

THE MINERAL BOOM AND IMMIGRATION POLICY: SKILLS AUSTRALIA DEBUNKS THE MYTHS

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The Australian Labor Government has pursued a high migration policy since it came to office in late 2007. This has been justified by claims that it is needed to provide scarce skills for the resources industries. Modelling of employment demand by industry by Access Economics for Skills Australia shows that this justification is based on myths.

INTRODUCTION

The recent announcements on population policy by the new Prime Minister, Julia Gillard, have invigorated the population debate. Gillard's insistence that population policy must reflect sustainability objectives appears to be in conflict with the policy prevailing during the Rudd Prime Ministership. Confusion now reigns as to what sustainability considerations may mean for the scale and composition of Australia's immigration program. Do they imply that the previous policy commitment to high migration was mistaken and that immigration should be reduced? There are now even conflicting messages among government and media commentators, as to whether Labor ever was committed to a target figure of 35.9 million persons by 2050 (which was the middle range projection published by the Treasury in the Third Intergenerational Report (IGR3) in February 2010). Journalist Josh Gordon, in *The Sunday Age*, exemplifies the view that the Labor government had not committed to such a target:

Australia has never had a specific population 'target'. This is exactly why Rudd appointed Agriculture Minister Tony Burke as Australia's first population minister. It was Burke's job to examine the question of how big we want to become, balancing competing environmental, planning and economic imperatives.¹

Until we see firm indications that Labor will reduce immigration, Labor's

talk about sustainability is mere window dressing. Since the Rudd Government came to power in late 2007, it has pursued a record-high migration policy. The government has also stated a long-term commitment to net overseas migration (NOM) of around 180,000 per year. This would deliver at least the 35.9 million population projected by the Treasury in IGR3. Furthermore, as indicated below, the Department of Immigration and Citizenship (DIAC) has repeatedly affirmed that the government's immigration policy is designed to deliver the required level of NOM and that it believes this policy to be in the national interest.

Nevertheless, Prime Minister Gillard is correct in highlighting the Labor government's previous failure to consider sustainability issues in its framing of immigration policy. The continued neglect of these issues was recently acknowledged by Labor's Immigration Minister, Senator Evans. During the 2010 Senate Estimates hearings, he stated that: 'There were no mechanisms when we came to government for dealing with how we set migration program numbers and what the impacts were of those numbers'.² Admitting that no serious account had been taken of sustainability issues, he went on:

... as you know, the permanent migration program in this country is run largely on the basis of demand for labour, and that is obviously linked to our economy. What we do need to do is [to] discuss ... the

sustainability issues that go with population growth. I, for one, am very interested in us making progress on that, because I think it has been a neglected area of public policy.³

This article examines the rationale behind the Labor Government's and DIAC's stance of privileging the delivery of migrant skills over all other factors in setting immigration policy. The core of this rationale is the skill needs of the resource industries. We then examine this rationale in the context of recent research commissioned by the Labor Government's new advisory body on skill training, Skills Australia. This research makes a strong case that Australia's migration program is about meeting the skill needs of the city-building and people-servicing industries in the major cities. It has little to do with Australia's resource industries.

IMMIGRATION POLICY UNDER THE LABOR GOVERNMENT

The drive to recruit skilled, blue-collar workers

Shortly after gaining office, in February 2008, the Rudd Government added 6,000 places to the skilled migration program for 2007–08. At the time of the May 2008 Budget there was a further increase to the skilled program to 135,300 for 2008–09.⁴ This was 33,500 higher than the original 2007–08 skilled program set by the former Coalition Government. The stated reason was that increases were needed to pre-empt skill shortages, particularly in the resource industries.

The incoming Rudd Government feared that these shortages might lead to a wages break-out or perhaps to bottlenecks in the construction phase of major resource projects. The resource industries were most worried about shortages of skilled tradespersons. According to our informants,⁵ all government departments, including DIAC, were instructed by the Prime Minister's

Department to prioritise their activities in order to meet this challenge. In DIAC's case, the instruction was to maximise its efforts to recruit skilled migrants.

The influence of concerns about shortages of skilled tradespersons and other blue-collar workers can also be seen in the government's early priorities for domestic training. The incoming government announced that it intended to massively increase the number of vocational training places. In April 2008, the new Productivity Places Program was introduced to fund 711,000 additional training places over the period 2007–08 to 2011–12. All these places were to be at the vocational certificate II, III, and IV levels and, to a lesser extent, at the diploma level.⁶ By contrast, since it came to power, the Rudd Government has promised to fund only 50,000 additional university places.⁷

This was an extraordinary decision given that, at the time, most of the job growth in the Australian economy was at the management, professional and higher technical levels where a degree is normally the minimum entry requirement.⁸ Partly as a consequence, most of the skilled migrants attracted to Australia in recent years have held professional qualifications.⁹ There were some shortages in the trades area in 2007 and 2008, particularly amongst persons willing to work in remote mining locations. But overall, the rate of growth of employment in trade occupations has been about half that of growth in employment in the professions.¹⁰ Yet, the notion that present and likely future skill shortages are primarily in the trades and operative area persist to this day. Here is the Minister for Immigration, Senator Chris Evans, again speaking to the Senate Estimates hearings in February 2010. Evans stated that:

... we are more likely to see shortages in the next little while in key engineering, construction and trades areas as the economy picks up and because of

the investment in infrastructure we are starting to see some shortages in those areas. Skills Australia and others will make assessments as to which trades may be in short supply. For instance, in my own state of Western Australia a number of very large projects are likely to take off in the next year or two—oil and gas and mining with Rio, BHP *et cetera*. Construction workforces are going to be required in their thousands. Already we are starting to hear concerns about skills shortages in some of those construction and mining trades areas. I am just signalling clearly that that is where pressure is going to be ...¹¹

Short-term policy morphs into long term commitments

This short-term migration policy has since morphed into a long-term commitment. Without any preliminary public discussion, the Rudd Government stated at the time of the May 2008 Budget announcements that it had 'begun to develop a longer-term planning framework (LTPF) for migration, based on an average net overseas migration range of between 150,000 and 230,000 people per year'.¹² The implication was that net overseas migration (NOM) would continue at around 180,000 to 190,000 per year. This level was about double that which had prevailed in the late 1990s and early 2000s. The Second Intergenerational Report (IGR2), prepared by the Treasury in 2007, is the best indicator of this change in policy. The mid-range projection in IRG2 assumed a NOM of 110,000 per annum (compared with the 180,000 assumption in IRG3).

It was no accident that the Treasury chose the 180,000 NOM assumption. Migration at this level has been the Labor Government's policy objective since the May 2008 statement and it still shapes DIAC's decisions on immigration planning.

DIAC planning for long-term migration targets

DIAC has relied on long-term concerns about the ageing of Australia's population and an impending slow down in the rate of labour force growth to help justify its high long-term migration commitment. DIAC asserts that, while providing for the alleged skill needs of the resources industries, high migration will also slow down the rate of decline in workforce growth and offset demographic ageing within the general population.

DIAC has depended heavily on commissioned research to make its case. Its main source is work completed during 2008 by Peter McDonald and Jeromey Temple of the Australian National University. The authors were tasked to explore the workforce and population outcomes of various levels of NOM. They affirmed that, without high net overseas migration, Australia's labour force growth would slow sharply over the decades to 2050. McDonald and Temple showed that, if Australia's labour force growth were to be kept at around one per cent per annum to 2030 and then to about 0.75 per cent thereafter, this would require a constant level of NOM of around 220,000 per year. This would deliver a population of around 34.5 million by 2050.¹³ (This is lower than the IGR3 projection for 2050 of 35.9 million, which used an assumption of 180,000 NOM, because the latter projection incorporated higher fertility and longevity assumptions than did McDonald and Temple.)

The ANU report also showed that a NOM of around 180,000 was optimal in regard to the impact of migration on Australia's age structure as it affected the rate of labour force participation. NOM levels higher than 180,000 would deliver 'diminishing returns' on this variable.¹⁴

The report does more than offer various labour force growth scenarios. It strongly advocated a high-migration policy

response. Mirroring the Rudd Government's position,¹⁵ McDonald and Temple write that:

The mining boom can be expected to continue for many years. Long-term contracts are already in place. The mining boom, directly and indirectly, has been a major driver of increased labour demand and we can expect this situation to continue.¹⁶

As with DIAC and the federal Labor Government, McDonald and Temple privilege the labour contribution of migration over all other factors in the setting of immigration policy. More recently, in a May 2010 op-ed piece, McDonald asserts that Australians must accept high migration, notwithstanding its effect on housing shortages, congestion and the like. He argues that this is because of the crucial role of migration in helping to solve shortages in the resource industries. He writes:

Australia is facing the challenge of accommodating the rapid growth of the resources sector and its multiplier effects in the context of an absolute shortage of labour. Labour demands from the resources sector and allied industries will be very great during the next decade, particularly during the construction phase we are now entering.¹⁷

McDonald goes on to lament the fact that no Australian government has estimated future labour demand across the economy over an infrastructure planning cycle of about 15 years. He says: 'unless these estimates are made, the debate about immigration and population growth is mere rhetoric'. Fortunately, Skills Australia has conducted just such an empirical inquiry.

ENTER SKILLS AUSTRALIA

Skills Australia was set up in March 2008 to provide independent advice to the Department of Education, Employment and Workplace Relations (DEEWR) on current and emerging skill needs in Australia. Its first Board was appointed in April 2008.

It was composed of a mixture of academic and business representatives, including Heather Ridout, the Chief Executive Officer of the Australian Industry Group, and Keith Spence, formerly Chief Operating Officer of Woodside. Its Chairman is Philip Bullock who was formerly CEO of IBM Australia and New Zealand. Skills Australia began its work by issuing a background paper that provides a broad perspective on the evolution of Australian industry and the demands it will place on skill formation.¹⁸

Access Economics was engaged to model the likely industry and occupation outlook for Australia to 2025 and, on this foundation, to estimate the likely demand for skills at the higher-education and vocational level. Access Economics did not begin with a blank sheet. The Skills Australia Board set the parameters it had to work within. The Board prescribed three economic scenarios on which Access Economics based assumptions about the overall level of GDP growth, workforce growth and population growth likely in each scenario. Access Economics then did its modelling for industry and occupation growth on the basis of these parameters.

The scenarios were based on a template drawn from a 2005 Shell (Corporation) International study. This offers three scenarios. One is Open Doors, which assumes a government commitment to free trade, deregulation, industry autonomy and free movement of migrants. The other two scenarios are entitled Low-Trust Globalisation and Flags. Both are characterised by a more protectionist and nationalist stance as well as by strict limits on the free flow of migrants.

Skills Australia is strongly supportive of the Open Doors scenario. Under this scenario, the Australian economy is assumed to grow by 3.93 per cent per annum over the period to 2025. For this growth level to be achieved, there will have to be a significant increase in the rate of workforce

participation of the Australian population and a high rate of overseas migration. The latter is assumed to be even higher than that projected by the Third Intergenerational Report. For the Open Doors scenario, immigration is assumed to grow at one per cent per annum (from net 220,000 in 2010 to 250,000 in 2025).¹⁹ The Skills Australia stance illustrates again just how pervasive the assumption of continued high migration has been with the Labor Government and its bureaucracy.

ACCESS ECONOMICS MODELLING

The Access Economics modelling was based on the three scenarios and on the parameters just described, including the

3.93 per cent economic growth rate for the Open Doors scenario. Our main interest lies in the industry and occupation projections that Access Economics produced, based on these assumptions. They provide an informed estimate about industry futures over the very 15-year period to which McDonald and Temple had referred. The results of the projections of industry demand for labour under the three scenarios are shown in Table 1. These projections are ‘driven by detailed labour market projections of employment by industry and occupations’.²⁰ That is, they incorporate Access Economics’ information on the likely employment implications of investment in major industries.

Most of the industry demand for labour projected by Access Economics is in the

Table 1: Average employment growth per annum 2010 to 2025 by industry under three scenarios, per cent

	Open Doors	Low-Trust Globalisation	Flags
Agriculture, forestry and fishing	1.1	-0.2	-1.8
Mining	1.0	0.5	-0.7
Manufacturing	0.0	-1.0	2.3
Electricity, gas, water and waste services	-0.3	-0.6	3.2
Construction	1.8	1.0	0.5
Wholesale trade	1.2	0.2	-1.2
Retail trade	2.2	1.7	0.6
Accommodation and food services	2.3	1.6	0.5
Transport, postal and warehousing	3.1	2.3	1.1
Information media and telecommunications	2.4	1.7	1.1
Financial and insurance services	2.3	1.6	0.5
Rental, hiring and real estate services	2.8	2.2	1.1
Professional, scientific and technical services	3.1	2.5	1.3
Administrative and support services	2.7	2.1	1.0
Public administration and safety	2.8	2.2	1.0
Education and training	2.2	1.5	1.0
Health care and social assistance	2.9	2.4	1.3
Arts and recreation services	2.4	1.8	-0.4
Other services	1.9	1.2	0.3
All industries average	2.1	1.5	0.9

Source: Access Economics, *Economic modelling of skills demand*, 2009, Tables 6.1 to 6.3.

service industries, particularly in the professional, scientific and technical services, education and training and health care and social assistance industries. Moreover, because the employment base in these industries is so large, they dominate the overall growth in jobs in Australia over the projected period.

Access Economics only provides estimates of numbers of persons employed by industry for the end point of its projections in 2025. However, the significance of these projections can be appreciated by comparing the employment by industry estimates for 2009 (Table 2) with Access Economics' projections for 2025. In the case of mining in the Open Doors scenario, employment is projected to grow from 157,000 in May 2009 to 240,587 in 2025. By comparison, employment in the health care and social assistance industry, alone, grows from 1.17 million to a projected 1.73 million.²¹

Employment growth in the mining industry is of minor significance. As Access Economics notes in its report:

Continued productivity growth will keep jobs growth in check in agriculture and mining (with the latter also affected by climate change mitigation strategies). Indeed, while mining employment growth is below the economy wide average in each scenario, mining output growth is still expected to be strong thanks to Australia's rich resource deposits. There remains strong potential to expand mining activity, perhaps primarily LNG and iron but also other areas. These new projects will typically employ large workforces during construction phases (which would be classified to the construction sector), but also typically are highly capital intensive in operation and so only require small operational workforces.²²

Access Economics estimates are consistent with DEEWR's count of the actual growth of employment by industry over the past five years and its projected short-term

(five year) forecast for employment growth by industry to 2013–14 (Table 2). The rate of employment growth forecast is far lower than that assumed in the Open Doors scenario, but the dominance of the service industries is the same. Again, mining is a minor player. The mining industry accounted for just five per cent of the growth of employment in Australia over the five years to May 2009 and is forecast to constitute minus two per cent of this growth in the five years to 2013–2014. The service industries (not including retail, but all other industries from financial and insurance services and below listed in Table 2) accounted for 57 per cent of jobs growth over the five years to May 2009 and are forecast to account for 75 per cent of jobs growth to 2013–14.²³ Access Economics projections are consistent with the recent pattern of employment growth in Australia. This is overwhelming about the provision of services to rapidly-growing metropolitan centres.

RESOURCE INDUSTRY EMPLOYMENT CONTROVERSY

The employment outlook described above for the resource industries may surprise since it contrasts so sharply with what some resource industry representatives and what the Labor Government have been saying about the industry's workforce needs.

There has been a recent upsurge in optimism about a new resources boom. This is reflected in DEEWR's 2010 revision of the short-term employment outlook. For the five years to 2014–15, DEEWR now forecasts that employment in the mining industry will grow by 28,400 from 172,400 in February 2010 to 200,800 in early 2015.²⁴ If so, this increase will represent just 2.8 per cent, rather than -2 per cent in the five years to 2013–14 of the overall forecast growth in employment to February 2015 of 1.01 million.²⁵

There are more bullish estimates. The recently published Discussion Paper of the

Table 2: Past and future employment growth by industry

Industry	Projected job growth May 2009 to 2013–14					
	Past growth			Projected growth		
	Employed May 2009 '000	Share May 2009 per cent	5 years to May 2009 '000	Share of past 5 years growth per cent	To 2013–14 '000	Share of projected growth per cent
Agriculture, forestry and fishing	358	3	0	0	35	6
Mining	157	1	55	5	-12	-2
Manufacturing	997	9	-54	-5	-61	-11
Electricity, gas, water and waste services	140	1	50	4	8	1
Construction	985	9	195	16	8	1
Wholesale trade	395	4	13	1	-9	-2
Retail trade	1,210	11	108	9	68	12
Accommodation and food services	712	7	55	5	50	9
Transport, postal and warehousing	602	6	116	10	40	7
Information media and telecommunications	223	2	5	0	9	2
Financial and insurance services	388	4	40	3	7	1
Rental, hiring and real estate services	178	2	1	0	8	2
Professional, scientific and technical services	767	7	140	12	54	10
Administrative and support services	347	3	8	1	16	3
Public administration and safety	685	6	91	8	23	4
Education and training	790	7	77	6	101	18
Health care and social assistance	1,172	11	208	17	182	33
Arts and recreation services	212	2	57	5	16	3
Other services	444	4	24	2	8	1
Total	10,763	100	1,188	100	551	100

Source: DEEWR analysis and projections using trend data taken from Skills Australia, *Workforce Futures: Background Paper One*, 2009, p. 26

National Resources Sector Employment Taskforce (NRSET) indicates that, according to the Australian Bureau of Agricultural and Resource Economics (ABARE), there are some 74 'advanced' major resource projects in the pipeline with a value of \$112.5 billion. These include the massive Gorgon and Pluto Liquid Natural Gas (LNG) projects. Advanced means 'committed or under construction'.²⁶

Again, according to ABARE, operational employment for these advanced projects will only be around 30,000. These figures are broadly consistent with the Access Economics projection for employment in the mining industry under the Open Doors scenario of 240,587 in 2025.

What about the flow-on employment effects from resource projects? Australian based firms have an impressive record in providing skilled professional services for the resources industries. But it needs to be remembered what minimal functions are involved in the mining and transshipping of minerals. In the case of the two largest industries, coal and iron ore, these involve open cut mining, railway transport to a port, then transference direct to foreign owned ships crewed by foreigners. There is no processing in Australia at all. The LNG industry is different but, even here, processing is about freezing the gas before transferring to LNG ships. The drilling rigs, pipelines and processing plant are mostly imported.

The mining industry's greatest employment impact is on the demand for construction workers during the start-up phase of new projects. There are no official statistics on the construction workforce employed on resource-related projects. However, the NRSET Discussion Paper indicates that, according to ABARE, the construction workforce required for the \$112.5 billion of advanced projects cited above may be up to 100,000. The great majority of these projects will be in Western Australia.²⁷

The final report of NRSET, released on 20 July 2010, estimates that at any one time the number of construction workers required for these projects could peak at 45,000 in 2012 and 2013.²⁸ However, the reports adds the rider: 'on the basis of experience, that some projects will likely be delayed or changed and others will not proceed at all'.²⁹ Employment on this scale would involve a major increase in the current construction workforce in regional Western Australia. As Table 3 shows, by 2009 the number of construction workers living in Western Australia (outside Perth) was 33,200.³⁰

An extra demand of 50,000 construction workers over the next couple of decades would strain the capacity of the industry, given that as of May 2009 total employment in construction in Australia was 985,000. However, the industry has grown rapidly as indicated by the increase in employment in construction by 195,000 over the five years to May 2009 (see Table 2). This growth indicates the capacity of the industry to expand rapidly.

The problem from the point of view of the resources industries is that, while they are tooling-up for a new boom, Australia is simultaneously experiencing a city building boom in the big cities. It will be hard to shift construction manpower to resource projects while demand for the same skills is strong where most construction workers live.

Table 3 details the growth of employment in the construction industry by metropolitan and rest-of-state areas over the years 2000 to 2009. It shows that most of the 291,892 growth in employment in construction over this period occurred in Australia's main metropolitan centres and in non-metropolitan areas which are not major players in the resources boom. Some 59 per cent of all the growth in construction employment over the nine years occurred in the six capital cities listed. By 2009, just 17 per cent of construction employment

Table 3: Persons employed in the construction industry by selected locations and share of change, Australia, 2000 to 2009

Capital city/state balance	2000	2002	2004	2006	2008	2009	2000–2009 change	per cent share of total construction workers
	persons (000s)							
Melbourne, Sydney Adelaide, Brisbane, Perth and Hobart	443.9	453.3	500.4	566.9	603.4	615.5	171.6	58.8
Balance of New South Wales	75.8	81.8	101.2	105.6	111.4	103.1	27.3	9.4
Balance of Victoria	46.6	44.6	47.9	58.9	55.2	55.5	9.0	3.1
Balance of Queensland	78.9	79.9	100.9	122.6	151.3	138.0	59.1	20.2
Balance of Western Australia	22.4	21.5	22.6	29.9	33.7	33.2	10.9	3.7
Australia remainder	26.2	24.2	29.6	32.5	36.3	40.3	14.1	4.8
Australia total	693.8	705.4	802.6	916.4	991.3	985.6	291.9	100.0
								per cent
Melbourne, Sydney Adelaide, Brisbane, Perth and Hobart	64.0	64.3	62.3	61.9	60.9	62.4		
Balance of New South Wales	10.9	11.6	12.6	11.5	11.2	10.5		
Balance of Victoria	6.7	6.3	6.0	6.4	5.6	5.6		
Balance of Queensland	11.4	11.3	12.6	13.4	15.3	14.0		
Balance of Western Australia	3.2	3.1	2.8	3.3	3.4	3.4		
Australia remainder	3.8	3.4	3.7	3.5	3.7	4.1		
Australia total	100.0	100.0	100.0	100.0	100.0	100.0		

in Australia was amongst persons living in the balance of Queensland and Western Australia. Much of this employment in the balance of Queensland would have been amongst persons living in the Gold Coast and Sunshine Coast.

IMPLICATIONS FOR THE DEMAND FOR SKILLS

As noted, the Access Economics modelling provides estimates of growth in demand for those qualified at the degree, diploma and certificate level for each scenario. To compute this figure, Access Economics converted its industry projections to estimates of occupation by industry. Because of the rapid projected growth in the service industries, there is a rapid consequent growth in professional and managerial employment and thus of demand for persons with degree qualifications. This demand is further amplified by the application of a skill-intensity factor to each occupation. For example, for the Open Doors scenario, Access Economics projects that the proportion of persons employed in professional occupations with degree qualifications will increase from 68 per cent in 2007 to 81 per cent by 2025.³¹ The combination of these factors results in a massive projected increase in demand for those with degree or above qualifications. When Access Economics compares this projected demand with its estimates for the projected supply of domestic residents with such qualifications, it concludes that there is likely to be a serious shortage of persons with degree qualifications. By contrast, the projected rate of growth in demand for those diploma and certificate III/IV qualifications is lower.³²

In its discussion of Access Economic's work, Skills Australia acknowledges that: 'By the end of the 2000s, service industries accounted for some 77 per cent of GDP, and Australia had a larger proportion of its workforce engaged in services than most other OECD countries'.³³ Yet, curiously,

Skills Australia does not draw the obvious conclusion, that the focus of Australia's post-school education system should shift from the vocational sector to the university sector. Why this is the case is beyond the scope of this article. Perhaps Skills Australia, too, continues in to be in thrall to the myths about the alleged domination of the resource industries in shaping Australia's skill needs.

CONCLUSION

The analysis indicates that the Labor Government's high-migration policy has little to do with the skill needs of the resources industries. Rather, high immigration is driving a boom in metropolitan city construction and in the service industries whose growth is directly linked to the number of metropolitan residents. These latter industries include the job- and skill-rich health, education, administration, community services and private sector professional services industries.

Almost all the net growth in overseas migration currently locates in the Australia's major metropolises or the adjoining growth areas like the Gold Coast. This is unlikely to change while employment opportunities abound in these locations. Most of Australia's metropolitan population growth to 2025 and beyond will derive from migration should the current high migration policy continue. This migration will drive further demands for skilled labour in the construction and people servicing industries and thus for more migration, in an endless circle.

If migration were sharply cut, it would slow the city building and people services boom and would reduce aggregate economic growth. Should this be of concern?

Among the positive consequences of such a policy, it would provide a welcome respite to cities that, manifestly, are not coping well with accommodating the current surge in the number of their residents.

Ironically, another beneficiary would be the resources industries. A slow down in city building would diminish the competition the resource industries will face for construction skills if the Australian Government continues to encourage a simultaneous resources and city building boom.

A smaller, more targeted migration program would be sufficient for the resources industries, if it was focussed on skill shortages in industries which are competing in the international marketplace.

A smaller migration program would require an enhanced Australian training effort, particularly at the higher education level. As Access Economics affirms, the greatest demand for skills will be for the professionals needed in the people-servicing industries. More residents will have to be trained for these occupations

if the migrant flow is reduced. This can be done. Australia's record of domestic training is miserable. The latest data show that the number of domestic students who completed undergraduate degrees onshore at Australian universities has hardly moved in the past decade. There were 106,162 completions in 2002 and 111,691 in 2008. In key areas like engineering the story is similar. Engineering completions were 6,062 in 2002 and 6,178 in 2008.

An expansion in domestic training would create a more productive workforce, implying that a slowdown in population growth should not mean any decline in per capita economic growth. To the contrary, if Australia's scarce capital and skills were concentrated in internationally competitive industries rather than in building our cities, productivity per worker should increase.

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2011 WH Gladstone Population and Environment Fund

Applications are invited for a grant from the WH Gladstones Population and Environment Fund for support for empirical research into how the size, distribution, material aspirations and other characteristics of Australia's population are likely to affect our environment—not only our land and landscape, but also social cohesion, health, the economy and defence.

A grant of \$12,000 is available for 2011 with the possibility of an additional grant of \$12,000 in the following year.

Applicants should be employed in an Australian university or research institution and should have completed a PhD not more than 10 years ago. Persons engaged in research for a PhD may also be considered if their thesis topics are judged to be highly significant.

For further information about the grant and how to apply please go to: <www.science.org.au/awards/awards/gladstone.html>

Closing date 31 August 2010

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