PEOPLE AND PLACE

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For further information contact:
Centre for Population and Urban Research
PO Box 11A
Monash University VIC 3800
Australia
Phone (+61 3) 9905 2965
Fax (+61 3) 9905 2993
email: <bronwen.perry@arts.monash.edu.au>

MONASH University

TEMPORARY MIGRATION AND SKILLS FORMATION IN THE TRADES: A PROVISIONAL ASSESSMENT

Phillip Toner and Richard Woolley

If Australian young people are to acquire trades skills employers need to invest in apprenticeships. The 457 temporary-entry work-visa system offers employers a relatively easy alternative and the government imposes few training obligations on those who take advantage of it. This means that employers who do invest in apprenticeships are put at a competitive disadvantage and that there is a systemic disincentive to invest in local training.

INTRODUCTION

There are only two ways for a nation to secure an adequate supply of skilled workers: domestic skill formation and immigration. Reflecting a major trend in the international sourcing of skilled labour[1] Australia has significantly increased its reliance on temporary flows of business persons and skilled workers through the Temporary Business Entry (TBE) Program. There are two classes within this program, the business short-stay (456) visa and the business long-stay (457) visa. It is only people who come in on the latter visa who may be employed in Australia, and then only in occupations designated by their Australian employer sponsor. Temporary entrants on 457 visas may be transferred internally by multinational businesses from overseas branches or sponsored as new employees. A total of 58,050 such employees were visaed under the business long-stay primary (457) visa in 2007–08, an increase of 24 per cent in comparison to 2006–07.[2]

The rationale for the expansion of the 457 visa is to facilitate relatively rapid deployment of overseas workers into Australian businesses where labour shortages exist. To this end, temporary migration flows under this visa are uncapped and have grown very rapidly (see Table 1 below). This increased reliance on flows of temporary skilled workers to meet labour shortages has led Hugo to question whether these temporary labour flows are 'a substitute for the reform of, and increase of investment in, education and training by government and employers?'[3]

This paper provides a preliminary assessment of this question in relation to the formation of skills for occupations in trades through the traditional vocational education approach to apprenticeship training.

We examine the potential effects on domestic apprentice training of these changes and the shift toward temporary flows of tradespersons to satisfy skills shortages. The paper concludes that the 457 program has the potential to adversely affect domestic rates of training in the trades. We acknowledge that the framing of appropriate rules and regulations to govern temporary flows of skilled workers remains, to some extent, a work in progress. However, the temporary skilled labour program should be required to support domestic skills formation and national training priorities. If temporary migration in effect operates as a parallel system to supply skilled labour then there are likely to be consequences for the traditional apprenticeship training system.

SKILLED MIGRATION, KNOWLEDGE AND SKILLS FORMATION

There are a variety of theoretical literatures that overlap at the point where global migration flows and institutionalised

processes of complex industrial skills formation intersect. This is not the place for a comprehensive review of this work, which includes contributions from studies of migration, labour market, management, innovation systems, economic geography and knowledge management. Rather, our question can be restricted to a relatively narrow one within this larger theoretical space. It can be summarised as follows: does a change in institutional arrangements for the supply of skilled human capital affect the operation of established training systems?

Skilled migration can be understood as a system of knowledge transactions.[4] Skilled migrants represent an inflow of human capital, which can add to the stock of knowledge and the supply of skills in firms and industries.[5] However, the absorptive capacity of a firm[6] which employs a skilled migrant worker will determine the extent to which the skills of that worker can be appropriated by the firm and, subsequently, the spillover of the worker's skills to other firms and industries. Such knowledge spillovers occur, for example, through movement of labour between firms or the reverse engineering of products and services by other firms. In turn, the absorptive capacity of firms depends on the social context and broader institutional factors.[7] Migrants take time to acquire local competencies, including English language competence, or to become familiar with work routines and occupational roles and practices that may be different to what they have experienced previously.

Skilled trade and technical workers primarily deploy what Amin and Roberts describe as a 'craft or tasked-based' form of 'knowing in action'.[8] Repetitive and routinised tasks and associated problem solving are the key elements of this form of knowing in action. These are linked via the process of learning by doing to incremental innovation in work practices and industrial processes.[9] The reproduction of this form of knowing is partly theoretical (classroom) and partly practical (workplace), and has its own set of organisational and institutional arrangements (the apprenticeship system). These arrangements can be understood as part of the institutional endowments that shape local work contexts and hence the processes of skills reproduction and knowledge transfer.[10] It is at the local level that many of these institutional arrangements are articulated, including the framework for the actual delivery of training.[11]

Knowledge transfer in craft or task-based knowing occurs largely through practical demonstration, repetition and routines, and flows from master to apprentice.[12] An important part of this process is the transfer of the tacit knowledge that provides the background to skills deployment and practiced expertise.[13] In contrast to codified knowledge, such as rules of grammar or mathematical theorems, tacit knowledge can only be transmitted via close one-to-one training and developed through personal experience. Craft based tacit skills in particular are the product of learnt motor skills and problem solving capacity arising from learning by doing. Examples of tacit skills include knowing through feel the amount of torque that can be applied to a screw before the thread is stripped or the head is damaged, or sensing a change in the vibration from a lathe and knowing that it indicates some internal fault such as a worn bearing.

Workplace organisational and cultural tacit knowledge also is important and includes, for example, the extent to which a worker is expected to display independent initiative in solving problems or to rely wholly on superiors to perform this function. This is why extensive workplace based training in traditional apprenticeship systems is viewed as a crucial element in the development of knowledge and skills

and why craft skills cannot be satisfactorily taught only in the classroom or by virtual learning.

In terms of substantive content, skills formation through the traditional apprenticeship system in Australia involves the inculcation of a broad occupational and portable industry-relevant set of competences.[14] The advantage of this approach is that broadly skilled and flexible human capital can be allocated across firms in the labour market. The disadvantage for employers who invest in human capital through the apprenticeship system is that their investment is only partially directed toward firm-specific tasks and that, at the same time, the generic skills the apprentices acquire enhance their future labour mobility. Apprenticeship training thus represents a balance of needs and interests; the apprentice is prepared to accept below market rates for a number of years in return for the acquisition of recognised portable skills and the employer gains relatively cheap but increasingly productive labour that is moulded, at least in part, to the particular products and processes of the firm.

Viewed as a knowledge transaction, skilled migration has implications for the traditional apprenticeship training system in that, where appropriate skills vetting processes are applied, as in the permanent skilled migration program, the stock of skilled tradespersons and technicians available to participate in on-the-job training is increased. One way in which the skills and tacit knowledge of migrant workers can be appropriated and transferred by firms is through contribution to their training programs. A vital ingredient here is time. The permanent nature of skilled migration implies a duration of tenure suitable for building personal relationships and the familiarity with local social contexts that allow for the transfer of knowledge and craft skills, both from and to the migrant worker, including relatively sticky tacit components.

As is documented below, Australia's migration program is placing increased reliance on temporary flows of overseas workers, including tradespersons sponsored by businesses. This transformation from permanent to temporary migration has potential implications for the theoretical argument outlined above. The 457 visa system affects factors such as the skills migrants are required to have, the allocative processes of labour markets, and relations between incoming workers and local social/workplace contexts. It can be argued that these are factors integral to the viability of the traditional apprenticeship-based training system as a systematic process of knowledge transfer. In addition, it is argued below that access to temporary workers via the 457 may affect firms' decisions about how to invest in human capital. However, the first task is to review the available information on inflows of temporary trade and technician workers under the 457 system, to ascertain if the scale of temporary flows is of an order that may impact on traditional skills formation processes.

TEMPORARY MIGRATION OF WORKERS IN TRADE OCCUPATIONS

Compiling accurate and detailed estimates of numbers 457 visa entrants involved in specific trades occupations is difficult, partly due to the variety of ways in which the Department of Immigration and Citizenship (DIAC) compiles and publishes migration data, including by entries, nominations, approvals and visa holders. No departmental publication currently provides medium- or longer-run time series data on the TBE program, and occupational data is almost entirely lacking. Comprehensive disaggregated data on occupations are therefore, not currently available. The total number of primary 457 visa grants in 2007–08 was 58,050, an increase of 24 per cent on the previous year, with a total of 52,529 sec-

ondary grants associated with these primary applicants (these involves spouses and other family members).

In 2007–08, the largest groups of primary visa grants by industry were for Health and Community Services (16 per cent), Property and Business Services (10 per cent) and Construction (10 per cent). In terms of sectors of the economy in which tradespersons' skills are most utilised, in addition to Construction, relatively large proportions of primary applicants in Trade and Related Workers (ASCO Group 4) occupations were likely to be sponsored by firms in Manufacturing (nine per cent of the 2007–08 total), Mining (eight per cent) and Accommodation, Cafes and Restaurants (six per cent). No data are currently published on the presence of 457 visa holders from particular occupation groups in specific industries.

A total of 10,060 457 visas were granted to primary applicants in Trades and Related Occupations in 2007–08.[15] This was a 17 per cent increase on 2006–07 (8,640) and represented 17 per cent of all such grants in 2007–08. The total number of primary 457 visa holders in Trades and Related Occupations who were present in Australia as at 2 July 2008 was 16,540. The total number of Trades workers in Australia as primary 457 visa holders seems relatively low in comparison to the annual number of visa grants. Whilst early survey data indicated a significant proportion of 457 visa holders intended applying for permanent residency in Australia,[16] the stock of 457 visa holders suggests that a significant proportion of 457 visa holders do in fact represent temporary flows with the worker leaving on completion of their sponsorship, and/or that individual workers may be granted successive 457 visas. Table 1 shows the numbers of 457 primary applicant visa grants for Trades workers by location of visa grant.

Table 1 shows that a significant proportion of 457 visa applications come from individuals already in Australia, with 28 per cent of applications made onshore in 2006–07. A significant number of these would be workers transferring from business short stay, working holidaymaker and tourist short stay visas to 457 visas.[17]

In terms of the spatial distribution of trades workers on 457 visas, numbers of visa grants to primary applicants in 2007–08 were heavily skewed toward Western Australia (38.2 per cent) and Queensland (23.2 per cent). Data on the location of 457 visa primary applicants as at 2 July 2008 confirm that these visa holders were heavily concentrated at worksites in Western Australia (35.8 per cent) and Queensland (25.0 per cent). These data suggest that high

Table 1: Subclass 457 visa grants to primary applicants (excluding Independent Executives) between 1 July 2004 and 31 March 2008 where the nominated occupation is ASCO Major Group 4, Tradespersons and related workers, by client location[1]

Financial year of visa grant	Client location		Total
	Onshore	Offshore	
2004–05	1,330	2,040	3,370
2005–06	1,960	6,470	8,430
2006–07	2,430	6,200	8,640
2007–08 to 31/03/08	2,180	4,710	6,890

Source: Department of Immigration and Citizenship (DIAC) 2008 special data service

Notes: [1] Client location is recorded at the time the application is lodged. ASCO stands for Australian Standard of Classification of Occupations.

proportions of 457 trades workers are being sponsored to work in the mining and resource-related sectors in these two states, where high levels of demand have been experienced over the past decade.

There are little available data related to specific trades and related worker occupations of 457 visa holders. Three trade occupations appear on a published list of the most prevalent occupations among 457 primary applicant visa grants. Chefs made up two per cent of all 457 grants in 2007–08, the fifth largest occupation group. A total of 1,360 457 visas were granted to chefs in 2007–08, compared to 1,000 in 2006–07, an increase of 36 per cent. The major locations of nominated chef positions for which 457 visas were granted in 2007–08 were New South Wales (29.4 per cent), Victoria (26.4 per cent) and Western Australia (WA) (19.9 per cent).

Welders (first class) made up two per cent of all 457 grants in 2007–08, the eighth largest occupation group. A total of 1,290 457 visas were granted to welders in 2007–08, compared to 920 in 2006–07, an increase of 40 per cent. The major locations of nominated welding positions for which 457 visas were granted in 2007–08 were WA (37.2 per cent) and Queensland (31.0 per cent). Motor mechanics made up two per cent of all 457 grants in 2007–08, the thirteenth largest occupation group. A total of 1,030 457 visas were granted to mechanics in 2007–08, compared to 670 in 2006–07, an increase of 54 per cent. The major locations of nominated motor mechanic positions for which 457 visas were granted in 2007–08 were WA (39.8 per cent) and Queensland (30.1 per cent). Welders and motor mechanics on temporary visas were thus heavily concentrated in the states with relatively intense resource sector activity.[18]

Table 2 shows the number of 457 primary visa holders in trades occupations who were in Australia as of July 2008. The five largest trades occupations among 457 visa holders accounted for 8,870 (12 per cent) of all 457 visa holders in Australia as of July 2008. More than half (56 per cent) were located in Western Australia and Queensland. Welders, metal fabricators and motor mechanics were particularly strongly concentrated in these two states, once again suggesting specific skills have been sourced by mining and related construction companies located there.

In summary, it is difficult to gain a clear picture of the flows of trades workers on 457 visas. However, it can be seen that annual visa grants in trades occupations have reached close to 9000 annually as of 2007–08. Further, more detailed analysis below (see Figure 2) suggests that this movement is becoming significant in relation to the level of trade training in Australia. We now examine the implications for trade training in Australia.

TEMPORARY SKILLED MIGRATION FLOWS AND APPRENTICE TRAINING

The most important measure of the level of investment in domestic apprentice training is the training rate. This is the ratio of apprentices in training at a point in time to the stock of tradespersons employed. Figure 1 shows the training rate of apprentices in Australia from 1974 to 2007. The training rate is highly cyclical with the peaks largely reflecting the effect of resource booms and associated infrastructure investment. If skills shortages are acute then we might expect that employers would respond by increasing their investment in apprentice training. There has indeed been a sustained training response to recent skill shortages and the under-investment in training that occurred over eleven successive years, up to and including 2003.[19]

As Figure 1 indicates the training rate in 2006 and 2007 exceeded previous peaks in training rates. However, these recent rates are not markedly above previous peaks. A

Table 2: Selected top 15 nominated occupations for primary 457 visa holders in Australia as at 2 July 2008 by location of the nominated position

Nominated occupation	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Not specified	Total
Chef	70	620	90	560	30	20	340	360	20	2,090
Cook	60	510	40	330	90	20	490	390	<5	1,940
Welder (first class)	<5	170	20	590	120	10	280	690	10	1,880
Metal fabricator	10	110	90	440	70	<5	130	710	<5	1,570
Motor mechanic	20	170	80	380	40	0	200	500	<5	1,390
Sub-total trades	160	1,580	320	2,300	350	50	1,440	2,650	30	8,870
Other occupations	720	25,350	960	11,190	2,140	400	12,340	11,790	630	65,530
Total	880	26,930	1,280	13,490	2,490	450	13,780	14,440	660	74,400

Source: DIAC 2008, Report Id BR0008, Table 1.19

Notes: ACT is Australian Capital Territory; NSW is New South Wales; Qld is Queensland; SA is South Australia; Tas is Tasmania; Vic is Victoria; WA is Western Australia

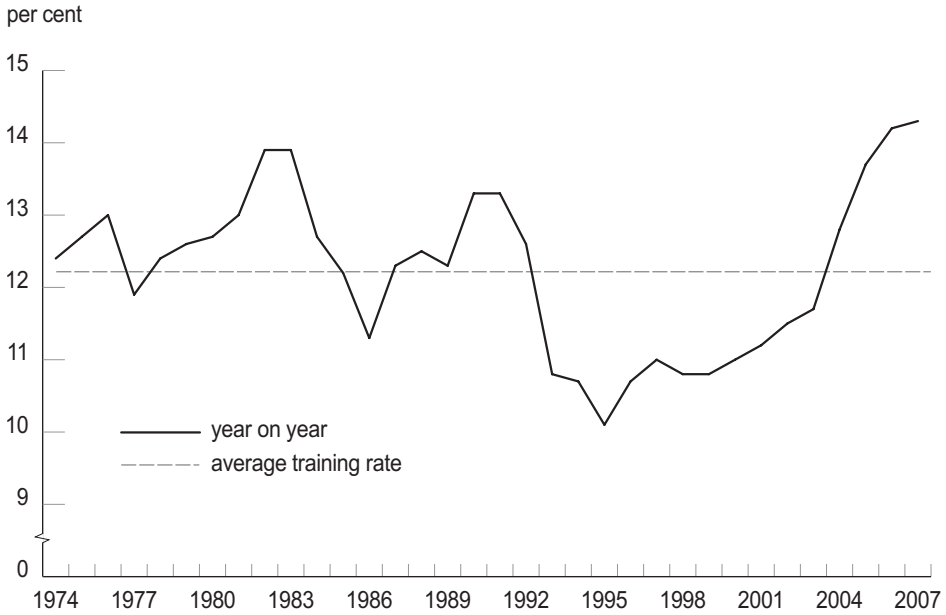
somewhat stronger response might have been anticipated given the evidence regarding the recent persistent rise in the demand for skilled labour in the economy. At the most aggregate level this demand is indicated by the fact that the current labour force participation rate (ratio of labour force to population aged 15 to 64) is at an historical high.[20]

As indicated above, the 457 visa program supplies significant numbers of skilled tradespersons into Australian labour markets. As an illustration available data from 2004–05 on immigration and apprenticeships are juxtaposed in Figure 2, below. These data enable an approximate comparison of the three main sources of entry to the skilled trades' workforce: completions from domestic apprentice training, temporary entry 457 visas and permanent migration.

The number of 457 visa approvals for metal tradespersons in 2004–05 was equivalent to 36.8 per cent of the number of metal trade apprenticeships completed in 2005. The figure for food tradespersons was 28.9 per cent, 16.0 per cent for electrical and 7.5 per cent for automotive trades. The numbers of 457 approvals and migrant settler arrivals were approximately equivalent in food and metal trades. It is clear that temporary labour flows constitute a large proportion of the annual flow of new entrants to trades labour markets.

The growth in the training rate and the strong inflows of temporary trades workers both reflect the shortage of trade skills. While the training rate and the 457 arrivals both work to alleviate shortages, the former only do so in the medium to long term. Thus close attention needs to be paid that temporary flows do not undermine

Figure 1: Apprentice training rate Australia, 1974 to 2007



Source: Toner 2005 in note 19, updated.
Note: The apprentice training rate is the ratio of apprentices in training at a point in time to the stock of tradespersons employed.

commitment to training. There is likely to be a threshold at which expanding the labour supply through temporary arrivals reduces or constrains the incentive and necessity of employers to invest in training. To the extent that temporary flows substitute for domestically trained labour this important new labour source may constrain the propensity of firms to sustain their investment in apprenticeship training. At the same time, the proportion of migrants who are likely to settle in a particular location, and develop the local context skills that enhance the transfer of their skills through training, is likely to decrease as the proportion of temporary entrants among migrant tradespersons rises. To understand why, we need to consider the trade-training arrangements in place in Australia.

THE LEVEL OF INVESTMENT IN TRADES' SKILL FORMATION

An elementary but crucial point of difference in the skill formation process between trades and the other three major occupational groups (Managers and Administrators, Professionals, and Associate Professionals) involved in the 457 program is that the decision to invest in entry-level training in trade occupations is effectively the prerogative of employers. In other words, the training rate is determined primarily by employers of tradespersons. An apprenticeship entails a contract of training in which an employer offers to provide a specified scope of on-the-job training and agrees to release the apprentice for a specified period of off-the-job training in a technical college. The typical duration of such training is four years. A contract of training is also a contract of employment and apprenticeship training is contingent solely upon such an offer of employment.

This contrasts with the decision to invest in managerial, professional and associate professional occupations, entry to which is dependent upon completion of training at university or Technical and Further Education colleges (TAFEs). The decision to invest in such training is made by individuals seeking entry to these occupations. The cost and associated risk of such training is borne by them and the taxpayer.

Another obvious but crucial point of difference is that for an apprenticeship the cost of entry-level training, for much of the duration of training, is borne largely by the employer. It is generally agreed that over the course of a four-year apprenticeship, the cost of training exceeds the output of the apprentice over the first two years. In addition, around 30 per cent of apprentices will leave their apprenticeship before they complete. Employers of tradespersons thus confront a fundamental choice in sourcing labour that is generally not faced by employers of managers, professionals and associate professionals. This choice is either to incur the expense of a long and, possibly, uncertain investment in entry level training or to hire already trained tradespersons from the external labour market. Firms that incur the cost of training, at least in the first few years of training, are at a competitive disadvantage compared to those who avail themselves of TBE.

The key point is that an increase in an alternative supply of trades labour creates economic incentives for employers that may under-cut the need for a sustained period of investment in training apprentices.

REQUIREMENTS FOR TRAINING UNDER 457 VISA ARRANGEMENTS ARE UNCERTAIN

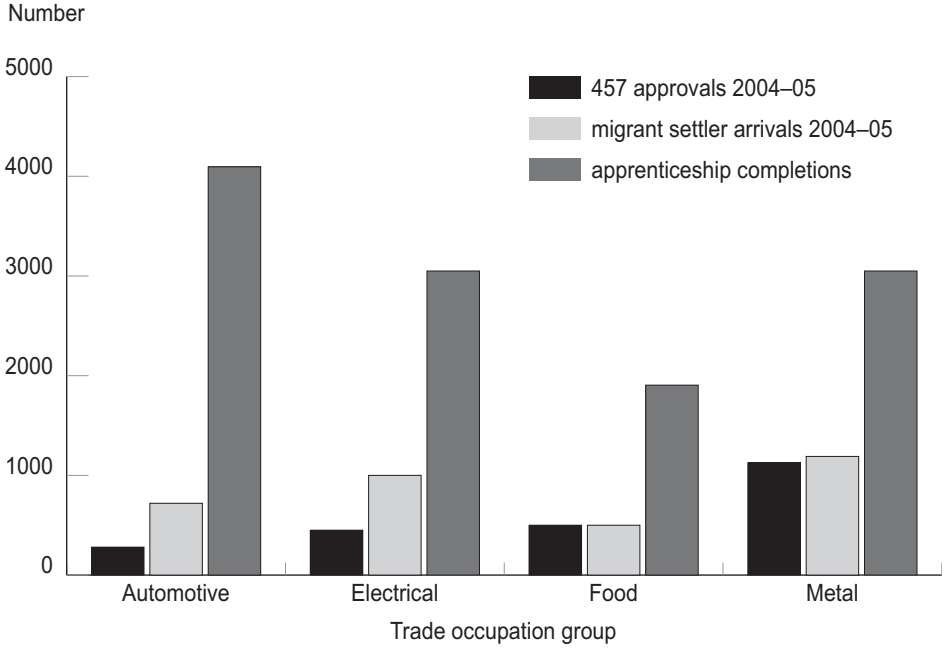
Given the context described above, it is of concern that there is no firm requirement for a business to invest in training as a prerequisite for availing itself of labour sourced through the 457 system. Businesses directly sponsoring 457 workers are only required to set out expenditure on training domestic

employees, provide an indication of the type of training provided and future training plans (Business Monitoring Form 1110). It is not clear what, if any, benchmarks have been used by DIAC to assess this information. These issues were acknowledged in October 2007, when organsiations engaging trades labour through 457 visa Labour Agreements had a formal training requirement imposed. These organisations have to ensure that 15 per cent of their permanent and contract trades workforce are apprentices. However, very few tradespersons enter via a Labour Agreement; in 2006–07 only 200 primary visas were issued for trades and related workers under the 457 Labour Agreement program.[21]

THE CAPACITY OF TEMPORARY MIGRANTS TO CONTRIBUTE TO TRAINING

The 457 program regulations include an expectation that temporary migrants contribute to training and technology transfer. However, there is uncertainty about the degree to which this occurs. Firstly, permanent migrants entering via the General Skilled Migration (GSM) stream require an equivalent Australian qualification (Australian Qualifications Framework [AQF] Certificate III or IV). The same standards do not apply in relation to 457 workers in trades occupations, even though 457s are an important migration pathway in relation to skills shortages along with GSM. The train-

Figure 2: Selected trade occupation groups, 457 visa approvals and settler arrivals, 2004–05 and traditional apprenticeship completions Australia 2005



Sources: Department of Immigration and Citizenship, National Centre for Vocational Education Research (unpublished data)

Notes: Automotive trades include motor mechanics; Electrical trades include electrical powerline tradespersons and general electricians; Food trades include cooks; Metals trades include metal fabricators, welders (first class) and fitters.

ing received in overseas locations may not encompass the breadth or depth of skills that are required for tradespersons trained in Australia.

Aside from differences in the breadth and depth of trade skills required across different countries there are also many different models across countries for acquiring trade related skills. In some countries these skills are acquired through fully off-the-job college training (such as the American community college system), or there may be firm-specific training delivered within a particular large enterprise (such as that within Japanese and Korean corporations), or the skills may be acquired informally through learning by doing. Each of these systems is quite distinct in terms of the workplace culture, systems of industrial relations and training model. It is unclear how workers from significantly different training systems and cultures participate in the Australian apprenticeship system.

Another issue relates to English language proficiency. The level of English required for 457 visa holders is only 4.5 under the International English Language Testing System (IELTS) used in Australia. This level is best described as rudimentary. Tradespersons with this level of English would have difficulty in transferring their skills to the local workforce.

In summary, these issues, particularly when combined, mean that access to trades skills through the 457 visa is likely to reduce the incentives for employers to invest in domestic training. It may also be that 457 trades workers are not able to contribute fully to apprentice training and transferring their skills to fellow workers.

TEMPORARY MIGRATION CONTRIBUTES TO NON-STANDARD EMPLOYMENT

An unknown proportion of 457 workers are employed through labour hire companies. Under the triangular relationship between labour hire workers, labour hire firms and employers, there is even less incentive for companies to invest in training for workers who are not their employees, and for labour hire firms to train workers who are essentially part of the casualised part of the labour force. A major Australian study on the effect of labour hire on vocational training found that 'labour hire firms generally rely upon the pool of skilled people in the labour market, and are not large providers of formalised training of the type involved in traditional apprenticeships'.[22]

CONCLUSION

A comprehensive and reliable answer to the question posed by Hugo cannot be provided at this stage. More quantitative and qualitative research is required to address these issues, as well as more comprehensive, consistent and accessible temporary migration data being provided by DIAC. There has been a rapid growth of inflows through temporary migration of trade occupations. This temporary intake now constitutes a new and major addition to the annual flow of new tradespersons onto the Australian labour market and introduces new considerations into employer calculations about investment in training. We have argued that, as a result, employers are likely to have less incentive to train Australian apprentices than would otherwise have been the case.

The risk is that the re-investment in training that has occurred in recent years may not be sustained for a sufficient period to compensate for the long period of underinvestment preceding it. This could have negative consequences for the supply of domestically-trained skilled tradespersons in the medium term.

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