

Off-shore and off work: The future of Australia's service industries in a global economy

AN UPDATE

**A report for the
Australian Services Union and the Finance Sector Union**

**Prepared by the
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Contents

	Page no.
1. Introduction	1
1.1 Terms of trade in selected services	1
1.2 Job losses since 2008	3
1.3 Occupations 'at risk'	4
1.4 Finance industry jobs high risk	5
1.5 Professional, scientific and technical services	6
1.6 Other sectors	8
1.7 Clever country in retreat?	8
1.8 Next steps	9
2. Background to this report	10
3. Off-shoring: Estimating the impact	12
3.1 The methodology for the 2008 study	12
3.2 A two-step estimating procedure	13
3.3 The update	13
3.4 Estimates of out-sourcing since 2006	15
Appendix A: Per cent of service industry occupations from off-shoring over next two to three decades – Occupations and industry methodology	18
Appendix B: Concordance between ANZSCO and ASCO	43
Appendix C: The ABS on services classifications	51

1. Introduction

In our 2008 study on off-shoring and the Australian services industries, NIEIR posed the question, in the context of the developing mining boom that was seen by most commentators as the source of Australia's future prosperity: "*Without Plan B – a strong services sector – what is Australia's future should China stumble?*" Today the question is no longer **whether** China will stumble but whether the stumble will become a free fall. This report indicates that there has been no apparent progress on Plan B. The 2008 report predicted that the pace of off-shoring was likely to continue to grow as new technology made new forms of remote work possible. In 2012 there is evidence that that is the case. The pace at which jobs have been moved off-shore has been roughly in line with the NIEIR base case (20,000 year) and the proportion of service sector jobs exposed to off-shoring has moved up from 9.7 per cent in 2007 to 10.2 per cent in 2012 (Base Case). NIEIR's concern at the time was not just for the jobs being lost but that a "vicious cycle of off-shoring jobs, losing skills and competencies from the domestic economy and as a result losing more jobs off-shore" could become institutionalised. The consequence for Australia would be that transfers to other countries offset price benefits to Australian customers from lower cost services and that we see increased inequality in incomes and between inner urban and rural regions.

Key points of this update:

- **Forecasts from the 2008 study are on track to be realised in the absence of policy intervention**
- **More than 80,000 service sector jobs have moved off-shore since previous report**
- **With more than 20,000 jobs moving off-shore each year we would expect between 700,000 and 1 million jobs to move off-shore in the next three decades**
- **Action is needed to address service sector off-shoring crisis and boost competitive position of Australian service industries.**

1.1 Terms of trade in selected services

Since NIEIR's 2008 report there has been a marked deterioration in the terms of trade for those services which NIEIR identified as being at risk of off-shoring (Figure 1). Trends identified in 2008 have been compounded by the impact of the mining boom on the rest of Australia's trade exposed industries. As NIEIR has pointed out elsewhere, the benefits of the mining boom have been overstated because of the import of both equipment and labour for the construction phase of new projects, the rise in the Australian dollar and crowding-out impacts (the so-called Dutch disease). The high dollar has undoubtedly influenced the competitiveness of services and this has given fuel to the trends identified in the 2008 report. Figure 2 shows the trend has been driven by both increased imports and reduced exports of services. The picture highlights the failure of policy makers to develop a clear strategy for the services sector to deal with the combined impact of the mining boom and greater transferability of jobs to off-shore locations. Indeed the government appears to have been unwilling so far to respond to union requests to increase transparency in relation to where services are performed so that consumers can exercise choice in purchasing decisions.

Figure 1: Trade balance of services at risk of off-shoring

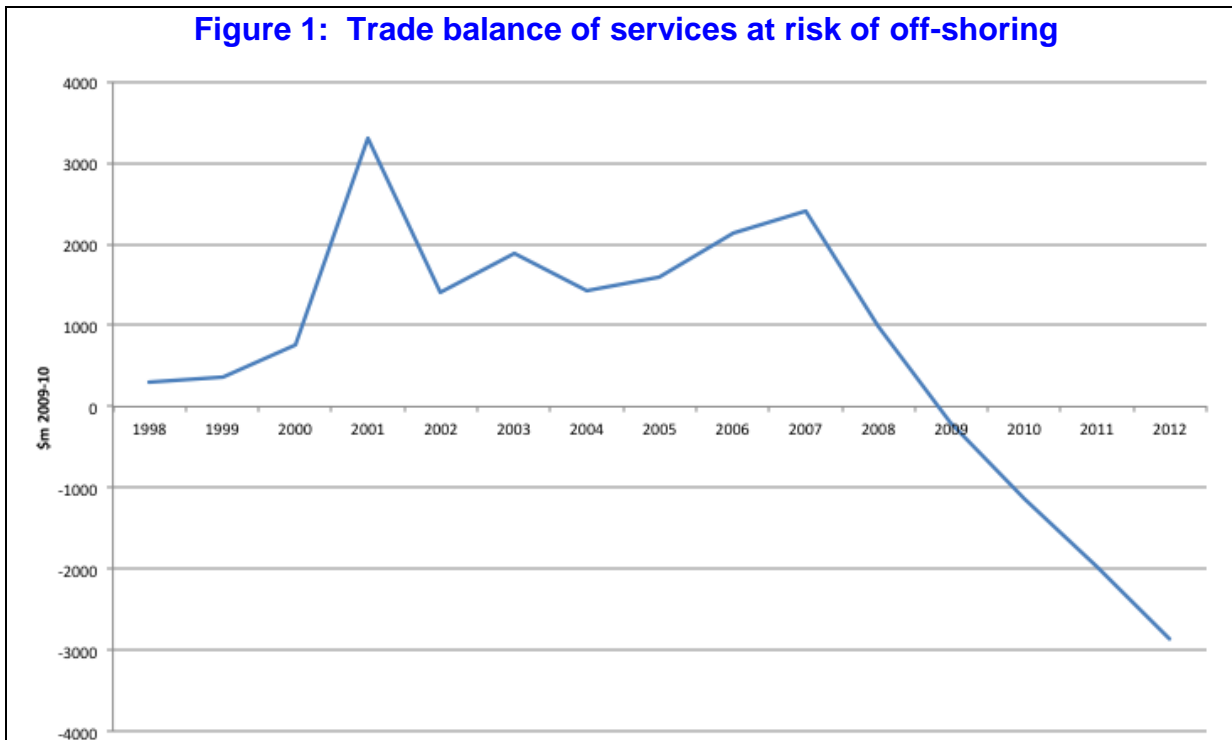
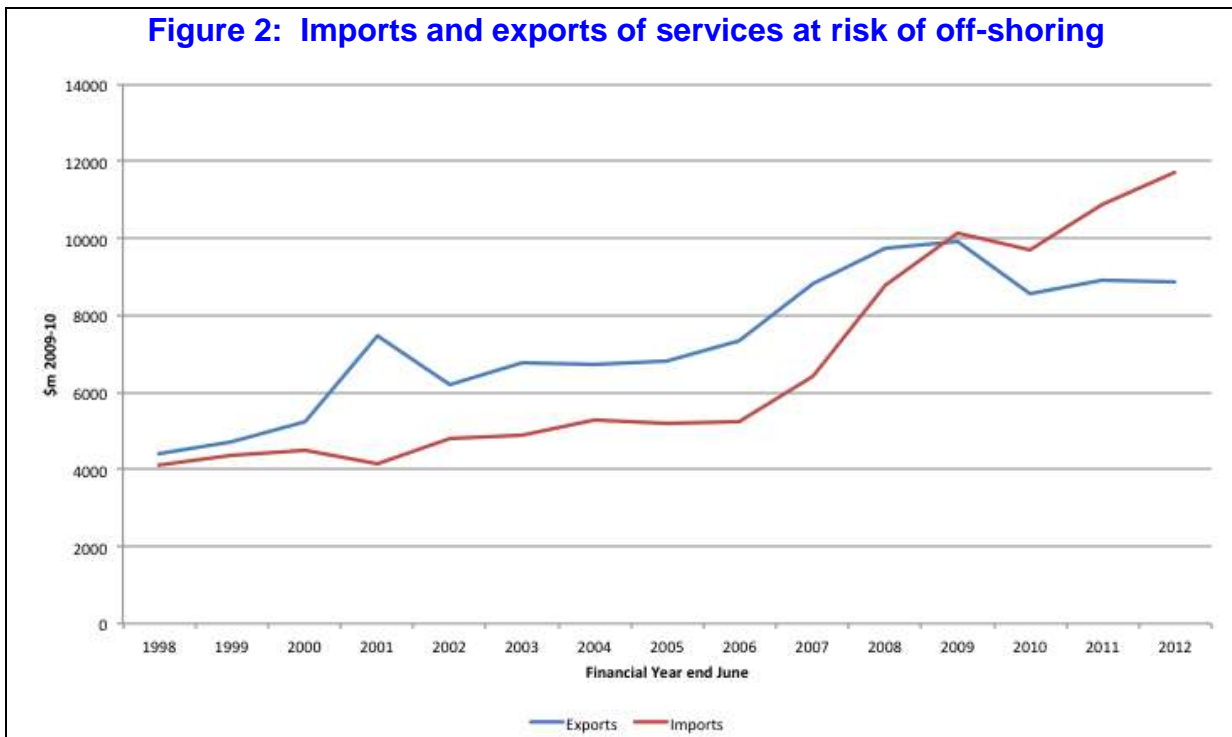


Figure 2: Imports and exports of services at risk of off-shoring

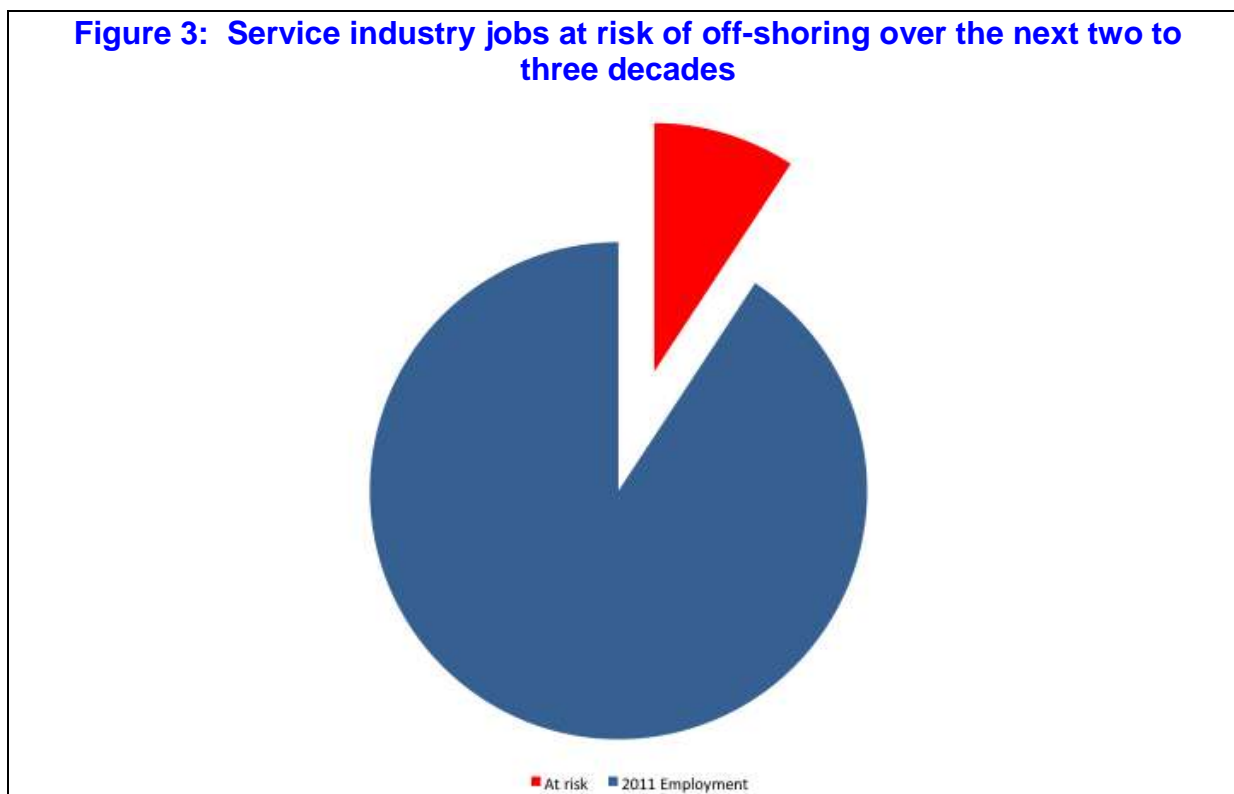


1.2 Job losses since 2008

This report estimates that the loss of jobs due to off-shoring is running at a rate in excess of 20,000 per year. This rate is approximately the rate required to reach the Base Case scenario of the 2008 report, which estimated jobs 'at risk' of off-shoring at 849,646 over the next two to three decades (29,000 per annum).

The revised estimate for this report is slightly higher at 880,842 service sector jobs (Base Case) reflecting the higher rate of 10.2 per cent of service sector jobs being 'at risk' (Figure 3) compared to 9.7 per cent in 2007. The Low Case scenario in this report is 704,848 and the High Case 1,051,118 jobs over the next two to three decades.

Figure 3: Service industry jobs at risk of off-shoring over the next two to three decades



1.3 Occupations 'at risk'

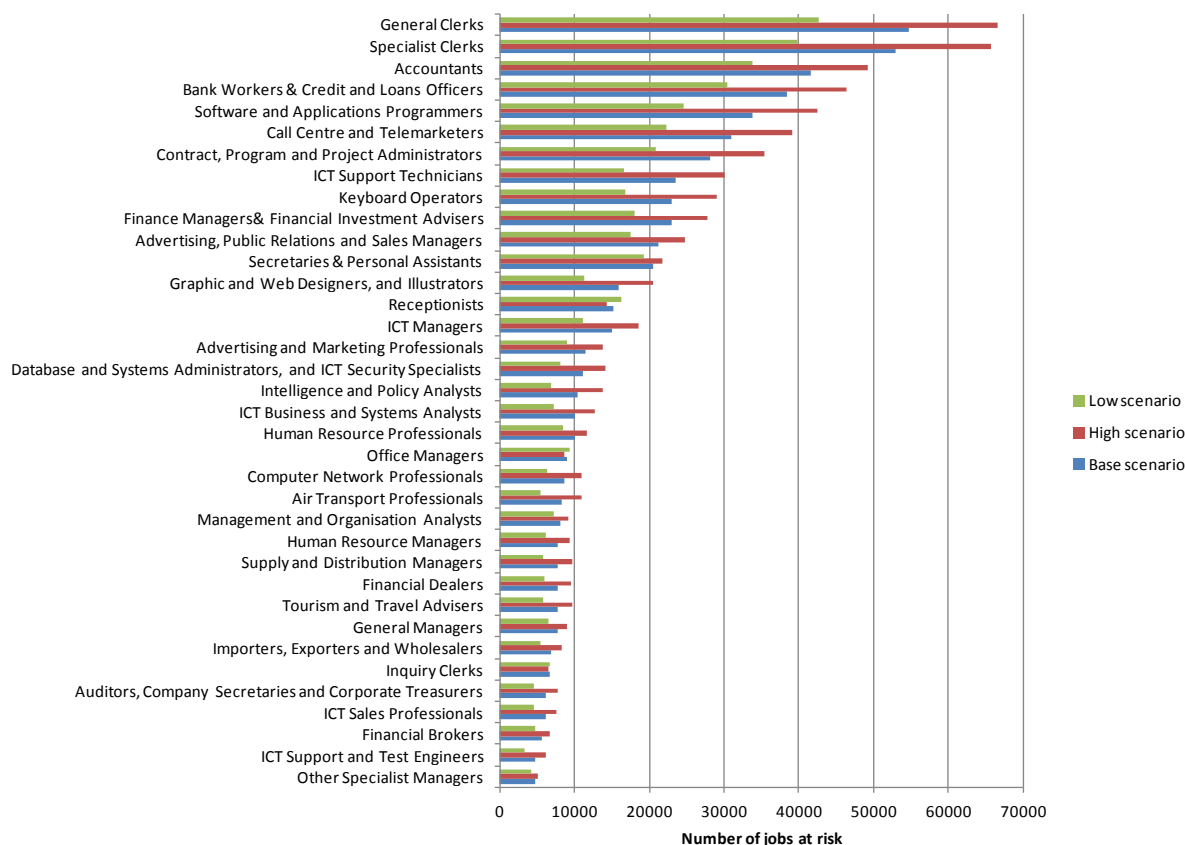
Occupations experiencing high rates of off-shoring are in ICT and administrative occupations such as data processing and clerical workers (including bank workers, law clerks, payroll, accounting, data entry). The finance and insurance sector and professional, scientific and technical services sector have high proportions of jobs 'at risk'.

Figure 4 below lists the occupations most 'at risk' of off-shoring. As explained elsewhere in this report and in NIEIR's 2008 report, this list is compiled using a two-stage methodology. The first step applies an industry indicator of off-shoring (based on existing patterns of concentration of service delivery) and the second stage applies an occupation indicator.

Across all service industries, the occupations most at risk of future off-shoring are; clerical workers, accounting staff, software applications and programming and bank workers. The potential for a range of functions to be undertaken remotely with existing or emerging technology is evident in all occupations listed.

The occupations listed in Figure 4 account for 68 per cent of occupations 'at risk' of being off-shored.

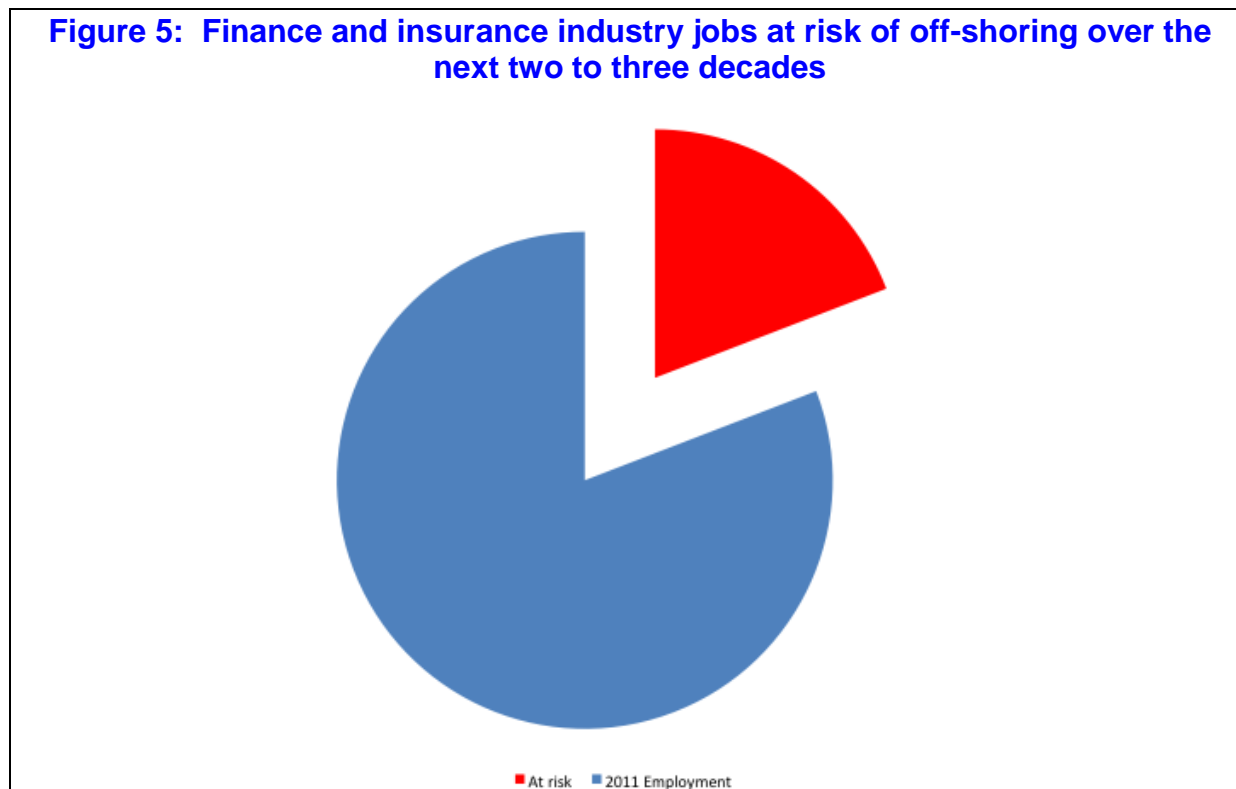
Figure 4: Occupations at risk from off-shoring over the next 20 to 30 years



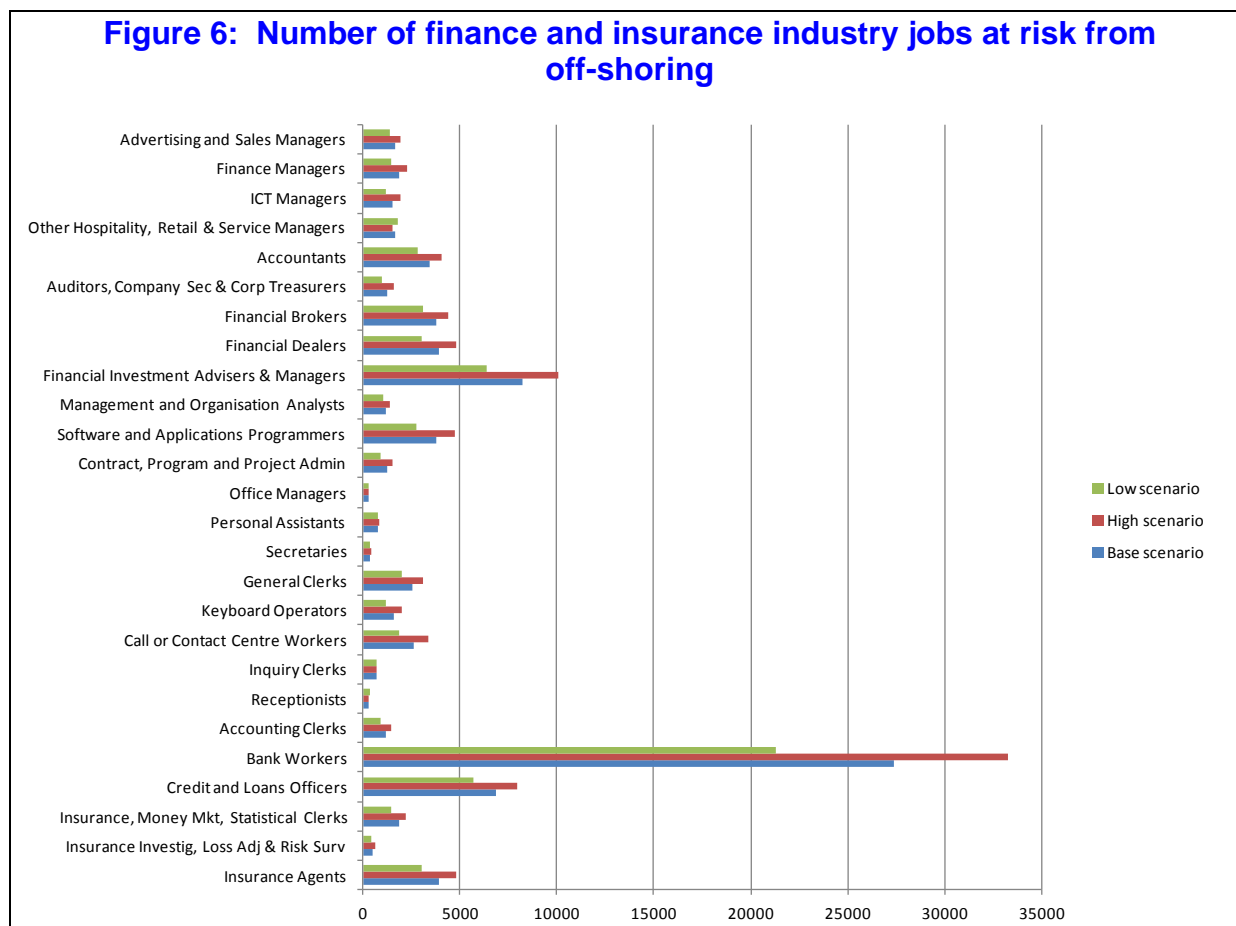
Note: In the above chart Specialist Clerks include accounting clerks, purchasing and supply logistics clerks and payroll clerks.

1.4 Finance industry jobs high risk

For the finance and insurance sector the proportion of jobs 'at risk' is almost twice the rate for service industries as a whole. Figure 5 shows that 24 per cent of jobs are at risk of off-shoring representing 97,000 jobs (Base Scenario) or more than 3,000 jobs a year over the next two to three decades.



The impact of off-shoring is much higher when particular occupational categories are examined (Figure 6). Three quarters of finance and insurance industry occupations are in the top one third of occupations at risk of off-shoring while more than one third of jobs are in the top 10 per cent. Occupations at most immediate risk are call or contact centre workers, bank workers (17 per cent of finance industry jobs) and software and applications programmers.



1.5 Professional, scientific and technical services

Another industry sector with a high proportion of jobs ‘at risk’ is professional, scientific and technical services. In this sector, which includes professional services such as legal, engineering and specialist ICT services, 20 per cent of jobs are ‘at risk’ of off-shoring. This sector represents almost 20 per cent of all jobs ‘at risk’ in the service industries. Major occupations impacted are ICT workers (managerial, technical and support roles) and clerical workers (including legal clerks, accounting clerks and keyboard operators). About 170,000 jobs are ‘at risk’ (Base Case) in this industry sector.

Figure 7: Professional, scientific and technical services jobs at risk of off-shoring over the next two to three decades



Table 1 shows occupations with the highest number of jobs at risk in this sector.

Table 1 Employment by selected four digit ASCO occupations 'at risk' from off-shoring over next two decades – based on occupational employment levels 2011 – Professional, Scientific and Technical Services (ANZSIC Division M)

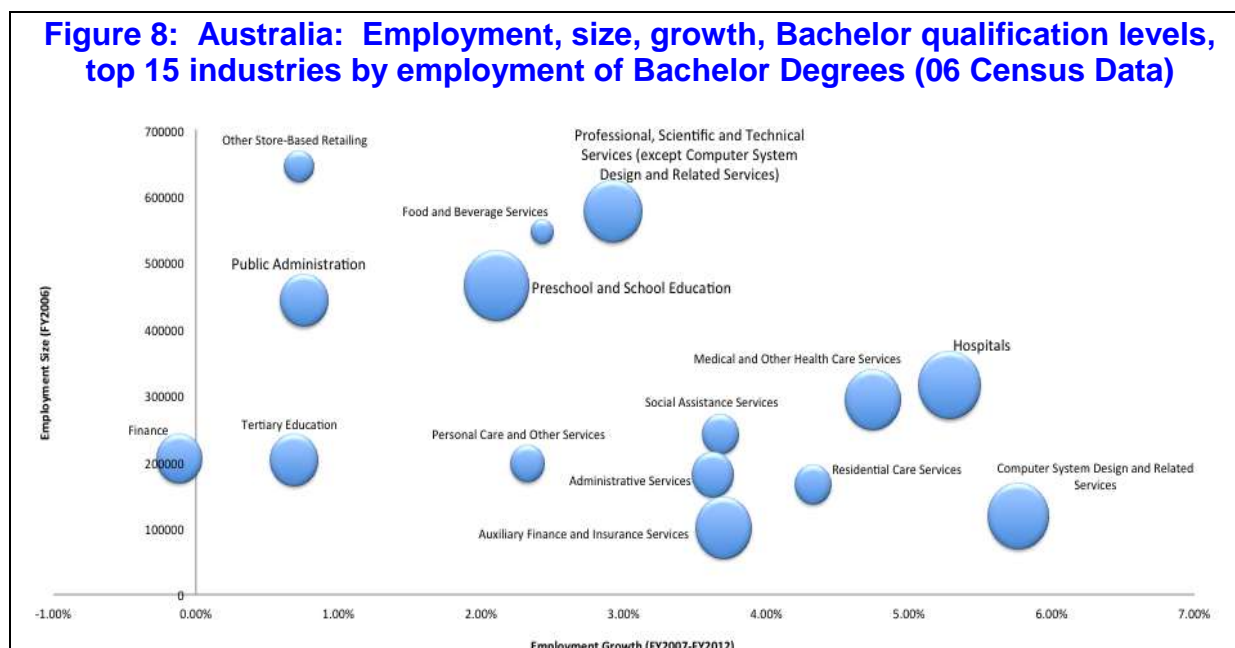
ANZSCO	Occupation	Base scenario	High scenario	Low scenario
2613	Software and Applications Programmers	19324	24295	14044
3131	ICT Support Technicians	7809	9988	5510
1351	ICT Managers	5692	7065	4244
5311	General Clerks	4315	5254	3366
2611	ICT Business and Systems Analysts	4092	5190	2933
2621	Database and Systems Administrators, and ICT Security Specialists	3469	4381	2518
2631	Computer Network Professionals	3440	4316	2517
5212	Secretaries	3433	3644	3222
5991	Conveyancers and Legal Executives	2996	3484	2493
5615	Survey Interviewers	2664	3379	1881
5111	Contract, Program and Project Administrators	2647	3316	1967
5321	Keyboard Operators	2610	3297	1907
5511	Accounting Clerks	2608	3248	1957
5619	Other Clerical and Office Support Workers	2076	2434	1708

1.6 Other sectors

Other sectors with a high proportion of jobs 'at risk' of off-shoring include Information, Media and Telecommunication (20 per cent of total employment in that sector) and Public Administration and Safety (11.7 per cent). In the case of the latter, while it is less likely that government would off-shore services directly, it would be quite possible that out-sourced services could be off-shored. This points to a two-stage process discussed in NIEIR's original report where first the service is out-sourced and then the outsourced service provider substitutes local employment with off-shore employment.

1.7 Clever country in retreat?

There is evidence that failure to deal with competitiveness of Australia's services industries is impacting the government's ambition to move toward being a knowledge-based economy and undermining the significant investment being made in education and training services. For example, of 15 industries that are major employers of people holding a Bachelor degree (Figure 8) the most consistent growth in employment is in domestically-focused services that need to be delivered face-to-face (for the time-being at least) such as hospitals, health and other care services. Services related to new technology such as computer systems design are more erratic and, as noted above, will be increasingly prone to off-shoring. The mining industry's uptake of professional services is expected to decline with the slowdown in investment. The finance sector has exhibited negative employment growth over the period from 2007 to 2012 while Tertiary Education and Public Administration have grown at below the rate of population growth. In the Figure 8 the size of the ball represents the relative proportion of people with a Bachelor's degree to the total number of people employed in that industry. The position on the horizontal axis represents employment growth and the position on the vertical axis the size of the workforce. The number of employees with a Bachelors degree is derived from 2006 Census data.



1.8 Next steps

In our last report, NIEIR advocated the need for a comprehensive service sector strategy led by a high level task force reporting directly to relevant Cabinet Ministers. The goal was to support creating a strong place for the Australian workforce in the domestic service sector while creating a place for the Australian sector in the global traded services economy. The window to build a place in the global industry is closing as other players occupy strategic positions. Unlike manufacturing, these players are not from low-wage countries but rather capitalise on the skills and experience of their people. There is a danger facing Australia now that not only will we fail to take a role in the global market but that we will de-skill our workforce by moving key parts of the service sector off-shore. Four years have been lost since this matter was raised in our previous report.

2. Background to this report

In 2008 NIEIR was asked to:

- provide advice on the likely impact of off-shoring based on at least three different scenarios; Base Case, High and Low scenarios;
- provide advice on how the impact of those scenarios will be distributed through the Australian economy and workforce; and
- develop policy options that could be proposed to governments and industry to ensure Australian workers are not disadvantaged by these global trends.

In this update we focus on particular selected services and occupations in the services sector highlighting the three different scenarios again – base case, high and low scenarios.

In the 2008 study NIEIR determined that in the short-term the following seven characteristics identify the types of service jobs more likely than others to be off-shored.

1. Heavy reliance on information technology and routine or rule-based work.
2. Lack of need for personal contact with customers.
3. Wage cost savings in low-wage countries that outweigh productivity losses.
4. Tradability.
5. Availability of skills abroad.
6. Labour intensiveness, ease of physical relocation and separability of jobs tasks from other parts of the production process.
7. Absence of cultural, institutional and legal barriers.

In the longer term, the potential for off-shoring will increase because the speed, capability and coverage of broadband infrastructure will steadily improve and international service centres will continue to develop scale and skills that provide global competitive advantage.

At some point in the future, the virtual office will become a reality. Only services that require face to face contact (nursing, wait staff) will be tied to a particular location. Services industries will be based on a global workforce with firms seeking to maximise efficiency and competitive advantage based on global availability of skills, scale, quality, innovation and cost competitiveness. At this point, employment in many parts of the sector will be premised on globally contestable remuneration and costs.

Nothing has occurred since our 2008 report to change this thesis. In fact, experience since has confirmed these findings.

Our 2008 Study and this update take a rigorous quantitative approach based on the following simple concept: Existing patterns of service delivery (within a country) are an indicator of services and occupations that can be outsourced to foreign countries. If an industry or occupation is not strongly concentrated by region, then it is an indication that proximity to clients and markets is a competitive advantage. If, on the other hand, after adjustment for industry structure, it is found that industries or occupations are concentrated by region then it is an indication that within a national economy these industries and occupations are capable of a high level of inter-regional trade. If services of industries and occupations can be internally traded in an economy, it is a good indication that they could be traded internationally. There has to be adjustments to the results because for some services, even if they are technically capable of being traded, for example a Government service, the reality is that they will not be traded. However, all adjustments made to the outcomes of the application of the methodology in the study are transparent.

3. Off-shoring: Estimating the impact

The objective of NIEIR's 2008 study "*Off-shore and off work: The future of Australian service industries in a global economy – A call to action*" was to estimate the potential for the substitution of domestic employment in the Australian Services Sector with workers located outside Australia or from "off-shore".

Traditionally service oriented occupations, either employed in the service industries directly or as inputs into the goods (agriculture, mining and manufacturing) industries were not easily traded. That is, effective work performance required proximity to the place of employment, whether it is the factory, mine or office. The post 1980s information and communications technology (ICT) increasingly allowed more and more services to be provided remotely from the enterprise's place of location. As the ICT revolution has progressed, the potential for this has increased and over the next decade the potential for off-shoring will again increase significantly once a national high speed broadband network is in place.

3.1 The methodology for the 2008 study

The methodology employed in the 2008 study was based on the recognition that the impact of off-shoring operated at two different levels, namely:

- (i) the replacement of whole business units (firms, establishments, subsidiaries) by imported services by off-shore located business units; and
- (ii) the replacement of parts of business services provided to an on-going business unit either in-house or out-sourced to Australian residents by services provided off-shore.

The core methodology to assess the potential for this for Australian data was based on the following premises. Economic development within nations over the last century has been characterised by the concentration of those industries and occupation where services are tradeable across distance at a relatively small number of locations. These industries and occupations are the same industries and occupations that will be at risk of being off-shored.

The basic methodology was to identify those industries and occupations that were concentrated. This was done by measuring a GINI coefficient across Australian Local Government Areas (LGAs) in order to measure the concentration of industries and occupations. A GINI coefficient of zero means an industry or occupation is perfectly distributed across all LGAs and, therefore, at no risk of being off-shored. A GINI coefficient of 1 means the industry or occupation is concentrated in one LGA and, therefore, at 100 per cent risk of being off-shored.

After a set threshold, which was a GINI coefficient of 0.1, the higher the GINI coefficient the greater the risk, or in the language of the report, the higher the potential for an industry or occupation to be off-shored. The maximum potential for off-shoring was 0.6. That is, an industry or occupation that produced a GINI coefficient of 0.6 or above a 100 per cent potential for off-shoring was assigned to the industry. The potential for off-shoring of an industry or occupation was, therefore, proportional to the value of the industry and occupation GINI coefficient (less 0.1), with a 0 to 0.5 range. That is, after deducting the 0.1 threshold from the minimum and maximum value. This basic case constituted the Base scenario estimates for the potential for off-shored employment.

The High and Low scenario estimates vary the influence of the change in the GINI from the 0.1 threshold. The High scenario multiplies the change by 1.33 and the Low scenario 0.66. The idea here is that for the Low scenario the risks of off-shoring only rise when the GINI coefficient reaches high values and, therefore, industries and occupations with GINI coefficients in the 0.1 to 0.2 range, for example, have relatively little risk of off-shoring. The High scenario takes the opposite approach and assumes the risk of off-shoring increases disproportionately as the GINI coefficient measure of the 0.1 threshold compared to the case where the GINI coefficient is high at 0.3 to 0.4. In effect, the High scenario lowers the GINI coefficient per 100 per cent risk of off-shoring from 0.6 to 0.45.

3.2 A two-step estimating procedure

A two-step estimating procedure is applied to obtain the total estimates for the potential of off-shoring Australian employment. The first was to estimate the industry employment that was at risk using the calculated industry GINI coefficients. The next step was to apply the occupation GINI to the remaining industry employment to estimate the occupation employment that was likely to be out-sourced.

3.3 The update

This study updates the previous study by recalculating the 2006 ANZSIC06 estimates based on the ANZSCO definitions. The 2006 study was based on the old ASCO and ANZSIC93 definitions.

The concordance between the two classifications is given in Appendix A. There are more ANZSCO occupations than ASCO occupations and the reclassification of occupations in more detail is the key reason why the estimates for out-sourced employment potential for 2006 in his update is greater than the previous 2006 estimates. The reason for this is straight forward. If only aggregate data was used then Australia would have little risk of out-sourcing as the GINI coefficient across LGAs would be less than 0.1. The greater the level of disaggregation and the more actual industry definitions compared to like for like (or homogenous) industries and occupations, then the greater is likely to be the potential for out-sourcing. A point will be reached when this effect will not occur because the statistics will describe homogenous industry and occupations. This point was not reached with the old ASCO classifications. The ANZSIC93 classifications, however, were close to describing like for like industries.

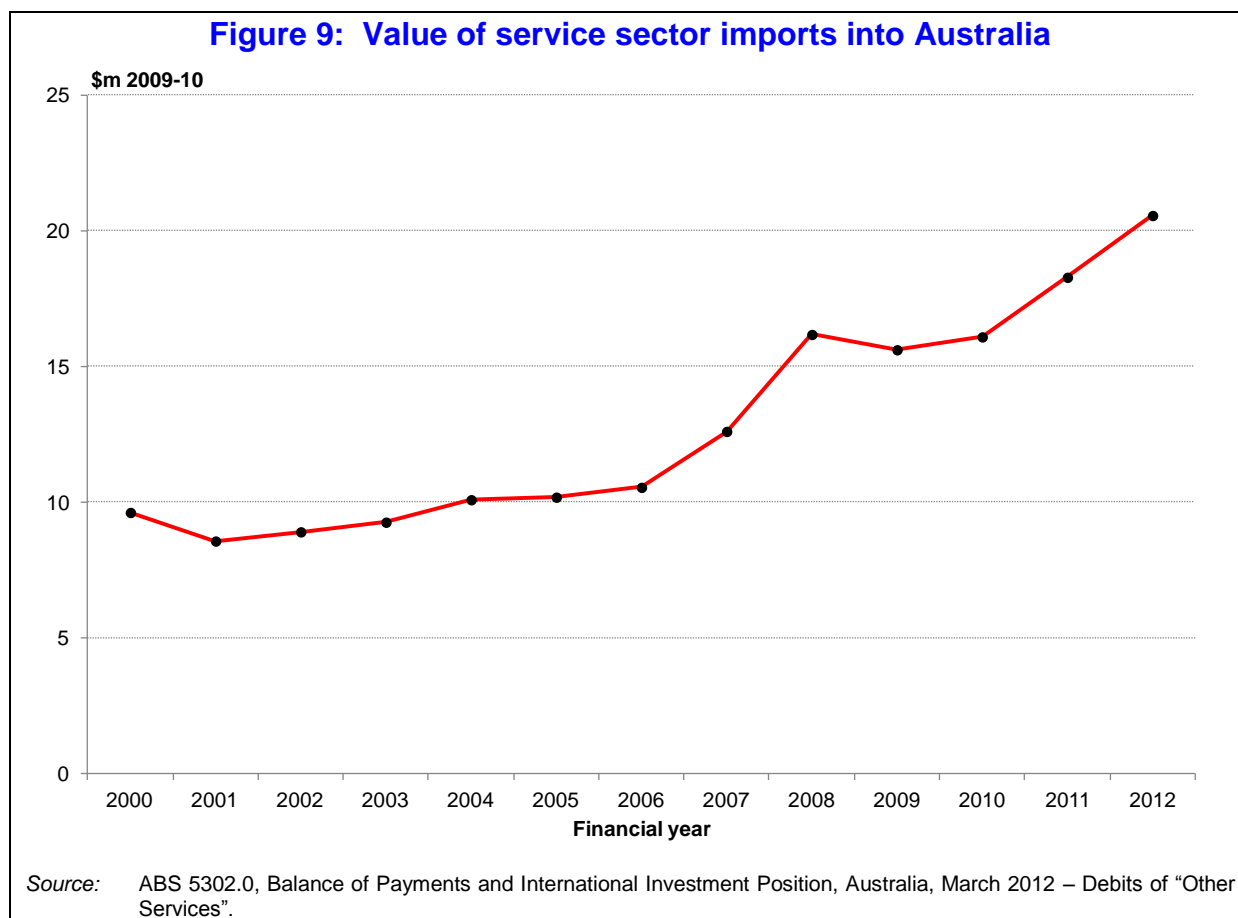
The 2006 estimates are updated to 2011 using NIEIR's estimates of ANZSCO and ANZSIC06 employment estimates by LGA and industry. This database is described in NIEIR/ALGA "*State of the Regions – 2012-13*" report.

Table 2 Per cent of service industry occupations from off-shoring over next two to three decades – Occupations and industry methodology – Comparisons									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
2006 estimates from 2007 report									
Total (of service sector employment)	3.2	3.9	2.5	6.5	7.5	5.5	9.7	11.4	8
Per cent of total employment	2.7	3.3	2.1	5.5	6.3	4.7	8.2	9.7	6.8
Total 2006 – number	279707	344069	215345	569939	653495	481096	849646	997564	696440
2006 estimates from 2011 report									
Total (of service sector employment)	3.0	3.8	2.3	7.8	9.3	6.2	10.8	13	8.5
Per cent of total employment	2.3	2.8	1.7	5.8	6.9	4.7	8.1	9.7	6.4
Total 2006 – number	228619	284834	172405	589644	699756	473382	818264	984590	645787
2011 estimates from 2011 report									
Total (of service sector employment)	2.7	3.3	2.1	7.5	8.8	6.1	10.2	12.2	8.1
Per cent of total employment	2.1	2.5	1.6	5.7	6.7	4.6	7.7	9.2	6.2
Total 2011 – number	234477	287450	181505	646365	763668	523344	880842	1051118	704848

3.4 Estimates of out-sourcing since 2006

This update includes an estimate of out-sourcing since 2006 by using Australian import of services statistics published by the Australian Bureau of Statistics (ABS). Table 3 shows the classifications of the service import statistics. Figure 9 shows the growth in the value of service sector imports to Australia.

Table 3 The import service categories where payments for off-shored services are most likely to be made	
Import category	
1.	Computer services
2.	Information and other services
3.	Research and development services
4.	Professional and management consulting services
5.	Technical, trade related and other business services
6.	Audio/visual and related services



To estimate the employment losses the impact to domestic supply ratio for the following industries:

- (i) professional services;
- (ii) administrative services;
- (iii) public administrative services;
- (iv) education and training;
- (v) health;
- (vi) arts and recreation; and
- (vii) other services,

were estimated using that part of imports that was relevant to capturing off-shored service components.

Next, the import to supply rate was adjusted to reflect employment equivalent dollar for dollar expenditures. This involved estimating the cost of savings for employment in Australia vis-a-vis employment overseas. In the 2006 report the employment equivalent cost differential was estimated at 40 per cent. Hence, the import to supply ratio was divided by 0.6.

The increase in the adjusted import to supply ratio from 2006 was calculated next. For a given quarter, the increase in the import to supply ratio translates into a loss of domestic production. The loss of domestic production is then multiplied by the employment to gains output ratio for the quarter for the industry estimated from NIEIR's data base.

The results of the calculation are given in Table 4. The results show that since 2006 the increase in the employment loss from outsourcing over the last two years is running at a rate of in excess of 20,000 per year. This rate is approximately the rate required to reach the base scenario off-shoring employment loss of 880,000 over the next three decades. This rate is 29,000 per annum.

The major assumption of this analysis is that all increases in the import share in total supply for the nominated industries reflect off-shoring payments.

That is, non off-shoring payments for services are captured in the growth in domestic supply multiplied by the 2006 import ratio. This will not be the case for all payments. However, the estimates in Table 4 are likely to under-estimate significantly the off-shoring service payments because of:

- (i) some off-shoring payments would have been included in the 2006 import estimates; and
- (ii) all off-shoring service payments are unlikely to be captured in the ABS statistics, even if the sample used to collect the statistics was reliable.

Table 4 Estimates of employment loss from off-shoring services since 2006 ('000)									
	2009.3	2009.4	2010.1	2010.2	2010.3	2010.4	2011.1	2011.2	2011.3
Employment losses from increase in import penetration – since 2006									
Professional services – \$cvm	11	17	14	13	16	22	22	22	20
Administrative services	3	4	4	4	4	5	5	6	6
Public administrative services – \$cvm	0	0	0	0	0	0	0	0	0
Education and training – \$cvm	13	13	10	11	19	20	18	25	30
Health – \$cvm	5	5	4	4	8	8	7	10	13
Arts and recreation – \$cvm	5	5	5	5	9	8	7	10	13
Other services – \$cvm	2	2	2	2	2	3	2	3	3
Total	38	47	38	39	59	67	62	76	85

Notes: This is only a partial analysis of the full extent of off-shoring. The direct estimates of finance sector losses probably need to be added, or at least a portion of them.
 cvm = chain volume measure.

Appendix A: Per cent of service industry occupations from off-shoring over next two to three decades – Occupations and industry methodology

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Chief Executives and Managing Directors	3.8	4.7	2.9	0.0	0.0	0.0	3.8	4.7	2.9
General Managers	4.3	5.5	3.1	11.1	12.6	9.5	15.4	18.2	12.6
Legislators	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Aquaculture Farmers	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Crop Farmers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Livestock Farmers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mixed Crop and Livestock Farmers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advertising, Public Relations and Sales Managers	6.0	7.5	4.5	11.6	13.4	9.8	17.7	20.9	14.3
Corporate Services Managers	3.1	3.8	2.3	9.8	10.8	8.8	12.9	14.6	11.1
Finance Managers	4.9	6.0	3.7	15.7	18.9	12.4	20.6	24.9	16.1
Human Resource Managers	3.9	4.8	3.0	15.7	18.9	12.4	19.6	23.8	15.4
Policy and Planning Managers	1.9	2.4	1.4	19.0	22.8	15.2	20.9	25.2	16.5
Research and Development Managers	6.8	9.1	4.5	15.1	17.7	12.3	21.9	26.7	16.8
Construction Managers	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Engineering Managers	1.6	2.1	1.1	8.3	9.9	6.7	10.0	12.0	7.9
Importers, Exporters and Wholesalers	8.8	9.8	7.7	23.9	29.8	17.9	32.7	39.6	25.5
Manufacturers	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Production Managers	1.2	1.5	0.9	1.7	2.1	1.4	3.0	3.6	2.4
Supply and Distribution Managers	2.2	2.6	1.8	22.4	28.4	16.3	24.6	31.0	18.0
Child Care Centre Managers	0.0	0.1	0.0	4.1	4.9	3.3	4.1	4.9	3.3
Health and Welfare Services Managers	0.4	0.5	0.3	5.4	6.5	4.4	5.9	7.1	4.7
School Principals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Education Managers	0.4	0.6	0.3	0.0	0.0	0.0	0.4	0.6	0.3
ICT Managers	10.5	13.7	7.4	24.2	29.5	18.4	34.8	43.2	25.7
Commissioned Officers (Management)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senior Non-commissioned Defence Force Members	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Other Specialist Managers	2.7	3.4	2.0	7.6	8.1	7.1	10.3	11.6	9.1
Cafe and Restaurant Managers	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Caravan Park and Camping Ground Managers	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Hotel and Motel Managers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Licensed Club Managers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Other Accommodation and Hospitality Managers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Retail Managers	1.2	1.4	1.0	0.0	0.0	0.0	1.2	1.4	1.0
Amusement, Fitness and Sports Centre Managers	1.8	2.5	1.0	0.0	0.0	0.0	1.8	2.5	1.0
Call or Contact Centre and Customer Service Managers	4.6	5.9	3.3	20.6	25.3	15.7	25.2	31.3	19.0
Conference and Event Organisers	5.9	7.4	4.4	8.8	8.6	9.1	14.8	16.0	13.5
Transport Services Managers	2.0	2.8	1.3	0.0	0.0	0.0	2.0	2.8	1.3
Other Hospitality, Retail and Service Managers	5.3	6.4	4.3	4.5	3.0	6.0	9.8	9.4	10.3
Actors, Dancers and Other Entertainers	2.2	3.1	1.3	29.2	36.7	21.6	31.4	39.8	22.9
Music Professionals	0.4	0.6	0.3	0.0	0.0	0.0	0.4	0.6	0.3
Photographers	2.7	3.6	1.8	0.9	1.0	0.7	3.6	4.5	2.5
Visual Arts and Crafts Professionals	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Artistic Directors, and Media Producers and Presenters	1.7	2.3	1.0	21.5	26.1	16.9	23.2	28.5	17.9
Authors, and Book and Script Editors	7.0	9.5	4.4	39.2	49.8	28.0	46.2	59.3	32.4
Film, Television, Radio and Stage Directors	1.1	1.5	0.8	5.3	3.5	7.1	6.4	5.0	7.8
Journalists and Other Writers	12.4	16.9	7.8	20.8	24.4	16.7	33.2	41.3	24.5
Accountants	8.3	10.1	6.6	15.2	17.9	12.4	23.6	28.0	19.0
Auditors, Company Secretaries and Corporate Treasurers	6.7	8.1	5.2	28.1	35.3	20.5	34.7	43.4	25.7
Financial Brokers	4.9	6.0	3.9	16.9	19.9	13.8	21.8	25.9	17.7
Financial Dealers	6.1	7.3	4.9	24.8	30.7	18.7	30.9	38.0	23.6
Financial Investment Advisers and Managers	4.7	5.6	3.7	23.7	29.2	18.1	28.4	34.8	21.8
Human Resource Professionals	5.8	6.5	5.2	11.5	13.7	9.3	17.4	20.2	14.5
ICT Trainers	7.6	9.8	5.4	5.6	4.3	7.0	13.2	14.1	12.4
Training and Development Professionals	3.6	4.5	2.7	8.5	8.6	8.4	12.1	13.2	11.1
Actuaries, Mathematicians and Statisticians	8.3	10.9	5.8	0.0	0.0	0.0	8.3	10.9	5.8
Archivists, Curators and Records Managers	3.4	4.3	2.6	46.8	51.0	37.8	50.2	55.2	40.3
Economists	6.2	8.1	4.4	19.8	23.7	15.6	26.0	31.8	20.0
Intelligence and Policy Analysts	1.1	1.4	0.7	58.4	77.6	39.0	59.4	78.9	39.8
Land Economists and Valuers	3.2	4.2	2.2	7.8	8.3	7.3	11.0	12.5	9.6
Librarians	4.6	5.4	3.9	5.1	3.3	6.9	9.7	8.7	10.7
Management and Organisation Analysts	9.3	11.8	6.7	8.0	7.9	8.1	17.3	19.7	14.8
Other Information and Organisation Professionals	3.4	4.5	2.4	20.7	25.2	16.1	24.2	29.7	18.5
Advertising and Marketing Professionals	7.1	9.2	5.1	15.5	18.1	12.6	22.6	27.3	17.7

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
ICT Sales Professionals	15.4	20.3	10.5	23.5	27.9	18.3	38.9	48.2	28.8
Public Relations Professionals	5.5	7.2	3.9	17.8	21.1	14.4	23.4	28.3	18.3
Technical Sales Representatives	6.0	7.0	5.0	11.3	13.2	9.3	17.3	20.3	14.3
Air Transport Professionals	0.1	0.1	0.1	55.5	74.0	37.0	55.6	74.1	37.1
Marine Transport Professionals	0.5	0.7	0.4	34.6	45.4	23.8	35.1	46.1	24.1
Architects and Landscape Architects	0.3	0.4	0.2	19.8	24.3	15.3	20.1	24.7	15.6
Surveyors and Spatial Scientists	1.2	1.6	0.8	13.6	14.9	11.0	14.8	16.5	11.8
Fashion, Industrial and Jewellery Designers	3.1	3.8	2.4	20.1	26.1	14.0	23.2	29.8	16.4
Graphic and Web Designers, and Illustrators	5.0	6.7	3.4	32.6	41.7	23.1	37.6	48.4	26.5
Interior Designers	0.6	0.7	0.4	30.8	40.5	21.1	31.4	41.2	21.5
Urban and Regional Planners	0.7	0.8	0.5	0.0	0.0	0.0	0.7	0.8	0.5
Chemical and Materials Engineers	1.0	1.4	0.7	6.7	7.9	5.4	7.7	9.3	6.1
Civil Engineering Professionals	0.3	0.4	0.2	5.4	4.9	6.0	5.7	5.3	6.2
Electrical Engineers	1.2	1.6	0.8	5.2	5.7	4.8	6.4	7.3	5.6
Electronics Engineers	4.1	5.5	2.8	7.3	7.8	6.0	11.5	13.3	8.8
Industrial, Mechanical and Production Engineers	0.9	1.2	0.7	3.9	4.3	3.2	4.9	5.5	3.9
Mining Engineers	0.5	0.7	0.4	0.0	0.0	0.0	0.5	0.7	0.4
Other Engineering Professionals	2.1	2.7	1.5	11.0	12.0	8.9	13.1	14.7	10.4
Agricultural and Forestry Scientists	4.5	6.0	3.0	0.0	0.0	0.0	4.5	6.0	3.0
Chemists, and Food and Wine Scientists	2.3	3.1	1.6	9.8	12.1	7.3	12.1	15.2	8.9
Environmental Scientists	3.3	4.3	2.3	0.0	0.0	0.0	3.3	4.3	2.3
Geologists and Geophysicists	1.4	1.9	1.0	10.4	12.8	7.9	11.8	14.7	8.8
Life Scientists	7.7	10.6	4.8	38.7	49.2	27.4	46.4	59.8	32.2
Medical Laboratory Scientists	6.2	8.6	3.8	23.0	27.8	17.9	29.2	36.4	21.7
Veterinarians	0.4	0.5	0.2	0.0	0.0	0.0	0.4	0.5	0.2
Other Natural and Physical Science Professionals	3.3	4.4	2.1	14.4	17.1	11.6	17.7	21.5	13.7
Early Childhood (Pre-primary School) Teachers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary School Teachers	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Middle School Teachers (Aus) / Intermediate School Teachers (NZ)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Secondary School Teachers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Special Education Teachers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
University Lecturers and Tutors	0.1	0.1	0.0	20.5	24.7	16.3	20.5	24.8	16.3

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Vocational Education Teachers (Aus) / Polytechnic Teachers (NZ)	0.5	0.6	0.4	3.0	3.3	2.4	3.5	3.9	2.8
Education Advisers and Reviewers	2.1	2.8	1.5	3.6	3.9	2.9	5.7	6.7	4.4
Private Tutors and Teachers	0.3	0.3	0.2	2.6	2.9	2.1	2.9	3.2	2.3
Teachers of English to Speakers of Other Languages	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Dieticians	0.6	0.8	0.4	3.0	3.3	2.4	3.6	4.1	2.8
Medical Imaging Professionals	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Occupational and Environmental Health Professionals	2.4	3.0	1.8	15.8	19.3	12.2	18.2	22.3	14.1
Optometrists and Orthopaedists	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.3	0.1
Pharmacists	0.7	0.9	0.4	0.0	0.0	0.0	0.7	0.9	0.4
Other Health Diagnostic and Promotion Professionals	1.0	1.3	0.6	0.0	0.0	0.0	1.0	1.3	0.6
Chiropractors and Osteopaths	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Complementary Health Therapists	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Dental Practitioners	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Occupational Therapists	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Physiotherapists	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Podiatrists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Speech Professionals and Audiologists	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.3	0.1
Generalist Medical Practitioners	0.1	0.2	0.1	2.4	2.9	1.9	2.5	3.1	2.0
Anaesthetists	0.1	0.1	0.0	10.2	10.2	10.1	10.2	10.3	10.1
Specialist Physicians	0.5	0.6	0.3	10.5	10.7	10.3	11.0	11.3	10.6
Psychiatrists	0.1	0.1	0.0	8.6	8.0	9.1	8.6	8.1	9.2
Surgeons	0.2	0.3	0.2	9.1	8.8	9.5	9.4	9.1	9.7
Other Medical Practitioners	0.3	0.4	0.2	8.9	8.5	9.3	9.2	8.9	9.6
Midwives	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Nurse Educators and Researchers	1.3	1.8	0.8	13.2	14.4	11.9	14.5	16.2	12.7
Nurse Managers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Registered Nurses	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
ICT Business and Systems Analysts	9.7	12.4	7.0	36.0	45.7	25.5	45.7	58.1	32.6
Multimedia Specialists and Web Developers	12.3	16.1	8.5	32.1	39.7	23.6	44.3	55.7	32.1
Software and Applications Programmers	11.4	14.6	8.2	33.7	42.3	24.3	45.1	56.9	32.5
Database and Systems Administrators, and ICT Security Specialists	7.7	10.0	5.5	30.2	38.0	21.8	37.9	48.0	27.3
Computer Network Professionals	9.6	12.6	6.7	28.9	35.9	21.2	38.5	48.5	27.9

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
ICT Support and Test Engineers	10.0	12.9	7.2	46.0	59.0	31.8	56.0	71.9	39.0
Telecommunications Engineering Professionals	19.4	26.7	12.0	15.0	16.3	13.2	34.4	43.0	25.2
Barristers	11.7	14.6	8.7	13.8	15.2	12.2	25.4	29.8	20.9
Judicial and Other Legal Professionals	6.8	8.6	5.1	0.0	0.0	0.0	6.8	8.6	5.1
Solicitors	14.1	17.6	10.5	5.2	3.8	6.8	19.3	21.4	17.3
Counsellors	1.2	1.4	1.0	4.8	5.3	3.9	6.0	6.7	4.8
Ministers of Religion	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Psychologists	1.1	1.4	0.8	0.0	0.0	0.0	1.1	1.4	0.8
Social Professionals	4.1	5.5	2.8	7.7	7.1	8.4	11.9	12.5	11.2
Social Workers	0.3	0.4	0.3	0.0	0.0	0.0	0.3	0.4	0.3
Welfare, Recreation and Community Arts Workers	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Agricultural Technicians	4.5	6.2	2.8	0.0	0.0	0.0	4.5	6.2	2.8
Medical Technicians	0.7	1.0	0.5	6.3	5.0	7.7	7.1	6.0	8.1
Primary Products Inspectors	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Science Technicians	2.3	3.1	1.5	0.0	0.0	0.0	2.3	3.1	1.5
Architectural, Building and Surveying Technicians	0.3	0.3	0.2	3.9	4.2	3.7	4.2	4.5	3.9
Civil Engineering Draftspersons and Technicians	0.3	0.4	0.2	13.0	15.2	10.7	13.2	15.6	10.9
Electrical Engineering Draftspersons and Technicians	0.6	0.8	0.5	3.7	4.2	3.3	4.4	4.9	3.8
Electronic Engineering Draftspersons and Technicians	4.0	5.4	2.6	11.6	13.6	9.5	15.6	19.0	12.2
Mechanical Engineering Draftspersons and Technicians	0.8	1.0	0.6	9.2	10.8	7.5	10.0	11.8	8.2
Safety Inspectors	1.2	1.4	0.9	0.0	0.0	0.0	1.2	1.4	0.9
Other Building and Engineering Technicians	0.7	0.9	0.5	3.5	3.9	3.1	4.3	4.8	3.7
ICT Support Technicians	9.5	12.5	6.5	40.4	51.4	28.5	49.9	63.9	35.0
Telecommunications Technical Specialists	16.9	23.1	10.6	39.3	47.5	28.7	56.1	70.6	39.3
Automotive Electricians	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Motor Mechanics	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Metal Casting, Forging and Finishing Trades Workers	0.1	0.1	0.1	0.6	0.6	0.6	0.7	0.7	0.6
Sheet Metal Trades Workers	0.3	0.3	0.2	1.9	2.4	1.4	2.1	2.7	1.6
Structural Steel and Welding Trades Workers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Aircraft Maintenance Engineers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Metal Fitters and Machinists	0.7	0.8	0.6	0.0	0.0	0.0	0.7	0.8	0.6
Precision Metal Trades Workers	1.5	1.7	1.3	15.7	19.2	12.3	17.2	20.8	13.5

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Toolmakers and Engineering Patternmakers	0.5	0.6	0.4	5.9	7.6	4.0	6.4	8.2	4.5
Panel Beaters	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Vehicle Body Builders and Trimmers	0.2	0.2	0.1	4.3	4.6	4.0	4.5	4.8	4.2
Vehicle Painters	0.1	0.2	0.1	17.9	21.7	14.1	18.0	21.8	14.2
Bricklayers and Stonemasons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carpenters and Joiners	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Floor Finishers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Painting Trades Workers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Glaziers	0.2	0.2	0.2	0.8	1.0	0.6	1.0	1.2	0.8
Plasterers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roof Tilers	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.3	0.2
Wall and Floor Tilers	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.2
Plumbers	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Electricians	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Air Conditioning and Refrigeration Mechanics	0.2	0.2	0.2	8.7	10.8	6.6	8.8	11.0	6.7
Electrical Distribution Trades Workers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Electronics Trades Workers	4.4	5.5	3.3	7.6	7.7	7.5	12.0	13.2	10.8
Telecommunications Trades Workers	14.5	19.8	9.2	0.0	0.0	0.0	14.5	19.8	9.2
Bakers and Pastry Cooks	0.6	0.5	0.6	0.0	0.0	0.0	0.6	0.5	0.6
Butchers and Smallgoods Makers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Chefs	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Cooks	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Animal Attendants and Trainers	0.6	0.8	0.4	0.0	0.0	0.0	0.6	0.8	0.4
Shearers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Veterinary Nurses	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Florists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gardeners	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Greenkeepers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Nurserypersons	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Hairdressers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Print Finishers and Screen Printers	2.2	3.0	1.4	0.0	0.0	0.0	2.2	3.0	1.4
Graphic Pre-press Trades Workers	5.2	7.0	3.5	16.4	20.4	12.0	21.7	27.4	15.5

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Printers	2.4	3.2	1.6	0.0	0.0	0.0	2.4	3.2	1.6
Canvas and Leather Goods Makers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Clothing Trades Workers	0.8	1.0	0.6	0.0	0.0	0.0	0.8	1.0	0.6
Upholsterers	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Cabinetmakers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Wood Machinists and Other Wood Trades Workers	0.4	0.5	0.4	4.2	5.1	3.2	4.6	5.6	3.6
Boat Builders and Shipwrights	0.6	0.8	0.4	0.9	1.0	0.9	1.5	1.7	1.3
Chemical, Gas, Petroleum and Power Generation Plant Operators	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Gallery, Library and Museum Technicians	4.2	4.8	3.7	0.0	0.0	0.0	4.2	4.8	3.7
Jewellers	3.8	4.1	3.6	6.9	8.0	5.7	10.7	12.1	9.3
Performing Arts Technicians	1.7	2.1	1.2	20.9	25.6	16.2	22.6	27.8	17.4
Sign Writers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Other Miscellaneous Technicians and Trades Workers	0.6	0.8	0.5	8.0	9.4	6.7	8.7	10.2	7.2
Ambulance Officers and Paramedics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dental Hygienists, Technicians and Therapists	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Diversional Therapists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enrolled and Mothercraft Nurses	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Indigenous Health Workers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Massage Therapists	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Welfare Support Workers	0.7	0.8	0.6	0.0	0.0	0.0	0.7	0.8	0.6
Child Carers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Education Aides	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aged and Disabled Carers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Dental Assistants	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Nursing Support and Personal Care Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Special Care Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Bar Attendants and Baristas	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Cafe Workers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Gaming Workers	0.0	0.0	0.0	15.8	18.1	13.5	15.8	18.2	13.5
Hotel Service Managers	0.2	0.3	0.1	3.5	4.2	2.8	3.7	4.5	3.0
Waiters	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Other Hospitality Workers	0.8	1.1	0.4	0.0	0.0	0.0	0.8	1.1	0.4

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Defence Force Members - Other Ranks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fire and Emergency Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Police	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prison Officers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Security Officers and Guards	0.7	0.9	0.5	0.0	0.0	0.0	0.7	0.9	0.5
Beauty Therapists	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Driving Instructors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Funeral Workers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gallery, Museum and Tour Guides	0.8	1.1	0.5	24.2	30.0	18.4	25.0	31.1	19.0
Personal Care Consultants	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Tourism and Travel Advisers	0.7	0.8	0.5	27.8	34.9	20.7	28.5	35.8	21.2
Travel Attendants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Personal Service Workers	0.6	0.8	0.4	0.0	0.0	0.0	0.6	0.8	0.4
Fitness Instructors	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Outdoor Adventure Guides	0.5	0.7	0.3	0.0	0.0	0.0	0.5	0.7	0.3
Sports Coaches, Instructors and Officials	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.3	0.1
Sportspersons	0.6	0.9	0.4	0.0	0.0	0.0	0.6	0.9	0.4
Contract, Program and Project Administrators	3.0	3.9	2.1	21.4	26.8	15.9	24.4	30.7	18.0
Office Managers	2.8	3.4	2.1	4.6	4.1	5.2	7.4	7.5	6.7
Practice Managers	1.5	1.9	1.1	6.8	5.6	8.0	8.3	7.5	9.2
Personal Assistants	4.6	5.8	3.4	7.4	7.2	7.6	12.0	13.0	11.1
Secretaries	4.1	5.1	3.1	6.5	6.7	6.3	10.6	11.7	9.5
General Clerks	2.4	3.0	1.9	17.8	21.9	13.7	20.3	25.0	15.5
Keyboard Operators	4.5	5.8	3.3	27.4	34.7	19.8	31.9	40.5	23.1
Call or Contact Centre Workers	12.2	16.6	7.7	36.7	45.5	26.6	48.8	62.1	34.3
Inquiry Clerks	7.0	9.4	4.6	3.2	1.3	5.3	10.3	10.7	9.9
Receptionists	2.1	2.5	1.6	7.1	6.6	7.7	9.2	9.1	9.3
Accounting Clerks	3.3	4.0	2.5	19.2	24.1	14.1	22.4	28.1	16.6
Bookkeepers	3.2	3.9	2.5	0.0	0.0	0.0	3.2	3.9	2.5
Payroll Clerks	2.4	2.9	1.8	20.9	26.4	15.4	23.3	29.3	17.2
Bank Workers	11.7	13.5	9.9	28.5	35.7	21.1	40.2	49.2	31.0
Credit and Loans Officers (Aus) / Finance Clerks (NZ)	10.1	11.9	8.3	16.8	19.7	13.9	27.0	31.6	22.2

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Insurance, Money Market and Statistical Clerks	7.8	9.5	6.1	0.0	0.0	0.0	7.8	9.5	6.1
Betting Clerks	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Couriers and Postal Deliverers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Filing and Registry Clerks	3.1	3.9	2.4	14.9	17.5	12.2	18.0	21.4	14.6
Mail Sorters	1.5	2.1	1.0	0.0	0.0	0.0	1.5	2.1	1.0
Survey Interviewers	16.8	22.0	11.6	49.5	61.8	35.1	66.3	83.9	46.7
Switchboard Operators	5.6	7.5	3.8	33.1	42.0	23.7	38.7	49.5	27.5
Other Clerical and Office Support Workers	11.5	14.9	8.1	13.1	14.5	11.5	24.6	29.5	19.6
Purchasing and Supply Logistics Clerks	3.4	4.0	2.8	19.0	24.0	14.0	22.5	28.0	16.8
Transport and Despatch Clerks	1.7	2.0	1.3	12.0	13.8	10.1	13.6	15.8	11.4
Conveyancers and Legal Executives	13.3	16.6	9.9	16.3	18.6	13.7	29.6	35.3	23.6
Court and Legal Clerks	8.4	10.6	6.2	20.0	23.8	16.0	28.3	34.3	22.2
Debt Collectors	9.9	13.4	6.4	0.0	0.0	0.0	9.9	13.4	6.4
Human Resource Clerks	3.0	3.7	2.3	7.1	6.6	7.7	10.2	10.4	10.0
Inspectors and Regulatory Officers	0.5	0.7	0.4	7.1	6.2	8.0	7.6	6.9	8.4
Insurance Investigators, Loss Adjusters and Risk Surveyors	9.6	11.6	7.6	0.0	0.0	0.0	9.6	11.6	7.6
Library Assistants	3.7	4.2	3.2	0.0	0.0	0.0	3.7	4.2	3.2
Other Miscellaneous Clerical and Administrative Workers	4.9	6.4	3.4	12.8	14.2	11.3	17.7	20.6	14.7
Auctioneers, and Stock and Station Agents	1.0	1.1	0.9	0.0	0.0	0.0	1.0	1.1	0.9
Insurance Agents	10.2	12.3	8.0	25.5	31.4	19.3	35.7	43.6	27.4
Sales Representatives	6.1	7.3	4.8	4.4	3.6	5.2	10.5	10.9	10.1
Real Estate Sales Agents	0.6	0.8	0.4	6.4	5.3	7.6	7.1	6.1	8.0
Sales Assistants (General)	1.0	1.1	0.8	0.0	0.0	0.0	1.0	1.1	0.8
ICT Sales Assistants	13.1	17.5	8.7	0.0	0.0	0.0	13.1	17.5	8.7
Motor Vehicle and Vehicle Parts Salespersons	1.6	1.7	1.5	0.0	0.0	0.0	1.6	1.7	1.5
Pharmacy Sales Assistants	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Retail Supervisors	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Service Station Attendants	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3
Street Vendors and Related Salespersons	1.9	2.2	1.6	0.0	0.0	0.0	1.9	2.2	1.6
Other Sales Assistants and Salespersons	6.7	8.6	4.8	0.0	0.0	0.0	6.7	8.6	4.8
Checkout Operators and Office Cashiers	0.3	0.4	0.3	0.0	0.0	0.0	0.3	0.4	0.3
Models and Sales Demonstrators	3.1	3.6	2.5	4.4	3.5	5.2	7.5	7.2	7.8

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Retail and Wool Buyers	2.7	3.2	2.2	19.0	22.8	15.2	21.8	26.1	17.4
Telemarketers	10.5	14.3	6.7	39.6	49.8	28.2	50.2	64.2	34.9
Ticket Salespersons	0.9	1.2	0.6	16.4	19.0	13.8	17.3	20.2	14.4
Visual Merchandisers	2.6	3.1	2.0	14.2	16.8	11.6	16.8	19.9	13.6
Other Sales Support Workers	6.3	7.5	5.2	0.0	0.0	0.0	6.3	7.5	5.2
Clay, Concrete, Glass and Stone Processing Machine Operators	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3
Industrial Spray Painters	0.2	0.3	0.2	0.3	0.0	0.6	0.6	0.3	0.8
Paper and Wood Processing Machine Operators	0.9	1.1	0.8	0.0	0.0	0.0	0.9	1.1	0.8
Photographic Developers and Printers	1.0	1.3	0.7	2.3	2.7	1.8	3.3	4.0	2.6
Plastics and Rubber Production Machine Operators	0.3	0.3	0.3	0.3	0.1	0.4	0.6	0.5	0.7
Sewing Machinists	0.6	0.7	0.5	0.5	0.6	0.4	1.1	1.3	0.9
Textile and Footwear Production Machine Operators	0.4	0.5	0.3	0.4	0.2	0.6	0.8	0.7	0.9
Other Machine Operators	2.4	3.5	1.4	1.2	1.4	1.0	3.6	4.9	2.4
Crane, Hoist and Lift Operators	0.4	0.5	0.4	0.0	0.0	0.0	0.4	0.5	0.4
Drillers, Miners and Shot Firers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Engineering Production Workers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Other Stationary Plant Operators	0.5	0.5	0.4	0.0	0.0	0.0	0.5	0.5	0.4
Agricultural, Forestry and Horticultural Plant Operators	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Earthmoving Plant Operators	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Forklift Drivers	1.9	2.2	1.6	0.0	0.0	0.0	1.9	2.2	1.6
Other Mobile Plant Operators	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Automobile Drivers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Bus and Coach Drivers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Train and Tram Drivers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Delivery Drivers	1.8	1.9	1.7	0.0	0.0	0.0	1.8	1.9	1.7
Truck Drivers	0.5	0.5	0.4	0.0	0.0	0.0	0.5	0.5	0.4
Storepersons	3.4	3.9	2.9	0.0	0.0	0.0	3.4	3.9	2.9
Car Detailers	1.8	2.4	1.2	0.0	0.0	0.0	1.8	2.4	1.2
Commercial Cleaners	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Domestic Cleaners	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Housekeepers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Laundry Workers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Other Cleaners	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Building and Plumbing Labourers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Concreters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fencers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Insulation and Home Improvement Installers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Paving and Surfacing Labourers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Railway Track Workers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Structural Steel Construction Workers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Other Construction and Mining Labourers	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Food and Drink Factory Workers	0.6	0.6	0.5	0.0	0.0	0.0	0.6	0.6	0.5
Meat Boners and Slicers, and Slaughterers	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Meat, Poultry and Seafood Process Workers	0.6	0.7	0.6	0.0	0.0	0.0	0.6	0.7	0.6
Packers	1.3	1.5	1.1	0.0	0.0	0.0	1.3	1.5	1.1
Product Assemblers	0.6	0.6	0.5	0.0	0.0	0.0	0.6	0.6	0.5
Metal Engineering Process Workers	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Plastics and Rubber Factory Workers	0.4	0.5	0.4	0.0	0.0	0.0	0.4	0.5	0.4
Product Quality Controllers	1.6	2.0	1.2	0.6	0.7	0.5	2.3	2.8	1.7
Timber and Wood Process Workers	1.5	1.8	1.2	0.0	0.0	0.0	1.5	1.8	1.2
Other Factory Process Workers	1.0	1.2	0.8	0.0	0.0	0.0	1.0	1.2	0.8
Aquaculture Workers	1.2	1.2	1.1	0.0	0.0	0.0	1.2	1.2	1.1
Crop Farm Workers	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Forestry and Logging Workers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Garden and Nursery Labourers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Livestock Farm Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Mixed Crop and Livestock Farm Workers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Other Farm, Forestry and Garden Workers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Fast Food Cooks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Food Trades Assistants	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5
Kitchenhands	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Freight and Furniture Handlers	0.7	0.8	0.6	0.0	0.0	0.0	0.7	0.8	0.6
Shelf Fillers	0.3	0.4	0.3	0.0	0.0	0.0	0.3	0.4	0.3
Caretakers	0.5	0.7	0.4	0.0	0.0	0.0	0.5	0.7	0.4

Table A.1 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2006 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Deck and Fishing Hands	0.5	0.5	0.4	0.0	0.0	0.0	0.5	0.5	0.4
Handy Persons	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Motor Vehicle Parts and Accessories Fitters	0.6	0.5	0.6	0.0	0.0	0.0	0.6	0.5	0.6
Printing Assistants and Table Workers	4.3	5.8	2.8	0.0	0.0	0.0	4.3	5.8	2.8
Recycling and Rubbish Collectors	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Vending Machine Attendants	0.6	0.9	0.4	0.0	0.0	0.0	0.6	0.9	0.4
Other Miscellaneous Labourers	1.3	1.7	1.0	0.0	0.0	0.0	1.3	1.7	1.0
Total (of service sector employment)	3.0	3.8	2.3	7.8	9.2	6.2	10.8	13.0	8.5
Per cent of total employment	2.3	2.8	1.7	5.8	6.9	4.7	8.1	9.7	6.4
Total 2006 – number	228619	284834	172405	589644	699756	473382	818264	984590	645787

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Chief Executives and Managing Directors	3.5	4.3	2.7	0.0	0.0	0.0	3.5	4.3	2.7
General Managers	3.8	4.8	2.7	10.8	12.1	9.4	14.5	16.9	12.1
Legislators	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aquaculture Farmers	0.5	0.6	0.5	0.0	0.0	0.0	0.5	0.6	0.5
Crop Farmers	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Livestock Farmers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Mixed Crop and Livestock Farmers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advertising, Public Relations and Sales Managers	5.6	6.9	4.3	11.5	13.1	9.8	17.1	20.1	14.1
Corporate Services Managers	2.8	3.4	2.2	9.4	10.2	8.6	12.2	13.6	10.8
Finance Managers	4.5	5.5	3.5	15.4	18.4	12.3	19.9	23.9	15.7
Human Resource Managers	3.5	4.3	2.8	15.4	18.4	12.2	18.9	22.7	15.0
Policy and Planning Managers	1.7	2.1	1.3	18.6	22.3	14.9	20.3	24.5	16.2
Research and Development Managers	6.5	8.6	4.5	15.2	17.8	12.4	21.7	26.4	16.9
Construction Managers	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Engineering Managers	1.5	1.9	1.1	8.2	9.8	6.7	9.7	11.7	7.7
Importers, Exporters and Wholesalers	8.4	9.4	7.5	22.0	27.1	16.7	30.4	36.5	24.2
Manufacturers	0.6	0.6	0.5	0.0	0.0	0.0	0.6	0.6	0.5
Production Managers	1.2	1.5	0.9	1.7	2.0	1.4	2.9	3.5	2.3
Supply and Distribution Managers	2.0	2.3	1.6	21.3	26.9	15.7	23.3	29.2	17.3
Child Care Centre Managers	0.0	0.0	0.0	3.6	4.3	2.9	3.6	4.3	2.9
Health and Welfare Services Managers	0.3	0.4	0.2	4.8	5.8	3.8	5.1	6.1	4.1
School Principals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Education Managers	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
ICT Managers	9.9	12.6	7.2	24.8	30.4	18.7	34.6	43.0	25.8
Commissioned Officers (Management)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Senior Non-commissioned Defence Force Members	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Other Specialist Managers	2.5	3.1	1.8	7.5	7.9	7.1	9.9	10.9	9.0
Cafe and Restaurant Managers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Caravan Park and Camping Ground Managers	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Hotel and Motel Managers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Licensed Club Managers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Other Accommodation and Hospitality Managers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Retail Managers	0.9	1.1	0.7	0.0	0.0	0.0	0.9	1.1	0.7
Amusement, Fitness and Sports Centre Managers	1.4	2.1	0.8	0.0	0.0	0.0	1.4	2.1	0.8
Call or Contact Centre and Customer Service Managers	4.2	5.3	3.1	19.5	23.8	15.0	23.7	29.1	18.1
Conference and Event Organisers	5.5	6.8	4.1	8.6	8.2	8.9	14.0	15.0	13.1
Transport Services Managers	1.8	2.4	1.2	0.0	0.0	0.0	1.8	2.4	1.2
Other Hospitality, Retail and Service Managers	4.8	5.7	4.0	4.2	2.6	5.9	9.1	8.4	9.9
Actors, Dancers and Other Entertainers	1.9	2.7	1.1	28.3	35.5	21.0	30.2	38.1	22.1
Music Professionals	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Photographers	2.1	2.8	1.4	0.8	0.9	0.7	3.0	3.7	2.1
Visual Arts and Crafts Professionals	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Artistic Directors, and Media Producers and Presenters	1.5	2.1	0.9	20.9	25.3	16.5	22.4	27.4	17.5
Authors, and Book and Script Editors	5.7	7.7	3.6	37.7	48.0	26.9	43.3	55.6	30.5
Film, Television, Radio and Stage Directors	1.1	1.4	0.8	5.1	3.3	7.0	6.2	4.7	7.8
Journalists and Other Writers	11.0	14.9	7.0	20.4	24.0	16.4	31.4	38.9	23.4
Accountants	7.9	9.4	6.5	15.8	18.7	12.8	23.7	28.0	19.3
Auditors, Company Secretaries and Corporate Treasurers	6.3	7.5	5.1	27.5	34.7	20.1	33.8	42.2	25.2
Financial Brokers	4.8	5.9	3.8	16.2	19.0	13.4	21.1	24.8	17.3
Financial Dealers	5.7	6.8	4.6	24.2	30.0	18.4	29.9	36.8	23.0
Financial Investment Advisers and Managers	4.4	5.3	3.6	22.9	28.1	17.6	27.3	33.4	21.2
Human Resource Professionals	5.5	6.0	5.0	11.2	13.3	9.0	16.7	19.3	14.0
ICT Trainers	6.8	8.6	5.1	5.5	4.1	6.9	12.3	12.6	12.0
Training and Development Professionals	3.1	3.9	2.4	8.1	8.0	8.2	11.2	11.9	10.6
Actuaries, Mathematicians and Statisticians	7.8	10.0	5.6	0.0	0.0	0.0	7.8	10.0	5.6
Archivists, Curators and Records Managers	2.9	3.6	2.2	45.5	49.7	36.7	48.4	53.2	38.9
Economists	5.9	7.5	4.3	19.4	23.3	15.4	25.3	30.9	19.7
Intelligence and Policy Analysts	1.0	1.3	0.7	58.3	77.5	39.0	59.3	78.8	39.7
Land Economists and Valuers	3.2	4.1	2.2	7.4	7.8	7.0	10.6	11.9	9.2
Librarians	4.4	5.2	3.6	4.8	3.0	6.7	9.2	8.2	10.3
Management and Organisation Analysts	8.6	10.7	6.5	7.9	7.7	8.0	16.5	18.4	14.5
Other Information and Organisation Professionals	3.1	3.9	2.2	20.0	24.3	15.7	23.1	28.2	17.9
Advertising and Marketing Professionals	6.6	8.4	4.8	15.4	18.1	12.6	22.0	26.5	17.5

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
ICT Sales Professionals	14.4	18.6	10.2	23.1	27.7	18.0	37.6	46.3	28.2
Public Relations Professionals	5.0	6.3	3.6	17.3	20.5	14.1	22.3	26.8	17.7
Technical Sales Representatives	5.6	6.5	4.7	10.8	12.5	9.1	16.4	19.0	13.8
Air Transport Professionals	0.1	0.1	0.1	56.3	75.1	37.6	56.4	75.2	37.6
Marine Transport Professionals	0.5	0.6	0.4	34.4	45.0	23.7	34.9	45.6	24.1
Architects and Landscape Architects	0.3	0.3	0.2	19.5	23.8	15.2	19.8	24.1	15.4
Surveyors and Spatial Scientists	1.0	1.3	0.7	12.2	13.4	9.8	13.3	14.7	10.5
Fashion, Industrial and Jewellery Designers	3.1	3.8	2.4	23.2	30.0	16.2	26.3	33.8	18.6
Graphic and Web Designers, and Illustrators	5.0	6.5	3.5	33.3	42.5	23.6	38.2	49.0	27.1
Interior Designers	0.5	0.6	0.4	31.2	40.9	21.5	31.7	41.5	21.8
Urban and Regional Planners	0.6	0.8	0.5	0.0	0.0	0.0	0.6	0.8	0.5
Chemical and Materials Engineers	1.0	1.3	0.7	6.8	8.0	5.5	7.8	9.4	6.3
Civil Engineering Professionals	0.3	0.4	0.2	5.1	4.5	5.8	5.5	4.9	6.0
Electrical Engineers	1.0	1.2	0.7	4.9	5.2	4.5	5.8	6.5	5.2
Electronics Engineers	4.1	5.4	2.9	7.4	8.0	6.1	11.5	13.3	9.0
Industrial, Mechanical and Production Engineers	1.0	1.2	0.7	4.2	4.6	3.4	5.1	5.8	4.1
Mining Engineers	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Other Engineering Professionals	2.0	2.5	1.5	11.2	12.3	9.1	13.2	14.8	10.5
Agricultural and Forestry Scientists	5.1	6.7	3.5	0.0	0.0	0.0	5.1	6.7	3.5
Chemists, and Food and Wine Scientists	2.6	3.4	1.8	10.6	13.0	8.0	13.1	16.4	9.8
Environmental Scientists	3.0	3.8	2.2	0.0	0.0	0.0	3.0	3.8	2.2
Geologists and Geophysicists	1.1	1.4	0.8	8.4	10.3	6.4	9.5	11.8	7.2
Life Scientists	7.3	10.0	4.7	38.6	49.2	27.4	46.0	59.1	32.1
Medical Laboratory Scientists	5.0	6.8	3.2	22.9	27.8	17.8	27.9	34.6	21.0
Veterinarians	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Other Natural and Physical Science Professionals	3.0	4.1	2.0	14.0	16.5	11.4	17.0	20.6	13.4
Early Childhood (Pre-primary School) Teachers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary School Teachers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle School Teachers (Aus) / Intermediate School Teachers (NZ)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Secondary School Teachers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Special Education Teachers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
University Lecturers and Tutors	0.1	0.1	0.0	19.9	23.8	15.9	19.9	23.9	16.0

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Vocational Education Teachers (Aus) / Polytechnic Teachers (NZ)	0.4	0.5	0.3	2.7	3.0	2.2	3.1	3.5	2.5
Education Advisers and Reviewers	1.9	2.4	1.3	3.4	3.7	2.7	5.3	6.1	4.1
Private Tutors and Teachers	0.1	0.2	0.1	2.3	2.5	1.8	2.4	2.7	1.9
Teachers of English to Speakers of Other Languages	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Dieticians	0.5	0.6	0.3	2.9	3.2	2.3	3.3	3.7	2.6
Medical Imaging Professionals	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Occupational and Environmental Health Professionals	2.2	2.7	1.7	14.6	17.7	11.5	16.9	20.4	13.3
Optometrists and Orthopaedists	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Pharmacists	0.7	0.9	0.5	0.0	0.0	0.0	0.7	0.9	0.5
Other Health Diagnostic and Promotion Professionals	0.7	1.0	0.5	0.0	0.0	0.0	0.7	1.0	0.5
Chiropractors and Osteopaths	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Complementary Health Therapists	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Dental Practitioners	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Occupational Therapists	0.3	0.4	0.3	0.0	0.0	0.0	0.3	0.4	0.3
Physiotherapists	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Podiatrists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Speech Professionals and Audiologists	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Generalist Medical Practitioners	0.1	0.1	0.1	2.2	2.6	1.8	2.3	2.7	1.8
Anaesthetists	0.0	0.0	0.0	9.8	9.7	9.9	9.8	9.7	9.9
Specialist Physicians	0.3	0.4	0.2	10.1	10.2	10.1	10.5	10.6	10.3
Psychiatrists	0.0	0.1	0.0	8.1	7.4	8.9	8.2	7.5	8.9
Surgeons	0.2	0.2	0.1	8.8	8.3	9.2	8.9	8.5	9.4
Other Medical Practitioners	0.2	0.3	0.2	8.5	7.9	9.1	8.7	8.2	9.3
Midwives	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Nurse Educators and Researchers	1.0	1.3	0.6	12.6	13.6	11.6	13.6	15.0	12.2
Nurse Managers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Registered Nurses	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
ICT Business and Systems Analysts	9.4	11.8	7.1	35.6	45.3	25.2	45.0	57.1	32.3
Multimedia Specialists and Web Developers	11.4	14.5	8.3	31.5	39.2	23.1	43.0	53.8	31.5
Software and Applications Programmers	11.2	14.0	8.4	33.7	42.4	24.2	44.8	56.4	32.6
Database and Systems Administrators, and ICT Security Specialists	7.3	9.2	5.4	29.6	37.4	21.4	36.9	46.6	26.8
Computer Network Professionals	9.1	11.6	6.6	28.5	35.5	20.9	37.5	47.1	27.5

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
ICT Support and Test Engineers	9.7	12.2	7.2	46.7	60.3	32.1	56.4	72.4	39.3
Telecommunications Engineering Professionals	17.9	24.5	11.3	14.7	16.0	12.9	32.6	40.5	24.1
Barristers	10.2	11.9	8.5	13.8	15.4	12.1	24.0	27.4	20.6
Judicial and Other Legal Professionals	6.1	7.3	5.3	0.0	0.0	0.0	6.1	7.3	5.3
Solicitors	11.9	13.9	9.8	5.4	4.0	6.9	17.3	18.0	20.6
Counsellors	0.9	1.1	0.8	4.4	4.8	3.5	5.3	5.9	4.3
Ministers of Religion	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Psychologists	0.8	1.0	0.6	0.0	0.0	0.0	0.8	1.0	0.6
Social Professionals	3.7	4.9	2.6	7.4	6.6	8.2	11.1	11.4	10.8
Social Workers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Welfare, Recreation and Community Arts Workers	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Agricultural Technicians	5.1	6.9	3.2	0.0	0.0	0.0	5.1	6.9	3.2
Medical Technicians	0.5	0.7	0.4	6.0	4.5	7.5	6.5	5.2	7.9
Primary Products Inspectors	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Science Technicians	2.3	3.0	1.5	0.0	0.0	0.0	2.3	3.0	1.5
Architectural, Building and Surveying Technicians	0.2	0.3	0.2	3.7	3.8	3.6	3.9	4.1	3.7
Civil Engineering Draftspersons and Technicians	0.2	0.3	0.2	12.5	14.5	10.4	12.7	14.8	10.6
Electrical Engineering Draftspersons and Technicians	0.5	0.6	0.4	3.3	3.6	3.0	3.8	4.2	3.4
Electronic Engineering Draftspersons and Technicians	3.7	4.9	2.5	11.1	12.9	9.2	14.8	17.8	11.7
Mechanical Engineering Draftspersons and Technicians	0.8	1.0	0.6	9.3	10.8	7.8	10.1	11.8	8.4
Safety Inspectors	1.0	1.3	0.8	0.0	0.0	0.0	1.0	1.3	0.8
Other Building and Engineering Technicians	0.6	0.7	0.4	3.0	3.3	2.7	3.6	4.0	3.1
ICT Support Technicians	8.6	11.1	6.2	39.7	50.8	27.9	48.4	61.9	34.1
Telecommunications Technical Specialists	15.4	21.1	9.7	37.1	45.1	27.1	52.5	66.2	36.8
Automotive Electricians	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Motor Mechanics	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Metal Casting, Forging and Finishing Trades Workers	0.1	0.1	0.1	0.7	0.7	0.7	0.8	0.9	0.8
Sheet Metal Trades Workers	0.3	0.3	0.2	2.1	2.7	1.5	2.4	3.0	1.8
Structural Steel and Welding Trades Workers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Aircraft Maintenance Engineers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Metal Fitters and Machinists	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Precision Metal Trades Workers	0.9	1.1	0.8	14.3	17.1	11.5	15.2	18.2	12.2

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Toolmakers and Engineering Patternmakers	0.6	0.7	0.5	6.8	8.8	4.7	7.4	9.5	5.2
Panel Beaters	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Vehicle Body Builders and Trimmers	0.2	0.2	0.1	4.9	5.1	4.7	5.0	5.3	4.8
Vehicle Painters	0.1	0.2	0.1	15.6	18.5	12.7	15.7	18.6	12.9
Bricklayers and Stonemasons	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carpenters and Joiners	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Floor Finishers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Painting Trades Workers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Glaziers	0.2	0.2	0.2	0.7	0.8	0.5	0.9	1.0	0.7
Plasterers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roof Tilers	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.3	0.2
Wall and Floor Tilers	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.1
Plumbers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricians	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Air Conditioning and Refrigeration Mechanics	0.2	0.2	0.1	7.7	9.4	6.0	7.9	9.6	6.1
Electrical Distribution Trades Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Electronics Trades Workers	4.2	5.2	3.3	6.9	6.8	7.0	11.1	12.0	10.3
Telecommunications Trades Workers	12.9	17.6	8.1	0.0	0.0	0.0	12.9	17.6	8.1
Bakers and Pastry Cooks	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5
Butchers and Smallgoods Makers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Chefs	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Cooks	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Animal Attendants and Trainers	0.5	0.8	0.3	0.0	0.0	0.0	0.5	0.8	0.3
Shearers	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Veterinary Nurses	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Florists	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Gardeners	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Greenkeepers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Nurserypersons	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Hairdressers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Print Finishers and Screen Printers	2.5	3.4	1.6	0.0	0.0	0.0	2.5	3.4	1.6
Graphic Pre-press Trades Workers	5.5	7.3	3.7	18.4	22.9	13.5	23.8	30.2	17.1

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Printers	2.7	3.6	1.8	0.0	0.0	0.0	2.7	3.6	1.8
Canvas and Leather Goods Makers	0.3	0.4	0.3	0.0	0.0	0.0	0.3	0.4	0.3
Clothing Trades Workers	1.0	1.2	0.7	0.0	0.0	0.0	1.0	1.2	0.7
Upholsterers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Cabinetmakers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Wood Machinists and Other Wood Trades Workers	0.5	0.6	0.4	4.7	5.6	3.8	5.2	6.2	4.2
Boat Builders and Shipwrights	0.7	1.0	0.5	1.2	1.3	1.2	2.0	2.2	1.7
Chemical, Gas, Petroleum and Power Generation Plant Operators	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3
Gallery, Library and Museum Technicians	4.1	4.8	3.4	0.0	0.0	0.0	4.1	4.8	3.4
Jewellers	0.7	0.9	0.5	8.2	9.5	6.9	8.9	10.4	7.5
Performing Arts Technicians	1.6	2.1	1.2	20.1	24.5	15.7	21.8	26.6	16.9
Sign Writers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Other Miscellaneous Technicians and Trades Workers	0.6	0.7	0.4	7.8	8.8	6.7	8.3	9.5	7.2
Ambulance Officers and Paramedics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dental Hygienists, Technicians and Therapists	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Diversional Therapists	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enrolled and Mothercraft Nurses	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Indigenous Health Workers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Massage Therapists	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Welfare Support Workers	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Child Carers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Education Aides	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aged and Disabled Carers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Dental Assistants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nursing Support and Personal Care Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Special Care Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Bar Attendants and Baristas	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Cafe Workers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Gaming Workers	0.0	0.0	0.0	15.6	17.8	13.3	15.6	17.9	13.4
Hotel Service Managers	0.2	0.2	0.1	3.4	4.1	2.7	3.6	4.4	2.9
Waiters	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Other Hospitality Workers	0.7	1.0	0.4	0.0	0.0	0.0	0.7	1.0	0.4

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Defence Force Members - Other Ranks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fire and Emergency Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Police	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prison Officers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Security Officers and Guards	0.7	0.8	0.5	0.0	0.0	0.0	0.7	0.8	0.5
Beauty Therapists	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Driving Instructors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Funeral Workers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gallery, Museum and Tour Guides	0.7	1.0	0.5	23.4	28.8	17.9	24.1	29.7	18.4
Personal Care Consultants	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Tourism and Travel Advisers	0.6	0.8	0.5	26.6	33.2	19.9	27.2	34.0	20.4
Travel Attendants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Personal Service Workers	0.4	0.6	0.3	0.0	0.0	0.0	0.4	0.6	0.3
Fitness Instructors	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Outdoor Adventure Guides	0.4	0.6	0.2	0.0	0.0	0.0	0.4	0.6	0.2
Sports Coaches, Instructors and Officials	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Sportspersons	0.5	0.7	0.3	0.0	0.0	0.0	0.5	0.7	0.3
Contract, Program and Project Administrators	2.6	3.3	1.9	20.9	26.1	15.5	23.5	29.4	17.5
Office Managers	2.6	3.1	2.0	4.3	3.5	5.1	6.8	6.5	7.1
Practice Managers	1.1	1.3	0.8	6.2	4.8	7.7	7.3	6.1	8.5
Personal Assistants	4.3	5.3	3.3	7.3	7.0	7.6	11.5	12.2	10.8
Secretaries	3.8	4.5	3.1	6.1	6.0	6.2	9.9	10.5	9.3
General Clerks	2.2	2.7	1.7	16.8	20.5	13.1	19.0	23.2	14.8
Keyboard Operators	4.0	5.0	3.0	26.5	33.6	19.3	30.5	38.6	22.3
Call or Contact Centre Workers	11.1	15.1	7.1	35.6	44.3	25.8	46.7	59.4	32.9
Inquiry Clerks	6.0	7.9	4.0	3.1	1.1	5.2	9.1	9.0	9.2
Receptionists	1.7	2.0	1.3	6.6	5.8	7.5	8.3	7.7	8.8
Accounting Clerks	3.0	3.6	2.3	18.4	23.0	13.7	21.4	26.7	16.1
Bookkeepers	3.1	3.7	2.6	0.0	0.0	0.0	3.1	3.7	2.6
Payroll Clerks	2.2	2.6	1.7	20.3	25.5	15.1	22.5	28.2	16.8
Bank Workers	11.5	13.1	9.8	27.1	33.8	20.1	38.6	46.9	30.0
Credit and Loans Officers (Aus) / Finance Clerks (NZ)	9.8	11.5	8.2	16.3	18.9	13.5	26.1	30.4	21.7

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Insurance, Money Market and Statistical Clerks	7.6	9.2	6.0	0.0	0.0	0.0	7.6	9.2	6.0
Betting Clerks	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Couriers and Postal Deliverers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Filing and Registry Clerks	2.9	3.5	2.3	14.3	16.7	11.8	17.2	20.2	14.1
Mail Sorters	1.4	1.9	0.9	0.0	0.0	0.0	1.4	1.9	0.9
Survey Interviewers	15.4	19.6	11.2	50.5	63.9	35.3	65.8	83.5	46.5
Switchboard Operators	4.6	6.1	3.1	31.9	40.5	22.9	36.5	46.6	26.1
Other Clerical and Office Support Workers	10.6	13.3	7.8	11.7	12.8	10.5	22.3	26.1	18.3
Purchasing and Supply Logistics Clerks	3.1	3.7	2.6	17.9	22.4	13.4	21.1	26.1	16.0
Transport and Despatch Clerks	1.4	1.7	1.1	11.9	13.7	10.2	13.3	15.3	11.3
Conveyancers and Legal Executives	11.3	13.3	9.4	16.1	18.6	13.4	27.4	31.9	22.8
Court and Legal Clerks	7.4	8.7	6.1	19.7	23.6	15.7	27.1	32.3	21.8
Debt Collectors	9.5	12.8	6.1	0.0	0.0	0.0	9.5	12.8	6.1
Human Resource Clerks	2.7	3.2	2.1	6.8	6.2	7.5	9.5	9.5	9.6
Inspectors and Regulatory Officers	0.5	0.6	0.3	6.7	5.7	7.8	7.2	6.3	8.1
Insurance Investigators, Loss Adjusters and Risk Surveyors	9.5	11.5	7.5	0.0	0.0	0.0	9.5	11.5	7.5
Library Assistants	3.5	4.1	3.0	0.0	0.0	0.0	3.5	4.1	3.0
Other Miscellaneous Clerical and Administrative Workers	4.2	5.5	3.0	12.3	13.5	11.0	16.5	18.9	14.0
Auctioneers, and Stock and Station Agents	0.9	1.0	0.8	0.0	0.0	0.0	0.9	1.0	0.8
Insurance Agents	10.1	12.2	8.0	24.8	30.5	18.9	34.9	42.6	26.9
Sales Representatives	5.7	6.9	4.6	4.2	3.3	5.2	10.0	10.1	9.8
Real Estate Sales Agents	0.6	0.8	0.4	5.8	4.5	7.2	6.5	5.3	7.7
Sales Assistants (General)	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
ICT Sales Assistants	12.3	16.2	8.4	0.0	0.0	0.0	12.3	16.2	8.4
Motor Vehicle and Vehicle Parts Salespersons	1.6	1.6	1.5	0.0	0.0	0.0	1.6	1.6	1.5
Pharmacy Sales Assistants	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Retail Supervisors	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Service Station Attendants	0.4	0.4	0.4	0.0	0.0	0.0	0.4	0.4	0.4
Street Vendors and Related Salespersons	1.5	1.7	1.3	0.0	0.0	0.0	1.5	1.7	1.3
Other Sales Assistants and Salespersons	6.2	7.9	4.5	0.0	0.0	0.0	6.2	7.9	4.5
Checkout Operators and Office Cashiers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Models and Sales Demonstrators	2.9	3.4	2.4	4.3	3.3	5.4	7.2	6.7	7.7

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)

	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Retail and Wool Buyers	2.3	2.8	1.9	18.4	21.9	14.8	20.7	24.7	16.7
Telemarketers	9.5	12.9	6.1	39.1	49.3	27.7	48.5	62.2	33.8
Ticket Salespersons	0.8	1.1	0.6	15.8	18.2	13.5	16.7	19.3	14.0
Visual Merchandisers	2.4	2.9	1.9	14.0	16.4	11.5	16.4	19.3	13.4
Other Sales Support Workers	6.1	7.2	5.0	0.0	0.0	0.0	6.1	7.2	5.0
Clay, Concrete, Glass and Stone Processing Machine Operators	0.3	0.3	0.3	0.0	0.0	0.0	0.3	0.3	0.3
Industrial Spray Painters	0.2	0.3	0.2	0.3	0.0	0.7	0.6	0.3	0.9
Paper and Wood Processing Machine Operators	1.0	1.2	0.9	0.0	0.0	0.0	1.0	1.2	0.9
Photographic Developers and Printers	0.9	1.1	0.7	2.1	2.5	1.7	3.0	3.6	2.3
Plastics and Rubber Production Machine Operators	0.3	0.4	0.3	0.3	0.1	0.5	0.6	0.5	0.8
Sewing Machinists	0.7	0.9	0.6	0.7	0.8	0.5	1.4	1.7	1.1
Textile and Footwear Production Machine Operators	0.6	0.7	0.4	0.5	0.3	0.8	1.1	0.9	1.2
Other Machine Operators	2.2	3.2	1.3	1.3	1.5	1.0	3.5	4.7	2.3
Crane, Hoist and Lift Operators	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Drillers, Miners and Shot Firers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Engineering Production Workers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Other Stationary Plant Operators	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Agricultural, Forestry and Horticultural Plant Operators	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Earthmoving Plant Operators	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Forklift Drivers	1.8	2.0	1.5	0.0	0.0	0.0	1.8	2.0	1.5
Other Mobile Plant Operators	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Automobile Drivers	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.3	0.1
Bus and Coach Drivers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Train and Tram Drivers	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Delivery Drivers	1.5	1.6	1.4	0.0	0.0	0.0	1.5	1.6	1.4
Truck Drivers	0.4	0.4	0.4	0.0	0.0	0.0	0.4	0.4	0.4
Storepersons	3.2	3.6	2.7	0.0	0.0	0.0	3.2	3.6	2.7
Car Detailers	1.7	2.2	1.2	0.0	0.0	0.0	1.7	2.2	1.2
Commercial Cleaners	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Domestic Cleaners	0.2	0.3	0.1	0.0	0.0	0.0	0.2	0.3	0.1
Housekeepers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Laundry Workers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Other Cleaners	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Building and Plumbing Labourers	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.1
Concreters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fencers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Insulation and Home Improvement Installers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Paving and Surfacing Labourers	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Railway Track Workers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Structural Steel Construction Workers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Other Construction and Mining Labourers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Food and Drink Factory Workers	0.6	0.6	0.5	0.0	0.0	0.0	0.6	0.6	0.5
Meat Boners and Slicers, and Slaughterers	0.4	0.5	0.3	0.0	0.0	0.0	0.4	0.5	0.3
Meat, Poultry and Seafood Process Workers	0.6	0.7	0.6	0.0	0.0	0.0	0.6	0.7	0.6
Packers	1.2	1.4	1.1	0.0	0.0	0.0	1.2	1.4	1.1
Product Assemblers	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Metal Engineering Process Workers	0.4	0.4	0.3	0.0	0.0	0.0	0.4	0.4	0.3
Plastics and Rubber Factory Workers	0.5	0.6	0.4	0.0	0.0	0.0	0.5	0.6	0.4
Product Quality Controllers	1.7	2.1	1.3	0.7	0.8	0.5	2.4	2.9	1.8
Timber and Wood Process Workers	1.7	2.0	1.3	0.0	0.0	0.0	1.7	2.0	1.3
Other Factory Process Workers	1.0	1.1	0.8	0.0	0.0	0.0	1.0	1.1	0.8
Aquaculture Workers	0.8	0.8	0.7	0.0	0.0	0.0	0.8	0.8	0.7
Crop Farm Workers	0.4	0.5	0.4	0.0	0.0	0.0	0.4	0.5	0.4
Forestry and Logging Workers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Garden and Nursery Labourers	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Livestock Farm Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Mixed Crop and Livestock Farm Workers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Other Farm, Forestry and Garden Workers	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.3	0.2
Fast Food Cooks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Food Trades Assistants	0.4	0.5	0.4	0.0	0.0	0.0	0.4	0.5	0.4
Kitchenhands	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Freight and Furniture Handlers	0.6	0.7	0.5	0.0	0.0	0.0	0.6	0.7	0.5
Shelf Fillers	0.3	0.3	0.2	0.0	0.0	0.0	0.3	0.3	0.2
Caretakers	0.5	0.6	0.3	0.0	0.0	0.0	0.5	0.6	0.3

Table A.2 Per cent of service industry occupations from off-shoring over next two to three decades – occupations and industry methodology – 2011 (continued)									
	Industry impact			Occupational impact in remaining industry			Total impact		
	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario	Base scenario	High scenario	Low scenario
Deck and Fishing Hands	0.4	0.5	0.4	0.0	0.0	0.0	0.4	0.5	0.4
Handy Persons	0.3	0.4	0.2	0.0	0.0	0.0	0.3	0.4	0.2
Motor Vehicle Parts and Accessories Fitters	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.5
Printing Assistants and Table Workers	4.7	6.3	3.1	0.0	0.0	0.0	4.7	6.3	3.1
Recycling and Rubbish Collectors	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.1
Vending Machine Attendants	0.5	0.7	0.3	0.0	0.0	0.0	0.5	0.7	0.3
Other Miscellaneous Labourers	1.1	1.4	0.9	0.0	0.0	0.0	1.1	1.4	0.9
Total (of service sector employment)	2.7	3.3	2.1	7.5	8.8	6.1	10.2	12.2	8.1
Per cent of total employment	2.1	2.5	1.6	5.7	6.7	4.6	7.7	9.2	6.2
Total 2011 – number	234477	287450	181505	646365	763668	523344	880842	1051118	704848

Appendix B: Concordance between ANZSCO and ASCO

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO)

ANZSCO 2006	ASCO 1996
1111 Chief Executives and Managing Directors	1112 General Managers
1112 General Managers	1112 General Managers
1113 Legislators	1111 Legislators and Government Appointed Officials
1211 Aquaculture Farmers	1314 Aquaculture Farmers
1212 Crop Farmers	1313 Crop Farmers
1213 Livestock Farmers	1312 Livestock Farmers
1214 Mixed Crop and Livestock Farmers	1311 Mixed Crop and Livestock Farmers
1311 Advertising, Public Relations and Sales Managers	1231 Sales and Marketing Managers
1321 Corporate Services Managers	1211 Finance Managers
1322 Finance Managers	1211 Finance Managers
1323 Human Resource Managers	1213 Human Resource Managers
1324 Policy and Planning Managers	1291 Policy and Planning Managers
1325 Research and Development Managers	1299 Other Specialist Managers
1331 Construction Managers	1191 Building and Construction Managers
1332 Engineering Managers	1221 Engineering Managers
1333 Importers, Exporters and Wholesalers	1192 Importers, Exporters and Wholesalers
1334 Manufacturers	1193 Manufacturers
1335 Production Managers	1222 Production Managers
1336 Supply and Distribution Managers	1223 Supply and Distribution Managers
1341 Child Care Centre Managers	1295 Child Care Co-ordinators
1342 Health and Welfare Services Managers	1292 Health Services Managers
1343 School Principals	1293 Education Managers
1344 Other Education Managers	1293 Education Managers
1351 ICT Managers	1224 Information Technology Managers
1391 Commissioned Officers (Management)	1294 Commissioned Officers (Management)
1392 Senior Non-commissioned Defence Force Members	3994 Senior Non-Commissioned Defence Force Officers
1399 Other Specialist Managers	1299 Other Specialist Managers
1411 Cafe and Restaurant Managers	3321 Restaurant and Catering Managers
1412 Caravan Park and Camping Ground Managers	3325 Caravan Park and Camping Ground Managers
1413 Hotel and Motel Managers	3323 Hotel and Motel Managers
1414 Licensed Club Managers	3324 Club Managers (Licensed Premises)
1419 Other Accommodation and Hospitality Managers	3329 Other Hospitality and Accommodation Managers
1421 Retail Managers	3311 Shop Managers
1491 Amusement, Fitness and Sports Centre Managers	3391 Sport and Recreation Managers
1492 Call or Contact Centre and Customer Service Managers	3392 Customer Service Managers
1493 Conference and Event Organisers	3292 Project and Program Administrators
1494 Transport Services Managers	3393 Transport Company Managers
1499 Other Hospitality, Retail and Service Managers	3211 Branch Accountants and Managers (Financial Institution)
2111 Actors, Dancers and Other Entertainers	2538 Actors, Dancers and Related Professionals
2112 Music Professionals	2537 Musicians and Related Professionals

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
2113 Photographers	2532 Photographers
2114 Visual Arts and Crafts Professionals	2531 Visual Arts and Crafts Professionals
2121 Artistic Directors, and Media Producers and Presenters	1296 Media Producers and Artistic Directors
2122 Authors, and Book and Script Editors	2535 Authors and Related Professionals
2123 Film, Television, Radio and Stage Directors	2536 Film, Television, Radio and Stage Directors
2124 Journalists and Other Writers	2534 Journalists and Related Professionals
2211 Accountants	2211 Accountants
2212 Auditors, Company Secretaries and Corporate Treasurers	1212 Company Secretaries
2221 Financial Brokers	3212 Financial Dealers and Brokers
2222 Financial Dealers	3212 Financial Dealers and Brokers
2223 Financial Investment Advisers and Managers	3213 Financial Investment Advisers
2231 Human Resource Professionals	2291 Human Resource Professionals
2232 ICT Trainers	2491 Extra-Systemic Teachers
2233 Training and Development Professionals	2291 Human Resource Professionals
2241 Actuaries, Mathematicians and Statisticians	2293 Mathematicians, Statisticians and Actuaries
2242 Archivists, Curators and Records Managers	2299 Other Business and Information Professionals
2243 Economists	2522 Economists
2244 Intelligence and Policy Analysts	2299 Other Business and Information Professionals
2245 Land Economists and Valuers	2295 Property Professionals
2246 Librarians	2292 Librarians
2247 Management and Organisation Analysts	2294 Business and Organisation Analysts
2249 Other Information and Organisation Professionals	2549 Other Professionals
2251 Advertising and Marketing Professionals	2221 Marketing and Advertising Professionals
2252 ICT Sales Professionals	2222 Technical Sales Representatives
2253 Public Relations Professionals	2221 Marketing and Advertising Professionals
2254 Technical Sales Representatives	2222 Technical Sales Representatives
2311 Air Transport Professionals	2541 Air Transport Professionals
2312 Marine Transport Professionals	2542 Sea Transport Professionals
2321 Architects and Landscape Architects	2121 Architects and Landscape Architects
2322 Surveyors and Spatial Scientists	2123 Cartographers and Surveyors
2323 Fashion, Industrial and Jewellery Designers	2533 Designers and Illustrators
2324 Graphic and Web Designers, and Illustrators	2533 Designers and Illustrators
2325 Interior Designers	2533 Designers and Illustrators
2326 Urban and Regional Planners	2523 Urban and Regional Planners
2331 Chemical and Materials Engineers	2129 Other Building and Engineering Professionals
2332 Civil Engineering Professionals	2122 Quantity Surveyors
2333 Electrical Engineers	2125 Electrical and Electronics Engineers
2334 Electronics Engineers	2125 Electrical and Electronics Engineers
2335 Industrial, Mechanical and Production Engineers	2126 Mechanical, Production and Plant Engineers
2336 Mining Engineers	2127 Mining and Materials Engineers
2339 Other Engineering Professionals	2128 Engineering Technologists
2341 Agricultural and Forestry Scientists	2114 Environmental and Agricultural Science Professionals
2342 Chemists, and Food and Wine Scientists	2111 Chemists
2343 Environmental Scientists	2114 Environmental and Agricultural Science Professionals
2344 Geologists and Geophysicists	2112 Geologists and Geophysicists
2345 Life Scientists	2113 Life Scientists
2346 Medical Laboratory Scientists	2115 Medical Scientists

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
2347 Veterinarians	2392 Veterinarians
2349 Other Natural and Physical Science Professionals	2119 Other Natural and Physical Science Professionals
2411 Early Childhood (Pre-primary School) Teachers	2411 Pre-Primary School Teachers
2412 Primary School Teachers	2412 Primary School Teachers
2413 Middle School Teachers (Aus) / Intermediate School Teachers (NZ)	2412 Primary School Teachers
2414 Secondary School Teachers	2413 Secondary School Teachers
2415 Special Education Teachers	2414 Special Education Teachers
2421 University Lecturers and Tutors	2421 University Lecturers and Tutors
2422 Vocational Education Teachers (Aus) / Polytechnic Teachers (NZ)	2422 Vocational Education Teachers
2491 Education Advisers and Reviewers	2493 Education Officers
2492 Private Tutors and Teachers	2491 Extra-Systemic Teachers
2493 Teachers of English to Speakers of Other Languages	2492 English as a Second Language Teachers
2511 Dietitians	2393 Dietitians
2512 Medical Imaging Professionals	2391 Medical Imaging Professionals
2513 Occupational and Environmental Health Professionals	2543 Occupational and Environmental Health Professionals
2514 Optometrists and Orthopaedists	2384 Optometrists
2515 Pharmacists	2382 Pharmacists
2519 Other Health Diagnostic and Promotion Professionals	2512 Welfare and Community Workers
2521 Chiropractors and Osteopaths	2387 Chiropractors and Osteopaths
2522 Complementary Health Therapists	2394 Natural Therapy Professionals
2523 Dental Practitioners	2381 Dental Practitioners
2524 Occupational Therapists	2383 Occupational Therapists
2525 Physiotherapists	2385 Physiotherapists
2526 Podiatrists	2388 Podiatrists
2527 Speech Professionals and Audiologists	2386 Speech Pathologists
2531 Generalist Medical Practitioners	2311 Generalist Medical Practitioners
2532 Anaesthetists	2312 Specialist Medical Practitioners
2533 Specialist Physicians	2312 Specialist Medical Practitioners
2534 Psychiatrists	2312 Specialist Medical Practitioners
2535 Surgeons	2312 Specialist Medical Practitioners
2539 Other Medical Practitioners	2312 Specialist Medical Practitioners
2541 Midwives	2324 Registered Midwives
2542 Nurse Educators and Researchers	2322 Nurse Educators and Researchers
2543 Nurse Managers	2321 Nurse Managers
2544 Registered Nurses	2325 Registered Mental Health Nurses
2611 ICT Business and Systems Analysts	2231 Computing Professionals
2612 Multimedia Specialists and Web Developers	2231 Computing Professionals
2613 Software and Applications Programmers	2231 Computing Professionals
2621 Database and Systems Administrators, and ICT Security Specialists	2231 Computing Professionals
2631 Computer Network Professionals	2231 Computing Professionals
2632 ICT Support and Test Engineers	3294 Computing Support Technicians
2633 Telecommunications Engineering Professionals	2125 Electrical and Electronics Engineers
2711 Barristers	2521 Legal Professionals
2712 Judicial and Other Legal Professionals	1111 Legislators and Government Appointed Officials
2713 Solicitors	2521 Legal Professionals
2721 Counsellors	2513 Counsellors

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
2722 Ministers of Religion	2515 Ministers of Religion
2723 Psychologists	2514 Psychologists
2724 Social Professionals	2529 Other Social Professionals
2725 Social Workers	2511 Social Workers
2726 Welfare, Recreation and Community Arts Workers	2512 Welfare and Community Workers
3111 Agricultural Technicians	3112 Science Technical Officers
3112 Medical Technicians	3111 Medical Technical Officers
3113 Primary Products Inspectors	3991 Primary Products Inspectors
3114 Science Technicians	3112 Science Technical Officers
3121 Architectural, Building and Surveying Technicians	3121 Building, Architectural and Surveying Associate Professionals
3122 Civil Engineering Draftspersons and Technicians	3122 Civil Engineering Associate Professionals
3123 Electrical Engineering Draftspersons and Technicians	3123 Electrical Engineering Associate Professionals
3124 Electronic Engineering Draftspersons and Technicians	3124 Electronics Engineering Associate Professionals
3125 Mechanical Engineering Draftspersons and Technicians	3125 Mechanical Engineering Associate Professionals
3126 Safety Inspectors	3992 Safety Inspectors
3129 Other Building and Engineering Technicians	3129 Other Building and Engineering Associate Professionals
3131 ICT Support Technicians	3294 Computing Support Technicians
3132 Telecommunications Technical Specialists	3124 Electronics Engineering Associate Professionals
3211 Automotive Electricians	4212 Automotive Electricians
3212 Motor Mechanics	4211 Motor Mechanics
3221 Metal Casting, Forging and Finishing Trades Workers	4123 Forging Tradespersons
3222 Sheet Metal Trades Workers	4124 Sheet Metal Tradespersons
3223 Structural Steel and Welding Trades Workers	4121 General Fabrication Engineering Tradespersons
3231 Aircraft Maintenance Engineers	4114 Aircraft Maintenance Engineers
3232 Metal Fitters and Machinists	4111 General Mechanical Engineering Tradespersons
3233 Precision Metal Trades Workers	4115 Precision Metal Tradespersons
3234 Toolmakers and Engineering Patternmakers	4113 Toolmakers
3241 Panel Beaters	4213 Panel Beaters
3242 Vehicle Body Builders and Trimmers	4215 Vehicle Body Makers
3243 Vehicle Painters	4214 Vehicle Painters
3311 Bricklayers and Stonemasons	4414 Bricklayers
3312 Carpenters and Joiners	4411 Carpentry and Joinery Tradespersons
3321 Floor Finishers	4423 Floor Finishers
3322 Painting Trades Workers	4421 Painters and Decorators
3331 Glaziers	4982 Glass Tradespersons
3332 Plasterers	4412 Fibrous Plasterers
3333 Roof Tilers	4413 Roof Slaters and Tilers
3334 Wall and Floor Tilers	4416 Wall and Floor Tilers and Stonemasons
3341 Plumbers	4431 Plumbers
3411 Electricians	4311 Electricians
3421 Air Conditioning and Refrigeration Mechanics	4312 Refrigeration and Air Conditioning Mechanics
3422 Electrical Distribution Trades Workers	4313 Electrical Distribution Tradespersons
3423 Electronics Trades Workers	4315 Electronic and Office Equipment Tradespersons
3424 Telecommunications Trades Workers	4316 Communications Tradespersons
3511 Bakers and Pastry Cooks	4512 Bakers and Pastry Cooks
3512 Butchers and Smallgoods Makers	4511 Meat Tradespersons

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
3513 Chefs	3322 Chefs
3514 Cooks	4513 Cooks
3611 Animal Attendants and Trainers	4614 Animal Trainers
3612 Shearers	4612 Shearers
3613 Veterinary Nurses	6392 Veterinary Nurses
3621 Florists	4984 Florists
3622 Gardeners	4623 Gardeners
3623 Greenkeepers	4622 Greenkeepers
3624 Nurserypersons	4621 Nurserypersons
3911 Hairdressers	4931 Hairdressers
3921 Print Finishers and Screen Printers	4913 Binders and Finishers
3922 Graphic Pre-press Trades Workers	4911 Graphic Pre-Press Tradespersons
3923 Printers	4912 Printing Machinists and Small Offset Printers
3931 Canvas and Leather Goods Makers	4943 Footwear Tradespersons
3932 Clothing Trades Workers	4941 Clothing Tradespersons
3933 Upholsterers	4942 Upholsterers and Bedding Tradespersons
3941 Cabinetmakers	4922 Cabinetmakers
3942 Wood Machinists and Other Wood Trades Workers	4921 Wood Machinists and Turners
3991 Boat Builders and Shipwrights	4981 Marine Construction Tradespersons
3992 Chemical, Gas, Petroleum and Power Generation Plant Operators	4987 Chemical, Petroleum and Gas Plant Operators
3993 Gallery, Library and Museum Technicians	3997 Library Technicians
3994 Jewellers	4983 Jewellers and Related Tradespersons
3995 Performing Arts Technicians	4992 Performing Arts Support Workers
3996 Sign Writers	4422 Sign Writers
3999 Other Miscellaneous Technicians and Trades Workers	4613 Wool, Hide and Skin Classers
4111 Ambulance Officers and Paramedics	3491 Ambulance Officers and Paramedics
4112 Dental Hygienists, Technicians and Therapists	3492 Dental Associate Professionals
4113 Diversional Therapists	2399 Other Health Professionals
4114 Enrolled and Mothercraft Nurses	3411 Enrolled Nurses
4115 Indigenous Health Workers	3493 Aboriginal and Torres Strait Islander Health Workers
4116 Massage Therapists	3494 Massage Therapists
4117 Welfare Support Workers	3421 Welfare Associate Professionals
4211 Child Carers	6312 Children's Care Workers
4221 Education Aides	6311 Education Aides
4231 Aged and Disabled Carers	6313 Special Care Workers
4232 Dental Assistants	6391 Dental Assistants
4233 Nursing Support and Personal Care Workers	6314 Personal Care and Nursing Assistants
4234 Special Care Workers	6313 Special Care Workers
4311 Bar Attendants and Baristas	6322 Bar Attendants
4312 Cafe Workers	6213 Retail and Checkout Supervisors
4313 Gaming Workers	6394 Gaming Workers
4314 Hotel Service Managers	6321 Hotel Service Supervisors
4315 Waiters	6323 Waiters
4319 Other Hospitality Workers	6324 Hospitality Trainees
4411 Defence Force Members - Other Ranks	4991 Defence Force Members Not Elsewhere Included
4412 Fire and Emergency Workers	3995 Senior Fire Fighters
4413 Police	3911 Police Officers

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
4421 Prison Officers	6393 Prison Officers
4422 Security Officers and Guards	8311 Guards and Security Officers
4511 Beauty Therapists	6395 Personal Care Consultants
4512 Driving Instructors	6399 Other Intermediate Service Workers
4513 Funeral Workers	3399 Other Managing Supervisors (Sales and Service)
4514 Gallery, Museum and Tour Guides	6397 Travel and Tourism Agents
4515 Personal Care Consultants	6395 Personal Care Consultants
4516 Tourism and Travel Advisers	6397 Travel and Tourism Agents
4517 Travel Attendants	5996 Travel Attendants
4518 Other Personal Service Workers	6399 Other Intermediate Service Workers
4521 Fitness Instructors	6396 Fitness Instructors and Related Workers
4522 Outdoor Adventure Guides	6396 Fitness Instructors and Related Workers
4523 Sports Coaches, Instructors and Officials	3993 Sportspersons, Coaches and Related Support Workers
4524 Sportspersons	3993 Sportspersons, Coaches and Related Support Workers
5111 Contract, Program and Project Administrators	3292 Project and Program Administrators
5121 Office Managers	3291 Office Managers
5122 Practice Managers	3291 Office Managers
5211 Personal Assistants	5111 Secretaries and Personal Assistants
5212 Secretaries	5111 Secretaries and Personal Assistants
5311 General Clerks	6111 General Clerks
5321 Keyboard Operators	6121 Keyboard Operators
5411 Call or Contact Centre Workers	6191 Inquiry and Admissions Clerks
5412 Inquiry Clerks	6191 Inquiry and Admissions Clerks
5421 Receptionists	6131 Receptionists
5511 Accounting Clerks	6141 Accounting Clerks
5512 Bookkeepers	5911 Bookkeepers
5513 Payroll Clerks	6142 Payroll Clerks
5521 Bank Workers	6143 Bank Workers
5522 Credit and Loans Officers (Aus) / Finance Clerks (NZ)	5912 Credit and Loans Officers
5523 Insurance, Money Market and Statistical Clerks	6145 Money Market and Statistical Clerks
5611 Betting Clerks	8115 Betting Clerks
5612 Couriers and Postal Deliverers	8114 Messengers
5613 Filing and Registry Clerks	8111 Registry and Filing Clerks
5614 Mail Sorters	8112 Mail Sorting Clerks
5615 Survey Interviewers	8119 Other Elementary Clerks
5616 Switchboard Operators	8113 Switchboard Operators
5619 Other Clerical and Office Support Workers	8116 Office Trainees
5911 Purchasing and Supply Logistics Clerks	6151 Production Recording Clerks
5912 Transport and Despatch Clerks	6152 Transport and Despatching Clerks
5991 Conveyancers and Legal Executives	5991 Advanced Legal and Related Clerks
5992 Court and Legal Clerks	5991 Advanced Legal and Related Clerks
5993 Debt Collectors	6199 Other Intermediate Clerical Workers
5994 Human Resource Clerks	6193 Personnel Clerks
5995 Inspectors and Regulatory Officers	6194 Intermediate Inspectors and Examiners
5996 Insurance Investigators, Loss Adjusters and Risk Surveyors	5994 Insurance Risk Surveyors, Investigators and Loss Adjusters
5997 Library Assistants	6192 Library Assistants

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
5999 Other Miscellaneous Clerical and Administrative Workers	5999 Other Miscellaneous Advanced Clerical and Service Workers
6111 Auctioneers, and Stock and Station Agents	5999 Other Miscellaneous Advanced Clerical and Service Workers
6112 Insurance Agents	5993 Insurance Agents
6113 Sales Representatives	6211 Sales Representatives
6121 Real Estate Sales Agents	3293 Real Estate Associate Professionals
6211 Sales Assistants (General)	8297 Sales and Service Trainees
6212 ICT Sales Assistants	8211 Sales Assistants
6213 Motor Vehicle and Vehicle Parts Salespersons	6212 Motor Vehicle and Related Products Salespersons
6214 Pharmacy Sales Assistants	8211 Sales Assistants
6215 Retail Supervisors	6213 Retail and Checkout Supervisors
6216 Service Station Attendants	8296 Service Station Attendants
6217 Street Vendors and Related Salespersons	8293 Street Vendors and Related Workers
6219 Other Sales Assistants and Salespersons	8299 Other Elementary Sales Workers
6311 Checkout Operators and Office Cashiers	8291 Checkout Operators and Cashiers
6391 Models and Sales Demonstrators	8295 Sales Demonstrators and Models
6392 Retail and Wool Buyers	3996 Retail Buyers
6393 Telemarketers	8294 Telemarketers
6394 Ticket Salespersons	8292 Ticket Salespersons
6395 Visual Merchandisers	5999 Other Miscellaneous Advanced Clerical and Service Workers
6399 Other Sales Support Workers	3399 Other Managing Supervisors (Sales and Service)
7111 Clay, Concrete, Glass and Stone Processing Machine Operators	7296 Glass Production Machine Operators
7112 Industrial Spray Painters	7299 Other Intermediate Machine Operators
7113 Paper and Wood Processing Machine Operators	7294 Wood Processing Machine Operators
7114 Photographic Developers and Printers	7298 Photographic Developers and Printers
7115 Plastics and Rubber Production Machine Operators	7292 Rubber Production Machine Operators
7116 Sewing Machinists	7211 Sewing Machinists
7117 Textile and Footwear Production Machine Operators	7212 Textile and Footwear Production Machine Operators
7119 Other Machine Operators	7293 Chemical Production Machine Operators
7121 Crane, Hoist and Lift Operators	7122 Crane, Hoist and Lift Operators
7122 Drillers, Miners and Shot Firers	4986 Drillers
7123 Engineering Production Workers	7123 Engineering Production Systems Workers
7129 Other Stationary Plant Operators	7121 Engine and Boiler Operators
7211 Agricultural, Forestry and Horticultural Plant Operators	7119 Other Mobile Plant Operators
7212 Earthmoving Plant Operators	7111 Mobile Construction Plant Operators
7213 Forklift Drivers	7112 Forklift Drivers
7219 Other Mobile Plant Operators	7119 Other Mobile Plant Operators
7311 Automobile Drivers	7313 Automobile Drivers
7312 Bus and Coach Drivers	7312 Bus and Tram Drivers
7313 Train and Tram Drivers	7315 Train Drivers and Assistants
7321 Delivery Drivers	7314 Delivery Drivers
7331 Truck Drivers	7311 Truck Drivers
7411 Storepersons	7993 Storepersons
8111 Car Detailers	9111 Cleaners
8112 Commercial Cleaners	9111 Cleaners
8113 Domestic Cleaners	9111 Cleaners

Table B.1 Simple concordance between the Australian and New Zealand Standard Classification of Occupation (ANZSCO) and its predecessor the Australian Standard Classification of Occupation (ASCO) – continued

ANZSCO 2006	ASCO 1996
8114 Housekeepers	8313 Domestic Housekeepers
8115 Laundry Workers	8315 Laundry Workers
8116 Other Cleaners	9111 Cleaners
8211 Building and Plumbing Labourers	9912 Earthmoving Labourers
8212 Concreters	9917 Concreters
8213 Fencers	9919 Other Mining, Construction and Related Labourers
8214 Insulation and Home Improvement Installers	7914 Insulation and Home Improvements Installers
8215 Paving and Surfacing Labourers	9913 Paving and Surfacing Labourers
8216 Railway Track Workers	9915 Railway Labourers
8217 Structural Steel Construction Workers	7913 Structural Steel Construction Workers
8219 Other Construction and Mining Labourers	9911 Mining Support Workers and Driller's Assistants
8311 Food and Drink Factory Workers	4519 Other Food Tradespersons
8312 Meat Boners and Slicers, and Slaughterers	9213 Meat and Fish Process Workers
8313 Meat, Poultry and Seafood Process Workers	9213 Meat and Fish Process Workers
8321 Packers	9221 Hand Packers
8322 Product Assemblers	9212 Product Assemblers
8391 Metal Engineering Process Workers	9211 Engineering Production Process Workers
8392 Plastics and Rubber Factory Workers	9219 Other Process Workers
8393 Product Quality Controllers	7992 Product Quality Controllers
8394 Timber and Wood Process Workers	9215 Wood Products Factory Hands
8399 Other Factory Process Workers	9219 Other Process Workers
8411 Aquaculture Workers	9929 Other Agricultural and Horticultural Labourers
8412 Crop Farm Workers	9921 Farm Hands
8413 Forestry and Logging Workers	7995 Forestry and Logging Workers
8414 Garden and Nursery Labourers	9922 Nursery and Garden Labourers
8415 Livestock Farm Workers	9921 Farm Hands
8416 Mixed Crop and Livestock Farm Workers	9921 Farm Hands
8419 Other Farm, Forestry and Garden Workers	9929 Other Agricultural and Horticultural Labourers
8511 Fast Food Cooks	9932 Fast Food Cooks
8512 Food Trades Assistants	9933 Food Trades Assistants
8513 Kitchenhands	9931 Kitchenhands
8911 Freight and Furniture Handlers	9992 Freight and Furniture Handlers
8912 Shelf Fillers	7993 Storepersons
8991 Caretakers	8314 Caretakers
8992 Deck and Fishing Hands	7994 Seafarers and Fishing Hands
8993 Handypersons	9993 Handypersons
8994 Motor Vehicle Parts and Accessories Fitters	7991 Motor Vehicle Parts and Accessories Fitters
8995 Printing Assistants and Table Workers	7996 Printing Hands
8996 Recycling and Rubbish Collectors	9991 Garbage Collectors
8997 Vending Machine Attendants	9999 Other Miscellaneous Labourers and Related Workers
8999 Other Miscellaneous Labourers	9918 Electrical and Telecommunications Trades Assistants

Appendix C: The ABS on services classifications

ABS 5368055004, imports of services by state and detailed services category, is a major part of the balance of trade statistics. Unfortunately the relevant sources and methods document has been withdrawn for rewriting. However, it would appear that:

- transport imports are sourced from the airlines and shipping lines and from port and customs data;
- travel data derives from arrival and departure forms and surveys of incoming Australian passengers (for expenditures of Australians abroad);
- insurance and finance is constructed as part of the general coverage of these industries by the ABS and RBA; and
- the other items are survey based.

The International Trade in Services Survey was inaugurated in 1988. The methodology would appear to be a major survey from time to time with small surveys of major contributors to update the estimates. The scope of the survey is enterprises which engage in international service trade or receive or pay royalties, excluding transport, travel, insurance, financial services and government services. The initial survey base was developed from the foreign investment survey, business directories and the financial press. The survey base and other parts of the methodology were revised in the early 1990s. There have been further revisions and the sample now includes major firms operating in the area plus smaller businesses believed to be active, though here the sample frame may not have complete coverage. The ABS is working towards achieving such coverage.

The relative standard errors are fairly low (say 1-2 per cent) for large items, but can become large for small items and for net items. Non-sample or respondent error can also occur. A subjective assessment made in 1996 was that the published estimates of services flows are likely to be within 10 per cent of the true value. The current view is that data quality has improved since then.

The categories used in ABS 5368055004 are closely related to those recommended in the IMF document BPM6. The Manual on Statistics of International Trade in Services is also relevant.

According to BPM6, 'outsourcing' occurs when functions formerly carried out in-house are contracted to a specialist service provider. Such services are not distinguished from services which have never been carried out in-house, and are classified according to type of service provided. Thus a call centre selling products is a trade-related service while a call centre providing computing support is a computer service.

In the following notes on the classification, only the most detailed headings are listed.

Manufacturing services on physical inputs owned by others

Covers assembly, packing and other processes on goods owned by others, including such services as liquefaction of natural gas and refining of oil where not owned by the refiner. The data source is mainly customs, the same as that used for goods. Australia does not import much under this heading.

Maintenance and repair services NEI

This comprises the value of work done overseas on Australian-owned equipment. It is a rather small category for Australia, probably because of the transport costs of sending equipment other than aircraft overseas for repair.

Passenger transport

Imports are defined as the costs of carrying residents by non-resident carriers and comprise principally fares paid to overseas transport providers, including commissions and taxes. Fares paid to cruise liners are excluded, being defined as travel.

Freight

Values of goods exported are calculated FOB; freights paid by the exporter are included as an import of freight services. Data comes from returns of physical trade and there are many rules to ensure consistent treatment.

Other transport

Comprise fees and charges incurred in transport but not on freight waybills or included in fares. Not of great importance.

Postal and courier services

Covers payments to overseas post offices, DHL and the like.

Business travel

Overseas expenditures (excl fares) on trips for which the main purpose is business as estimated from surveys of returning Australians. Items purchased overseas and brought back to Australia are included.

Personal travel, education

Overseas expenditures (excl fares) on trips for personal education as estimated from surveys of returning Australians, defined as people who have not changed their place of residence while overseas.

Personal travel, other

Overseas expenditures (excl fares) on non-business non-educational travel as estimated from surveys of returning Australians. There is considerable discussion of the treatment of time-share arrangements but these are probably of marginal importance.

Other travel

This is a fairly substantial item and BPM6 does not give much guidance as to what it is.

Construction

This is defined as construction within Australia by non-resident construction enterprises. However the item is negligible. It would seem that there are no such enterprises.

Direct insurance

This item covers insurance premiums paid overseas on the same definition as those paid domestically. BPM6 recommends that freight insurance be covered separately but it isn't so presumably occurs here. The valuation methods mirror those used for domestic valuation.

Reinsurance

This item can only be reported by insurance companies.

Auxiliary insurance services

Covers charges for commissions, brokerage, actuarial assessment and related consultancy and monitoring.

Pension services

Covers payments into overseas pension schemes where these can be distinguished from life insurance.

Standardised guarantee services

Whatever these are, they are negligible.

Financial services

These are payments for services to overseas banks, other financial institutions, brokers and financial advisers. They include payments of direct charges to these bodies, asset management costs taken out of income and asset management costs financed by margins, including the overseas-provided component of Financial Intermediation Service Charges Indirectly Measured – as in the domestic national accounts. These amounts presumably come out of the same source as the measurement of financial value added for GDP.

Licences to reproduce and/or distribute computer services

There appears to be a fine distinction between this subhead and computer services, below. The difference is that this is a payment which allows reproduction and/or distribution.

Licences to reproduce and/or distribute audiovisual and related services

Same problem as the item above, save that the ABS seem to have solved it by identifying no such transactions.

Outcomes of research and development

This would include formal patent charges for the use of intellectual property.

Franchise and trademarks licensing fees

Once again, formal fees for the use of intellectual property.

Other charges for the use of intellectual property

Fees for the use of intellectual property other than the above.

Telecommunications services

Payments to overseas providers of broadcast or transmission services, not including payments for content transmitted.

Computer services

Concentrates on payments for software (purchase or licence) but also includes maintenance and repair of computers, data recovery, programming, website hosting and data processing.

Information services

Not a large item in Australia. Includes newsagency services, subscriptions but not by individuals, and downloads but not of software.

Other computer and information services

This is a bit vague, but thankfully not large.

Research and development services

R&D contracted out overseas – not a large item.

Legal, accounting, management consulting, public relations and other professional services

Though some imports under this heading are arm's length, it can be used to record inputs from related overseas businesses.

Advertising, market research and public opinion polling

Presumably means what it says.

Architectural, engineering, scientific and other technical services

BPM6 does not expand on this one, which presumably means what it says. It is significant and has been expanding rapidly.

Waste treatment and de-pollution, agricultural and mining services

Includes environmental services (including carbon offsets NEI) and also such items as veterinary services and technical services to mining.

Operational leasing services

Essentially equipment rental where the lessee is not responsible for breakdown repairs and the like. Typical items are aircraft and physical computers (not software, which is covered above).

Trade-related commission services

Commissions to brokers, merchants and the like where the broker does not own the item sold. Financial intermediary and transport charges are excluded, being covered elsewhere.

Other business services NEI

Although this item grew very rapidly in the year or two to 2008 it is not enormous. This meant as a residual category to cover payments for such items as personnel recruitment, security services, translation, photography, publishing, building cleaning and real estate services. There is a danger that it will also be used to cover 'outsourcing' narrowly defined, where a business employs an overseas contractor who in turn subcontracts actual professional, accounting, marketing, back-office and other services. However, the intention is that these services be identified and allocated to the appropriate category in the above list and not included here.

Audiovisual and related services

Chiefly personal downloads of audiovisual material.

Other personal, cultural and recreational services

Includes health and education services which do not involve travel to the providing country and such items as fees and prizes for athletes. Also includes the service charge element of overseas gambling – the losses element is covered as a transfer rather than an import.

Government goods and services NIE

Service transactions by governments are allocated as far as possible to the headings above. This category is reserved for transactions which only government undertake, such as those associated with diplomacy, policing and the military. However, some other government items which are hard to classify may find their way here.

