

INFORMATION TECHNOLOGY AND AUSTRALIA'S IMMIGRATION PROGRAM: IS AUSTRALIA DOING ENOUGH?

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Business leaders have argued that Australia is not doing enough to attract IT specialists. The example of Asian experts in Silicon Valley is cited as an example for us to emulate. An examination of the U.S. experience show that Australia has in place far more generous skilled-migration arrangements than does the U.S. The Asian achievement in the U.S. is not due to liberal immigration policies but is primarily a consequence of the importance of Asian students in the output of PhD level scientists and engineers from U.S. universities.

As readers will be aware, the Coalition Government's announcement on 3 April 2000 of a modest increase in the migration program for 2000-2001 was preceded by a business leaders' campaign for a much larger increase. Table 1 indicates that the Government has increased the planned intake by 6,000, almost all of which is located within the Independent skill category. But the increase still leaves the planning level for 2000-2001 below the level it reached in the last year of the Keating Labor Government and far

below the level under the Hawke Labor Government in the late 1980s.

The Minister, Philip Ruddock, when announcing the increase in the Independent category, put it in cautious language. He said 'that the Government would only maintain this higher level of immigration [referring to the Independent category] if key skill shortages such as those in the IT industry persist and Australia continues to be able to attract sufficient numbers of migrants with strong language and appropriate occupational skills'.¹ In other

Table 1: Migration program outcomes and year 2000-2001 plan by major visa category

	Outcomes				Projected 1999-2000	Plan 2000-2001
	1995-1996	1996-1997	1997-1998	1998-1999		
<u>Family</u>						
Spouse/fiancé	33,550	23,150	25,790	24,740	27,000	28,250
Parents	8,890	7,580	1,080	3,120	1,000	2,100
Dependant children	2,830	2,200	2,190	2,070	2,350	2,770
Other preferential	3,450	2,300	2,250	2,110	1,540	1,280
Concessional family*	8,000	7,340	n/a	n/a	n/a	n/a
Total family	56,700	44,580	31,310	32,040	32,000	34,400
<u>Skilled stream</u>						
Employer nomination	4,640	5,560	5,950	5,580	6,000	5,800
Business skills	4,900	5,820	5,360	6,080	6,000	6,700
Independent	10,600	15,000	13,270	13,640	14,300	21,350
SAS*	n/a	n/a	9,540	9,310	8,400	5,950
Other	4,000	1,170	550	390	300	200
Total skill	24,100	27,550	34,670	35,000	35,000	40,000
Special eligibility	1,700	1,730	1,100	890	3,000	1,600
Humanitarian	15,050	11,910	12,055	11,360	12,000	12,000
Total	97,550	85,770	79,135	79,290	82,000	88,000

* From 1 July 1997 the Concessional Family category was replaced by the Skilled Australia Linked (SAL) category. From July 1999 it was renamed the Skilled Australian Sponsored Category
Source: Department of Immigration and Multicultural Affairs (DIMA)

words he rejected the business community's demand for an immigration-led impetus to the economy. Instead, immigration is made conditional on the state of the labour market.

Business interests want a major infusion of overseas talent, particularly talent which they think would enliven Australia's hi-tech industries. A significant recent expression of this point of view has come from David Hale, 'chief global economist' with Zurich Financial Services in Chicago. Hale is an influential commentator on Australia and his views are given prominence in the year 2000 edition of BRW's Rich 200. Hale declares that 'Australia is at the Crossroads'. He spells out a plausible case that the tiny size of Australia's high-tech investment sector (relative to the U.S. and Canada) is contributing to the weakness of the Australian dollar because it means that overseas investors have little reason to be excited about putting their money here. To rectify this situation we must make our tax system more competitive, improve our venture capital and promote the quality of our university system.

These suggestions are to be expected. What catches the eye is that Hale appears to put the greatest emphasis on another factor — encouraging immigration. He refers to the experience of Silicon Valley, where he asserts that Asian migrants have played a major role in the region's IT success. His conclusion is that;

Australia should not wait to attract talented immigrants: they can only enhance growth by enriching the country's human capital. If Australia waits it will pay a cost in lost opportunity.²

Hale's contribution gives a sharp focus to the Australian business lobby point of view. The implication is that Australia cannot compete in the new economy with its own resources. Australia

must therefore bring in people who will somehow overcome the impediments which prevent the locals from succeeding. There is a further implication that by comparison with the U.S., Australia's current immigration policy is far too restrictive when it comes to IT specialists. Robert Gottlieb, renowned business commentator (now writing for *The Australian*) says of the Howard Government's policy on IT skills that 'they call for cement when you mention skills migration to make sure their head does not move from the sand'.³

These observations provide an occasion for an assessment of how the Australian Government's immigration program is functioning with regard to skills migration, with particular reference to IT specialists. Is it true that the immigration programs operating in the U.S. (and which allegedly contribute to Silicon Valley successes) are much more open to the influx of talented migrants than is the case in Australia? If Australia did open its doors wide would more IT specialists flock in? If not, could the cry for more migrants be functioning as a smoke screen, deflecting attention from more fundamental problems in the promotion of IT industries in Australia?

AUSTRALIA AND THE U.S. COMPARED

David Hale claims that Silicon Valley businesses employ 9,000 China-born and 5,000 India-born persons with PhDs compared with 35,000 Americans with PhDs.⁴ The literature on Silicon Valley confirms the importance of the Asian contribution to the region's IT workforce and to the entrepreneurs at the forefront of innovation. According to a 1999 study of the 1990 U.S. Census data, 32 per cent of all scientists and engineers in Silicon Valley's technology industries were

overseas-born, including 21 per cent of whom were Asia-born.⁵

While there is no doubt that Asia-born experts play an important role in America's IT industries, the question of how they enter the U.S. workforce is complex. The U.S. Government's immigration system, at least for persons seeking entry as professional workers rather than as family members, is not easily penetrated. The rules in place in the U.S. are far more restrictive than those in Australia.⁶

To begin with, most of the PhDs David Hale refers to entered the U.S. as overseas students. These people are the products of America, trained in some of the most advanced and competitive universities in the world. They make up a significant component of the celebrated Asian entrepreneurs in Silicon Valley.⁷ They should be distinguished from the thousands of routine programmers brought in from India and elsewhere (under the H-1B program described below) who do much of the low level work in Silicon Valley. It would be surprising if these highly trained people were not playing such a role since overseas students now make up a high proportion of the output of the U.S. PhDs in the sciences. The extent of this dependence is indicated in Table 2. The table shows that more than half all the PhDs graduating in engineering fields and nearly 40 per cent of those graduating in the physical sciences (which includes computer science) in the U.S. in 1998 were not U.S. citizens.

According to a survey of all overseas students graduating with PhDs in 1998 (not just those in the sciences), 70 per cent

indicated that they had commitments to U.S. location.⁸ The main pathways for these American-trained PhDs as well as other skilled persons coming from outside the U.S. into the U.S. labour market are as follows. First, they may take up a temporary entry H-1B visa (which usually requires degree-level qualifications). The largest single occupational category is computing professional.⁹ These H-1B visas require an employer to nominate the person to a specific position or job. The visa is available for up to six years, but there is a strictly enforced quota on their number which for this fiscal year is 115,000 (up from 65,000 last year). But such is the demand from employers and prospective applicants alike, that with this much increased number, the program quota is likely to be filled well before the end of the fiscal year. For this reason IT employers have been pushing for a further increase in the annual H-1B quota to at least 200,000 per year. Legislation towards this end is currently moving through the U.S. Congress.

A second major point of entry to the U.S. labour market is via employment nomination. In this case the outcome is permanent entry, or the famous 'green card'. For this to occur the aspiring immi-

Table 2: Citizenship status of doctoral recipients in the U.S., 1988 and 1998

Field of study	1988	1998
Physical Sciences*		
U.S. citizen	3,238	3,660
Temporary visa or permanent resident (non-U.S. citizen)	1,735	2,592
Unknown	336	487
Total	5,309	6,739
Engineering		
U.S. citizen	1,780	2,543
Temporary visa or permanent resident (non-U.S. citizen)	2,087	2,870
Unknown	320	506
Total	4,187	5,919

* Physical sciences includes mathematics and computer science
 Source: A. Sanderson, et al, *Doctoral recipients from United States Universities*, Chicago, National Opinion Research Center, 1999

grant also has to be nominated by an U.S. employer to a particular job. In many cases permanent residence via this pathway follows from an initial H-1B visa.¹⁰ It is estimated that about half the people who gain employment-based permanent visas in the IT area do so after gaining an H-1B visa. But again, it is not easy to negotiate this entry point. Employers prefer to appoint immigrants on a temporary basis, because such visas in effect bind the person to the employer. Indeed it is commonly asserted by immigrant spokespersons that employers take advantage of the desperation of people to gain a green card by promising them that they will eventually sponsor them, but only after they serve their time on a temporary visa. There are currently around 140,000 visas available under the employer nomination program (including family members). In recent years not all the available places have been taken up. There do not appear to be enough employers willing to sponsor persons who want a green card, in part because the recent increase in H-1B visa numbers means that many more of such persons are seeking employment nominations. The only other significant migration route into permanent residence is via marriage to an American citizen.

By comparison, Australia's immigration system is far more generous. There is no counterpart in the U.S. to our Independent or Skilled Australian Sponsored (SAS) categories, which do not require an employer nomination. As Table 1 shows, in 2000-2001 some 27,300 visas will be issued in these categories. Nor is there any parallel in the U.S. to the Australian initiative implemented in mid-1999, which allows former full-fee paying overseas students to apply for permanent residence under the Independent or SAS categories in the first six months after

completion of their Australian University course even if they have no work experience in the field. Persons with Australian degree qualifications in computing are almost guaranteed acceptance under the Independent or SAS categories. This is because computing professionals are classified as a tier one occupation drawing maximum points for skill and extra points because computing is included amongst the occupations declared as being in shortage. In addition, applicants with Australian qualifications receive extra points. The U.S. Congress is just getting around to consider some similar incentive for U.S. trained graduates (though only for temporary visas) as part of the new H-1B legislative package referred to above.

The Australian temporary entry arrangements for skilled persons are also more generous than those of the U.S. There is no limit on the number of skilled migrants Australian employers can sponsor under the temporary business skills program (visa category 457). In 1998-99 about 16,000 principal applicants were granted temporary visas (up to four years) under this program. Since the U.S. population is 13 times larger than Australia, this number is equivalent to just over 200,000 in U.S. terms (almost double the current 115,000 H-1B quota). Computing professionals are by the far the biggest occupational group in the 457 business skill category, with about 4,000 persons in this field being granted 457 visas in 1998-99.

Australian employers can also sponsor skilled migrants to particular positions under the Employment Nomination program on a permanent residence basis. But unlike the U.S. situation, in practice there is no limit on the numbers which can be sponsored. For the 1999-2000 program year the planning figure for employment

nominations was 6,000 (including family). But in response mainly to lobbying by the State governments, the Australian government announced that for the 1999-2000 program year an additional 5,000 places in a 'contingency reserve'. This was intended to accommodate any surplus of applications over the planned 6,000. As of the end of April 2000, however, the number of visas issued under the Employment Nomination program was 4,359, which implies that the outcome for the full year 1999-2000 will fall well short of the program target. The 'contingency reserve' will not be troubled.

Like their U.S. counterparts, Australian employers prefer to sponsor employees on a temporary rather than a permanent basis. They have more control over the appointee if he or she is engaged temporarily, because it is difficult for the employee to seek other employment if in Australia on a 457 visa. In 1998-99 only a handful of computing professionals were sponsored under the permanent-entry Employment Nomination category (far fewer than the 4,000 computing professionals visaed in the temporary 457 category).

This outcome may surprise given the publicity about Australian employer's desperation to attract good IT staff. As noted above, persons on temporary H-1B visas in the U.S. are clamouring to be sponsored by employers under the equivalent of our employment nomination system. The Australian Government has gone out of its way to facilitate such change-of-status arrangements. In 1997 the government received a report from a Committee of Inquiry on the Employment Nomination Scheme which recommended that employers should be allowed to sponsor for permanent residence any person here on a temporary business visa regardless of how long the person had

held the temporary visa (previously there was a requirement of one year).¹¹ The Government accepted this recommendation.

As stated above, there were some 4,000 principal applicants visaed under the 457 category in 1998-99 who were in the computing field. In principle, all of these temporary visa holders could have been sponsored as permanent residents under the Employment Nomination system. Clearly, this has not happened. One reason is employer's reluctance to use the Scheme. However, another factor is that many of those here on 457 visas chose to return home (usually the U.S., Japan or Europe) or go to places such as the U.S., Canada or Hong Kong where there is also strong demand for their services. In other words attracting skilled IT professionals is not a simple matter. You cannot just open the gates and wait for them to flock in as seems to be assumed (perhaps on the basis of the U.S. experience) by David Hale and other commentators.

One indicator of the degree to which migrant computing professionals want to stay in Australia is the interest they show in taking advantage of the new Independent and SAS selection system which, as noted above, gives priority to those with Australian qualifications. There has been a reasonably strong response from computing graduates. The Australian Computing Society handles the initial credentials assessment phase before persons actually apply for a permanent entry visa. Data from this body indicate that around 1,000 recent computing graduates will take this initial step in 1999-2000. This represents around a third of the overseas students who completed computing degrees at the bachelor or above level in 1999. As such this is a strong response, which will give a major boost to the supply of IT graduates entering the Australia

lian labour market. As pointed out elsewhere, it is just as well this response has occurred, since just over half of the increase in output of degree-level computing professionals during the 1990s has been to overseas students.¹²

There is not much more that the Australian Government could do to attract skilled IT people here. Business interests often point to the Business Migration Program. But this program (again there is no parallel program in the U.S.) delivers very few specialists in the IT area. There are a number of other programs designed by the Commonwealth Government to allow State Governments and regional employers to sponsor migrants on concessional terms (that is people with lower skill and English standards than required for the Independent category). But despite the lobbying of some States to establish these categories and the provision of places in the program (as well as an additional 'contingency reserve'), during the 1999-2000 program year the number of persons sponsored has been negligible.

IMPLICATIONS

Australia has been much more active in promoting skilled migration than the U.S. and this continues to be the case today. Very large numbers of migrants with tertiary degrees in computing and engineering have been attracted. By 1996, 47.4 per cent of all 120,327 persons holding degree or above level qualifications in engineering and 45 per cent of all 43,344 persons holding degree qualifications in computing in Australia were overseas-born.¹³ In the case of those with computing qualifications, of the 45 per cent, or 19,475 who were born overseas, at least half came from Asia, including 2,088 who were born in Vietnam (many of whom were trained in Australia), 1,286 born in India, 1,445 in China, 1,445 in

Hong Kong and 1,535 in Malaysia.

This influx has not resulted in a parallel Australian Silicon Valley. One response may be that the Australian Government should redouble its recruitment efforts. But as has been pointed out, the Government is currently accepting all applicants with the relevant qualifications who are willing to be recruited.

In any case it is obvious that the promotion of a successful IT industry in a highly competitive world market requires getting a multitude of factors right. These factors include a vibrant industrial base which encourages competition and excellence, a ready fund of venture capital, a generous tax system and high quality people (to name a few). The mix of factors is not an issue which can be explored here. But any prospect of getting the mix right in Australia will probably require an active industry policy.

This is not to discount the importance of high quality expertise, or for that matter to ignore the arguments of those concerned about a 'brain drain' from Australia. The Federation of Australian Scientific and Technological Societies (FASTS) has recently put its concerns to the public about the alleged loss of top flight scientists (especially those with PhDs) to overseas destinations.¹⁴ There is a substantial net gain of computing professionals to Australia through the permanent entry skill programs and the temporary entry business skills program. But more research is needed on the outflow of Australian-resident computing professionals. Australians are starting to figure amongst temporary movers to the U.S. In 1992, 1,531 of all H visas issued by the U.S. Government went to Australians and in 1996 the number increased to 1,909.¹⁵ Most of these would have been H-1B visas. Consistent with this pattern, unpublished data on overseas movements show

that there has been a significant increase in the number of Australian-resident computing professionals moving overseas on a temporary basis in the late 1990s.

Any loss of high level expertise would be serious given the Australian government's relatively low commitment to high level research training in Australia. The output of PhDs in engineering and science (including computer science) is small by comparison with the U.S. In 1997 there were just 465 PhDs granted in engineering, 30 per cent of which went to overseas students and 1,039 in science, including 18 per cent to overseas students.¹⁶ (The latter figure includes life sciences, which were not included in the U.S. figures shown in Table 2.) Even allowing for differences in population, Australia is not training either its own or overseas students at the frontiers of technology on anything like the scale of the U.S.

Business advocates like David Hale are convinced about the importance of high quality people. But they put most of their emphasis on solutions directed at

bringing in migrants. This is part of the solution, but it is questionable whether Australia can attract top flight people in a highly competitive and lucrative international market place. Australia is much more likely to keep such expertise if the people in question are trained in Australia, and thus have established social roots here. In this context it will be important to establish whether there is any greater tendency for the former overseas students who are taking up the new skill program opportunities to leave Australia once they have established their permanent residence status in Australia than is the case for other computing graduates.

Hyperbole about migration may indeed be obscuring more fundamental solutions to Australia's high tech industry deficiencies. The U.S. experience appears to confirm the point we have previously made about the 'IT workforce crisis' in Australia. This is that more earmarked funds should be allocated to Australian funds for the training of IT specialists in Australian universities.¹⁷

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