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The role of vocational education and training in attracting foreign investment from multinational companies

Phillip Toner

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The role of vocational education and training in attracting foreign investment from multinational companies

Phillip Toner

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The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of ANTA or NCVER.

Publisher's note:

'Skilled' is defined for the purposes of this report as possessing a level of competency equivalent to those acquired through an Australian Qualification Framework certificate I-IV or diploma, which may have been achieved through formal training or on-the-job learning. These skills are referred to from here on as 'VET skills', while those possessing them, and the occupations they hold, are referred to as 'VET-skilled'.

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Key messages

This study examines the role of the Australian vocational education and training (VET) sector in attracting investment by multinational corporations. It also considers what changes to the VET system and the Australian economy could improve Australia's attractiveness for investment.

- ✧ Multinational corporations are increasingly significant in the global economy and in individual national development. This is due to the predominant role that multinational corporations play in technology development and transfer, and in the international trade of goods and services and financial transactions. However, multinational corporations do not necessarily bring benefits, particularly if the investment simply reflects changes in ownership.
- ✧ The survey results and the broader literature review found that decisions relating to investment by multinational corporations depend upon a multiplicity of factors. The case studies show that the quality of the domestic VET-skilled workforce is ranked equal third in importance out of 15 factors in the decision to locate the investment in Australia. However, only four of the 12 multinational corporations studied evaluated the local labour market and training system as part of the investment location decision-making process. The most important factors are proximity to customers and quality of infrastructure.
- ✧ The study also found that the skills of the local workforce are sufficiently developed to use the overseas-designed production technologies and overseas-designed products on which the local multinational corporation subsidiaries are particularly dependent. However, most of the firms experienced shortages of VET-skilled workers, and these are reported to adversely affect firm performance. Firms use a range of measures to redress their recruitment difficulties, including training their existing workforce, using labour hire and offering higher wages.
- ✧ Almost all the case study multinational corporations provided training through external providers to their employees, often in management and leadership. Three of the 12 firms in the sample 'found it necessary to assist or require external training suppliers to improve their performance'.
- ✧ Multinational corporation subsidiaries have a marked effect on their local suppliers, requiring improvements in product/service delivery times, quality and price. Many of the subsidiaries assist their suppliers to achieve these improvements through technology transfer and training.
- ✧ To attract more foreign investment in Australia, survey respondents suggest better overseas publicity of the current Australian VET system, and improving the literacy, numeracy and production knowledge of lower-level manufacturing workers.

Executive summary

The purpose of this research is to identify both the role of the existing stock of vocational education and training (VET) skills and the quality of training provided by the VET sector in attracting multinational corporation investment into Australia. Secondly, the research attempts to identify the impact of multinational corporations on the labour market and on local suppliers to these corporations. Finally, the study suggests improvements to the VET skills and training system and other aspects of the economy which could improve the attractiveness of Australia to multinational corporations.

There is a very considerable international literature on the factors which determine investments by multinational corporations and the economic impacts of these investments on national and regional economies. This literature is largely silent, however, on the role of vocational skills and training in attracting foreign direct investment¹ from multinational corporations and the impact these investments have on the VET-skilled workforce.

This study seeks to redress this deficiency through the collection of original data from those multinational corporations which have recently made initial investments or have significantly expanded existing investments. However, the findings should be regarded as preliminary, as the study is one of the first undertaken in Australia, and the survey (more properly regarded as a number of case studies) was limited to 12 firms. The firms surveyed were selected from industries in which multinational corporation investments are concentrated, and which are particularly intensive in their employment of VET-skilled occupations. These industries are mining; manufacturing; telecommunications; electricity, gas and water; and information technology. The results, therefore, should not be extrapolated to the population of multinational corporations in Australia. On the other hand, the survey results have considerable 'face validity', as they are consistent with the findings of other Australian and overseas studies.

Multinational corporations play an extremely important role in the growth of developed and, increasingly, of developing economies. One-third of global trade is intra-firm trade; that is, exports and imports among affiliates of multinational corporations. These corporations are dominant in industries in which research, innovation, marketing, capital intensity and economies of scale are critical aspects of competitive advantage.

Numerous benefits for countries have been identified arising from inflows of foreign direct investment. On the 'demand side', multinational corporations can provide access to global markets for the products of a particular country or region. They are especially important in strengthening the 'supply side' through the introduction of advanced technologies, quality systems and management practices. Other supply-side effects include training of the local workforce directly employed by the multinational corporation and the transfer of technologies and skills to local domestic suppliers of multinational corporations. These 'backward linkages'

¹ Foreign direct investment is defined as a holding of 10% or more of the ordinary shares or voting stock of an enterprise by a resident in one nation by a resident in another nation.

with domestic suppliers are crucial to the overall upgrading of an economy's workforce skills and technical capacities.

However, the literature finds that multinational corporation investment does not necessarily bring these benefits. Around 80% of multinational corporation investment is for the purpose of acquiring existing productive assets—mergers and acquisitions—not the development of completely new opportunities or so-called 'greenfield sites'. Mergers and acquisitions do not necessarily entail additional investment, technology transfer or expansion in employment.

The benefits of multinational corporation investment are also mediated by national policies intended to influence the behaviour of multinational corporation subsidiaries; for example, in the use of local inputs, workforce development, local research and development, technology transfer and exports. Government action is also crucial in influencing the 'absorptive capacity' of a national economy to attract and exploit foreign investment. The literature has identified the educational and skill levels of the workforce and the associated educational and scientific infrastructure as crucial in this absorptive capacity. Overall, a virtuous circle is evident, in that the higher the existing stock of education and skills in a country, the greater the preparedness of multinational corporations to invest in further skill upgrading.

Liberalisation of international capital flows, removing restrictions to foreign ownership, reduced transport costs and the information communications technology revolution have greatly increased the volume of multinational corporation investment and the mobility of this investment. The fact that multinational corporation plants are becoming increasingly 'footloose' means that the competitive advantages of countries are becoming increasingly important in the location of multinational corporation investments.

Among developed nations, Australia is especially dependent on foreign capital, and multinational corporations' share of Australian industry is one of the highest in Organisation for Economic Co-operation and Development (OECD) countries. Studies of multinational corporations in Australia find that, while they are, on average, larger and more innovation- and export-intensive than domestically owned firms, they are still heavily dependent on imported product design and production technologies. Compared with multinational corporation subsidiaries in other countries, the Australian branches are less export-intensive and less integrated into the global operations of the multinational corporation. This partly reflects the small size of the local market and the 'branch plant' status of these subsidiaries.

The survey confirms other findings that decisions relating to investment location made by multinational corporations depend upon a multiplicity of factors. The quality of the VET-skilled workforce is ranked equal third in importance (along with counter-attacking competitors in order to take market share) out of 15 location factors. The most important factors were proximity to markets and quality of infrastructure. These results have 'face' validity as they accord with the findings on location determinants in the broader literature on multinational corporations.

Three of the firms had evaluated the quality and availability of VET skills and the training system as part of the investment decision-making process.

Two of the firms found it necessary to adapt overseas products or processes to the skills of their local workforce. This suggests that, on the whole, the skills of the local workforce were sufficiently developed to use the overseas-designed production technologies and overseas-designed products on which the local multinational corporation subsidiaries are particularly dependent.

An important finding is that three-quarters of the case study firms over the last three years 'required Australian-based suppliers to upgrade their products and/or performance'. A wide range of changes were demanded of local suppliers by multinational corporation subsidiaries in areas of supply chain management, reduced price and improved product/service quality. Nearly

half of the firms required three or more of the listed changes. It would appear that multinational corporations are quite 'demanding customers'. Just as significant, is that half of the firms assisted their suppliers to achieve these outcomes.

Half of the firms agreed with the statement that their 'company has had a significant effect on the local labour market in which it operates'. These effects included increasing labour demand, wages and training opportunities.

Three-quarters of the firms reported VET-skilled labour shortages. The effect of these shortages was to increase costs, restrain output, and delay the introduction of new products. The high proportion of firms reporting skill shortages, along with their descriptions of the adverse affects of such shortages, reinforces the concerns expressed elsewhere about inadequate training rates in many VET-skilled occupations.

To make the VET system more attractive to foreign investment, the survey respondents recommended better overseas publicity of the current training system and improvements to literacy, numeracy and production knowledge of lower-level workers in manufacturing. Shortage of VET skills is clearly an issue which needs to be addressed. It is important to note, however, that vocational skills and training is only one among a number of important factors in investment location. The respondents also identified a broad range of other issues relating to trade union influence, taxation, volatile and over-valued exchange rates, and inadequate government incentives to multinational corporations to locate in Australia.

Background to the study

Scope of the study

The purpose of the research is to identify the role of the existing stock of vocational education and training (VET) skills and the quality of training provided by the VET sector in attracting multinational corporation investment into Australia. Secondly, the research attempts to identify the impact of multinational corporations on the labour market in which they operate and on local suppliers to the multinational corporations. Finally, the study identifies improvements to vocational skills and the training system along with other aspects of the economy which will improve the attractiveness of Australia to multinational corporations.

Multinational corporations have been the subject of intense international study over the last three decades with the focus primarily on the causes and effects of foreign investment and the role of multinational corporations as agents of globalisation. There has been little empirical work on the role of vocational skills in attracting multinational corporation investment or their impact on these skills and training institutions. Most of this work draws on developing country experience (Blomstrom, Globerman & Kokko 1999, p.12)

This research is intended to improve the capacity of the VET sector to respond to the needs of increasingly important foreign investment in the Australian economy. The results will also be of interest to federal and state government agencies involved in foreign investment attraction.

Research questions

The specific research questions for the project were:

- ✧ What is the significance of the quality and size of the Australian VET-skilled workforce in the decision-making process of multinational corporations to invest in Australia?
- ✧ What methods do overseas firms use to evaluate the quality and availability of VET skills and training institutions in Australia as part of this decision-making process?
- ✧ How does the quality and availability of the VET-skilled workforce and VET system compare with other developed and/or developing countries in which the company operates?
- ✧ To what extent do the overseas firms need to adapt their production processes, equipment, training methods and products or services to the skills of the Australian VET-skilled workforce?
- ✧ Have the firms introduced new technologies or work organisation techniques which have enhanced the skills of the VET-skilled workforce?
- ✧ What training has the VET-skilled workforce in these firms required since production commenced?

- ✧ Do the firms experience any skill shortages? What are their causes and how are they addressed?
- ✧ How could the VET system be changed to make it more attractive to foreign investment?

Project methodology

There are two principal elements to the methodology. The first is a review of Australian and overseas literature on the role of workforce skills, especially vocational skills, in attracting multinational corporation investment and the effect of this investment on workforce skills. Secondly, a mail survey of subsidiaries of multinational corporations was conducted. As noted earlier, there is a vast literature on investment location decision-making, including foreign direct investment. Surveys of firms' location decision-making have been a key method in these studies. This is because, compared with other methods, such as econometric analysis, surveys enable 'researchers to directly acquire information on factors important to the [location] decision, thus eliminating the need to make inferences from secondary data' (Barkley & McNamara 1994, p.24). Surveys also enable a ranking of the importance of factors involved in the location decision and the results are, in general, easy to interpret.

Based on a comparison of the factors nominated by survey respondents as being influential in their decision-making against 'objective' economic and social data, evaluations have been made of the validity of location surveys. These studies indicate that there is a reasonable correspondence between the factors nominated by respondents as being influential in the location decision-making and the actual characteristics of the regions in which the investment was located. The correspondence was especially high for larger firms, which it is presumed, devote more resources to the search process (Barkley & McNamara 1994, p.33). The average size of firms in the present study is large.

The firms surveyed consisted of multinational corporations which have been established or have undergone a major expansion of their existing investment in the last three years. The 3-year time limit was chosen on the basis that, given staff turnover in management personnel, this would increase the chance of finding personnel who were involved in the original decision to invest or significantly expand investment in Australia. The respondents are human resource, training or production managers in the multinational corporation subsidiaries. The survey was also restricted to firms in which the largest or predominant occupational group comprises VET-skilled occupations. To meet this condition, the survey was restricted to firms in industries which are known to have a high proportion of VET-skilled occupations in their workforce. These industries are mining; manufacturing; telecommunications; electricity, gas and water; and information technology industries.

Two departments of state development supported the study. These agencies are responsible for investment attraction either nationally, or in their respective states, and provided the researchers with company details which matched the proposed sample frame. Firms in the sample were contacted by the researchers or the state departments to identify their willingness to participate in the survey. Thirty-five firms either agreed to participate in the survey or to examine the survey instrument and subsequently determine if they would participate. At this initial telephone contact, over 20 of the 35 firms agreed to participate. Unfortunately, only 12 firms returned a completed survey. Multiple telephone calls were made to the remaining 23 firms to improve the response rate.

Definition of key terms

According to the United Nations' definition, foreign investment entails holdings of a variety of asset classes in a country by non-residents. The asset classes include direct; portfolio; derivatives; other assets; and reserve assets.² Direct investment 'reflects the objective of obtaining a lasting interest by a resident in one economy in an enterprise in another economy, and implies a significant degree of influence by the investor in the management of the enterprise. A direct investment relationship is established when a direct investor, who is a resident in one economy, holds 10% or more of the ordinary shares or voting stock of an enterprise in another economy' (ABS 2002).

The focus of this research, like that of international research, is direct foreign investment by multinational corporations, since this is the principal mechanism for multinational corporations establishing or acquiring foreign assets designed to produce goods and services. Multinational corporations are defined as 'enterprises ... which own or control production, distribution, services or other facilities outside the country in which they are headquartered' (Parisotto 1993, p.33).

Given that VET-skilled occupations, VET qualifications and vocational training systems are a focus of this study, the following formal definitions apply to these terms. For the purposes of this report VET-skilled occupations are defined as Australian Standard Classification of Occupations (ASCO) Major Group 3, *Associate professionals*, to Major Group 9, *Labourers and related workers*. VET qualifications are defined as an Australian Qualifications Framework (AQF) level of certificate I-IV or diploma. To avoid extensive definitions and use terminology considered appropriate to the intended respondents, the term 'skilled workforce' was used in the survey instrument when seeking data on the firms' VET-skilled workforce. The 'skilled workforce' was defined as 'jobs such as trades, maintenance, technicians, sales staff, production workers and office support etc.'. The skilled workforce is either trained off the job through TAFE/private training organisations or by on-the-job training. As defined here, the skilled workforce excludes jobs that typically require a degree for entry. It is believed this informal definition provides a reasonable correspondence with the more formal definition.

The VET system is defined as all providers, both public and private, which provide vocational training at an Australian Qualifications Framework level of certificate I-IV or diploma to the occupations defined above. The term 'VET skills' denotes the range of tasks and competencies acquired by VET-skilled occupations as a result of both formal training and on-the-job learning.

² Portfolio investment covers investment in equity and debt other than direct investment. Portfolio investment largely reflects overseas-managed funds buying an interest in the Australian stock market and Australian-based banks and firms funding expansion and acquisitions through foreign debt instruments. Derivatives are financial instruments used for speculative purposes or management of risk. Other assets include a diverse range of asset classes, such as real estate. Reserve assets are external financial assets held by the Reserve Bank and Treasury.

Significance of multinational corporations in the global economy

This chapter provides a brief review of the now extensive literature on multinational corporations, with a particular focus on the research questions which framed this study. Where possible, the literature review has sought to identify studies which also cover the survey questions, with a view to comparing and contrasting these results with the original data collected for this study.

Multinational corporations play an extremely important role in the growth of developed and, increasingly, of developing economies. One-third of global trade is intra-firm trade; that is, exports and imports among affiliates of multinational corporations (United Nations Conference on Trade and Development 2002, p.153). Multinational corporations are dominant in industries in which research, innovation, marketing, capital intensity and economies of scale are critical aspects of competitive advantage. (These competitive advantages and combinations of advantages, of course, differ depending on the type of industry and product.) Multinational corporations are dominant in industries such as information and computer technology; pharmaceuticals; motor vehicles; software; aircraft; defence equipment and processed foods. For example, multinational corporations with their headquarters in the United States perform about 50–60% of total private research and development conducted in the United States (Scheve & Slaughter 2003, p.18n). They are also well established in primary industries, especially minerals and oil and certain service industries, such as international transport, tourism, finance, insurance and other business services. With the privatisation of government utilities across the Organisation for Economic Co-operation and Development (OECD), they are also of increasing significance in many non-traded services, such as electricity and water (United Nations Conference on Trade and Development 2002, p.5).

Numerous benefits for countries have been identified arising from inflows of foreign direct investment. In summary, multinational corporations can provide ‘additional capital, technology, and managerial know-how ... along with access to global, regional and especially home-country markets’ (United Nations Conference on Trade and Development 2002, p.152). Apart from the demand-side benefits arising from access to established and new markets, multinational corporations are especially important in ‘strengthening the supply side’ of export and import substitution industries, when technologies and advanced organisational and management practices are introduced. These technologies and organisational practices are ‘often firm-specific, costly, and difficult ... to acquire independently’, other than through direct foreign investment. Other crucial effects on the supply side are ‘training of the local workforce’ employed directly by the multinational corporation and the transfer of technologies, skills and advanced work organisational practices to domestic suppliers of multinational corporations. These ‘backward linkages’ with domestic suppliers are crucial to the overall upgrading of an economy’s workforce skills and technical capacities. An important driver of this upskilling is the rigorous quality standards demanded by multinational corporations from suppliers. Multinational corporations are generally more demanding of their suppliers than domestic firms (Watanabe 1993, pp.138–40; United Nations Conference on Trade and Development 2002, p.160). Another key transmission mechanism for the transfer of advanced management and production techniques is when local

managers and other workers employed in multinational corporations leave to work in domestic firms or establish their own businesses.

As noted above, the training of affiliates' workforces and their local suppliers is commonly recognised in the literature as a key skill upgrading and technology transfer mechanism. There have, however, been few empirical studies focused on such training. (Notable exceptions are those by the Department of Trade and Industry [1995] and Thorburn, Langdale and Houghton [2002]. These are discussed in more detail below.)

Around 70 million people are employed directly by multinational corporations worldwide, or about 20% of the non-agricultural workforce in OECD countries (Parisotto 1993, p.33). Foreign direct investment labour productivity (firm output divided by the number of firm employees) is generally higher in multinational corporations and their affiliates compared with domestic firms. This is due in part to the larger average size of multinational corporations, their greater capital intensity of production and their concentration in more technically advanced industries. However, productivity differences remain, even controlling for a wide range of industry and firm size characteristics (Scheve & Slaughter 2003, p.18). Across the OECD in the late 1990s, labour productivity was 18% higher in multinational corporations than in domestic firms, but this masks considerable inter-country differences. The labour productivity of multinational corporations was 54% higher in the United Kingdom; 45% in the United States and 30% in Japan. For some countries, such as Ireland, the difference is around 1000% (United Nations Conference on Trade and Development 2002, derived from annex table A.I.5). Productivity differentials also give rise to large differences in wages between multinational corporations and domestic firms. In the United States the so-called 'multinational wage premium', ranges between 5–15% (Scheve & Slaughter 2003, p.17).

However, multinational corporation investment does not necessarily bring benefits. Firstly, around 80% of global foreign direct investment is for the purpose of mergers and acquisitions. Mergers and acquisitions 'do not really represent new productive investment, but simple changes in ownership', either by transferring assets from domestic to foreign owners or between foreign owners (Nadal 2000, p.3). By contrast with 'greenfield' investments, such transfers do not necessarily entail additional investment or expansion in activity and employment. In addition, other studies have found that the economic and employment effects of mergers and acquisitions depend on 'the motivations underlying the deal'. If mergers and acquisitions are aimed at 'product strengthening and geographic market expansion', they can be positive for the recipient economy (Hamill 1993, p.121). However, if by rationalising production, or if designed to reduce competition and cut costs, the merger or acquisition is intended to reduce industry or global overcapacity, the consequences for the local economy can be adverse (Hamill 1993, p.120). More fundamentally, if the 'focus' of an multinational corporation investment is 'solely on the static comparative advantages of a host country', be they raw materials or cheap labour, the benefits to the host country may be limited (United Nations Conference on Trade and Development 2002, p.152). These findings, which are common in the international literature, have resulted in the general conclusion that the benefits to a host economy of foreign direct investment depend not only on its 'volume, but on its quality' (Chudnovsky & Lopez 2001, p.3).

Overall, the literature suggests that it is the interplay between multinational corporation objectives and government policy in shaping or directing these objectives that is crucial in determining both the benefits a national economy reaps from foreign direct investment and the attractiveness of national economies for foreign direct investment. Chudnovsky and Lopez (2001, pp.10–11) provide a comprehensive list of the policies, mediated between multinational corporation and governments, which determine the benefits of foreign direct investment on the host economy. These government policies are designed to influence multinational corporation behaviour in relation to the extent of local purchasing or degree of backward linkages with local firms, level of exports, degree of technology transfer, capital investment, local research and development, and the level of training.

The finding that the benefits of foreign direct investment and the attraction of a national economy for foreign direct investment are mediated in important ways by the interaction of multinational corporation objectives and government policy is an important theme in this study, and is expanded below.

Recent patterns of foreign direct investment

Over the last two decades there has been a marked acceleration in the rate of growth of global foreign direct investment. Between 1991–1995 and 1996–2000, global foreign direct investment grew each year by 20% and 40% respectively. Most of this growth was in cross-border mergers and acquisitions, the value of which grew each year by 23% and 50% over the two periods. Over the same periods, annual global gross domestic product increased each year by 6.5% and 1.2% respectively (United Nations Conference on Trade and Development 2002, table I.1).

The principal driver of this acceleration has been the liberalisation of international capital flows and reduced restrictions on foreign ownership of economic assets. The information communication technology revolution and the large increase in global transport capacity have substantially removed the barriers to international trade and the problems of individual firms coordinating their international business operations. The privatisation of government assets has also created new opportunities over the last two decades for international asset trading.

The literature on the determinants of foreign direct investment has traditionally identified the major driver of foreign direct investment as the entry into new markets through the ‘horizontal’ strategy of establishing similar plants, producing similar products with similar technologies to service national markets. These plants are known as ‘multi-domestics’. In this strategy foreign direct investment is a substitute for international trade in goods and services (Gaston & Nelson 2001, p.7). A key feature of this horizontal pattern of foreign direct investment, which was established from the end of the Second World War to the early 1980s, was that around 90% of foreign direct investment outflows from developed countries were directed to other developed countries.

However, from the mid-1980s to the present, the pattern and determinants of foreign direct investment are evolving towards a ‘vertical disintegration’ of production. The three key features of this strategy are firstly, that the production process of a particular commodity is increasingly divided across nations to take advantage of international factor price differences, and differences in national technical and skill capabilities. (For example, the geographic separation of design/marketing from manufacturing functions which occurs in the clothing and consumer electronics industries). Secondly, these commodities are exported as a complete product or component for assembly or further processing, rather than being produced primarily for the domestic market (Scheve & Slaughter 2003, p.2). In this pattern, trade and foreign direct investment are complements. Thirdly, the international vertical disintegration of production has led to a shift in foreign direct investment from developed to developing economies. Multinational corporations seek to gain the advantages of both low production costs and growing internal market size in developing economies. For example, the share of employment in multinational corporations with a United States majority ownership in non-OECD Asia increased from 7.6% to 12% between 1989–1998 (Hanson, Mataloni & Slaughter 2001, table 1). Associated with this shift to an international division of labour of multinational corporation production has been the rationalisation of production facilities in many countries and their replacement with foreign direct investment focused solely on the distribution or wholesaling of multinational corporation products and services within host economies (Hanson, Mataloni & Slaughter 2001, p.10).

This shift in multinational corporation strategy has been facilitated by the decline in protectionism, which has lowered the barrier imports.

The labour market effects of foreign direct investment

Under the strategy of multi-domestics, where similar plants were established across nations producing similar products with similar technologies, the labour market effects were relatively homogeneous across countries. This was especially the case where developed economies were both the predominant source and recipient of the foreign direct investment. However, the rise of the vertical disintegration of production has major implications for the labour market effects on host economies.

There are two major labour market effects resulting from the new strategy of vertical disintegration and wholesaling. The first is the transfer of lower skilled production and assembly tasks from developed countries to labour-abundant countries and a reciprocal increase in the skill intensity of multinational corporation employment in developed countries as these countries 'produce ever increasingly high quality goods' (Gaston & Nelson 2001, p.8). The jobs transferred to developing countries are comparatively more skilled and higher-paid than the average in developing countries. The vertical disintegration of production thus leads to increased wage inequality in both developed and developing economies (Gaston & Nelson 2001, p.9). The key inference is that for 'developed countries, it seems clear that the less-skilled and non-unionised workers are at greater risk in the new global environment' (Gaston & Nelson 2001, p.10). The loss of low and middle skill jobs through this mechanism contributes to the well-known 'hollowing out the middle' in labour markets in developed countries. In particular, there has been a loss of production, trade and middle management occupations in the sectors of the economy which participate in international trade, especially manufacturing (Gregory 1993; Cully 2003). The obverse applies in developing countries where the growth of manufacturing has created very large productivity and wage differentials with the traditional agricultural sector (Feridhanusetyawan, Stahl & Toner 2001, p.496).

The second labour market effect is the loss of employment in host countries due to the rationalisation of global production to fewer sites. There are, of course, a number of different forms that such plant rationalisation and foreign direct investment can take, each with diverse labour market outcomes (table 1). The extreme example of this rationalisation is the replacement in many countries of existing production sites by distribution facilities (Hamill 1993, p.92). This is the development of a so-called 'marketing satellite' (table 1). This rationalisation is being driven by a number of factors, including the rapid growth in mergers and acquisitions, such as that occurring within the motor vehicle and pharmaceutical industries over the last decade. In addition, for many products, the 'minimum efficient scale of production' has increased substantially over the last two decades. This is partly a result of improvements in information technology enhancing the coordination of production and inventory control, and increasing the speed of manufacturing processes. Information technology has lifted the volume of production at which diseconomies of scale set in. Significantly lower transport costs also make it more feasible to ship final products and components to global markets. The increased scale of individual plants means that global markets are being serviced from fewer geographical sources of production within the multinational corporations system. (Brain 1999, pp.43–5, provides numerous examples of this increase in the minimum efficient scale of production.)

The final factor promoting the increased geographic concentration of production is the rapid growth of contract manufacturing. Contract manufacturing is common in the electronics and textile, clothing and footwear industries, where multinational corporations outsource manufacturing to large firms in developing economies and concentrate on their core competencies in marketing, design and research and development (United Nations Conference on Trade and Development 2002, pp.139–41).

A major consequence of these changes is that 'increased geographic concentration in industry [is] making it more difficult for smaller countries to access world knowledge and skills' (Thorburn,

Langdale & Houghton 2002, p.29, see also Tulder, van der Berghe & Miller 2001). These changes, are claimed by some to reinforce the case for governments to take a more active role in facilitating foreign direct investment.

It was noted earlier that there have been few studies of the role of VET skills in attracting foreign investment or the impact of multinational corporations on these skills and their training institutions. One important exception was a large-scale study of the effects of foreign direct investment in manufacturing in the United Kingdom (Department of Trade and Industry 1995). This study is unique, in that it not only questioned multinational corporations about the effect of their operations in a particular location, but also independently surveyed the effect of the multinational corporations on suppliers, competitors, customers and training institutions, amongst others.

Table 1: Simplified model of foreign direct investment types and their labour market effects

Type of foreign direct investment	Type of economic activity	Labour market effects
Horizontal FDI 'multi-domestics'	Subsidiaries produce most or all of the parent's product line, mostly for the domestic market. Low-to-medium R&D. Much of the product design and technology are imported from the parent HQ. Proximity to markets is a key location factor. The predominant form of foreign direct investment from the end of the Second World War to the early 1980s. Remaining global multi-domestics are mostly in consumer products industries. (Examples in Australia, Kellogg's, Shell, Electrolux, utility privatisations.)	Job security is uncertain given the shift to vertical disintegration of production. Broad range of occupations and skills generated from production/ technical to professional, accountant, marketing, management, scientific/engineering.
Marketing satellite	Primarily distribution and marketing functions and possibly servicing and maintenance. Many subsidiaries have been converted to such satellites as part of the new international division of labour with a focus on servicing the local market. (Examples in Australia, Nissan.) Some satellites may be highly successful in R&D, design and marketing but outsource manufacturing to developing countries. (Examples in Australia are Sunbeam, Billabong and Mambo.)	Primarily management, marketing, and logistics skills directly employed.
Rationalised manufacturer	Producing basic components or assembly 'screw-driver' operations. Possible upgrading through product widening and increased local content. Low R&D intensity.	Typically preceded by major job losses. Employment limited by restricted product range and high import content. Occupational structure and skills of direct employees depend on product type. Continued production depends on shifts in global relative production costs.
Product specialist	Subsidiary is responsible for development and production of a complete product or advanced key component in the multinational corporation's global product range. Medium-to-high R&D intensity. Much of the output is exported. (Example in Australia, Holden Engine Company, Bosch Automotive.)	Medium-to-high skill content depending on product. Broad range of occupations employed. Longer-term employment security.

Source: Adapted from Hamill (1993, pp.73–4)

The study found that multinational corporations identified the upskilling of their employees and importantly, their component and service suppliers, as a key strategic goal. Training was essential to achieve the high-quality standards and product development identified by the firms as their key competitive advantage (Department of Trade and Industry 1995, pp.24–30). For the multinational corporations 'competition [was] focused on the quality of products and the need to ensure that product design was responsive to the market' (Department of Trade and Industry 1995, p.iv). The great majority of multinational corporations and training providers identified the impact of multinational corporations as having increased the quantity ('encouraged local people to enter the labour market') and quality of the local labour force, lifted the local technological base and improved local training provision (Department of Trade and Industry 1995, pp.143–4).

One ‘transmission mechanism’ for improving local training provision was the general insistence by multinational corporations that training result in formal qualifications. This had an ‘an impact on standards of training through their commitment to technical qualifications’ (Department of Trade and Industry 1995, p.144). (In turn, a commitment to formal qualifications follows from the quality assurance systems operated by the multinational corporations. Similar results were found in Toner et al. [2003]). Over 60% of the multinational corporations ‘collaborated’ with further education colleges and training and enterprise councils for training purposes (Department of Trade and Industry 1995, p.153).

Determinants of foreign direct investment location

For over 100 years economists and economic geographers have studied the investment location decisions of firms, and over the last three decades, the focus of the research has shifted to foreign direct investment. Consequently, there is a vast literature on this topic. The key factors in foreign direct investment location decision-making from the review of the literature and meta-reviews are given in table 2.

Table 2: Determinants of foreign direct investment

Proximity to markets/customers	Proximity to suppliers
Quality of infrastructure (utilities, telecommunications; transport)	Legal framework (industrial relations, company and intellectual property laws)
Quantity and quality of skilled labour	Proximity to raw materials
Quality of training system	Government incentives to locate
Quality of life (expatriate managers and staff)	Wage costs
Establishment costs (land, construction costs)	Taxation rates
Counterattack against competitors	Political stability
Source: Watanabe (1993, p.131); Barkley and McNamara (1994); Department of Trade and Industry (1995, pp.24–32); Nicholas, Gray and Purcell (1999, p.6); United Nations Conference on Trade and Development (2002); MacCarthy and Atthirawong (2003)	

The other key finding from the literature is that the ranking of these factors by multinational corporations in terms of importance in their decision-making process is strongly dependent on the type of industry or product that is the subject of the investment (MacCarthy & Atthirawong 2003, p.804). For example, for products such as textiles, clothing and footwear, low labour costs have much higher priority than research- and skill-intensive activities such as pharmaceuticals. Access to raw materials is obviously of great concern to the mineral processing industry, but irrelevant for the finance and insurance industry.

Role of government in attracting foreign investment

It was noted earlier that government policies have an important role in mediating the benefits nations receive from foreign direct investment. Equally, government policies have an important influence in attracting foreign direct investment or affecting the investment location decision-making of multinational corporations. Governments directly or indirectly influence most of the key factors identified earlier as important in attracting foreign investment.

Indeed, the shift in multinational corporation strategy towards the vertical disintegration of production is generally argued to have increased the importance of government action in multinational corporations decision-making criteria over investment location and to have made successful investment attraction an even more important function of government. John Dunning (1990, p.30), a leading researcher on multinational corporations, has commented that ‘the

competitive advantages of countries are becoming a more important determinant of the extent and pattern of the international allocation of economic activity'. Dunning also strongly emphasises the key role of government in directly or indirectly influencing the competitiveness of nations. An essential aspect in the maintenance of high living standards is the ability of governments to attract the high-skilled functions in the multinational corporation's international division of labour. One recent meta-analysis of investment location studies concluded that 'the quality of the labour force is an increasingly critical issue and is found to be significant in many studies ... as it may affect productivity, quality, waste and rework' (MacCarthy & Atthirawong 2003, p.814).

In the literature, the effect of government action in creating attractive conditions for foreign investment and maximising the gains from such investments is described as influencing the 'absorptive capacity' of a national economy (Keller 1996). In other words, absorptive capacity is the ability 'to assimilate and take advantage of foreign technology inputs' and foreign capital (Chudnovsky & Lopez 2001, p.6). The literature has identified the educational and skill levels of the workforce and the associated educational and scientific infrastructure as crucial in this absorptive capacity. Overall, a virtuous circle is evident, in that the higher the existing stock of education and skills in a country, the greater the preparedness of multinational corporations to invest in further skill upgrading (United Nations Conference on Trade and Development 2002, p.152; see also Blomstrom, Globerman & Kokko 1999, p.12).

Finally, it is also clear there are limits on the capacity of governments to encourage multinational corporations to expand local absorptive capacity through technology transfer and training. It is necessary to ensure a balance between the costs of government expenditure in developing absorptive capacity and the benefits to the national economy from a prospective multinational corporation investment. A judicious balance is also required in terms of maximising the benefits to a local economy from foreign direct investment, and imposing 'counterproductive' cost burdens 'discouraging investments' from multinational corporations (Blomstrom, Globerman & Kokko 1999, p.18).

The role of foreign investment in Australia

There are around 2350 foreign affiliates in the Australian economy and another 700 multinational corporations whose global parent is based in Australia (United Nations Conference on Trade and Development 2002, table A.I.3). Surprisingly, there has been little research on multinational corporations in the Australian economy over the last 15 years (Thorburn, Langdale & Houghton 2002, p.14). This is partly due to the overwhelming weight of government and academic policy favourable to free trade and foreign investment. This near consensus has led to a virtual deregulation of controls on foreign direct investment over the last two decades, so that government policy 'is largely neutral as between foreign and domestic investors' (Hill & McKern 1997 pp.221-2).

Detailed official Australian Bureau of Statistics (ABS) data on foreign investment have only recently become available after the last release some decades ago (ABS 2003). The findings of relevance to the present study are that foreign investment is particularly important in mining, manufacturing and electricity gas and water. Foreign investment accounts for 45%, 34% and 21% respectively of total value-added in these industries. It accounts for a substantially smaller share of employment in these industries, reflecting the higher productivity of multinational corporations. The average firm size of foreign-owned enterprises in these industries is also larger than locally owned firms. Eighteen per cent of foreign-owned multinational corporations operating in Australia have 100 or more employees. Only 1% of all firms operating in Australia have 100 or more employees (Industry Commission, Department of Industry, Science and Tourism 1997, tables 3.23, 2.1).

This section draws on three large-scale studies of multinational corporations in Australia by Nicholas, Gray and Purcell (1999), Thorburn, Langdale and Houghton (2002) and Nicholas, Sammartino and Martin (2003). The studies provide a contrasting, but complementary analysis of the role of multinational corporations in Australia. Thorburn, Langdale and Houghton (2002) confirm the international literature on the importance of multinational corporations in economic development, although Nicholas, Sammartino and Martin (2003) find that the benefits to Australia from the presence of multinational corporations could be greater if the subsidiaries were more integrated into the parent's global network and were more important in the parent's innovation-related activities. Nicholas, Gray and Purcell (1999) compared the determinants of investment location of Japanese multinational corporations in Australia and the Asia-Pacific.

Nicholas, Gray and Purcell (1999) surveyed chief executive officers and international directors from Japanese multinational corporations. The key findings are that Australia was rated the least attractive investment location amongst the larger Asia-Pacific nations. However, the results are somewhat suspect as few differences between Australia and the Asia-Pacific nations in the ratings of the 14 investment factors were statistically significant (Nicholas, Gray & Purcell 1999, table 4). It is also the case that some of the ratings lack plausibility. For example, the ratings of Australia and Indonesia for 'political stability' were nearly identical.

Nevertheless, two findings are of interest to the present study. The first is that the chief reason for investing overseas for the Japanese firms was 'size of the market' in the recipient country. Also rated highly was infrastructure quality and labour costs. 'Labour skills' achieved a middle rank. These results are broadly compatible with the findings in the present study. Secondly, government 'policy variables were all of medium-low importance' with 'non-policy ... ranked as the most important reasons for investing in the region' (Nicholas, Gray & Purcell 1999, p.7). Government policy variables were factors such as tax rates, import duty exemptions, payroll tax exemptions, loans and land donations. This finding was also reproduced in the present study.

One of the few recent large-scale studies of multinational corporations—that of Thorburn, Langdale and Houghton (1999)—in Australia confirmed many of the findings of the broader international literature. The study had similar research questions and methodology to the Department of Trade and Industry study (1995) referred to above. Firstly, multinational corporations have a key role in the Australian economy, in 1999 accounting for 17.4% of gross domestic product (United Nations Conference on Trade and Development 2002, table A.I.6). However, this aggregate contribution masks their dominance in capital, innovation or marketing-intensive sectors such as motor vehicles, electrical/electronic appliances, pharmaceuticals, information technology, telecommunications, aerospace and mining (Thorburn, Langdale & Houghton 1999, p.12). Australia is unusual amongst OECD nations as it is a net importer of foreign direct investment capital with the ratio of foreign direct investment inflows exceeding outflows over the last 15 years by a ratio of up to three to one (United Nations Conference on Trade and Development 2002, table B.1). Within the OECD, Australia has the fifth highest share of domestic manufacturing assets owned by multinational corporations (Thorburn, Langdale & Houghton 1999, pp.39–40).

Secondly, mergers and acquisitions comprise the primary form of foreign direct investment, accounting for around 85% of foreign direct investment, which is higher than the international average (Thorburn, Langdale & Houghton 1999, p.41). The implication of this is that the direct employment effects of these investments 'may be more muted' compared with greenfield investments (Thorburn, Langdale & Houghton 1999, p.50).

Thirdly, multinational corporations are critical in technology development and transfer, accounting for 47% of research and development in manufacturing (Thorburn, Langdale & Houghton 1999, p.47). But multinational corporations rely much more on in-house research and development and have fewer links with other parts of the Australian national system of innovation, such as universities and co-operative research centres. Moreover, compared with

domestic firms, multinational corporation investment in new knowledge is focused more on development than research, that is to say, it is oriented to developing and adapting to local conditions the existing global range of products and services provided by the multinational corporation (Thorburn, Langdale & Houghton 1999, pp.46–7).

Fourthly, multinational corporations play a crucial role in ‘exposing Australia to global training and skill development’ (Thorburn, Langdale & Houghton 1999, p.79). They are also much more important than domestic firms in transferring technologies and higher product quality standards to their domestic suppliers (Thorburn, Langdale & Houghton 1999, p.56). The report notes the links many multinational corporations have to technical and further education (TAFE) (Thorburn, Langdale & Houghton 1999, p.70).

Fifthly, like the Department of Trade and Industry (1995), the report notes the pressures on multinational corporations which have led them to move their existing and prospective ‘manufacturing operations offshore’ (Thorburn, Langdale & Houghton 1999, p.72). As a result, ‘many multinational corporations have established only sales and marketing offices’ (Thorburn, Langdale & Houghton 1999, p.71). This is consistent with the findings on the shift in the purpose of foreign direct investment to the creation of ‘marketing satellites’ or ‘rationalized manufacturers’ in many developed countries.

Finally, the report emphasises the importance of government policy in developing absorptive capacity to ‘encourage [multinational corporations] to move beyond sales and marketing offices’ to establish ‘knowledge-intensive activities’ and to ‘form strong links with local organisations in the supply chain’ (Thorburn, Langdale & Houghton 1999, p.76).

Nicholas, Sammartino and Martin (2003) undertook a large-scale survey of the chief executive officers of foreign-owned multinational corporations operating in Australia. The survey examined how multinational corporations benefit Australia, with the major criteria related to the degree of integration of the local subsidiary into the parent’s global network, and the transfer of technologies and skills between the local subsidiary and parent. The overall conclusion was that:

Relatively few foreign subsidiaries were active subsidiaries, making significant product changes, investing in R&D, participating in regional and global networks, learning from their Australian experience and applying this learning overseas. We estimate that only 20% of the subsidiaries could be said to be active. (Nicholas, Sammartino & Martin 2003, p.22)

These results, on first appearance, stand in contrast to the important role of multinational corporations in technology transfer, exports, skill development and overall economic development which is highlighted in the broader literature on multinational corporations. The results of the study on the one hand, and the broader literature on the other, can be reconciled on the basis that, compared with indigenous Australian firms, multinational corporation subsidiaries are, on average, larger in terms of output and employment and have higher propensity to undertake research and development and exports. Nicholas, Sammartino and Martin (2003) also confirm the findings of the broader literature that the level of benefit from multinational corporation investment in any particular country depends on a broad range of variables and is not uniform across countries.

Survey results

This chapter presents a brief description and analysis of the survey results. The survey sample is small, and accordingly, the results should not be extrapolated to the population of multinational corporations in Australia. Nonetheless, the results are consistent with the findings of other studies of multinational corporation investment determinants and of the effects of multinational corporations on regional and national economies. The survey instrument covered a broad range of issues related to the labour market effects of multinational corporations, their role in upgrading local firms, use of external training organisations, the skill shortages they experience and how they redress them, and the factors leading to the initial decision to invest or expand investments in Australia.

Survey firm characteristics

Of the 12 firms in the survey the average level of employment per firm in Australia was 536 employees, with the smallest firm having 34 employees and the largest 2500.

A wide range of industries was covered by the sample (table 3).

Table 3: Industry composition of sample

Industry	Number of firms
Food processing	3
Minerals processing	2
Timbre products	2
Utilities	1
Mining	1
Computer assembly	1
Software (telecommunications)	1
Chemicals	1

The firms had a high export propensity and intensity. Export propensity is the share of firms in the industry which export, and intensity is the share of output exported. This reflects the large firm size and the industry classification of the firms.³ Five of the 12 firms exported. Amongst the firms which exported, exports accounted, on average, for 49% of sales. Exports ranged from 90% of sales for a mineral processing firm, to just 5% for a food processing firm. The comparatively high level of exports is also consistent with the literature on multinational corporations.

3 It is well established that larger firms, and firms in agriculture, mining, manufacturing and wholesale industries have a particularly high export propensity and intensity. The export propensity of Australian manufacturing industry is around 20% compared to 8.2% for all industries (Industry Commission, Department of Industry, Science and Tourism 1997, tables 3.155, 3.156).

All but one of the firms had a majority of VET-skilled occupations in their workforce. The average share of such occupations was 83%, with the range in the sample varying from a low of 47% to a high of 95%. The two largest occupational groups in the sample were production workers and technician/trade, comprising 41% and 21% respectively of the average occupational structure (table 4).

Table 4: Occupational structure of sample firms (average distribution, %)

Occupation	Average % of workforce
Production worker	41
Technical/trade	21
Managerial/professional	17
Clerical	9
Sales	6
Other	6

The labour market and multinational corporations

Three of the 12 firms evaluated the quality and quantity of the skilled VET-skilled labour force and VET training institutions prior to the decision to invest in Australia or expand existing operations. Where information was sought, it was obtained from industry associations, government agencies, private consultants, and personnel within the company.

The reasons given by those firms who did not evaluate the potential labour force were that the investments took the form of expanding existing operations or acquiring an existing business. One respondent who was a human resources manager in a multinational corporation subsidiary with 400 local employees noted that the subsidiary acquired in 1997 had a 'long standing operating history ... as part of different companies. This has meant continued access to [an] appropriately skilled workforce and to managers with [a] strong understanding of labour force requirements'.

The respondents were also asked to comment 'on the quality of the skilled workforce ... compared [with] similar overseas plants operated' by the company. Half of the respondents were in a position to provide such comparisons. The respondents were about evenly split between those who were critical of the local workforce and those who rated their workforce as equal to or better than those in equivalent overseas plants of the company. One respondent noted the presence of 'solid IT skills' in the firm and another described how their subsidiary 'is part of an international operation producing identical products with identical processes' and that the performance of the Australian plant is 'benchmarked' against five other global plants. The local plant manager noted that, in these comparisons, 'our staff compare favourably'. One manager in a food processing business commented that the local workforce had 'equal and in many cases superior skills'. However, two firms were critical of local workers compared with their overseas counterparts. Their local VET-skilled workforce was described variously as 'whiney and lazy' and 'blue collar workers' as 'lacking flexibility and multiskilling'.

Adapting overseas production processes

Only two of the 12 firms found it necessary to adapt overseas products and processes to 'match or fit with the skill level of the workforce'. These results are consistent with the findings of Nicholas, Sammartino and Martin (2003) in relation to the low proportion of multinational corporations adapting products and processes to local conditions. This suggests that the skills of the local workforce were sufficiently developed to use the overseas-designed production

technologies and products on which the local multinational corporation subsidiaries are particularly dependent. It is possible that a reason for most of the firms not adapting products and processes to local conditions is that the products and processes selected for Australia were culturally attuned to local production techniques and customer needs.

The reasons advanced by the two firms who adapted overseas products and/or made changes relate to regulatory requirements, such as occupational health and safety, the non-availability locally of certain inputs to production, and industrial relations provisions. This final reason included differences in the deployment of labour between the local and foreign subsidiaries in terms of workplace provisions for multiskilling, shift provisions and holidays.

Upgrading of local suppliers

An important finding is that nine of the 12 firms over the last three years 'required Australian-based suppliers to upgrade their products and/or performance'. A wide range of changes was demanded of local suppliers relating to price, quality, logistics and production technology (table 5).

Not only did most of the firms demand changes of suppliers, five of the 12 firms in the survey required three or more of the listed changes. It would appear that multinational corporations are indeed quite 'demanding customers'.

Table 5: Number of survey firms requiring changes of domestic suppliers

Changes in product/performance	Number of all survey firms
Supply chain management	7
Reduce price	6
Product/service quality	5
Production technology	3

It is possible that these results overstate the extent of 'upgrading' demanded of local suppliers. Some of the changes required of suppliers may have been more concerned with insisting that suppliers conform with a particular multinational corporation's business practices or product specifications, rather than representing a genuine improvement in products/services involving some form of technological upgrading of products or business activity. While the results may account for some of these 'upgrades', nevertheless it is believed that the majority of changes required by the multinational corporations involve an improvement in the quality of the product or business practice of local suppliers. Other studies have found that Japanese multinational corporations have been successful in transferring practices such as 'just in time' and quality assurance to Australian subcontractors and these practices confer 'on Japanese multinational enterprises ... a major competitive advantage' (Nicholas & Purcell 1998, p.2).

Another important finding is that most of the firms requiring that suppliers upgrade their products/services assisted their suppliers to achieve these outcomes. Half of the firms provided such assistance. Examples of assistance provided include:

- ✧ 'feedback on performance and training around needs and expectations'
- ✧ 'technology transfer'
- ✧ 'stock management'
- ✧ 'specific advice and guidance'
- ✧ 'informal skills transfer'

- ✧ ‘training via specialised staff sourced from Germany and licensing of certain formulas and production techniques’
- ✧ ‘in-plant trials’.

These results are consistent with the results of the survey conducted by the Department of Trade and Industry (1995) and the broader literature regarding the key role of multinational corporations in upgrading the capacity of local suppliers by imposing rigorous quality assurance and providing technology transfer.

Local labour market impacts of multinational corporations

In addition to their impact on domestic suppliers, firms were also asked to consider whether their ‘company has had a significant effect on the local labour market in which it operates’. Six of the 12 firms agreed their firm had made such an impact. This result is partly a function of the regional location of many of the firms in the sample, in turn reflecting the nature of their product. Most of the firms were mining, food processing, mineral processing, or timber product producers. The result is also a function of the large average size of firms in the sample. It would be expected that large firms exercise a notable influence in regional locations. The principal local labour effects of the firms were:

- ✧ Four firms stated that they had significantly increased labour demand and wages.
- ✧ A number of firms noted they were the dominant regional employer.
- ✧ Given the better wages and conditions they offered, one multinational corporation noted their ability to attract the most competent members of the local labour force. This was potentially a problem for other local firms, as the respondent noted that all manufacturing firms, including their own, are training an insufficient number of apprentices.
- ✧ Two firms emphasised the training opportunities they provided.
- ✧ One large food processing firm with several establishments in different locations noted that some ‘town economies are dependent on our presence’.
- ✧ One firm observed that their plant closures had reduced the local supply of skilled labour as their former employees had moved to metropolitan areas.

Use of external training

Almost all of the firms used external training providers (TAFE/private providers), with 11 of the 12 firms reporting such use over the previous 12 months. A wide range of skill needs was addressed in this training, but a clear pattern was evident, with eight firms requiring ‘management’ or ‘leadership’ training. From the description of the training provided by respondents, most of this training was directed at production supervisor and foreperson roles, not senior management. Five firms reported external training in occupational health and safety, and four firms sought training in information technology.

As with the earlier findings regarding external suppliers, the multinational corporations required external trainers to improve their performance. Three firms ‘found it necessary to assist or require external training suppliers to improve their performance’. The changes required of the training providers included adapting training to the firm’s ‘business context’ or ‘management style’ or providing more ‘flexibility’. One firm required TAFE to change its training as the ‘TAFE-certified course did not meet our needs to teach production workers or supervisors how to operate in the company’s environment’.

This finding is also consistent with other research which finds that larger firms have a high propensity to consult with training suppliers and to have training customised to their needs

(Toner et al. 2003). This is because larger firms have the internal resources to manage such consultations and require a sufficient quantity of training to make it economic for training providers to customise their courses and to invest in teacher and equipment upgrading. It will be recalled that the average level of employment in the firms surveyed was 536 persons.

VET labour shortages

Nine firms reported that, over the previous three years, the ‘company experienced difficulties recruiting a suitable skilled workforce’. A variety of VET-skilled and other occupations were identified as being in short supply, including supervisors, trades, technicians, production workers, logistics, research and development officers and information technology specialists. Reasons advanced for these shortages include:

- ✧ geographical isolation
- ✧ pace of change in information technology
- ✧ inexperience of young workers and resistance to change of older workers
- ✧ import competition driving experienced workers out of the industry
- ✧ the shift by one firm from manufacturing to importing, thus reducing career paths
- ✧ difficulty in attracting personnel to meet demanding global customer base
- ✧ a small pool of skilled workers
- ✧ inadequate level of apprenticeship/middle management training by employers.

Firms use a range of measures to redress their recruitment difficulties (table 6). The most important methods to redress recruitment difficulties are training of the existing workforce, use of labour hire and offering higher wages. All but one of the firms with skill shortages use two or more methods to overcome recruitment difficulties. Only one firm used more than two methods.

Table 6: Firms’ response to VET labour shortages

Firms’ response	Number of firms
Train current workforce	7
Use labour hire	4
Offer higher wages	3
Recruit skilled labour from overseas	2
Increase overtime	0

Shortages of VET-skilled labour affect a number of aspects of firm performance. The most important effects of these shortages include:

- ✧ restricting output or sales
- ✧ longer lead times in developing new products
- ✧ increased costs directly through higher wages, or indirectly through costs arising from overseas recruitment
- ✧ increased stress on existing staff
- ✧ shortages of supervisors and frontline managers adversely affecting performance of production workers and reducing feedback to management on the performance of production systems.

Half of all firms reported that over the previous three years the ‘company experienced skill gaps in its workforce’. Skill gaps are particular skill sets which may apply to a single occupation or to a range of occupations. Skill gaps identified for production workers included literacy, numeracy, problem-solving, occupational health and safety and team work. Other gaps apply to specific software applications, mechanical instrumentation and logistics (manufacturing resource planning).

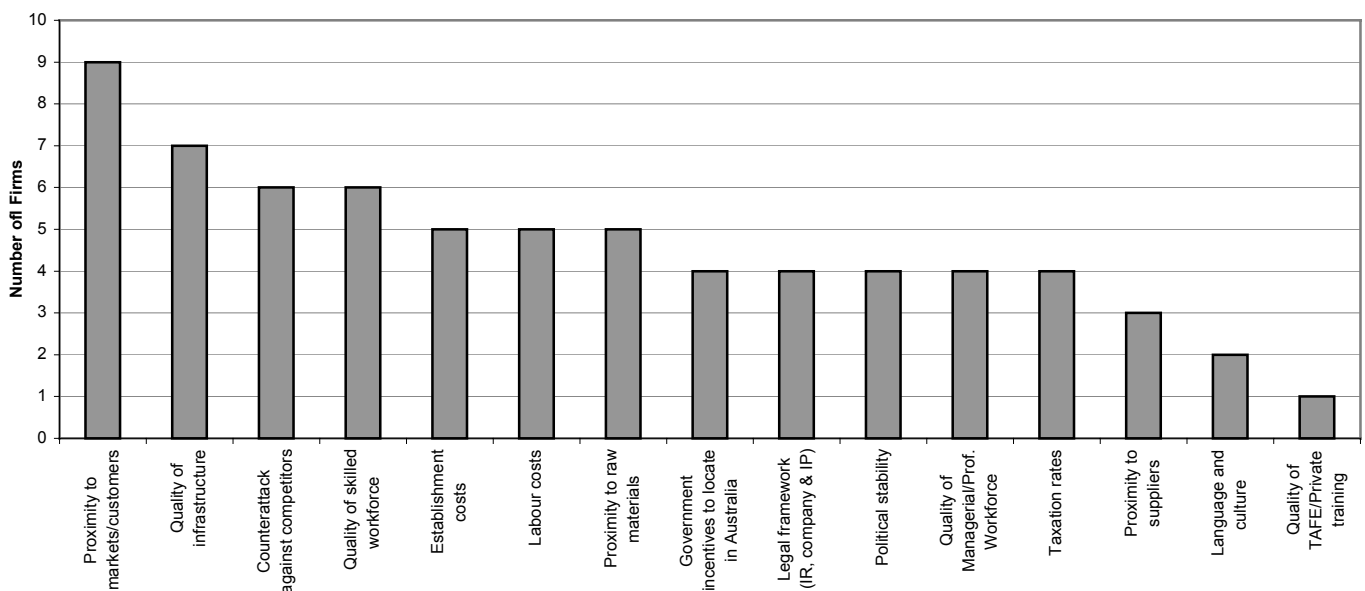
Firms identified three methods to overcome skill gaps, including training, improved recruitment and sourcing overseas labour.

Investment location determinants

Respondents were asked to rate 15 investment location factors in terms of their importance ‘in your company’s decision to recently invest or expand existing investments in Australia’. As explained in the literature review, the factors were derived from other surveys in which these factors were identified as important. A 4-point scale was used to rate each factor in descending order of priority, from critical, very important, important, not important. A ‘not applicable’ entry was also allowed. Ten of the 12 firms answered this question.

Only eight of the 15 factors were nominated as critical and these were nominated by just a few firms (table 7). The three factors nominated as critical by three respondents were proximity to markets/customers; proximity to raw materials; and quality of infrastructure. Quality of skilled VET labour was nominated as critical by just one in ten of the respondents. With only just over half of all factors receiving a critical rating and these nominated by a small minority of respondents, it was decided to produce a more balanced ‘scorecard’ by combining the two highest ratings (critical and very important) to identify the priority location factors (figure 1).

Figure 1: Ranking of investment location factors



The most important factor in deciding to invest or expand investment in Australia was proximity to markets/customers, nominated by nine respondents. Next in order of importance is quality of infrastructure (seven firms); counter-attack against competitors (six firms) and quality of skilled VET labour (six firms). In other words, quality of skilled VET-skilled labour is ranked equal third in importance out of the 15 factors. Quality of the skilled VET-skilled labour force is ranked ahead of quality of managerial and professional workforce, nominated by four respondents. Interestingly, quality of TAFE/private training system was ranked the most important factor by

only one respondent. However, this result needs to be qualified as six respondents rated this factor 'important'. It will be recalled that 11 of the 12 firms used external training providers in the last year and presumably any deficiencies in local suppliers could be managed through internal workforce training, or requiring external training providers to customise and/or improve the quality of their delivery. In fact, this study found that a quarter of respondents 'found it necessary to assist or require external training providers to improve their performance'.

Another labour market factor, 'labour costs', was identified as the most important factor by half of the firms. This factor was ranked equal to establishment costs and proximity to raw materials.

Another perspective is placed on the results when the ranking of factors identified as 'not important' are examined. The key results here are that four of the ten respondents rated both language and culture, and government incentives to locate in Australia as 'not important' (table 7).

These results, especially the highest ranking given to proximity to markets and importance of infrastructure, are consistent with the finding of Nicholas, Gray and Purcell (1999). They are also consistent with the later study by Nicholas, Sammartino and Martin (2003, pp.13–14) which found that the primary strategic goals of multinational corporations in Australia are 'production for the domestic market' and 'distribution of imports'. It will be recalled that five of the 12 firms in the present study did not export.

Table 7: Investment location ratings

Factor in investment location in Australia	Number of firms rating each factor				
	Critical	Very important	Important	Not important	Not applicable
Proximity to markets/customers	3	6	1		
Proximity to suppliers		3	4	2	1
Proximity to raw materials	3	2	3		2
Counterattack against competitors	2	4	2	2	
Quality of infrastructure (utilities, telecommunications, transport)	3	4	2		1
Establishment costs (land, construction costs)	2	3	3		2
Labour costs	1	4	3	1	1
Quality of skilled workforce	1	5	3		1
Quality of managerial/professional/research workforce		4	5		1
Quality of TAFE/private training system		1	6	2	1
Language and culture		2	3	4	1
Political stability	1	3	4	1	1
Taxation rates		4	4	1	1
Legal framework (industrial relations, company and Intellectual Property laws)		4	3	2	1
Government incentives to locate in Australia		4		4	2
Other: (Exchange rates)	1				
(Outsourcing contract with existing customer)	1				

Overall, these results suggest that, although investment location decisions are determined by a multiplicity of factors, the quality and availability of a skilled VET-skilled workforce is one of the most important considerations. However, it could be claimed that the importance attached by the firms to the quality and availability of a skilled VET-skilled workforce was simply an outcome of the sample which was biased towards industries—particularly manufacturing and mining—which

are especially intensive in their employment of VET-skilled occupations. However, it is the case that multinational corporation investment in Australia is concentrated in manufacturing and mining and multinational corporations play a dominant role in many segments of these industries.

A significant policy implication of the importance attached by firms to the quality and availability of a skilled VET-skilled workforce is that it reinforces recent concerns regarding VET skill shortages in Australia (Toner 2003). These concerns arguably underpin the high proportion of firms in this study which identified skilled labour shortages and the broad range of impediments to the firms' performance arising from these shortages.

Measures to improve the attractiveness of Australia as a location for multinational corporation investment

The respondents were asked to suggest changes to the Australian skills training system to improve the attractiveness of Australia as a location for multinational corporation investment. The responses were very varied, but the following are two key issues were identified:

- ✧ Two of the respondents stated that the 'current Australian skills and training systems are at a very high standard', but that more should be done to publicise this fact.
- ✧ Two of the respondents wanted more training for unskilled labourers in manufacturing processes.

Other suggestions to assist in attracting investment were also equally varied, the most significant being:

- ✧ Four of the respondents suggested a reduction in the influence of trade unions.
- ✧ Three of the respondents regarded the \$A exchange rate as too volatile, and generally over-valued.
- ✧ Two wanted tax reductions.
- ✧ Other suggestions related to improving infrastructure, and lowering utilities costs and explaining the benefits to Australians of multinational corporation investment.

Conclusion

This report concludes by addressing the research questions which framed this study.

What is the significance of the quality and size of the Australian VET-skilled workforce in the decision-making process of multinational corporations to invest in Australia?

The survey results and the broader literature review found that multinational corporation investment location decisions are dependent upon a multiplicity of factors. The study found that the quality of the VET workforce is ranked equal third in importance (along with counter-attacking against competitors) out of 15 location factors. The most important factors were proximity to markets and quality of infrastructure. These results have ‘face’ validity as they accord with the findings on location determinants in the broader literature on multinational corporations.

It must be noted that the results reflect, in part, the concentration of multinational corporation investment in industries such as manufacturing, mining, telecommunications and utilities, and that these industries have a high concentration of VET occupations. Multinational corporations have a high share of value-added, employment and investment in these industries.

What methods do overseas firms use to evaluate the quality and availability of VET skills and training institutions in Australia as part of this decision-making process?

Only around a quarter of multinational corporations evaluated the local labour market and training system as part of the investment location decision-making process. A variety of sources of information were used, including government agencies, industry associations, private consultants and personnel within the multinational corporation. The main reason for not undertaking such an evaluation is that the multinational corporation’s investment represents either an expansion of their current operations or the purchase of an existing asset through a merger or acquisition. Around 85% of multinational corporation investment in Australia is through mergers and acquisitions.

How does the quality and availability of the VET-skilled workforce and VET system compare with other developed and/or developing countries in which the company operates?

Half of the respondents were not in a position to answer this question. Those who answered it were about evenly split between those who regarded their local workforce as equal to or better than the workforce in similar overseas plants, and those who regarded their local workforce as comparatively inferior.

It needs to be emphasised that the sample size in this study was small. Nevertheless, the high proportion of firms surveyed experiencing skill shortages lends support to concerns regarding VET training rates. On the other hand, the data do not support an unduly negative view of the local VET skills. The research question below finds that only a minority of multinational

corporations found it necessary to adapt overseas products and processes to local VET skill levels. Moreover, five of the 12 firms surveyed exported, and these exports comprised 49% of the exporting firms' sales.

To what extent do the overseas firms need to adapt their production processes, equipment, training methods and products or services to the skills of the Australian VET-skilled workforce?

Fewer than one in five of the firms found it necessary to adapt overseas products or processes to the skills of their local workforce. As noted above, this result implies that local skills can satisfactorily produce overseas-designed products and use overseas-sourced production technologies without these having to be modified to local VET skill levels. The result is also a function of the fact that almost all foreign direct investment into Australia is from other developed economies with similar production systems and, to some extent, similar consumer tastes. It is also a result of the fact that, as one study found, 'relatively few foreign subsidiaries were active subsidiaries, making significant product changes, investing in research and development, participating in regional and global networks, learning from their Australian experience and applying this learning overseas. We estimate that only 20% of the subsidiaries could be said to be active' (Nicholas, Sammartino & Martin 2003, p.22). In other words, many multinational corporations are heavily reliant on overseas product design and production technology and produce mostly for the domestic market.

Have the firms introduced new technologies or work organisation techniques that have enhanced the skills of the VET-skilled workforce?

The broader literature finds that multinational corporations are particularly important agents in the diffusion of new technologies and advanced business practices. This is largely due to the type of industries in which multinational corporations are dominant and the nature of competition within these industries, which is biased towards product and process innovation. Multinational corporations undertake a disproportionate share of research and development in advanced economies.

The study results confirmed this finding and identified at least three discrete mechanisms for this technology transfer. Firstly, three-quarters of the subsidiaries required Australian-based suppliers to upgrade their products and/or performance in areas such as supply chain management, price reductions, improved quality and production technology. Secondly, half of the firms assisted their suppliers to make these changes. Thirdly, 11 of the 12 firms provided training through external providers to their employees. The multinational corporations have a much higher propensity to train than other firms, reflecting in part, the industry and size characteristics of the firms.

What training has the VET-skilled workforce in these firms required since production commenced?

As noted above, over 90% of the firms provided external training. A wide range of skill needs were addressed in this training, but the most commonly cited was 'management' or 'leadership' training. Most of this training was directed at production supervisor and foreperson roles, not senior management. External training in occupational health and safety and information technology were also frequently mentioned.

As with the earlier findings in relation to external suppliers, the multinational corporations required external trainers to improve their performance. Three of the 12 firms in the sample 'found it necessary to assist or require external training suppliers to improve their performance'.

Do the firms experience any skill shortages? What are their causes and how are they addressed?

Skill shortages were reported by three-quarters of the sample, covering a wide range of VET occupations from production workers, trades, supervisors and information technology specialist. Skill shortages resulted from geographic isolation of the plants, the pace of technical change, difficulty in recruiting workers capable of meeting exacting production requirements for quality, and inadequate training of trades and middle managers across all manufacturing firms.

Firms use a range of measures to redress their recruitment difficulties. The most important methods to redress recruitment difficulties are training of the existing workforce, use of labour hire and offering higher wages. All but one of the firms with skill shortages use two or more methods to overcome recruitment difficulties.

VET labour shortages affect a number of aspects of firm performance, the most important being restricting output or sales, creating longer lead times in developing new products, and increased costs directly through higher wages, or indirectly through costs arising from overseas recruitment.

The high proportion of firms reporting skill shortages, along with their descriptions of the adverse affects of such shortages, reinforce the concerns expressed elsewhere about inadequate training rates in many VET occupations.

How could the VET system be changed to make it more attractive to foreign investment?

Survey respondents recommend more effective overseas publicity of the current training system and improvements to literacy, numeracy and production knowledge of lower-level workers in manufacturing.

The survey results also indicate that most of the firms experience VET skill shortages and that these are having an adverse effect on firms' performance. This is clearly an issue which needs to be addressed.

However, it is important to note that VET skills and training is only one factor, and indeed, has been shown to be not the most important factor in investment location. The respondents also identified a broad range of other issues relating to trade union influence, taxation, volatile and over-valued exchange rates and inadequate government incentives to multinational corporations to locate in Australia.

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Appendix: Research instruments

Thank you for agreeing to participate in the research.

Research Project

This research project concerns the role of the Australian skilled workforce and training system in attracting foreign investment from multinational corporations (MNCs). *The skilled workforce encompasses jobs such as trades, maintenance, technicians, sales staff, production workers and office support etc. The skilled workforce is either trained off the job through TAFE/private training organisations or by on-the-job training. As defined here, the skilled workforce excludes jobs that typically require a degree for entry.*

The project is being undertaken by AEGIS, a research centre at the University of Western Sydney. The project leader is Dr Phil Toner. If you have any queries please contact him on ph. (02) 82556210; email <ph.toner@uws.edu.au> or Level 8, 263 Clarence St., Sydney 2000.

What is the research about?

The purpose of the research is to:

- ✧ Describe the role of the skilled workforce and training provided in attracting foreign investment into Australia.
- ✧ Assess the experience of multinational corporations with the skilled workforce and the training system once an investment has occurred in Australia
- ✧ Identify how the multinational corporation investments and associated technologies have enhanced the skills of the workforce, and;
- ✧ Evaluate how the training system for skilled workers could be improved as an attraction for foreign investment.

The study will focus on a number of industries, which have not only attracted considerable foreign investment, but importantly have a high proportion of skilled workers in their workforce. These industries are manufacturing, aerospace, minerals processing, utilities, telecommunications and tourism.

It is hoped the project will be of practical benefit to potential foreign investors, government agencies concerned with foreign investment attraction and TAFE.

Project method

It is planned to interview twenty-five multinational corporations that have recently established in Australia (within the last three years) or have significantly expanded their existing capacity

recently. We are hoping to interview either a Senior Human Resource Manager or Training Manager or Production Manager.

(Note that in any published material no individual company or company employee will be identified. All data will be aggregated to ensure anonymity.)

1. Background information

- 1.1 Interviewee:
- 1.2 Position in Company:
- 1.3 Name of Company:
- 1.4 Principal products/services produced and/or supplied in Australia?

.....

.....

- 1.5 Number of employees in your company in Australia?
- 1.6 Approximately what proportion of the workforce in your company in Australia is in the following categories?

	Percent of Total Workforce in Company
1.6.1 Managers/Professionals	
1.6.2 Sales	
1.6.3 Clerical/Office Support	
1.6.4 Technicians/Trades/Maintenance	
1.6.5 Production Workers	
1.6.6 Other <i>(please specify)</i>	
1.6.7 Other <i>(please specify)</i>	

- 1.7 What share of your company's revenue is derived from exports?

.....

2. The labour market and multinational corporations

- 2.1 Did your company evaluate the quality and quantity of the skilled workforce and training institutions in Australia as part of the decision to recently invest in Australia or recently expand existing operations?

Yes / No *(Circle correct response)* If No, go to Q2.1.2

- 2.1.1 If Yes, what sources of advice did your company use to evaluate the quality and quantity of the skilled workforce and training institutions in Australia?).

(You may tick more than one box)

Industry Associations	Private Consultants	Government Agencies	Other Branches of Company	Other <i>(Please specify)</i>

- 2.1.2 If your company did not evaluate the quality and quantity of the skilled workforce and training institutions in Australia, why not? (For example, the company may already be operating here and have a good understanding of these factors. Or the company was planning to develop its own skilled workforce internally. Alternatively, the availability of a skilled workforce may not have been a priority).
-

- 2.2 Do you have any comment on the quality of the skilled workforce in your company compared to similar overseas plants operated by your company?

Yes / No (*Circle correct response*) If No, please go to Q. 2.3

(If Yes, you may wish to comment on factors such as literacy, numeracy, qualifications, skills levels, etc.)

.....

- 2.3 Over the last three years has your company had to adapt overseas production processes, products, equipment or training methods to match or fit in with the skill level of the workforce? (For example, the company needed to introduce lower or simplified technologies due to lower available skills or the available skills could fully adapt and even improve on technologies used overseas.)

Yes / No (*Circle correct response*) If No, go to Q. 2.4

- 2.3.1 If Yes, please provide examples of how the production processes, products, equipment or training methods were adapted.
-

- 2.4 Over the last three years has your company required Australian based suppliers to your company to upgrade their products/performance?

Yes / No (*Circle correct response*) If No, go to Q. 2.5

- 2.4.1 If Yes, what aspects of their products/performance required upgrading? Select from the Table below.

(*You may tick more than one box*)

Reduce Price	Product/Service Quality	Supply Chain Management	Production Technology	Other (Please specify)

- 2.4.2 Did your company directly assist suppliers to upgrade their products/performance?

Yes / No (*Circle correct response*) If No, go to Q. 2.5

- 2.4.2 If Yes, please describe the type of assistance your company supplied? (For example training, technology transfer, finance.)
-

- 2.5 Does your company use external training organisations (TAFE/private providers).

Yes / No (*Circle correct response*) If No, go to Q.2.6

2.5.1 If Yes, over the last 12 months what has been the purpose of the training supplied by external training organisations? (For example, OH&S, IT, management training, other. *(Please specify)*)

.....

2.5.2 Has your company found it necessary to assist or require these external training suppliers to improve their performance? (For example, technical skills, quality assurance, teacher qualifications etc.)

Yes / No *(Circle correct response)* If Yes, please describe

2.5.2 What other aspects of the external training service could be improved?

.....

2.6 Over the last three years has your company experienced any difficulties recruiting a suitable skilled workforce? (The skilled workforce includes occupations such as trades, maintenance, technicians, production workers, sales and office support etc.).

Yes / No *(Circle correct response)* If No, go to Q. 2.6.5

2.6.1 If Yes, what occupations were/are in shortage?

.....

2.6.2 Why do you think these shortages exist? (For example, your plant may be geographically isolated, large developments may have absorbed much of the labour supply, inadequate numbers trained or there may be general problems with the training system.)

.....

2.6.3 How do you overcome these shortages?

(You may tick more than one box)

Offer higher wages	Train current workforce	Use labour hire	Increase overtime	Recruit skilled labour from overseas	Other <i>(Please specify)</i>

2.6.4 How do these shortages affect your company? (For example, make it difficult to meet orders, increase labour costs.)

2.6.5 Over the last three years has your company experienced skill gaps in its workforce? (Skill gaps are deficiencies in particular skills such as certain technical skills like CAD, SAP, or QA, or other skills like OH&S, team work, problem solving, literacy, numeracy etc.)

Yes / No *(Circle correct response)* If No, go to Q. 2.7

2.6.6 If Yes, what specific skills were/are in shortage?

.....

2.6.7 How does your company overcome these shortages?

.....

- 2.7 Do you think your company has had a significant effect on the local labour market(s) in which it operates?

Yes / No (*Circle correct response*) If No, go to Q. 2.7

- 2.6.8 If Yes, what aspects of the local labour market have been affected by your company? (For example, it may have increased/decreased labour supply; quality of external training services; quality of skilled labour; price of labour etc.)

.....

3. Investment Location Factors

- 3.1 In your opinion how important were the following factors in your company's decision to recently invest or expand existing investments in Australia. (If you are unsure how to answer some of these questions please ask someone who may be in a better position to respond.)

(Please indicate the rating of each factor with an X)

Factor in Investment Location in Australia	Rating of Factor to Invest in Australia			
	Critical	Very important	Important	Not Important
Proximity to markets/customers				
Proximity to suppliers				
Proximity to raw materials				
Counterattack against competitors				
Quality of infrastructure (utilities, telecommunications; transport)				
Establishment costs (land, construction costs)				
Labour costs				
Quality of skilled workforce				
Quality of Managerial/ Professional/Research workforce				
Quality of TAFE/Private training system				
Language and culture				
Political stability				
Taxation rates				
Legal framework (industrial relations, company and Intellectual Property laws)				
Government incentives to locate in Australia				
Other (<i>please specify</i>)				

- 3.2 If you think workforce skills and the training system have a role in attracting foreign investment, how could these skills and training system be changed to improve its role as an contents.

.....



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