECD countries. DeVoretz (SRI-2006), however, suggests that this co-movement could be spurious because of the possibility of reverse causation; migration casing trade rather than the reverse. The issue of causality versus co-movement between trade, FDI and human capital remains open to further investigation.

Of particular interest is the issue of the role of social and professional networks in facilitating the cross-country movement of highly skilled workers. According to Gross and Schmitt (SRI-2006), any non-economic policy affecting cultural or social networks tends to be less effective to induce migration of professionals as compared to the lower skilled workers. Professional networks, on the other hand, are considered a crucial element in initiating and maintaining research collaboration and co-authorship of papers among researchers across countries, as suggested by Cowan, Feldman, and Kogler (SRI-2006). Networks also include collaboration among firms as found in Richardson (SRI-2006) who notes the importance of firm-level networks and financial partnerships in the exchange of scientists and executives in the biotechnology industry in the Vancouver area in recent years. The role of multinational
enterprises in exchanging human capital across countries should not be underestimated in the globalizing world (Globerman, 1999).

A line of research on knowledge clusters tends to suggest that a mass of highly skilled workers attract more of the same kind due to agglomeration effects (see, for example, Wolfe and Gertler, 2004; Florida, 2005). For example, more highly skilled human capital in a cluster attracts new firms, which leads to further highly skilled workers being attracted to the region. The findings from Richardson’s work on the biotech sector in Vancouver suggest a similar propensity. Government policy such as the Canadian Research Chair Program, which aims to foster the networks of centres of excellence, might help to attract more highly skilled workers by supporting clusters.

Non-pecuniary Factors

Other non-pecuniary factors also influence the decision to migrate. Globerman and Shapiro (SRI-2006) point out the role of geographical, linguistic and cultural “distances” as they are negatively related to the cross-country flows of workers. Relative non-pecuniary benefits between different locations affecting quality of life of migrants and their families are often found to be a significant factor in migration decisions (Helliwell, SRI-2006). Such benefits are generally attached to life satisfaction and family issues, for example, climate and environment (Mueller and Hunt, SRI-2006), access to quality schools for children (Richardson, SRI-2006), public safety, and health care system (Richardson et al., SRI-2006).

The above discussion gives a general overview of what factors influence the migration decisions of highly skilled workers. There are some differences when we consider different sectors and occupations in more detail. Variations of labour market experience and factors influencing the decision to come to work in Canada are documented in the case studies reviewed in the next section.

4. Situation in Different Sectors in Canada: Lessons from Micro-evidence

Incentives and impediments to international migration vary across sectors in Canada. Micro-level studies show what brought highly skilled workers in different sectors to Canada, and examine their experiences in the Canadian labour market.

High-technology Sector

According to Hall (SRI-2006), over one-quarter of workers employed in high-tech sectors in 2000 were immigrants – higher than the 20% average of all sectors in Canada. And despite public concern over employers’ non-recognition of foreign qualifications, employers in the high-tech sector appear to recognize and reward foreign qualifications. Hall analyzes the data from the first wave of the Longitudinal Survey of Immigrants to Canada collected in 2001-2002. He finds that pre-immigration high-tech work experience and foreign education are rewarded with increased likelihood of employment in Canada, while other experience
obtained abroad is not similarly rewarded. Recent immigrants with high-tech experience are further rewarded by “quality employment (i.e., increased employment likelihood in full-time matched jobs). The finding that pre-immigration experience (other than high-tech) is not rewarded agrees with the results of earlier research (Aydemir and Skuterud, 2005).

Hall also uses data from Census 2001 to show that the distribution of immigrant employment is significantly non-random, as relatively more immigrants are employed in the high-tech sector than in others. This could be related to the high demand in information technology (IT) labour market and the impact of immigrant selection and temporary entry provision for IT workers in the 1990s. High-tech immigrant workers are highly concentrated in larger cities. Geography, however, does not have a large impact on employment likelihood for the new immigrants. In terms of annual earnings in 1990, high-tech employed immigrants earned on average about $3,500 more than the native born, but the gap had disappeared by 2000.

Hall’s findings may indicate that when there is high demand for a certain type of skills, employers find it worthwhile to invest in evaluating credentials acquired outside Canada. In many high-tech industries (in particular computer programming and analysis) there are no formal certification requirements and employers directly evaluate the credentials of potential employees.

In a study of the booming Vancouver biotech sector, Richardson (SRI-2006) finds a significant proportion of foreign executives and professionals, ranging from 15% to 90% in the sampled firms in 2005. Most came from the United States, while a high percentage of senior scientists are from Asia and Europe. The domestic labour market seems to provide sufficient supply of research associates and junior scientists but less so at the top of the work pyramid. Financial and monetary returns are not the main factor influencing these highly skilled foreigners to accept jobs in Canada, but the attractions of a nascent biotech clusters and a potential of getting a high-level managerial position are more cited. Deterrents most cited are Canadian high taxes, difficulties for spouse employment, and the delay in accessibility to the provincial medical system to foreigners residing in British Columbia.

Faculty and Health Occupations

A case study by Richardson et al. (SRI-2006) explores the immigration decision, work/life experience, and remigration intentions of international academic faculty members in six Canadian universities. Financial and monetary returns are found not as important to the respondents. Most cited preferred life style and family reasons in deciding to accept a position in Canada. While in general, the respondents are satisfied with their experience in Canada, some reported difficulties and concerns related to tenure and promotion process and research funding, immigration status (changing from work permit to permanent residence), and spousal employment. Their findings highlight the multi-faceted concept of the “scholar

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7 Such a position requires a bachelor or master’s degree in science.
and family” integration. The authors suggest that the unit of analysis for recruitment and selection interventions should not be based on the traditional individualistic approach.8

In her study of the health care sector, Bourgeault (SRI-2006) investigates the migration of physicians, nurses, psychologists, and midwives in and out of Canada. Bourgeault describes the necessary entry processes that these foreign-trained health professionals must go through in order to practice in Canada. She highlights two major barriers to professional recognition: (1) lack of adequate information available in Canada about professional standards and registration; and (2) lengthy, costly and possibly duplicated practices and procedures in obtaining permits. Numerous programs and joint government-profession committees have been established with an aim to address these barriers.

One particular issue in studies of the mobility of health care workers that is not raised in other case studies is the ethical aspect of the international recruitment of health professionals. Less developed source countries are negatively affected by the global competition for health professionals as it draws out their most needed human resources to richer countries.9

The above discussion signals an important role of a wide range of factors that can affect the migration decision and labour market performance of highly skilled immigrants and other foreign workers in various sectors. As well, there are direct policies that influence international mobility (in both directions, in and out of Canada) such as immigration policy and international trade agreements. The following section discusses the role of these policy factors.

5. Policy Factors affecting Mobility of Highly skilled Workers

Two key policy areas affecting the cross-border movement of highly skilled labour are immigration policies and policies related to international integration of labour markets. Other policy impacts come from national and provincial policies including income taxation and worker benefits, and labour market practices and regulations.

Policy questions on the impacts of labour market integration between Canada and the United States are of particular interest. Harris (SRI-2004) calls this complete integration a “free trade in labour services” policy. Currently the temporary entry of skilled labour between the United States and Canada is subject to the provisions of NAFTA chapter 16 (regulating the NAFTA-TN status), which facilitates cross-border movement of business visitors, professionals, intra-company transferees, and traders/investors.

8 A caveat on most interview-based studies is that they focus on a selected sample – those who chose to come to Canada and stayed (at least until the time when they were interviewed). We cannot know from this type of study what factors may have deterred prospective immigrants from coming to Canada.

9 The concerns regarding competition among rich countries for skilled foreign workers and the adverse effects of brain drain inflicting the less developed countries are discussed and addressed at length in a recent book by Kapur and McHale (2005).
Using French and Swiss data, Gross and Schmitt (SRI-2006) find that free labour mobility policy (that is an international agreement allowing free movement of workers across countries) affects low-skilled flows more than flows of the highly skilled. On the basis of these examples, they speculate that a free mobility policy between the United States and Canada might not change much the movement of highly skilled workers. Similarly, Harris, Easton and Schmitt (2006) state that an introduction of continental free labour mobility would have little impact on the Canadian labour market and U.S.-Canada flows, but might lead to an increase in low-skill flows from Mexico to Canada.

In an international comparison, Gera and Songsakul (SRI-2005) benchmark Canada’s procedures for admitting temporary workers and suggest that Canada does not compare well with the other key competitor countries. The bureaucracy and red tape of visa issuance, including limits on spouse employment opportunities, were cited by a number of skilled foreign workers and the firms hiring them as the main obstacles to mobility into Canada (see Richardson, SRI-2006; Richardson et al, SRI-2006; and Bourgeault SRI-2006). Cumbersome temporary admission procedures, particularly job validation, are considered a major impediment for foreign workers to enter the Canadian labour market. In industries as rapidly changing and as highly specialized as today’s high technology firms, it does not seem realistic to expect any government agency to acquire enough expertise to truly judge whether any qualified Canadians were overlooked in an employer’s search process, as job validation requires. Some employers are very frustrated by this process; perhaps it could be streamlined or eliminated. One possible policy option might be a more “employer-based” procedure regarding job validation for admitting temporary skilled workers similar to the H-1B system in the United States.

Any extension of trade-in-services agreements, such as the General Agreement on Trade in Services under the World Trade Organization, and Asia-Pacific Economic Cooperation provisions on business people, will certainly influence the movement of highly skilled workers in and out of Canada. These international agreements cover the exchange of highly skilled workers on a temporary basis.

For more permanent movement, immigration policy is what matters. Policy comparisons show that Canada’s immigration policy is well developed in attracting highly educated immigrants, but the challenges lie in their labour market integration (Gera and Songsakul, SRI-2005). For example, Aydemir and Skuterud (2005) find that earnings of new immigrants to Canada deteriorated during the 1980s and 1990s. Some argue that the skills selection criteria currently in use may favour an immigrant skill set that is not applicable to Canadian labour market.

On the other hand, DeVoretz (SRI-2006) put some blame on the design of immigration policy itself. He examines the evolution of Canada’s immigration policy in the past 30 years and concludes that Canada’s decision to maintain and even raise immigrant flows during a prolonged period of economic weakness in the 1990s is partly responsible for the deterioration of immigrant labour market performance. Expansionist policy in the 1990s was predicated on admitting sufficient number of highly skilled immigrants to meet a growing labour demand in particular occupations, and has since then left Canada with “a legacy of
highly trained immigrants whose credentials are either not recognized or do not match Canadian standards.”

Immigrants’ Skills and Selection Policy

The percentage of university-educated adult immigrants is higher than that of overall adult population in Canada (36% for recent immigrants and 21% for all immigrants versus 15% for population according to Canada Census 2001). However, as Coulombe and Tremblay (SRI-2006) demonstrate, a measure of skills based on the number of years of education is not a good proxy of immigrants’ literacy skills. Using data drawn from the 2003 International Adult Literacy and Skills Survey, the authors find that on average an immigrant with 13 years of schooling has the literacy skills associated with 9.7 years of schooling for the Canadian-born. Sweetman (2004) relates immigrants’ earnings gap to education quality in immigrant source countries. This is confirmed by the findings of Coulombe and Tremblay that the size of the skill-schooling gap is closely related to source country Gross Domestic Product and that the gap disappears completely among children of immigrants born in Canada (who obtain their primary and secondary education in Canada). Also, the employment experience of newly arrived immigrants shows the significant role of knowledge of English and/or French on the likelihood of being employed within the first six months (Hall, SRI-2006). The implication of these findings is that the observed gap of returns to a year of schooling between immigrants and the Canadian-born is due in part or in whole to the immigrants’ lower level of skills relevant to the Canadian labour market, including their knowledge of official languages. This suggests that immigration criteria based purely on educational credentials may not be as effective as we might have expected in selecting the most skilled immigrants. The selection criteria under the skilled immigrant program may need to improve on evaluation of education, official language skills, and in general skills applicable to Canadian labour market.

The “quality” of immigrants’ skills and the applicability of their skills to the domestic labour market are closely linked to the issue of foreign credentials recognition. Policy makers’ attention has tended to focus on foreign credentials recognition as a key problem in labour market practices and regulations in Canada. Let us start from the fact that immigrants have lower returns to schooling and work credentials than the Canadian-born. Such a statement reveals two sides of a coin – whether immigrants have acquired lesser skills usable in the Canadian labour market for each year of schooling (or of work experience) or whether the problem is one of “credentials recognition.”

The former is linked to the selection of high-skilled immigrants and their quality of education and work experience as discussed previously. The latter is an information problem. The evidence that many immigrants have great difficulties in having their professional credentials recognized for practice in Canada by regulatory bodies can be interpreted as evidence of inadequate skills or as an information problem or both. There may well be restrictive or burdensome administrative practices and jurisdictional complexities that lead to difficulties in obtaining professional recognition (for example, barriers to entry due to quotas for foreign physician internships). However, these are not the only source of difficulty for immigrants who seek to have their credentials recognized. For example, the failure rate on exams to
establish competency to practice in Canada is as high as 79% for international medical graduates, and 66% for foreign-educated nurses in Ontario (Bourgeault, SRI-2006). This said, there is no evidence as to what part of immigrants' difficulties in obtaining the right to practice as professionals is due to administrative difficulties with regulatory bodies and what part is due to immigrant qualifications that do not meet Canadian standards of practice. The latter, however, has less impact on Canada’s ability to compete for skills: those with inadequate skills will have inadequate skills in any Western country. The former adversely affects ability to compete: skilled immigrants will go where the barriers are less. Thus, the regulatory barriers issue is an area in need of further investigation and improvement.

Work compensation schemes play an important role in “selecting” workers based on their unobservable skills. The attractiveness to skilled workers of environments with high marginal returns to effort has two possible implications for immigration policy. First, while publicly observable characteristics such as education may be somewhat helpful in selecting immigrants, selecting immigrants on hard-to-observe dimensions such as energy, motivation, risk tolerance, and drive may be more effectively achieved by providing an economic environment that induces workers with those characteristics to self-select into it. “Selection on observables”, to use some economics jargon, is of limited use. Second, this argument may point to institutional problems in certain Canadian sectors that may hamper Canada’s ability to compete for top talent. One example is the academic sector, where a high level of faculty unionization may limit the availability of performance-based pay available to these highly skilled workers.

Other Policy Factors affecting Mobility of Highly Skilled

There are policies other than the labour market regulations and practices above that affect the location decisions of internationally mobile workers. Taxation and benefits policies, which affect workers in all groups and sectors, are the next discussed. It should be noted that various other policies influence the migration decision of specific groups, such as science and technology policies for scientists, competition and market regulations for entrepreneurs and executives, health care policy for health care professionals, and education policy for educators and students. More detailed studies on policies affecting migration of workers in some specific occupations can be found in, for example, the SRI studies by Bourgeault, Richardson, Richardson et al., and McHale.

An individual has an incentive to move to the location where the net return to the human capital investment is highest, all other things equal. Thus, if a person would earn an equal pre-tax income in two jurisdictions, say the United States and Canada, he/she would be attracted to the United States where tax rates are relatively lower.\(^\text{10}\) In addition, lower capital

\(^{10}\) The combined federal/provincial personal income tax rate for high-income taxpayers in Canada is 50%, that is 10% higher than the counterpart federal rate in the United States (Saez and Veall, 2005). They find, however, that when state income taxes are taken into account, there is little difference between Canadian top marginal rates and U.S. top marginal rates in large states. The biggest differences are experienced in higher income groups below the highest income group. The overall tax paid on personal earnings also depends on other forms of taxation and subsidies (benefits) such as payrolls, sales and excise taxes, employment insurances and compensation, to name a few. The effective tax rate, taking into account all the relevant taxes and subsidies,
gains taxes and the more favourable tax treatment of stock options in the United States may be more attractive to highly skilled workers in sectors where equity compensation is important, and in fast-growing sectors where there are many start-ups.

Despite the difference between the relevant tax rates in the United States and Canada, research results on the effect of taxation and migration of the highly skilled workers are mixed. Wagner (2000) finds that income tax differentials contribute to Canada’s brain drain to the United States; however, the responsiveness to tax changes is small. According to Saez and Veall (2005), reductions in marginal tax rate on income did not play a role in the sharp increase in top income shares in Canada in the past 20 years. They interpret the increase in the top income share in Canada as due to competition with the United States for highly skilled managerial and professional talent. On the other hand, simulations by Mueller and Hunt (SRI-2006) find that a reduction of Canada’s average tax rate to the U.S. level (while cutting public expenditures to maintain fiscal balance) would considerably reduce the southward migration of the Canadian highly skilled.

Tax differences between countries can penalize workers who change their residence, be it foreign workers in Canada or Canadian workers abroad. Skilled workers tend to have more financial assets than other workers. As Li (SRI-2006) and Richardson (SRI-2006) clearly illustrate, the tax treatment of certain financial assets constitutes a significant challenge to Canada’s ability to attract highly skilled workers. Li identifies current tax policies that act as barriers to the movement of the taxpayers between the United States and Canada. The mismatches and complications of taxes on wages, investment, stock options and capital gains, and other benefit treatments that are relevant to cross-border high-skilled workers lead to problems of double taxation, inabilities to transfer and invest in pension plans, and loss of private revenue (due to high transaction costs in handling and settling the tax-related cases). These deter individuals’ decisions to accept job offers abroad. The author suggests some remedies including some changes to current tax law and international treaties.

It is apparent from the above discussion that policy factors can facilitate as well as impede the flows of highly skilled workers across countries. The important question is which direction it should lead. The answer depends on the weighing of the benefits and costs of high-skilled mobility – the subject of the next section.

\[\text{varies widely even within one country. On average, Mintz (2001) shows that the effective tax rate on Canadian labour in 2000 is about 59\%, 16\% higher than the rate in the United States.}\]
6. Looking Through a Different Lens: Costs and Benefits of High-skilled Mobility

Benefits and costs induced by international mobility of the highly skilled are complex. Beyond the traditional direct transfer accounting, effects on national income, well-being, skill accumulation and distribution, and knowledge spillovers are being explored. The issue goes beyond minimizing the costs and removing the barriers, as policymakers must also consider other complementary and alternative measures in order to build, buy, and compete for the talents necessary for enhancing Canadian innovative capacity.

Should a country engage in more exchange of human capital with other countries? The answer depends on whether the country benefits from such transactions. This is the domain of welfare economics. Harris (SRI-2004) shows that the impacts of increased labour mobility on a country’s productivity dynamics depend largely on localized human capital externalities, global knowledge spillovers, and economies of specialization made more feasible in a more closely integrated labour market. With this, he identifies two broad analytical frameworks based on the factor migration approach and the labour market integration approach. Under the first approach, a zero-sum competition for global skills between countries means that small countries may be potential losers with race-to-the-bottom type outcomes. This may prove to be a grave concern for a small source country, but to a lesser extent for a country like Canada, which has been a large recipient of human capital transfers. Alternatively, under the second approach labour market integration initiatives may bring large benefits to small countries, as there are mutual gains from skill exchange between integrated economies. The implication is that Canada’s long run growth could depend on initiatives to improve highly skilled labour mobility with the United States.

A surplus to a country’s balance of human capital should lead to more benefits using the simple logic of the human capital transfer approach (that is when a country exports more human capital than it imports). But accepting newcomers, skilled or not, is never costless (Helliwell, SRI-2006). The welfare improvement depends crucially on the skills and labour market attachment of the newcomers. As Fougère, Harvey, Mercenier and Mérette (SRI-2005) indicate using a computable general equilibrium model, immigration could lead to a small or even negative economic growth (relative to a baseline scenario) if immigrants have weak attachment to domestic labour market and low productivity. This again points to a difficult issue of labour market integration and skill levels of immigrants and other foreign workers, as discussed earlier.

Benefits of Immigration

Is it immediately obvious that (at least on average) the current residents of Canada will be made better off if more skilled workers could be induced to immigrate into the country, or if more skilled Canadians could be induced to stay in Canada? To consider this question, it is worth understanding that in the basic economic model, every worker in a competitive

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11 Gera et al. (SRI-2004) review the literature of benefits and costs of cross-country skill mobility and identify various channels through which the costs and benefits are incurred.
economy is paid his/her additional contribution to the economy. Thus, while skilled workers can produce more than other workers, they also are paid commensurately with their higher productivity. A substantial net benefit to existing Canadian workers from the immigration of additional skilled workers requires the presence of some sort of externality, i.e., a mechanism via which the addition of a skilled immigrant to the economy raises the after-tax wages of other Canadian workers. There are three main types of positive externalities generated by skilled workers; they are consumption, fiscal, and production externalities. Each type is examined below.

The most direct way that the presence of a skilled immigrant can benefit existing Canadians is via a consumption externality. Canadians may simply derive more utility from living next to, working beside, or sharing their child’s classroom with the children of skilled immigrants. While this seems a plausible argument for why Canadians might prefer any given number of immigrants to be skilled rather than unskilled, it does not seem to be a strong argument for raising the total number of immigrants. Also, it is worth bearing in mind that the consumption externalities generated by high-income neighbors can be negative as well as positive (as recent behavioural economic research has shown a significant role for jealousy), an issue that may acquire an extra social dimension when the high-income new arrivals are visible minorities.

A second way that skilled immigrants can make existing Canadians better off is through fiscal externalities. This means that an additional highly skilled worker who earns more than an average local can contribute more than proportionally to finance public expenditures via a progressive income tax. The additional facts that (a) skilled immigrants are less likely to receive income support from the government, (b) they were typically educated at another country’s expense, and (c) immigrants are relatively young (which tends to subsidize the public pension system) – all contribute to a likely positive net fiscal effect of skilled immigration (and a negative fiscal effect of unskilled emigration). Storesletten (2000) argues in favour of admitting more skilled immigrants to the United States as a means of resolving the fiscal problems associated with the aging of the baby boom generation. Empirical evidence on fiscal externalities is limited and thus far we do not know whether this holds true for Canada.

Finally, an additional highly skilled worker can potentially bring extra benefits to a host economy beyond the wage they receive because of the production externalities they create. This is due to the agglomeration effect where an additional productive worker more than proportionally contributes to an increase in the average productivity of the whole industry, for example by allowing formation of new knowledge clusters and stimulating growth caused by knowledge spillovers. Because externalities of this kind may affect a country’s rate of productivity growth, they are potentially much more important than the previous two

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12 Such external benefits are typically much larger than the simple gains from trade that occur when a country receives a factor inflow that complements its own existing factor endowment (Borjas, 1994). This is especially true when the externalities affect a country’s rate of growth.
13 This holds true for any additional high-skilled workers regardless of where they come from. See recent evidence from Moretti (2004) on production externalities induced by education, which also apply to other forms of human capital development.
14 As suggested by the endogenous growth literature, for example Rivera-Batiz and Romer (1991).
sources of externalities. It is this kind of externalities that underlies the policy direction to *create demand* for skilled workers (and thus, a desire to attract and retain talent) which implicitly reveals an industrial policy argument to achieve critical masses of skills for a knowledge-based economy. Note that this rationale for skilled immigration is quite distinct from the notion that Canada currently faces a skills “shortage” and must resort to immigrant labour to remedy such shortage.

Another rationale to facilitate the cross-border mobility of the highly skilled is that it increases knowledge flows to and from the country. Rivera-Batiz and Romer (1991) demonstrate that an increased flow of knowledge (ideas) induced by international migration can increase the productivity in the research and development sector, thus, raising the long-run growth rate to both sending and receiving regions. To apply this proposition to Canada, it would mean that the country could benefit from increased international mobility of skilled workers, who are the carriers of knowledge to and from Canada. Oettl and Agrawal (SRI-2006) study the impact of mobility of highly skilled workers on the pattern of knowledge flows across firms and across national borders. According to their study, there are social benefits to both sending and receiving countries when inventors (scientists and engineers) move. The authors investigate the flows of scientific knowledge using cross-location patent citations during the years 1980-2000 and identify two types of knowledge spillovers. They find evidence that a receiving country gains additional benefits (above the private benefits incurred to the hiring firm) and term this “National Learning by Immigration”. In the reverse direction, they find the existence of “Firm Learning from the Diaspora” which refers to the benefits to the sending firm due to an increased knowledge received from the inventor’s new firm and country.

**Knowledge Clusters**

If net benefits of taking in more skilled immigrants are due to their contribution to fast-growing knowledge-based clusters, then “critical mass” matters. It might be worth re-evaluating the policies that encourage dispersion of skilled immigrants across the country. For example, it is important to be aware of the locational choices of immigrants within Canada. It is well known that immigrants are heavily concentrated in Canada’s three largest metropolises. Hall (SRI-2006), however, adds to our understanding by showing that high-tech immigrants are more geographically concentrated in the major cities than is overall high-tech employment. In addition, as skilled workers are attracted to places that offer good quality of life and decent local amenities, as suggested in several interview-based SRI studies, it implies that these are the places that could potentially build up knowledge clusters. Rather than attempting to disperse skilled immigrants geographically, a policy of nurturing specific enclaves with a high quality of life may effectively attract and retain skilled workers.

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15 Although the effect they estimate is not technically an externality, Ottaviano and Peri (2005) argue that immigrants generate a large positive effect on the average wages of U.S.-born workers under the assumption that immigrants and native skills are imperfectly substitutable. Their finding contrasts that of Borjas (2003) who finds that increased immigration reduce the wages of less educated U.S. workers in particular and all U.S.-born workers in general.
While it is important for knowledge workers to cluster together geographically, it is also important for these clusters to maintain active links with other knowledge clusters around the world. To the greatest extent possible, governments should facilitate knowledge exchange with experts and firms abroad at the same time that they promote high-tech enclaves within Canada. As Oettl and Agrawal’s paper clearly suggests, it can be productive for a skilled-immigrant-receiving country to facilitate its immigrants’ continued contacts with colleagues and firms worldwide including in their country of origin, and for a sending country to maintain links with its expatriates. Indeed, in addition to the measurable flows of patents and citations studied by Oettl and Agrawal, we note that a variety of other productivity-enhancing flows are likely to occur via these channels, including diffusion of new business practices, process innovations, and even elements of corporate culture. Because most knowledge goods (e.g. a drug formula, a hit song, an efficiency-increasing business practice) can be reproduced at essentially zero marginal cost, the ability to serve a large market instead of a small one can multiply a firm’s success and profits many times at almost no additional cost. Further, by their very nature, the successful production of knowledge goods requires a close understanding of one’s customer’s needs. To be successful in international markets, it is therefore critical that Canadian knowledge producers understand the cultures of their largest markets, including of course the U.S. Thus, raising, not lowering Canadians’ exposure to U.S. (and other large) cultures will also contribute to the export success of Canadian knowledge clusters. (See Kuhn and McAusland (2005) for a recent formalization of this notion of a “cultural premium”).

Labour Mobility and Skill Strategies

If education from the immigrants’ source countries results in lower skills applicable to Canadian context (for example, as measured by literacy test score as Coulombe and Tremblay, SRI-2006 suggest), then the straightforward remedy is to select those whose qualifications are closer to Canadian standards. How to do so is a more difficult question. In seeking new immigrants whose skills are relevant to Canadian labour market, some authors, including DeVoretz (SRI-2006), McHale (SRI-2006) and Helliwell (SRI-2006) advocate shifting the skilled immigrant program’s focus to recruiting and then retaining foreign students whose qualifications, upon their graduation, can be evaluated by Canadian firms relatively easily. According to McHale (SRI-2006), benefits incurred from recruiting foreign students are from revenue generation and, more importantly, improved knowledge production at Canadian post-secondary institutions. If the immigration and education systems affecting foreign students are carefully designed, it may be possible to ensure that the benefits exceed the costs. The author suggests an incentive structure of a two-tiered stipend system to maximize net benefits to Canadians. Unfortunately, McHale (SRI-2006) and Ellis (2006) also show that Canada lags behind other competitor countries such as Australia and the United Kingdom in the number of such students.

Complete mobility of human capital is not limited to bilateral exchanges, but involves a wider scope of onward migration to another country as well as return migration. DeVoretz (SRI-2006) and Finnie (SRI-2006a) find evidence of significant flows of return migration. The former addresses an increasing triangular movement of human capital and the emerging circulation of Canada vis-à-vis Hong Kong, while the latter examines the return migration of
Canadians who previously worked elsewhere in the world. What makes these people return to Canada? Surprisingly, evidence seems to suggest that returning Canadians, especially those with high earnings pre-move, find limited earnings benefits in Canada associated with their experience abroad (Finnie, SRI-2006b). This may suggest that non-monetary benefits may play a role in coming back similar to that found in various case studies. On the other hand, it could reflect adverse selection as those who did not fare well abroad tend to return home.

Looking from an aggregate view of overall resource allocation, acquiring highly skilled workers from abroad is one of the three skills policy strategies that Helliwell (SRI-2006) considers. The author emphasizes that immigration of highly skilled individuals is not a costless way of compensating for a decreased flow of Canadian-born skilled entrants. He pulls the issues of education and training, trade in services and outsourcing into one broad framework in order to seek the most beneficial skills building strategy for Canada. Helliwell suggests that the evaluation of policies and their effects should be based on their consequences for “well-being” which includes not only the conventional economic measures such as income per capita and productivity, but also the non-economic factors such as community trust, social engagement, and workplace satisfaction. The implication as to policy direction for Canada is that “sharing” (international trading of skill-embedded goods and services) will become a more cost-effective way for Canada than “buying” (attracting and integrating immigrants), while “building” skills (via education and training) will be a primary policy option utilizing both domestic and imported human capital.

Lastly, a longer run perspective of immigrants’ benefits and costs is needed. While the first generation immigrants are more likely to experience difficulties in integrating into the new labour market, the labour market experiences of their children are not necessarily the same. According to Aydemir, Chen and Corak (2005), second-generation immigrants whose parents arrived before 1980 do not have difficulties in integrating into the Canadian labour market, and, furthermore, they generally earn more than average Canadians whose parents are Canadian-born. It remains to be seen how the long-run integration of the children of more recent cohorts of immigrants will turn out, as the earlier second-generation cohorts came from parents who did integrate quickly. That might not happen for the children of recent cohorts, if the factors driving second-generation success include first-generation success. If the factors are more broadly founded, for instance, a good education system, then the second generation may still do well.

Given the potential net benefits of cross-country skill transfer discussed above, the policy direction taken here is towards facilitating the mobility of highly skilled workers and making it easier for Canadian employers to bring in the needed human capital. For a knowledge-based economy, attracting and retaining highly skilled workers is key to benefiting from the externalities resulting from their employment. The next section examines policy messages of the research findings and of the conclusions drawn from these findings.
7. **Policy Messages and Conclusions**

This report began by recalling the three research areas of the SRI theme of “International Mobility of Highly Skilled Workers”: 1) to better assess global trends in this area and Canada’s position with respect to these trends; 2) to improve our understanding of the fundamental factors underlying the increased migration of highly skilled labour, especially among advanced economies; and 3) to better understand the costs and benefits of this mobility.

*The “stylized facts” that emerge from SRI research and other research on these subjects are:*

- International flows of highly skilled labour have increased; and highly skilled workers already move fairly freely between many countries.
- These flows tend more and more to be temporary movements, rather than one-time permanent migration.
- Canada has done less well than other advanced economies in attracting highly skilled temporary workers; and burdensome administrative processes and tax barriers may be key factors in this relative lack of success.
- These trends towards increased mobility of highly skilled workers are part of overall economic globalization and are closely related to international capital flows and to relocalization of production.
- Skilled workers have fewer barriers to legal immigration than unskilled workers.
- Highly skilled workers are attracted to areas with high wage levels for their skills (but it is not clear that they are attracted by high dispersion in wages).
- Other factors, including career opportunities, quality of life, social and cultural “distance” and administrative barriers are also important to the mobility decisions of highly skilled workers.
- Educational level is frequently used as a measure of skills in examining international mobility, often because it is the only available measure. There are significant differences in the quality of educational systems between different countries, so that educational levels tend to over-estimate the skills of workers from countries with lower quality educational systems, typically poorer countries. Questions such as whether Canada suffers from a “brain drain” cannot be answered simply by counting exits of Canadians and entries of immigrants with high levels of educational credentials.
- Canada has done well compared to other countries in attracting permanent immigrants who are post-secondary graduates, but a relatively low proportion of these have doctoral degrees. Despite their high levels of educational attainment, recent immigrants have had poor levels of economic success. This is due in part to a lack of skills suitable to the Canadian economy, for example, low levels of English or French literacy skills.
- The potential benefits of an internationally mobile skilled labour force to recipient countries stem from their production externalities which include an increased ability to build knowledge clusters and increased access to leading-edge ideas and technologies through participation in networks.
If one accepts these “stylized facts”, what are the implications for policy formation? What are the further implications of the more detailed research findings?

1. Canada’s strategy for issues related to the international mobility of highly skilled workers cannot be viewed in isolation from Canada’s strategy for North American and global economic integration. For example, if FDI is closely related to the international movement of highly skilled workers, restrictions on FDI may limit Canada’s ability to realize the benefits of this movement.

2. Competition in global markets for highly skilled workers is likely to become more intense, due to continued globalization, the related rapid economic growth in India, China and other less-developed countries, and increased competition for skilled workers among advanced economies with aging populations. It is certainly worthwhile to implement policies that make it easier for highly skilled workers to enter Canada and that make it easier for employers to bring highly skilled workers to Canada. But if the overall attractiveness of Canada as a destination is not sufficient for these workers, they will go elsewhere.

3. Policy relevant to skilled worker immigration needs to go beyond the notion that skilled immigration serves primarily as one method (among several) for alleviating pre-existing skill shortages. Instead, one of the most important lessons of the “new growth” theory is that, because of agglomeration economies and related externalities, an inflow of skilled workers creates demand for additional skilled workers in a way that makes both the new and the original workers more productive. Thus, rather than simply “filling gaps” by responding to existing specific skills shortages, Canadian immigration policy should think more broadly and creatively about fostering the kinds of localized knowledge clusters that make skilled workers and others more productive, and that in turn serve to attract additional skilled workers and raise the rate of economic growth. Given the importance of clusters, policies aimed at dispersing skilled immigrant workers could be counterproductive.

4. If Canada aims to increase the skills level of its workforce through economic immigration, better ways of recruiting and selecting skilled immigrants are needed. Economic immigration has costs for Canada as well as potential benefits in terms of skills. The costs and benefits of investing public funds in recruiting, retraining and integrating immigrants need to be weighed against the costs and benefits of further public investments in the skills of the Canadian-born population.

5. Temporary international movements of highly skilled workers may become increasingly the typical form of international labour mobility, replacing long-term migration. This would require a shift in policy emphasis towards making temporary entry mechanisms the central focus of policy aimed at benefiting from the increased international mobility of highly skilled labour.

What policy questions flow from these “stylized facts” and their implications?

- Should immigration policy aimed at providing skills for the Canadian economy move towards increased emphasis on temporary entries, reflecting the increasingly temporary character of migratory movements of highly skilled workers?
Should Canada actively use policy on temporary entries to seek to build innovative clusters? Combine removal of restrictions on FDI with policies to facilitate temporary entries of the employees of foreign companies?

Should Canada actively seek to expand mobility provisions for highly skilled workers in trade negotiations? If so, how can administrative barriers, tax law barriers, social insurance barriers and credentials barriers to temporary entries be reduced?

Does policy for selecting skilled immigrants need to be changed, in light of a system that has led to immigrants with a higher-than-Canadian-average level of educational credentials, but lower levels of literacy skills? If so, in what directions?

- Towards a system where temporary entry could be a step towards permanent residence as a skilled immigrant?
- Towards a system of pre-testing language skills and professional credentials, like that implemented by Australia?
- Towards integrating a policy that encourages foreign students to study in Canadian universities and community colleges, then provides preferential access to permanent residency after they graduate?

Would policies that seek to direct or attract immigrants to areas other than the traditional urban centers tend to lessen the economic contribution of high-skilled immigrants?

How should public investment aimed at increasing the skills level of the Canadian workforce be allocated between recruiting and integrating skilled immigrants and investing in the skills of Canadians?

Increased international mobility implies increased competition for high-skilled Canadians who have benefited from high levels of subsidies to their education. Does this mean we should move towards a system where post-secondary students and their families bear a larger part of the costs of post-secondary education, since other countries may reap the benefits of any externalities and of taxes on the higher incomes that result from this education?

What is the appropriate balance between policies aimed at increasing the supply of skills (such as the immigration policies discussed in the preceding bullets) and policies aimed at increasing the demand for skills through greater innovative activity by Canadian firms and through increased direct investment by highly innovative foreign firms?
References

SRI Working Papers


Other References


