

**UNITED NATIONS EXPERT GROUP MEETING ON INTERNATIONAL
MIGRATION AND DEVELOPMENT**

Population Division

Department of Economic and Social Affairs

United Nations Secretariat

New York, 6-8 July 2005

**POLICIES AND REGULATIONS FOR MANAGING SKILLED
INTERNATIONAL MIGRATION FOR WORK***

B. Lindsay Lowell**

*The views expressed in the paper do not imply the expression of any opinion on the part of the United Nations Secretariat.

** Director of Policy Studies, Institute for the Study of International Migration (ISIM) Georgetown University. He acknowledges the able assistance of Stefka Gerova. Paper prepared for the United Nations Expert Group Meeting on "International Migration And Development," 6-8 July 2005, United Nations Headquarters in New York.

EXECUTIVE SUMMARY

The findings of this report indicate that policies can make a difference in facilitating the number of skilled immigrants. To be sure, the traditional countries of immigration appear to have an edge in the number of skilled immigrants that they attract and one suspects a combination of facilitation and past momentum. And there are statistics on labour force participation and unemployment that suggest that, at the aggregate level, the traditional countries of immigration keep their highly skilled foreign workforce well employed. So, facilitating immigration *per se* does not need to lead to widespread foreign/native productivity gaps. But a closer look at numerically successful temporary work programmes in the United States and the United Kingdom make it clear that immigration programmes without adequate controls can undermine at least some portion of the labour market. In short, employers and some policymakers may define facilitation by more immigration, but workers and advocates of the national interest should rightly insist that demand be controlled and working conditions safeguarded.

With the intent of making a start at systematic comparison, an assumption is made that there are two extremes in the debate over the goals of admission policies with a middle camp that tries to balance the desire to facilitate with the reality of the need to control:

- Highly controlled / restrictive admission,
- Well managed / controlled admission,
- Streamlined / competitive admission.

Twelve countries are chosen, including the traditional countries of immigration (Australia, Canada, New Zealand and the United States), the major European receiving countries (France, Germany, Italy, Norway, Spain, and United Kingdom), South Africa and Japan. Next, a listing of comparative criteria is created for admission policies and policies are ranked on those criteria:

- Hard numerical caps,
- Strict labour market test,
- Extensive labour protections,
- Enforcement mechanisms,
- Limited employer portability,
- Restriction on dependents / working spouse,
- Limited permanency rights.

The ranking of controlled to competitive temporary skilled worker programs finds South Africa to be the most “controlled” country along with Spain. At the other end of the rankings, it comes as little surprise to find Australia and the United Kingdom, two countries that have had the greatest increase of skilled migration in recent years. In contrast, both Canada and the United States receive an above average ranking, but sit otherwise squarely in the middle of the rankings being neither highly controlled nor highly competitive by these rankings of temporary admission programmes.

The ranking of permanent admission programmes finds that Italy is the most “controlled country” and South Africa once again is found near the top of the ranking. Australia is once again found at the competitive end of the rankings along with the United Kingdom, but on permanent programmes Canada is also ranked as being highly competitive. The United States on this ranking of permanent programmes is again not at the top, however, it falls just above the average ranking for all nations. It is interesting that some countries, like Germany, that score as highly controlled in terms of their temporary programmes ranks as fairly competitive on their permanent programmes. This makes some sense to the degree that transition to permanency first requires a hard-to-get temporary work permit.

In an ideal world, it would be possible to track an ongoing set of measures that capture the relative success of various policy strategies in terms of their outcomes. To that end, consideration is given to ways of measuring “success” for which there are some data:

- Competitiveness in selecting and attracting highly skilled migrants.
- Labor market incorporation / productivity of skilled migrants.

It is not surprising to find that the traditional countries of immigration rank on the top of relative share of the global stock of skilled foreign workers. The only surprise is Norway that ranks second just after Australia on a combination of measures. It successfully attracts migrants who are much more skilled than those in other countries. Compared with European nations, the traditional countries of immigration appear to incorporate tertiary educated migrants fairly well when considering either employment or unemployment rates.

So what is “best practice?” A quick look at the U.S.’s H-1B and the U.K.’s work permits raises some concerns. In the case of the U.S.’s H-1B, there is good evidence that the political control of the number of workers fails to truly complement shifts in demand which introduces distortions into employer adjustments. While H-1Bs tend to earn the same as otherwise similar natives, at least one seventh of H-1Bs work in sweatshops where they earn just half as much as the IT workforce average. Such labour market segmentation, long recognized in low-end immigrant labour markets, is every bit as much a reality in the upper end. What is missing in so much of the current debate is a reasoned balance of control and streamlining.

Practicing what is best in skilled immigration is not a simple recipe and there is room for significant experimentation in what works best. Practicing what is best has less to do with a detailed action list of specific mechanisms than it has to do with all stakeholders honestly debating and agreeing to act on a few fundamentals:

- Global labour markets generate domestic demand,
- Abuse happens,
- Temporary migration is ok.

Legitimate demand should be facilitated in terms of the timely processing of immigrant admissions without undue complications and with an optimal administrative process. However, today’s debate over immigration policy for skilled workers, coming of age in the past decade of “New Economy” exuberance, CEO excesses, and the erosion of labour institutions, tends to be bereft of traditional commitments to working conditions. Most employers are good actors, but exploitation will occur unless it is combated. Finally, facilitators often deride temporary programmes because they are purportedly unfair to immigrants, while restrictionists fear that there is no such thing as a temporary migrant. But in the coming two to three decades, the potential supply of (lower-wage) foreign workers will grow ever bigger while competitive forces will reinforce demand. The latent supply and demand for immigrants, absent seismic shifts in public opinion, could easily outpace socially and economically acceptable levels. Temporary programmes offer an alternative—if exacting mechanisms are used to encourage the return of those workers who voluntarily enter into temporary work agreements.

A. INTRODUCTION

International demand for highly skilled migrant workers by the more developed nations has grown sharply in the past decade or so along with the evolution of modern economies and the forces of globalization. There is much debate over what it means to be “highly skilled,” be it a worker’s specialized ability to do a particular job or having completed college, but there is little disagreement over the unique need for such workers. Equally, there is room to debate whether increases in international mobility of people are rooted in the rapid pace of change coupled with a corresponding lag or disinclination of natives to learn specialized skills; or the integration of businesses and national economies in the wider global economy. But there is little disagreement that the pace of all forms of international mobility is picking up and that highly skilled workers are assuming a critical role in that mobility.

Recognition of these evident facts are leading governments to review their immigrant admission policies with an eye toward benefiting from the skills that international workers bring—whether or not their review leads them to facilitate and pursue migrants or to fashion a more welcome yet still cautious embrace. This paper addresses the desire to create a better understanding for policymakers who must pick and choose from the multitude of policy actions that exist. Naturally, there is no single answer to “what is the best immigrant policy” and there is no intent here to recommend one, rather our intent is to fashion a reasonable set of tools that might help policymakers make more informed decisions. For whatever forces are aligned with demand for the foreign workers, they are powerful and oblivious to what is in the best interest of all stakeholders: employers, domestic workers, or the complex web of community institutions. There is a need to balance often conflicting interests.

The analysis of international migration policies in this chapter pursues several paths. First, this report addresses the question of who are the highly skilled. Then this report summarizes and reviews international policies for a core of developed nations, noting that the available reviews do not develop a systematic framework for classifying various policies. So next, a framework is proposed that enables us to compare common elements in different immigrant admission policies, as well as to rank them along a continuum of highly controlled/restrictive, to well managed, to highly competitive/open. A foray is also made into a quantitative assessment of a number of countries in terms of how competitive they are in selecting/attracting highly skilled foreign workers. Then there is an attempt at a quantitative assessment of labour market incorporation as the logical next step in evaluating policy success, because lack of successful labour market incorporation indicates, to a large degree, a failure of immigration policy.

Having reviewed the literature, ranked a large sample of policies, and ranked at least some outcomes, the report offers a short critique of popular temporary work programmes in the United States and the United Kingdom that show how specific problems can be. These various means of understanding how policies compare and function are supplemented with appendix material that describes the ranking of individual policies. And there is an additional appendix that describes in some detail the policies of eight fairly important countries, an analysis that was undertaken to improve the depth of our understanding. Finally, the paper concludes with some observations on the necessity of a balance of facilitation, labour market sensitivity, and enforcement for successful policies.

B. WHO ARE THE HIGHLY SKILLED?

It is not always clear just “who” the highly skilled are. The most obvious starting place is to define highly skilled either by level of education or occupation. Some observers favor one over the other, depending on what one is trying to accomplish. Then again, if relevance to policy is important, most governments typically use some combination of both education and occupation to select for the highly skilled. Ultimately, data availability often constrains the definition one uses for the purposes of analysis.

The most fundamental definition of highly skilled tends to be restricted to persons with a “tertiary” education, typically meaning persons in adult age who have completed a formal two-year college degree or more.¹ This is also the most readily available international statistics and so, by default, the most widely studied measure of highly skilled mobility. When possible, it is preferable to have additional information about holding of bachelors degree and graduate or professional degrees. The National Science Foundation of the United States, that has some of the most complete international data on the stock of scientists and engineers, tends to focus on data for doctoral degree holders.

Most governments define highly skilled immigrants, not in terms of either or, but most often in terms of both education and occupation (McLaughlan and Salt, 2002). For example, the United States’ well-known “specialty worker H-1B visa” is based on a list of occupations and a minimum degree requirement of a baccalaureate (Lowell, 2001a).² The definition of highly skilled requires an educational component and a threshold defining minimum competence in a knowledge society. Occupation is important not only because by its nature it excludes workers with little education (say from agricultural visa programmes), but also because it targets skills that are desired. The S&T occupations in the Canberra Manual definitions can be seen as uniquely embodying technical skills that are crucial for research and development and the engineering of knowledge economies.

However, restricting the meaning of highly skilled to S&T occupations is too narrow as it disregards other highly skilled categories that are in high demand such as businessmen, managers, teachers, and healthcare providers. Of course, one can go beyond narrowly defined immigration policy interests by expanding to a “creative class” that includes S&T workers, as well as writers and artists (Florida and Tinagli, 2004). Arguably, such an expanded definition goes beyond the domain of immigration policy, as creativity has or should have deeper endogenous wellsprings, albeit it raises an interesting point about what is most important for national productivity—education, skills, or creativity? Other than the refined purposes of constructing international norms in statistics, occupation is important precisely because it tells us what is being done. And what is being done is ultimately of critical importance. Highly skilled persons are in high-value-added and high productivity jobs that are essential to our knowledge society. So S&T workers do one sort of thing, physicians do another, and businesspersons do yet another, all of which are extremely important in different spheres of the economy.

C. STUDIES OF COMPARATIVE ADMISSION POLICIES

The most recent, detailed analysis of policies for the admission of skilled immigration was undertaken by McLaughlan and Salt (2002). That study identified policies for skilled and highly skilled admissions in 31 countries. It evaluated some two dozen criteria for separate programmes in terms of their permits, procedures, marketing, and collection of statistics. However, their conclusion from their in-depth

evaluation of available descriptions of the programmes, as well as discussion with programme administrators was that:

Most European countries, together with developed Asian ones, have not introduced special measures to recruit highly skilled workers. They continue to rely on their existing work permit systems. Where schemes have been introduced, they are invariably aimed at IT and health (especially nurses) staff and intracompany transferees (McLaughlan and Salt, 2002, p. 3).

This is not to say that there are no distinctive differences between admission programmes. Indeed, the authors go onto to observe that the United Kingdom has moved further in terms of initiatives for the highly skilled and processes permits faster than other countries with the exception Australia and Canada. But otherwise there have been rather few significantly new innovations in how such programmes are run.

1. Overview of Prevailing Policy Practices

National admission policies tend to consist of a number of elements that strike a balance between flexibility in meeting apparent employer demand and protection of both national workers and foreigners. Skilled classes of admission tend to include temporary and permanent workers, business visitors, intracompany transferees, senior-level managers and executives, and professionals (Christian, 2000). Nearly all countries that have explicit policies to attract skilled migrants recognize separate categories for managers and executives and impose less stringent admissions requirements on this top stratum. Most countries in Western Europe consider foreign workers to be temporary, at least initially, whereas the traditional countries of immigration administer both temporary and permanent admissions.

Only a few countries, including Switzerland and the United States, regulate the admission of temporary or permanent workers by means of a quota. The United States has no quota caps on most of its temporary visas with the exception of its “specialty worker” visas (H-1B) because it has a lowered or streamlined standard for admission. On the permanent side, U.S. quotas are changed less than once a decade, although qualifications and per-country caps may be changed occasionally. Several countries, including Australia, Austria and Canada, apply quotas set annually to permanent admissions. Of course, when there is simply no avenue for admission, as has been the case in many countries, notions of a quota are beside the point.

Employment authorization that can serve to screen workers is typically required in most countries. Employer-based requirements can take the form of labour-market testing that demonstrates that no suitably qualified domestic workers are available and that competitive wages are paid. Or as in the United States, there might be a lower standard of “attestations” whereby employers simply agree to provide compensation and working conditions commensurate with domestic workers with little or no verification (Lowell, 2001b). The type of employer requirement often depends on the class of entrant, and employee-based requirements depend on the credentials of the applicant. Job offers are often a key requirement, although this is generally waived under point systems, and the most highly skilled applicants are often exempt from having to obtain a work permit at all. Most countries have adopted a combination of employer and employee requirements. Notably, Australia and Canada have long had systems where workers can gain admission solely on their own merits.

Application procedures too may be employer or employee driven. Employer-driven procedures require that the employer initiates the process of recruitment by seeking employment authorization. Depending on the class of the potential entrant, this process may be streamlined and expeditious (see employment authorization above). Employee-driven procedures require that the worker initiates the process of employment authorization. Applications may extend beyond the initial employment authorization to renewals and extensions of stay. Most countries administer an employer-driven applications process. Notable exceptions include Germany and Japan.

Under the terms of admission countries may impose strict time limits on the stay of a foreign worker, or they may allow infinite extensions of their status. Workers might be limited to a single employer at a single location, and in one position, or they may be permitted to change employers, locations, and/or positions. After a requisite number of successful renewals of employment authorization, most countries in Western Europe grant applicants a permanent residence with unlimited access to the national labour market (Groenendijk, Guild and Barzilay, 2000). Two notable exceptions have been France and Germany, where most highly skilled foreign workers are limited to a maximum residence of five and three years, respectively. In Australia and Canada, conversion of status generally requires that foreign temporary workers return to their country of origin before applying for permanent entry.

States also set the rules concerning foreign workers' access to family reunification. The United Kingdom and the traditional countries of immigration permit the automatic entry of dependents. Belgium, Finland, Luxemburg, the Netherlands, Norway, and Sweden require workers to remain for a requisite period before applying for family reunification. Denmark and Germany have typically not allowed workers to take advantage of family reunification. The United Kingdom and, in certain cases, Canada automatically provide spouses of foreign workers with employment authorization. Others, including Belgium, Luxemburg and the Netherlands, grant spousal work authorization only to families of senior managers and executives.

2. Comparing and Evaluating Admission Policies

Clearly, there are notable differences in policies; however, there has been little national or comparative evaluation of the success of admission programmes. In fact, there is rather little international effort given to programme evaluation, other than all-too-often perfunctory administrative/legislative reviews, and very few countries have attempted to either collect the necessary data or carry out rigorous analytic efforts. Certainly, countries have different criteria for measuring success and a given country may even have varied programmes intended to achieve different ends. But mostly there appears to be very little interest in policy evaluation when it comes to immigration. McLaughlan and Salt (2002) argue that only Australia, Canada, Germany and the United States have carried out systematic research efforts. Otherwise, the four criteria most often used for determining success are qualitative assessments; reference to administrative reports on numbers of visas issued; the complaints lodged by workers, employers, or unions; lobbying efforts by employers; and public opinion. Comparative frameworks for programmes evaluation are still in the developmental states.

In fact, most international policy studies to date do little more than specify criteria deemed important for comparative purposes. As noted above, McLaughlan and Salt (2002) note four major criteria and some two dozen sub-criteria that they use to make comparative notes on 10 developed countries. The most

detailed comparative study to date, completed in 2000 by Christian (2000), covers some 15 countries comparing them in terms of class of admission (type of migrant/business stream), the use of quotas, the type of employment authorization (employer- or employee-based), and application procedures (employer- or employee-based). Rollason (2002) whose main focus is on the United Kingdom, remarks on the comparative features of temporary or permanent programmes in 11 countries in terms of the category of workers, general/specific admissions, tests for the availability of domestic workers, quotas, period of stay and possibilities for renewal, and the permissibility of family reunification. Having constructed major criteria for comparison, however, none of these studies goes on to draw firm conclusions about best practices. Even the regular reporting on policy changes in the OECD's yearly report, *Trends in International Migration*, rarely draws any strong conclusions.

One exception to this tendency to make systematic comparisons while drawing few conclusions is Papademetriou (2003) who first identifies four major strategies to admit skilled immigrants: employment-based admissions where employers apply to hire a worker under conditions that safeguard domestic labour, labour market testing where government agencies identify sectors with labour shortages, talent accrual where points are awarded for characteristics like education or language ability, and "filtration systems" where permanent status is awarded to students or temporary workers who first demonstrate their value. He suggests that a combination of the best of these strategies might be a good idea and might be accomplished using a points system, similar to those used in Australia and Canada, awarding points for sub-elements of each of the four strategies. In this regard he starts with an evaluation of the strengths and weaknesses of various strategies, not recommending one or the other, but rather a combination of the best of each.³

Otherwise, there have been policy recommendations for the orderly management of migration on a worldwide basis that are in some ways on a par with international trade agreements. They offer ideas for the cooperative management of highly skilled workers between developing and developed countries. Such projects include the Transatlantic Learning Connection (Transatlantic Learning Connection, 1999), or the International Regime for Orderly Movements of People (Ghosh, 2000). The International Organization for Migration (IOM) launched the Global Consultative Process for Inter-State Cooperation on Migration Management in 2001 with ongoing discussions on inter-state frameworks (International Organization for Migration, 2003). The Governments of Sweden and Switzerland, together with those of Brazil, Morocco and the Philippines, established the Global Commission on International Migration in December 2003, with the encouragement of the Secretary-General of the United Nations. Its final report in 2005 will make recommendations on ways to improve the national, regional, and global management of international migration (United Nations, 2004). In the European Union, the recent enlargement from 15 to 25 Member States has renewed pressure for going beyond the harmonization of national policies to a common immigration policy (van Selm and Tsolakis, 2004). While there are some common policies on asylum seekers or the movement of long-resident third party nationals, there are many issues to work out from border security to work authorization.

Some observers believe there is a need for a World Migration Organisation that co-ordinates migration policies for all groups of movers and seeks to benefit all parts of the world (Bhagwati, 2003). Indeed, the governance of international mobility by international organizations is highly fragmented. The International Labour Organisation is concerned with international worker and migrant rights, the United Nations High Commissioner for Refugees has responsibilities for refugees, and the World Trade Organisation has only relatively recently taken an interest in liberalizing the exchange of service workers.

Policy projects exist that advance the creation of international regimes for worker mobility. But in the absence of an umbrella organization for international mobility, and with no agreement probable in the next few years on a harmonized global migration regime, policymakers will continue to need to consider how best to improve their own domestic policies (while also considering bilateral and regional agreements).

D. RANKING ADMISSION POLICIES

How can one determine best practices in the absence of systematic comparative criteria much less without an existing body of rigorous evaluation research, or worse yet, accessibility to systematic data? The criteria or strategies discussed above offer some guidelines, although none actually carries out a systematic evaluation, nor do they attempt to state what if any outcomes might be optimized. Criteria for comparison are by themselves just abstracted elements that are likely to be present to some degree in various policy approaches.

1. *Policy Continuum and Ranking Criteria*

It is impossible to comparatively evaluate what a best admission policy would look like without being at least somewhat specific as to what the goal(s) are for such a policy. Fortunately, there are few cross-currents in today's debate as to what immigration policies should achieve, even if actors from a more conservative or liberal bent find themselves to be odd shipmates in advocating seemingly similar sailing directions. So, while admittedly over simplifying with the intent of making a start at systematic comparison, an assumption is made that there are two extremes in the debate over the goals of admission policies with a middle camp that tries to balance the desire to facilitate with the reality of the need to control:

- *Highly controlled / restrictive admission*—There may be good reason to restrict skilled migration of a certain sort if the goal is to stimulate wage growth to induce domestic labour supply or to protect markets during a severe recession. A policy that is designed to be unfailingly restrictive and even prohibitive of migration clearly marks one end of the continuum of possible admissions policies.
- *Well managed / controlled admission*—A balance can be struck between facilitating employers' demand and protecting both domestic labour markets and the working conditions of the foreign workers. Like all middle camps, some advocates for immigration "management" lean either toward systemic controls or to a preference for a form of management more analogous to free trade.
- *Streamlined / competitive admission*—In an aging society confronted by fast changing technologies, many policymakers argue that to be globally competitive, the domestic economy must be open. The desire is for the best "just in time" workers with little concern for skilled domestic workers who are thought to be able to fend for themselves in marketplaces that ultimately adjust to everyone's benefit.

Next, a listing of comparative criteria is created for admission policies and it goes one logical step beyond existing research in attempting to rank policies on those same criteria. Neither the list nor ranking

is flawless as there is rather little agreed-upon in such an attempt. But it seems like a worthwhile venture to the degree that the rankings solidify casual discussion. Twelve countries are chosen, including all of the traditional countries of immigration (Australia, Canada, New Zealand and the United States), the major European receiving countries (France, Germany, Italy, Norway, Spain, and United Kingdom), South Africa and Japan. In a few instances, different programmes within the same country are scored separately. All policies are ranked on the same criteria.

A four point scale is used with a “4” being highly controlled and a “1” being highly competitive; and there are intermediate rankings of minimally (2 points) and moderately (3 points) controlled. Appendix 1 presents notes on the rankings for each of the seven criteria by admission classes and country. The criteria used are described below and the results are shown in the following figures:

1. *Hard numerical caps*—A high score (4 points) is given if admission numbers are fixed and small numbers permitted; declining points are given if numbers are fixed but generous, or there is an ability to periodically adjust numbers, or there are no caps at all.
2. *Strict labour market test*—A high ranking score is given if there is a strong test of the labour market, i.e., a lack of available native workers; declining points are given if employers need only assert good faith, or the government awards points for skills, or applicants are streamlined through pre-determined shortage occupations, or there is no test at all.
3. *Extensive labour protections*—A high score is given if there are stringent requirements on wage setting and other protections such as no lay-off provisions, etc.; declining points are given if there are fewer protections or no immigrant-specific legal protection other than existing labour law.
4. *Enforcement mechanisms*—A high score is given if there is a dedicated enforcement agency, regular system monitoring, and high fines; declining points are given if enforcement is complaint driven, or there is no dedicated enforcement or immigrant/employer-specific sanctions.
5. *Limited employer portability*—A high score is given if the foreign worker can work only for the original employer and in one place; declining points are given for the degree to which work authorization is “portable” between employers.
6. *Restriction on dependents / working spouse*—A high score is given if the spouse is not permitted to either accompany the worker (or other dependants) or to work; declining points are given if the spouse is permitted to obtain independent working rights, or the spouse has unlimited working rights.
7. *Limited permanency rights*—A high score is given if the temporary migrant is prohibited from transitioning to any permanent status; declining points are given if transitions are relatively possible, or there is an additional transition to naturalized citizenship.

Figure 2. Ranking of index of controlled/competitive temporary skilled worker programmes

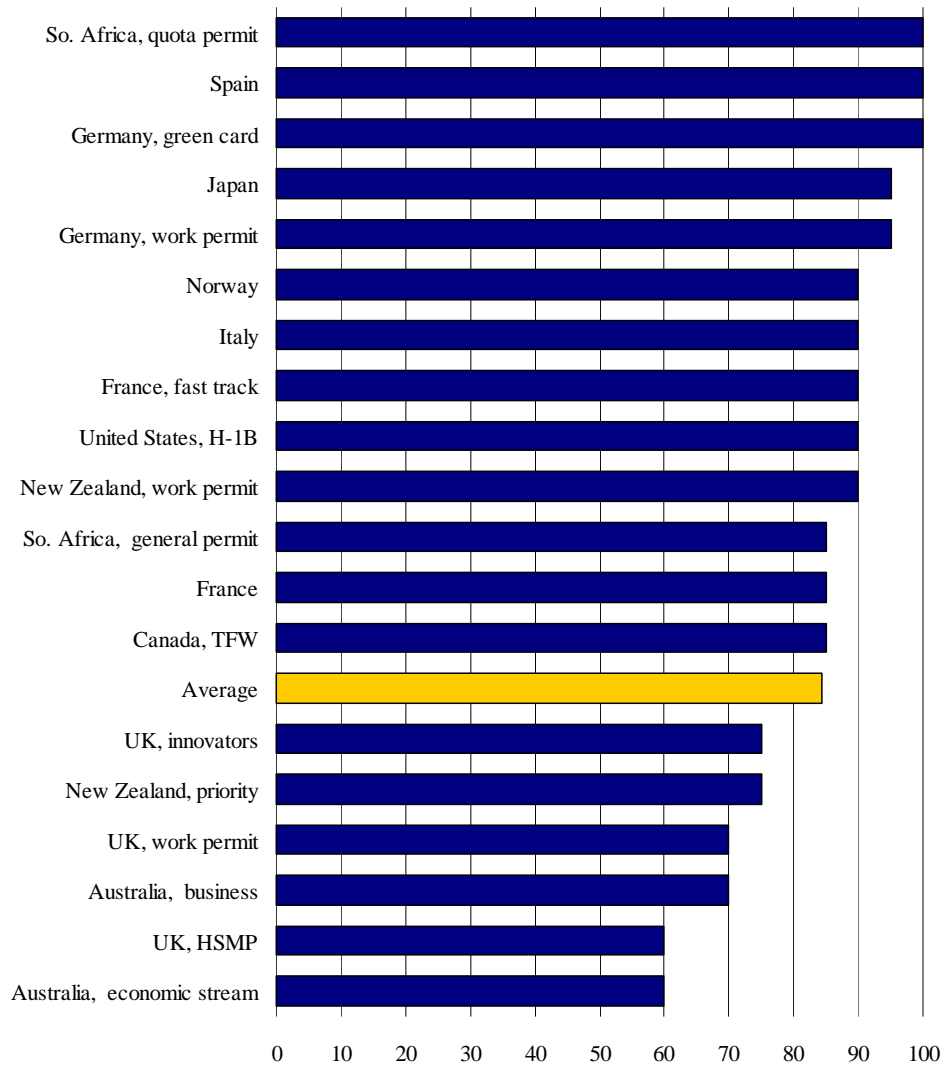


Figure 2 shows the ranking of admission classes for temporary workers. The rankings are based on the addition of all points for each of the elements just described above, but converted into an index with the most “controlled” country, South Africa in this case, given a value of 100. At the top of the list are South Africa and Spain. Germany’s “Green Card” programme is also highly ranked and it is interesting to note that the relative lack of success of this programme is variously blamed on the fact that likely candidates do not speak German or that it has not been marketed.⁴ This ranking suggests that the programme may also have just a few too many restrictions to facilitate its use or to attract potential migrants. Even the possibility of transitioning to permanency, even if held to small numbers in reality, would likely induce many more workers to apply. At the other end of the rankings, it may come as little surprise to find Australia and the United Kingdom, two countries that have attracted the greatest increase in skilled migrants of recent years. In contrast, both Canada and the United States receive an above average ranking, but sit otherwise squarely in the middle of the rankings being neither highly controlled nor highly competitive by these rankings of temporary admission programmes.

Figure 3. Ranking of the index of controlled/competitive permanent skilled worker programmes

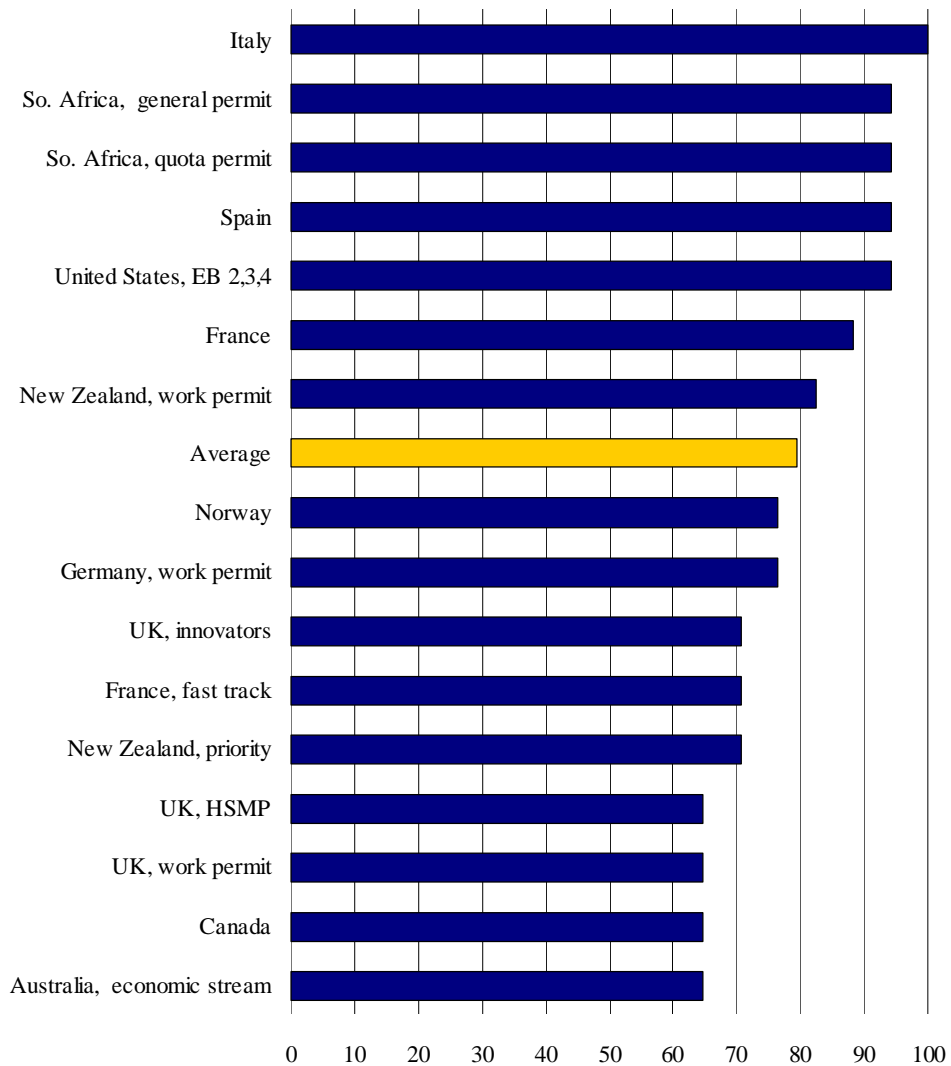


Figure 3 shows the ranking of permanent admission programmes and is similarly based on total points converted into an index with the most controlled nation, Italy here, set to a value of 100. The list is somewhat shorter here because Australia, Germany, and Japan do not have permanent programmes that parallel the temporary ones. South Africa once again is found near the top of the ranking, this time along with Italy. Australia is once again found at the bottom of the rankings along with the United Kingdom, but on permanent programmes Canada is also ranked as being highly competitive. The United States on this ranking of permanent programmes is again not at the top, however, it falls just above the average ranking for all nations. It is interesting that some countries, like Germany, that score as highly controlled in terms of their temporary programmes ranks as fairly competitive on their permanent programmes. This tends to run counter to intuition, but it makes some sense to the degree that transition to permanency first requires a hard-to-get temporary work permit.

In short, this ranking while clearly being incomplete as regards the number of distinct programmes that could be ranked, or the collapsing of programmes that should be distinct, or though misjudgment in assigning scores; nevertheless, produces results that are on the whole what one might expect. The Pearson correlation between the two rankings is rather strong (+0.70) that also suggests a fair degree of

consistency either in national policymaking or in our scoring. The most valuable result, perhaps, is that the rankings highlight that some of the countries that are most successful in selecting/attracting migrants—especially the United States—tend to fall in the middle of the rankings or what one might call “managed.” Otherwise, countries such as Australia and the United Kingdom that have done very well in recent years in selecting/attracting skilled migrants are solidly ranked as having highly competitive policies.

E. EVALUATING SKILLED IMMIGRANT OUTCOMES

In an ideal world, it would be possible to track an ongoing set of measures that capture the relative success of various policy strategies in terms of their outcomes. What is the better way to adjudicate what works and what does not? It is not easy to answer to these questions, although there are the well-known OECD’s reports, *Trends in International Migration*, that compile annually a range of data on various aspects of international mobility of people. In the United States, the National Science Foundation’s data systems on science and technology workers is widely regarded as a rich source of national and international information, although there are serious lacunae in statistics on highly skilled migrants in the country (Lowell, 2001c). Some efforts are underway to improve the international comparability of statistics on various aspects of immigration and its associated outcomes (Åkerblom, 1999; Porter and others, 2003; Entzinger and Biezeveld, 2003). In the meantime, meaningful statistical comparisons are difficult and often impossible.

However, it seems crucial to have at least some purchase on the question of what works. To that end, consider ways of measuring “success” for which there are some data:

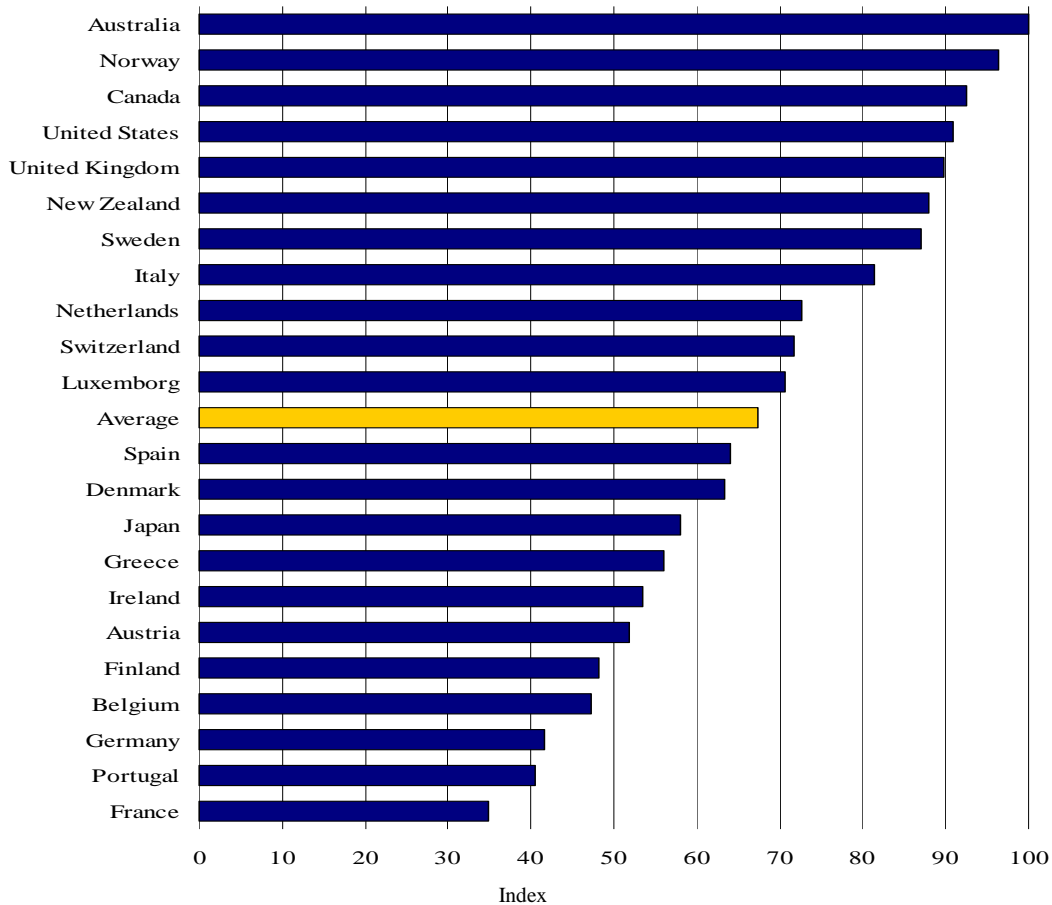
- *Competitiveness in selecting and attracting highly skilled migrants:* These are actually somewhat different things as selectivity refers to the degree to which migrants are “skilled,” while attraction refers to the relative number of skilled migrants that a nation or policy gets.
- *Labor market incorporation / productivity of skilled migrants:* To a large extent these are flip sides of the same coin. Workers who are not fully employed are hardly at their most productive. At the same time, it is arguably exploitive to admit but then to under-employ skilled migrants.

1. *Competitiveness in Selecting and Attracting Highly Skilled Migrants*

Figure 4 shows a combined ranking of the countries in their attraction of highly skilled migrants. The ranking is based on (1) the percentage of foreigners who have completed tertiary education, relative to their average for 22 countries (24 per cent). This captures the success of admission policy at selecting migrants who are better educated than those of the other countries competing for skilled workers. The United Kingdom is the top ranked in this regard, followed closely by Norway, with 42 and 41 per cent of their foreign populations having completed tertiary education, respectively (see column 2). On the lower end is Portugal where only 13 per cent of the foreign population have tertiary education. (2) A second measure is the ratio of the proportion of tertiary educated foreign persons to that of tertiary educated nationals. This captures the degree to which migrants are better educated than are nationals. Italy is the top ranked country in this regard with 24 per cent of its foreign population having completed tertiary education while just 9 per cent of Italy’s nationals have completed a tertiary degree. France ranks on the low end of this aspect of selectivity: just 14 per cent of its foreigners, but 24 per cent of its nationals have completed a tertiary education. (3) A third measure is a country’s relative share of all international migrants with tertiary education residing in the 22 countries. This is measured as each country’s share of

the pool of tertiary-educated foreign population, weighted by each country's share of the total population for the countries listed. Hence, Australia, which has explicit policies for admissions of the skilled, is the top ranked country. Note that the United States is the second ranked on this measure. Portugal is on the other extreme. Despite having a very small population, it attracts too few skilled migrants to place it the running with other nations that have more aggressive policies to attract skilled migrants.

Figure 4. Ranking of the combined index of skilled immigrant competitiveness. 2001

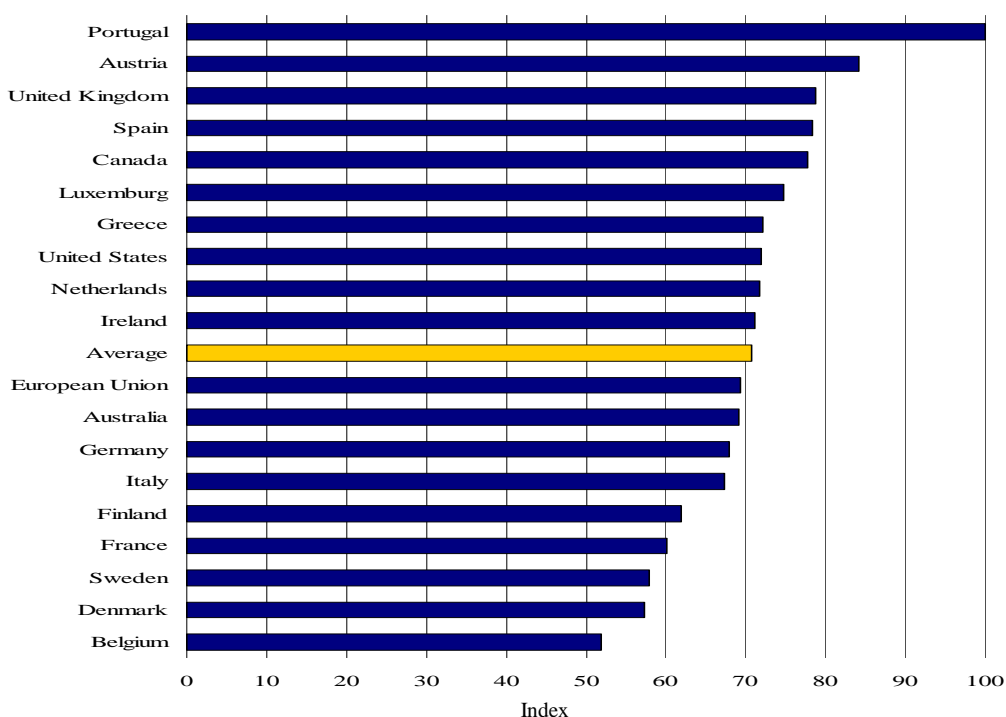


2. Labor Market Incorporation / Productivity of Skilled Migrants

Figure 5 shows the results of a combination of two measures. It would be desirable to capture some aspect of integration into the host society. But that also raises a number of difficult issues. Entzinger and Biezeveld (2003) conclude from their study that “benchmarking in integration is possible, but only in a modest way... Immigrant populations, policy instruments, definitions and statistics are too diverse for this.” They do note, however, that indicators of labor market participation are “sufficiently” comparable between most countries.⁵ (1) First, is the measure of the ratio of the employment rate of foreigners to the average of the rates for all of the 19 countries for which data are available. Portugal, having an employment rate of 95 per cent for foreigners, ranks at the top of this index, well above the average rate of 67 per cent. Note that Portugal also is the least selective/attractive country for skilled migrants. But these few foreign workers apparently fare much better than they do in countries with a greater density of foreign skilled workers. Belgium ranks at the low end with only 49 per cent of its foreign population being in the labor force.

(2) Next, is the the ratio of the employment rate for foreigners relative to that for nationals. This is a more useful measure than that just discussed as it goes some way toward holding constant underlying differences in participation rates. Foreign populations in all three traditional countries of immigration have employment rates that are higher than those of nationals. Canada, whose rate of employment among foreign populations is 74 per cent compared with 66 per cent for Canadian nationals, is top ranked in this regard. Belgium ranks lowest once again as the employment rate of foreign workforce (49 per cent) is much lower than that of nationals (84 per cent). The combined equally weighted index of the foregoing two measures shows, once again, the traditional countries of immigration do relatively well in terms of employing skilled foreign workforces. Germany and France, however, rank well below average in terms of their foreign workforces' employability.⁶

Figure 5. Ranking of the index of foreign employment rate relative to foreign average, 2001



Source: See table 2.

Of course, employment rates are only partly satisfactory in capturing labor market incorporation. It would also be valuable to know rates of unemployment and earnings, but these data are not readily available for a large sample of receiving countries. Something is known about the rate of unemployment in the EU that is consistent with the discussion of rates of employment:

In times of high demand for high skilled individuals, underemployment and a high rate of unemployment for high skilled non-EU nationals (about 13 per cent in 2001, compared to only 4 per cent for EU-nationals) is a cause for concern (European Commission, 2002, p. 26)

A similar pattern can be observed in the United States (3.4 per cent for the foreign-born compared with 2.2 per cent for natives), albeit overall rates of unemployment are lower in the

United States than in Europe and the foreign/national differential is much less.⁷ Compared with European nations, the traditional countries of immigration appear to incorporate tertiary educated migrants fairly well when considering either employment or unemployment rates. And that is likely a fair conclusion, but one that needs some qualification. The reasons for that may lie in policies other than those governing immigration *per se*, but then again immigration policy should take such factors into account. Poor economic incorporation does not benefit either foreign or native workers.

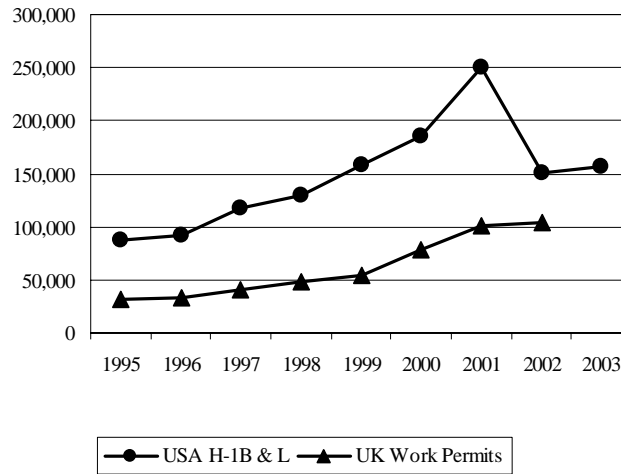
F. TEMPORARY WORK PERMITS IN THE UNITED KINGDOM AND THE UNITED STATES

The United States and the United Kingdom are among the world's leaders in the global competition for skilled foreign workers. The United States tradition dates back to the 1950s, while the United Kingdom has entered the competition in earnest only recently. But if the United States tradition is longer, historically the number of workers has been moderate. Shifts in policy, globally integrating labour markets, and insatiable employer demand during the booming "New Economy" drove a spike in admissions in both countries in the later 1990s.

Figure 6 shows the combined numbers for the United States' two best-known temporary work programmes, the H-1B specialty visa for workers with at least a bachelor's degree and the L visa for intracompany transferees. About two-thirds of H-1B visa holders have worked in computer-related or engineering occupations and about 5 per cent in medical occupations. Although unknown, many L visas are certainly for computer scientists, engineers, or businesspersons. Employer sponsorship drives the system with a little-used complaint driven enforcement system.

In the United Kingdom, some foreign workers may qualify for entry on their own and most of all can become permanent if they work in country long enough. New temporary work permit programmes for skilled workers include the major work permit scheme, including the Training and Work Experience Scheme (TWES), Sectors Based Scheme (SBS), and the Highly Skilled Migrant Programme (HSMP). Over the past few years, about one-fifth of the permits have been for computer-related and engineering work, and over one-fifth have been for healthcare. Indian workers are dominant in both countries, being about half of H-1Bs in the United States and about one-fifth of United Kingdom work permit holders. Otherwise, about one-fifth of the United Kingdom's permit holders come from the Commonwealth countries and another tenth from the United States, while the United States draws the majority of its workers from developing countries.

Figure 6. Number of temporary work permits issued



Source: Lowell (2003)

1. Problems with the United States' H-1B Visa

The United States leads the competition for skilled workers on the international market and, perhaps, the best-known work programme around the world is the H-1B that has been a vehicle for many information technology workers. However, the H-1B is fraught with problems for both employers and domestic labour markets. Effective policy should meet the demand of employers in a timely fashion, protect working conditions, and not foster over-dependence on foreign workers. The H-1B fails to meet these basic standards.

Strong demand for H-1Bs has not been driven only by a shortage of domestic IT workers (Lowell, 2001b). Many employers use H-1Bs, because government processing of permanent immigration has taken 3 to 4 years. Employers recruiting on college campuses find a growing number of foreign students with technical degrees. The H-1B immigrant has strong personal networks that employers rely on for new hires. Some two-thirds of H-1Bs work in IT firms whose chief executive officer (CEO) has an Indian surname. And critics, particularly unemployed national workers, claim that H-1B workers work long hours without complaint.

Research in the years running up to 2000 found scant evidence of an IT labour shortage. The industry's statistics on worker shortages was found to be consistent with the number of job vacancies that would occur in a market with rapid turnover (Lerman, 2000). Wage growth was strong, but no greater than for other science and engineering workers. A Congressionally commissioned report by the National Research Council (2000) reached more or less the conclusion that a systematic shortage of IT labour did not exist. Of yet greater concern, academic fieldwork and the Congress' General Accounting Office (2000) established a pattern and practice of H-1B exploitation. Wage and labour violations are prevalent enough to indicate that some of the demand for H-1Bs has little to do with shortages and more to do with some employers' preference for cheap foreign labour. Still, the IT industry has unusually strong clout.

Legitimate demand for H-1Bs with special skills, particularly those with graduate degrees, has reinforced less pressing demand by employers who prefer H-1Bs for other reasons.

In the fall of 2003, amid a “jobless” recession, the cap reverted to 65,000 with little debate. From its peak in 2000 the number of employed IT workers dropped by 8.1 per cent. Surprisingly, the drop in employed IT workers made up one quarter of all job losses in the United States in the first year of the recession. The recession, officially starting from the first quarter of 2001 and running through jobless 2003, suggests that H-1Bs may have contributed to an over-heated IT labour market. The first intimation is the historic phase shift of extremely low IT unemployment rates that spiked up to the national average in 2002. The explosive nature of that unemployment implies a surfeit of workers. Surely there was also a surfeit of speculative corporate ventures. By its nature establishing a labour shortage (or over-supply) is often an ephemeral exercise, but it is likely more H-1Bs were hired during the IT bubble than would have been dictated by bedrock demand.

2. Concerns with the United Kingdom Work Permit

Research by NOP Business and the Institute for Employment Studies (2002) for the Home Office of the United Kingdom found little in the way of problems with the temporary work permit workforce. That research effort used available data on work permits and interviews with 300 permit holders in the country. The most problematic issues cited by the permit holders were the cost of living, especially housing, and bureaucratic hassles with identification. More interesting, perhaps, was that permit holders cautioned other foreign workers contemplating working in the United Kingdom to make sure of their job prospects before moving into a loose labour market.

But not everyone is sanguine. Professional groups are very critical of liberalized work permit policies, especially during the recession (Ross, Hunter and Rai, 2002). They argue that IT contractors are sought after by companies that want to avoid permanent hires. Still, demand for contractors is variable, and in the 2001-2002 period, U.K. data show a drop of 30 per cent in IT contractors’ wage rates. While not marshalling systematic evidence, they present a pattern of cases of, and complaints about, work permit holders being hired by U.K. companies instead of national IT contractors. They argue that foreign contractors undercut the wages that nationals expect and that the bumper crop of IT students now hitting the market is likely to be discouraged, as will students contemplating a future job in IT. They call for wage rate requirements for permit holders to be extended to foreign contractors, they caution against further liberalization of the work permit programme, and they see a need for more effective enforcement against employers. The Home Office has received hundreds of complaints but has taken no actions against employers. Other industry observers question why the Home Office is issuing between 1,500 and 2,000 work permits monthly when unemployment levels stand at a record level for IT staff and IT contractors (Goodwin, 2003).

G. CONCLUSIONS: THE PRACTICE OF WHAT IS BEST

What is “best practice?” Does it fall at either extreme of highly controlled/restrictive or streamlined/competitive policies for the admission of highly skilled immigrants? Answers to those questions may depend either on the facts which are at least somewhat controversial and vary sector by sector; or on one’s perspective which is confounded by too many factors to elaborate on here (Martin and Martin, 1999). However, the most reasonable if prosaic answer is that skilled immigration works best

when it supplies a benefit and is facilitated, while it should be carefully managed because there is good evidence of inherent problems.

Yet,, policies are not the sole and, perhaps, not even the primary force attracting skilled migrants. The United States has by this paper's ranking a fairly controlled or "managed" approach compared with other countries, so well managed does not have to mean non-competitive. A case can even be made that this abstracted ranking glosses over serious *de facto* restrictions due to administrative incompetence in awarding U.S. work permits (particularly in the permanent system, Commission on Immigration Reform, 1997; Papademetriou and Yale-Loehr, 1996). At the same time, skilled migrants in the United States experience good working outcomes at least relative to foreigners in Europe, despite the fact that there is little-to-no effective enforcement of the work permit system. These simple observations suggest nothing so much as the obvious fact that the United States is the world's economic leader and its labour market has comparatively little rigidity.

But policies do matter. The United Kingdom in the past few years has aggressively liberalized its work permit programme and has seen a significant increase in skilled workers across a number of occupations. Still, a quick look at the U.S.'s H-1B and the U.K.'s work permits raises some concerns. It is too easy with an eye on the big picture, especially when it comes to the variegated and nuanced realities that are the stuff of immigration, to miss the fact that work programmes affect tens and even hundreds of thousands of workers. And each work programme has the potential to wreak havoc on its own little sector of the economy—where concern almost always focuses on the displacement of natives, while ignoring what should be equally disturbing consequences for foreign workers. In the case of the U.S.'s H-1B, there is good evidence that the legislatively-driven (read political) control of the number of workers fails to truly complement shifts in demand which introduces distortions into employer adjustments. And while H-1Bs tend to earn the same as otherwise similar natives, at least one seventh of H-1Bs work in sweatshops where they earn just half as much as the IT workforce average (Lowell, 2001a). Such labour market segmentation, long recognized in low-end immigrant labour markets, is every bit as much a reality in the upper end. What is missing in so much of the current debate is a reasoned balance of control and streamlining.

Practicing what is best in skilled immigration is not a simple recipe and there is room for significant experimentation in what works best. Practicing what is best has less to do with a detailed action list of specific mechanisms than it has to do with all stakeholders honestly debating and agreeing to act on a few fundamentals:

- (a) *Global labour markets generate domestic demand*—Multinational corporations, communications, and transportation make for global labour markets, and governments should facilitate legitimate employer demand for international workers. Meeting legitimate employer demand is in everyone's best economic interests.
 - Admission processes should be timely—Employers should be able to identify and hire foreign workers in a few weeks time. Pre-screening systems are one way to facilitate the process, as are responsible recruitment agencies, although neither may move as fast as word of mouth.

- Work permit requirements should not be onerous—Point systems and other means of facilitating fast admissions are alluring. But any fast track system that lacks a means of dynamic market testing is, ultimately, flawed. Arguably, in a computer age, the lag time that apparently inheres in market testing reflects problems in administrative creativity and management capacity.
 - Administrative capacity needs to be front and center—Immigration consultants mostly focus on processes, but there is often a lack of administrative capacity to implement or react rapidly. This means that a successful admission system needs funding and the responsible bureaucracies must be held to the highest standards.
- (b) *Abuse happens*—Today’s debate over immigration policy for skilled workers, coming of age in the past decade of “New Economy” exuberance, CEO excesses, and the erosion of labour institutions, tends to be bereft of traditional commitments to working conditions. Most employers are good actors, but exploitation will occur unless it is combated.
- *All admission programmes should specify labour conditions*—Wages and working conditions that protect domestic and foreign workers need to be spelled out up front, whether or not government agencies pre-certify the elements of a job offer or rely on post-hire enforcement.
 - *Admission numbers should be dynamic*—The tried and true lesson of immigration is that, once started, it generates its own momentum and demand. There must be some means of testing demand and adjusting numbers accordingly or excess supply will have its adverse impacts. Market testing is one means, but serious consideration needs be given to economists’ calls for auctions and other innovations.
 - *Enforcement must be integral for long-term success*—This review identified many on-the-book laws, but uncovered little evidence that immigrant programmes are adequately monitored. Failure to sanction abuse, even if no more than say 10 per cent of the actors involved, will undercut national workers and create an uneven playing field for business. In the long run abuse harms competitiveness and generates backlash.
- (c) *Temporary migration is ok*—History shows that temporary work programmes always lead to some permanent stays, but it also shows that most migrants are happy to take temporary work. It is both ethical and practical to insist on temporary work agreements.
- *Workable temporary programmes are temporary*—There should be up-front and transparent expectations of short stays; no more than one to three years. Spouse working rights and that of dependants should vary with length of stay and the nature of employment.
 - *Avenues to permanency should be available and transparent*—Employers should be able to keep the exceptional foreign worker. Temporary workers should not be barred from permanent admission; rather the terms of their admission should encourage return, while the exceptional worker may be given priority status for permanency.

- Temporary programmes that encourage return are a plus for sending countries—As the volume of temporary migration from sending countries increases, so too does the risk of brain drain. Research indicates that high rates of return and circulation are the best way for skilled mobility to stimulate economic development in sending countries; and there are a number of policy options to facilitate return.

These three fundamentals underlie much of the current debate over policies for skilled immigration. The debate starts with whether or not foreign skilled workers are truly needed, when the fact is that the forces of globalization incorporate foreign workers into what have been closed, national labour markets. Legitimate demand, therefore, should be facilitated in terms of the timely processing of immigrant admissions without undue complications and with an optimal administrative process. However, immigrant “facilitators” far too often ignore and even dismiss the fact that immigration is inherently prone to abuse. Immigrants from developing countries, even highly skilled workers, are frequently willing to accept working conditions that native workers will not. And some employers will preferentially hire foreign workers who permit them to undercut the competition. All immigrants should be covered by mechanisms that ensure that native workers are not undercut and that demand is legitimate. Failure to enforce labour conditions and to monitor demand will, in the short run, generate abuses primarily of foreign workers and, over the long run, predictably undermine national workers and public support. And, finally, facilitators often deride temporary programmes because they are purportedly unfair to immigrants, while restrictionists fear that there is no such thing as a temporary migrant. But in the coming two to three decades, the potential supply of (lower-wage) foreign workers will grow ever bigger while competitive forces will reinforce demand. The latent supply and demand for immigrants, absent seismic shifts in public opinion, could easily outpace socially and economically acceptable levels. Temporary programmes offer an alternative—if exacting mechanisms are used to encourage the return of those workers who voluntarily enter into temporary work agreements—to increase the number of foreign workers to optimal levels while simultaneously benefiting the most possible migrants and their sending countries (Lowell, Findlay and Stewart, 2004).

The findings of this report indicate that policies can make a difference in increasing, or facilitating, the number of skilled immigrants admitted. To be sure, the traditional countries of immigration appear to have an edge in the number of skilled immigrants that they attract and one suspects a combination of facilitation and past momentum. But more recent entrants into the competition like the United Kingdom or France design programmes that have facilitated an increase in numbers. And there are also statistics on labour force participation and unemployment that suggest that, at the aggregate level, the traditional countries of immigration keep their highly skilled foreign workforce well employed. Facilitating immigration per se does not need to lead to widespread foreign/native productivity gaps. But a closer look at two numerically successful temporary work programmes, one in the United States and one in the United Kingdom, should make it clear, to all but the most ardent globalists, that immigration programmes without adequate control mechanisms can undermine at least some portion of the labour market. In short, employers and some policymakers may define facilitation by more immigration, but workers and advocates of the national interest should rightly insist that demand be controlled and working conditions safeguarded.

End Notes

¹ For the purposes of capturing completed education adult usually means aged 25 and older. Naturally, this is young if graduate degree holders are of interest. However, statistics are sometimes only available for persons aged 15 and older.

² There are educational exemptions in the H-1B visa as in the case of models of whom rather few are actually admitted as H-1Bs. Other U.S. visas like the O visa are reserved for individuals who have established themselves as recognized artists and performers.

³ See Papademetriou and Yale-Loehr (1996) for an innovative set of recommendations for an alternative method of pre-screening a pool of skilled foreign job applicants from whom employers may select.

⁴ McLaughlan and Salt (2002) include marketing as one of their criteria. That is not included here because this report is primarily interested in the mechanisms that control the admission and because comparative information is sparse. It should be noted, however, that there is essentially no “marketing” by the United States, the major recipient country.

⁵ They point out that the definition of “immigrant” still needs to be considered as it differs between nations that count “foreigners” and those that count the “foreign born.” This obviously problematic measurement problem is skirted in this report because the purpose is to generate a general portrait of the situation with an eye toward next steps.

⁶ Ideally, one would control for other factors (see Organisation for Economic Co-operation for Development, 2003), particularly in-country work experience. However, by constraining the comparison to tertiary educated persons in the working ages some confounding factors are not as problematic.

⁷ Unemployment rates in the United States for tertiary educated persons aged 25 to 55 as calculated by the author with 2001 Current Population Survey microdata.

⁸ Such comparisons are doubly difficult given compositional differences in length of stay between immigrant populations. Data show that tertiary educated foreign workers in the EU experience substantially improved rates of employment over time (European Commission, 2003).

REFERENCES

- Åkerblom, Mikael (1999). Mobility of highly qualified manpower, a feasibility study on the possibilities to construct internationally comparable indicators. Report for CAMIRE (Eurostat) and the Organisation for Economic Co-operation and Development. Luxembourg, 14 December.
- Angrist, Joshua D. and Adriana D. Kugler (2003). Protective or counter-productive? Labour market institutions and the effect of immigration on EU natives, *The Economic Journal*, 113 (June), pp. 302–331.
- Auriol, Laudeline and Jerry Sexton (2002). Human resources in science and technology: measurement issues and international mobility. In *International Mobility of the Highly Skilled*, Organisation for Co-Operation and Development. Paris: OECD Publications Service, pp. 13-38.
- Bhagwati, Jagdish N. (2003). Borders beyond control. *Foreign Affairs* (New York), vol. 82 (January/February), pp. 98-104.
- Christian, Bryan Paul (2000). Facilitating High-Skilled Migration to Advanced Industrial Countries: Comparative Policies, Working Paper of the Institute for the Study of International Migration, Georgetown University <http://www.georgetown.edu/sfs/programs/isim>.
- Commission on Immigration Reform (1997). *Becoming an American: Immigration and Immigrant Policy*, Washington, D.C.: United States Commission on Immigration Reform.
- Entzinger, Han and Renske Biezeveld (2003). Benchmarking in immigrant integration. Report written for the European Commission, contract No. DG JAI-A-2/2002/006, European Research Centre on Migration and Ethnic Relations (ERCOMER), Erasmus University, Rotterdam.
- Espenshade, Thomas J. (1999). High-end immigrants and the shortage of skilled labour. Office of Population Research, Princeton University, Working Paper No. 99-5, Princeton.
- European Commission (2002). Employment in Europe 2002: recent trends and prospects. Directorate-General for Employment and Social Affairs, Luxembourg: Office for Official Publications of the European Communities.

- _____ (2003). *Employment in Europe 2003: recent trends and prospects*. Directorate-General for Employment and Social Affairs, Luxembourg: Office for Official Publications of the European Communities.
- Florida, Richard and Irene Tinagli (2004). *Europe in the creative age*. Carnegie Mellon Software Industry Center and Demos, Pittsburgh and London.
- General Accounting Office (2000). *H-1B Foreign Workers: Better Controls Needed to Help Employers and Protect Workers*, Washington, D.C. GAO/HEHS 00-157.
- Ghosh, Bimal, ed. (2000). *Managing Migration – Time for a New International Regime?* Oxford: Oxford University Press.
- Goodwin, Bill (2003). UK user bodies, *IT Management: Politics & Law*, Tuesday 20 May.
- Groenendijk, Kees, Elspeth Guild and Robin Barzilay (2000). The legal status of third country nationals who are long-term residents in a member state of the European Union. Study carried out on behalf of the European Commission, Directorate General for Justice and Home Affairs, Nijmegen, the Netherlands.
- Lerman, Robert (2000). Information technology workers and the US labour market: a review and analysis of recent studies. Report to National Research Council “Building a Workforce for the Information Economy”, Washington, D.C.: National Academy Press.
- Lowell, B. Lindsay (2001a). The foreign temporary workforce and shortages in information technology. In *The International Migration of the Highly Skilled: Demand, Supply, and Development Consequences in Sending and Receiving Countries*, Wayne A. Cornelius, Thomas J. Espenshade and Idean Salehyan, eds. San Diego: University of California, pp. 131-162.
- _____ (2001b). Skilled temporary and permanent immigration to the United States. *Population Research and Policy Review*, 20 (1-2), pp. 33-58.
- _____ (2001c). State of knowledge on the flow of foreign science and technology workers to the United States. Report prepared for the National Science Foundation’s Taskforce on National Workforce Policies for Science and Engineering, Washington, D.C.
- _____ (2004). Demand for skilled immigrants in information technology: following the labour market from bubble to bust. *Perspectives on Work*, 8 (1), pp. 25-27.
- Lowell, B. Lindsay, Allan Findlay and Emma Stewart (2004). *Brain Strain: Optimizing Highly Skilled Emigration from Developing Countries*, Institute for Public Policy Research, Asylum and Migration, Working Paper 3, London.
- Martínez-Herrera, Enric and Djaouida Moualhi (2004). Public opinion and immigration policies in five EU countries. Accounting for (in) consistency between immigrants selection and integration policies and citizens’ attitudes. Paper presented at the European Consortium for Political Research, Workshop No. 16 “Who Makes Immigration Policy?”, Uppsala, 13-18 April.
- Martin, Philip and Susan Martin (1999). The politics of globalization in Germany and the United States immigration policy. In *Responses to Globalization in Germany and the United States: Seven Sectors Compared*, Carl Lankowski, ed. Washington, D.C.: American Institute for Contemporary German Studies, pp. 11-14.
- McLaughlan, Gail and John Salt (2002). Migration policies towards highly skilled foreign workers. Report to the United Kingdom Home Office, London.
- National Research Council (2000). *Building a Workforce for the information economy*. Washington, D.C.: National Academy Press.
- NOP Business and the Institute for Employment Studies (2002). Knowledge migrants: the motivations and experiences of professionals in the U.K. on work permits. Prepared for Department of Trade and Industry (DTI) and the Home Office, November.
- Organisation for Economic Co-operation and Development (2003). Trends in International Migration: SOPEMI Annual Report, 2003 Edition. Paris: Organization for Economic and Cooperative Development.
- Papademetriou, Demetrios G. (2003). Innovation in the selection of highly skilled immigrants. Presented at the Athens Capstone Conference on Managing Migration for the Benefit of Europe sponsored by the Greek Presidency of the European Union, Athens, 15-17 May 2003.
- Papademetriou, Demetrios G. and Stephen Yale-Loehr (1996). *Balancing Interests: Rethinking the United States Selection of Skilled Immigrants*. Washington, D.C.: Carnegie Endowment for International Peace.
- Porter, Alan L., J. David Roessner, Nils Newman, Xiao-Yin Jin and Elmer Yglesias (2003). Indicators of technology-based competitiveness of 33 nations: 2003 summary report. Report to the Science Indicators Unit, Science Resources Studies Division, National Science Foundation, contract No. D020024, Atlanta.

- Rollason, Nicholas (2002). International mobility of highly skilled workers: the UK perspective. In *International Mobility of the Highly Skilled*, Organisation for Co-Operation and Development. Paris: OECD Publications Service, pp. 327-342.
- Ross, Philip, Stephen Hunter and Gurdial Rai (2002). Review of work permit policy on recruitment and employment agencies and contractors, United Kingdom, the Professional Contractor's Group, <http://www.pcg.org.uk/resources/pcg-review7.pdf>.
- Transatlantic Learning Community (1999). International migration in Europe and North America: policy recommendations for the new millennium. Final report of the Transatlantic Learning Community prepared for the Cooperative Efforts to Manage Emigration (CEME) Project, University of California, Davis.
- United States National Science Foundation (2003). Science and Engineering Indicators. Washington, D.C.: Government Printing Office.
- United Nations (2004). Global Commission on International Migration (GCIM), <http://www.gcim.org>.
- Van Selm, Joanne and Eleni Tsolakis (2003). The enlargement of an "area of freedom, security and justice": managing migration in a European Union of 25 members. Migration Policy Institute, Policy Brief No. 4.

Determinants of International Migration (DEMIG) POLICY tracks more than 6,500 migration policy changes enacted by 45 countries from 1945 to 2013, thus also including countries from outside Western Europe and Northern America. DEMIG assesses policies using 51 indicators and codes them according to the policy area and migrant group targeted, as well as the change in restrictiveness they introduce in the existing legal system.Â OECDâ€™s Policy and Institutional Coherence for Migration and Development (PICMD) dashboard measures the extent to which public policies and institutional arrangements are coherent with international best practices to minimize the risks and maximize the development gains of migration.