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MEASURING THE OCCUPATIONAL SEGREGATION OF AUSTRALIA'S INDIGENOUS WORKFORCE: A CENSUS-BASED ANALYSIS

(Accepted 20 April, 1993)

ABSTRACT. This purpose of this paper is to describe the occupational status of Australia's indigenous population and measure the extent to which this differs from that of all other Australians. For this purpose, inter- and intra-occupational segregation indexes are calculated using 1986 Census data. This reveals for the first time the precise occupational mix which characterises the indigenous workforce. At the broad level of major occupations, there is some indication that the degree of employment segregation between indigenous and other Australians has decreased over time, although the lack of time series data based on consistent occupational classification renders this analysis inconclusive. At the more disaggregated occupational unit level, clear patterns of relative employment concentration and exclusion in particular occupations are in evidence with gender as a major differentiating factor. Australian Standard Classification of Occupations (ASCO)-linked occupational prestige scores are applied to the employment distributions as a basis for comparing socioeconomic status.

Among Australia's two indigenous population groups (Aborigines and Torres Strait Islanders),[1] relatively low socioeconomic status has long been associated with an over-concentration of employment in the more unskilled, low paying and often ephemeral jobs. In 1966, for example, only two per cent of Aboriginal and Torres Strait Islander workers were employed above the lowest skill grade in any occupation compared with 35 per cent of all workers (Norris, 1989, p. 100). Furthermore, as much as 67 per cent of the Aboriginal and Torres Strait Islander workforce were employed in manual occupations compared with only 16 per cent of all workers. By 1981, the relative standing of indigenous Australians within the workforce showed only slight improvement with some expansion into more skilled occupations reflecting an increase in the number of formally qualified individuals (Miller, 1985, p. 52). However, the rate of Aboriginal and Torres Strait

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Social Indicators Research **31**: 175—204, 1994.

Islander employment in skilled professional, technical and clerical occupations was still 50 per cent below that of the general workforce. By 1986, using revised occupational classifications, Aborigines and Torres Strait Islanders were still found to be over-concentrated in low skilled occupations to a degree that seriously impaired their overall economic position (Jones, 1991).

These occupational inequalities, along with other poor labour market indicators, such as low participation rates and high unemployment, have led to a string of government initiatives over the past 25 years aimed at enhancing economic opportunities for Aborigines and Torres Strait Islanders (Altman and Sanders, 1991). The most forceful of these, in terms of stated objectives and financial commitment, has been the Aboriginal Employment Development Policy (AEDP) launched in 1987. This had the overall objective of achieving broad equity by the year 2000 between Aborigines, Torres Strait Islanders and other Australians in terms of their employment and economic status (Australian Government, 1987). Given the direct links that exist between occupational and economic status, as well as the intractability of low occupational status among Aborigines and Torres Strait Islanders, the goals of AEDP policy clearly imply a commitment towards altering the occupational structure of the Aboriginal and Torres Strait Islander workforce so that it more closely parallels that of the general workforce. Accordingly, this thrust is implicit in much of the AEDP which lays heavy emphasis on Aboriginal and Torres Strait Islander placements in formal training and skill improvement programs in both public and private sectors, as well as affirmative action to enhance the representation of Aborigines and Torres Strait Islanders in executive positions. Running counter to this, however, is an expansion of the Community Development Employment Projects (CDEP) scheme.[2] This is a component of the AEDP and has the effect of increasing workforce participation among Aborigines and Torres Strait Islanders, particularly in remote areas, but generally in unskilled occupations (Altman and Daly, 1992a).

These divergent tendencies, together with the varied success of program initiatives in the volatile Australian labour market of the late 1980s/early 1990s, raise a number of pertinent questions. What impact has the AEDP had on the overall occupational structure of Aboriginal

and Torres Strait Islander workers? Is the improvement in occupational status implied in AEDP goals showing signs of being achieved or not? What shifts, if any, have occurred in the occupational distribution of Aborigines and Torres Strait Islanders since the AEDP was initiated? How does this differ from the rest of the workforce? What are the occupational differences between Aborigines and Torres Strait Islanders? What is the effect of gender?

Using 1986 Census data, this paper seeks to establish measurement techniques with which to answer such questions in anticipation of a comparison with 1991 Census data. Thus, occupational unit data from the 1986 Census are presented to describe, as precisely as the Census will allow, the extent to which Aborigines and Torres Strait Islanders are segregated from the rest of the workforce in terms of their occupational distribution and what specific occupational concentrations and shortfalls are responsible. While Jones (1991) has compared the overall occupational status of indigenous Australians with Australians of Anglo-Celtic ancestry, no examination has been made to date of the detailed occupational differences between Aborigines, Torres Strait Islanders, and the remainder of the Australian workforce. In an economic policy context, it is this comparison which is most pertinent.

CHANGES IN BROAD OCCUPATIONAL SEGREGATION, 1971—86

Monitoring changes in occupational segregation over time has been complicated by the shift from occupational classification based on the Classification and Classified List of Occupations (CCLO) (used in Australian censuses prior to 1986) to the more skills-based Australian Standard Classification of Occupations (ASCO) (used in the census since 1986). While a link file is available from the Australian Bureau of Statistics (ABS) to assist in reconciling the 389 CCLO unit groups with their 282 ASCO equivalents, this process is far from problem free and, in any case, the sample data on which the link is based does not include an Aboriginal and Torres Strait Islander identifier.[3]

In order to provide at least a notional measure of occupational change over time, the index of dissimilarity has been calculated for the 10 broad CCLO groups as revealed by the 1971 and 1981 Censuses (Table I) and these are compared with an equivalent index derived for

ASCO major groups from the 1986 Census (Table II). Also shown are differentials in the percentages of Aboriginal and Torres Strait Islander workers and other Australians employed in each occupation, with minus signs indicating that the Aboriginal and Torres Strait Islander proportion is greater. Thus, in 1971, 25.8 per cent of employed Aborigines and Torres Strait Islanders were in farming, fishing, forestry and related occupations compared to only 7.7 per cent of all other workers. Subtracting the Aboriginal and Torres Strait Islander proportion from that of other workers produces a differential in the proportions of −18.1. In other words, the proportion of Aborigines and Torres Strait Islanders employed in agricultural and related occupations in 1971 was greater than the proportion of all other workers in the same occupational group by 18.1 percentage points. By 1981, the gap between the two proportions had narrowed substantially with Aboriginal and Torres Strait Islander employment in the industry ahead by only 4.9 percentage points.

Table I suggests that the degree of occupational segregation between Aborigines and Torres Strait Islanders and others in the workforce

TABLE I
Differentials in employment distribution between Aborigines and Torres Strait Islanders and other Australians by major CCLO[a] group, 1971—81

Occupational group[b]	Difference in per cent employed 1971	1981
Professional, technical and related workers	7.8	6.6
Administrative, executive and managerial	6.1	4.4
Clerical workers	12.8	8.9
Sales workers	5.9	5.6
Farmers, fishing, forestry and related workers	−18.1	−4.9
Miners and related workers	−1.4	−0.4
Transport and communication	1.1	0.1
Trades, process workers and labourers (not elsewhere included)	−3.1	−3.4
Service, sport and recreation workers	−8.3	−4.0
Armed services	0.5	0.4
Index of dissimilarity	32.5	19.4

[a] CCLO = Classification and Classified List of Occupations.
[b] Excludes those inadequately described or not stated.

declined considerably during the 1970s, at least at a broad classification level. In statistical terms, the fall in the index of dissimilarity means that while in 1971 almost one-third of Aborigines and Islanders would have been required to change their occupation of employment to achieve an occupational profile equivalent to that of other Australians, by 1981 the same effect would have been achieved if just less than one-fifth of Aboriginal and Islander employees had shifted occupation. While direct comparison of the CCLO-based data in Table I and the ASCO-based data in Table II is not possible, the overall shift since 1971 towards a less segregated workforce appears to have been maintained in 1986, at least in a statistical sense based on current occupational classifications.

Examination of the differences between indigenous Australians and others in the proportions employed in each occupational group reveals some of the labour market shifts responsible for the trend towards less segregation. As revealed by the CCLO data, the main features include a narrowing of the difference in the proportions employed in agricultural occupations owing to substantial job losses by Aborigines and Islanders in this industry due to the introduction of award pay rates and conditions and increasing farm mechanisation (Altman and Daly, 1992b; Taylor, 1993). In contrast, declining differentials in clerical, administrative, managerial and professional occupations possibly reflect an increase in skills among the Aboriginal and Islander workforce since employment growth among the rest of the workforce in these categories was also high. At the same time, a substantial increase in the proportion of Aborigines and Islanders in the 'inadequately described and not stated' category from 8 per cent in 1971 to 19 per cent in 1981 leaves the analysis of occupational change ultimately inconclusive. Adding them to the calculation, however, would almost certainly raise the index of dissimilarity. In 1986, a clear pattern of differentials is apparent with Aborigines and Torres Strait Islanders markedly over-concentrated in labouring occupations and under-represented in more skilled occupations, notably as tradespersons. Thus, if an improvement in Aboriginal and Torres Strait Islander skill levels is suggested by proportional shifts in CCLO distributions, use of ASCO data in 1986, which is based more precisely on skill criteria, equally suggests that any impact on the balance of occupational status has been limited.

TABLE II
Differentials in employment distribution between Aborigines and Torres Strait Islanders and other Australians by major ASCO group, 1986[a]

ASCO code and occupation[b]	Per cent employed: Aborigines and Torres Strait Islanders	Per cent employed: Other Australians	Differential
1. Managers and administrators	3.5	10.8	7.3
2. Professional	5.3	10.9	5.6
3. Para-professionals	6.3	5.9	−0.4
4. Tradespersons	14.5	24.6	10.1
5. Clerks	16.6	15.7	−0.9
6. Sales and pers service workers	8.5	11.4	2.9
7. Plant and machine operators and drivers	10.9	7.5	−3.4
8. Labourers and related workers	34.2	13.1	−21.1
Total per cent	100.0	100.0	
Total	40,344	7,045,959	
Index of dissimilarity			25.8

[a] ASCO = Australian Standard Classification of Occupations.
[b] Excludes those inadequately described or not stated.

Thus, much of the apparent lowering in occupational segregation appears to be due to the relative impact of Aboriginal and Torres Strait Islander job losses in unskilled occupations which has the effect of leaving those left in the workforce relatively more skilled. There is also an unknown effect due to inadequate recording of occupational data rendering many Aboriginal and Torres Strait Islander workers unclassifiable. At the same time, any assessment of the changing occupational balance between indigenous Australians and others in the workforce needs to be made in the context of growing Aboriginal and Torres Strait Islander unemployment since 1971 which has reduced the ranks of low skilled workers in particular (Tesfaghiorghis and Altman, 1991). These caveats notwithstanding, the overall balance of relative shifts in employment does point to an increasing similarity, albeit gradual, between Aborigines, Torres Strait Islanders and others in terms of their broad occupational profiles.

INTER-OCCUPATIONAL SEGREGATION

The degree to which Aborigines and Torres Strait Islanders were segregated into broad occupational groups in 1986 is perhaps less than might have been expected given a general perception of Aborigines and Torres Strait Islanders as overwhelmingly employed in unskilled occupations. Thus, while a degree of concentration is undoubtedly apparent in the distribution of Aboriginal and Torres Strait Islander employment, particularly in labouring jobs, there is also a spread of employment into more skilled and semi-skilled occupations. As a result, it is difficult to characterise the employment patterns of Aborigines and Torres Strait Islanders as comprehensively low in status.

This is even more the case if the data are divided according to gender as both Aboriginal and Torres Strait Islander females are concentrated in distinctly semi-skilled 'female' occupational groups along with other females in the workforce. The extent of this gender separation is shown clearly in Figures 1a and 1b which compare male and female occupational distributions across the major ASCO groups in 1986. Unlike their male counterparts, Aboriginal and Torres Strait Islander females are not significantly dissimilar in their distribution to other females in the workforce, being concentrated disproportionately

in such 'female' occupations as clerical, sales and personal service jobs. Aboriginal and Torres Strait Islander males, on the other hand, are heavily concentrated in a single 'male' occupation, labouring. Not surprisingly, the index of dissimilarity for females is low and this is so for both Aboriginal and Torres Strait Islander females (14.1 and 13.4, respectively). In contrast, the indexes for Aboriginal and Torres Strait Islander males are both much higher (34.4 and 31.7, respectively).

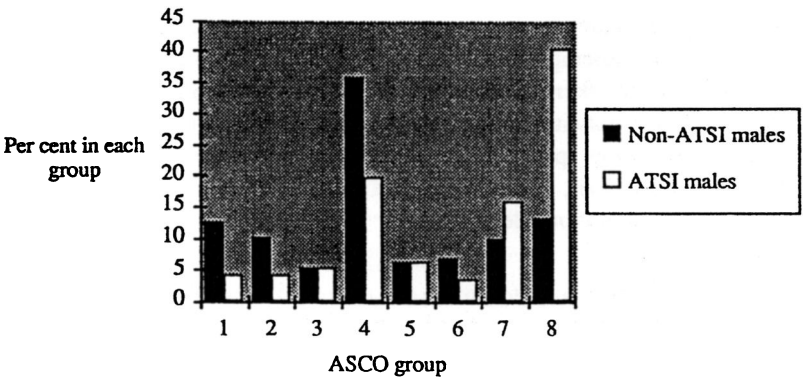

Fig. 1a. Percentage distribution of Aboriginal and Torres Strait Islander (ATSI) males and other Australian males by major ASCO group, 1986.

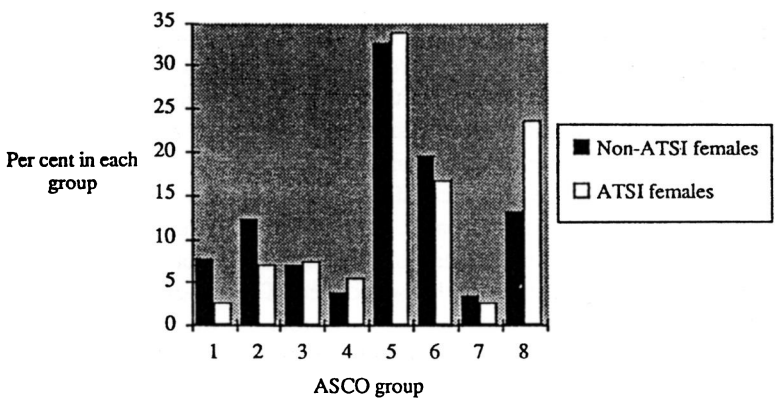

Fig. 1b. Percentage distribution of Aboriginal and Torres Strait Islander (ATSI) females and other Australian females by major ASCO group, 1986.

While it is unlikely that Aborigines and Torres Strait Islanders would be distributed across occupational groups in exactly the same proportions as the rest of the workforce, it remains to be established whether differences observed between the distributions are unduly large and, if so, which occupational mismatches are the most significant. One simple means of assessing this is to calculate the difference between the proportions employed in each ASCO group and isolate those groups with differentials above the mean. This is shown visually for males and females in Figures 2a to 2d with negative differentials indicating an over-representation of Aborigines and Torres Strait Islanders and positive differentials indicating occupational groups in which Aborigines and Torres Strait Islanders are under-represented.

In Figure 2a, for example, only two ASCO groups stand out as having differentials in the proportion of Aboriginal and other Australian males that are greater than the average variation — tradespersons and labouring and related workers. Among these, Aboriginal males are heavily over-represented in labouring occupations compared to their non-Aboriginal and Torres Strait Islander counterparts and significantly under-represented in trade occupations. A very similar pattern is evident in Figure 2b for Torres Strait Islander males. In all other occupational groups Aboriginal and Torres Strait Islander males differ in their proportional representation to a degree which lies within the average variation, although Aboriginal under-representation in managerial and administrative occupations is very close to the mean.

The pattern among females is quite different. Aboriginal, and particularly Torres Strait Islander, females show little variation from other female workers in their proportional representation across the full range of intermediate-skilled occupational groups including para-professionals, tradespersons, clerks, sales and personal service workers, and plant and machine operators. Significant over-representation of Aboriginal and Torres Strait Islander females does occur, however, in labouring occupations, although not to the same degree as among males. At the same time, Aboriginal and Torres Strait Islander females are significantly under-represented in both of the highest skill groups, managers and administrators and professionals.

Before drawing any conclusions from these data regarding the extent and nature of occupational segregation, a note of caution is due.

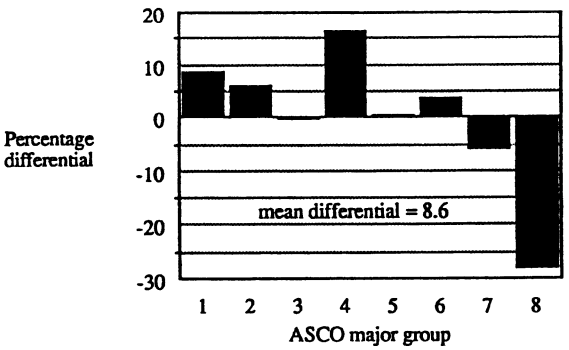

Fig. 2a. Percentage differentials in employment by major ASCO group: Aboriginal males and other Australian males, 1986.

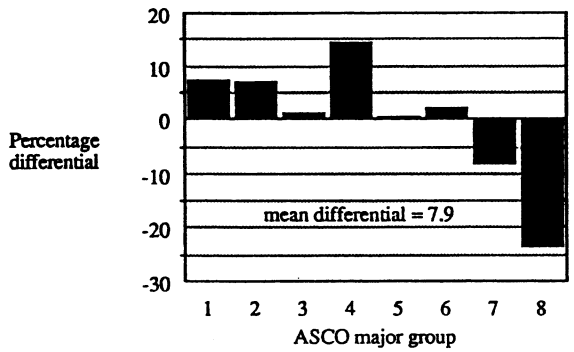

Fig. 2b. Percentage differentials in employment by major ASCO group: Torres Strait Islander males and other Australian males, 1986.

Analysis of employment distribution across major occupational groups can mislead, owing to the capacity of the index of dissimilarity to obscure concentrations which may be present within major occupational groups at the unit classification level. It is conceivable, for example, that the proportions of employed Aborigines or Torres Strait Islanders found in each major occupational group may be similar to that for other Australians (as indeed it generally is among females),

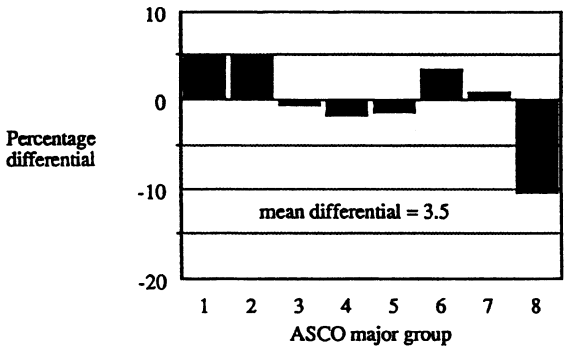

Fig. 2c. Percentage differentials in employment by major ASCO group: Aboriginal females and other Australian females, 1986.

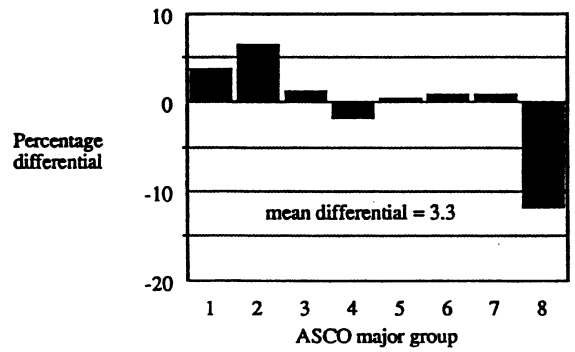

Fig. 2d. Percentage differentials in employment by major ASCO group: Torres Strait Islander females and other Australian females, 1986.

while at the same time being heavily concentrated in one or a few individual occupational units within each major group. For example, although the proportion of Aboriginal males employed as para-professionals was almost identical to that of other Australian males (5.6 per cent and 5.2 per cent, respectively) almost half of the Aborigines employed in this group (46.2 per cent) were found in one occupational unit group alone (welfare para-professionals) out of a possible 22. By

contrast, other Australian males were much more evenly spread across para-professional occupational units with no single occupation accounting for more than 12.7 per cent of the total. Clearly, with the index of dissimilarity, the degree of segregation indicated is contingent partly on the level of detail used in the analysis.

Also hidden at the major occupational level is the large proportion of occupational units that have no Aboriginal or Torres Strait Islander employees. The Australian workforce, for example, is employed in all 282 ASCO occupational units whereas Aborigines and Torres Strait Islanders are absent from many of these by virtue of their far fewer numbers. The extent of this under-representation varies considerably between Aborigines and Torres Strait Islanders and males and females as well as between ASCO major groups (Table III).

TABLE III
Percentage of occupational unit groups with no Aboriginal or Torres Strait Islander employment by ASCO major group

	Aborigines		Torres Strait Islanders	
	males	females	males	females
Managers	19.0	28.6	47.6	52.4
Professionals	20.9	37.1	59.7	69.3
Para-professionals	9.1	40.9	27.2	63.6
Tradespersons	8.3	60.0	21.7	83.3
Clerks	21.8	13.0	39.1	30.4
Salespersons and pers. serv. wkrs	15.0	15.0	35.0	30.0
Plant and mach. ops and drivers	0.0	32.5	27.5	82.5
Labourers	2.9	11.8	11.8	35.3
All occupations	14.9	34.4	34.4	62.4

Total occupational unit groups = 282

Thus, Aboriginal males, being the largest of the indigenous subpopulations in the workforce, have the widest occupational representation, being absent from only 14.9 per cent of unit groups, although they are absent from around one-fifth of clerical, professional and managerial and administrative occupations. Because they are fewer in number, Torres Strait Islander males are absent from just over one-third of occupational units, with notable absences in many of the

highest skill categories. At the same time, despite larger numbers in the workforce, Aboriginal females share an equivalent lack of employment spread, notably in para-professional and trade occupations, while the far fewer numbers of Torres Strait Islander females in the workforce are absent from almost two-thirds of all occupational units resulting in almost total exclusion in some ASCO groups.

INTRA-OCCUPATIONAL SEGREGATION

In order to derive a more precise assessment of occupational segregation between Aborigines, Torres Strait Islanders and other Australians, detailed occupational unit data were obtained from the 1986 Census for males and females in each of these groups. Using these data, an index of dissimilarity was calculated for each ASCO major group and the results are presented in Table IV. In interpreting these indexes, it is important to note that their comparability across ASCO groups is

TABLE IV
Inter- and intra-occupational indexes of dissimilarity for Aboriginal and Torres Strait Islander males and females, 1986

Occupational group	Index of dissimilarity males	females	Occupational units
Aborigines			
Managers and administrators	22.4	30.6	21
Professionals	51.1	41.6	62
Para-professionals	47.9	48.2	22
Tradespersons	46.2	36.5	60
Clerks	24.1	25.6	23
Sales, personal service workers	27.2	26.1	20
Plant, machine operators	14.6	13.1	40
Labourers and related workers	32.2	19.5	34
Torres Strait Islanders			
Managers and administrators	16.8	18.2	21
Professionals	52.4	40.5	62
Para-professionals	39.6	18.0	22
Tradespersons	47.6	29.2	60
Clerks	23.2	21.9	23
Sales, personal service workers	17.0	17.1	20
Plant, machine operators	12.3	22.2	40
Labourers and related workers	30.4	12.2	34

reduced somewhat, owing to the tendency of the index to increase with the detail of occupational classification (Karmel and Maclachlan, 1988). To assist in their usage, the number of occupational units in each major occupational group is also indicated.

It is clear that a high degree of segregation occurs within many occupational groups, and there also seems to be some tendency for this to increase with the broad level of skill implied by the ASCO classification. Thus, for most workers, the greatest segregation is apparent in professional, para-professional and trade occupations, although relatively low segregation is recorded for managerial and administrative occupations particularly among Torres Strait Islanders. Overall, the extent of segregation in each occupational group is influenced by gender and also varies between Aborigines and Torres Strait Islanders.

As far as the differences between Aborigines and Torres Strait Islanders are concerned, these are most noticeable among females, with Aboriginal females displaying higher segregation in all occupational groups, except plant and machine operators, compared to their Torres Strait Islander counterparts. In some occupations, notably managers and administrators and para-professionals, this is quite marked. By comparison, Aboriginal and Torres Strait Islander males show less variation in their levels of segregation, although, as with females, segregation is generally highest among Aborigines. On the whole, males experience higher intra-occupational segregation than females, particularly in trades and labouring occupations.

Once again, a nominal measure of the particular employment concentrations responsible for producing high intra-occupational segregation indexes can be established by isolating those specific occupational units in which Aborigines and Torres Strait Islanders are over- and under-represented to a greater degree than average variations. These are summarised in Tables V and VI for Aboriginal males and females, respectively, and the particular patterns of segregation are discussed for each ASCO group in turn.

Managers and Administrators

Given that managerial and administrative occupations are placed at the top of a skills-based hierarchy, it is interesting to note the relatively low

segregation of this group of workers, particularly among males. Both male and female Aborigines are over-represented as public policy managers and accommodation managers possibly reflecting the effect of policies to encourage Aboriginal recruitment into senior bureaucratic positions, as well as their involvement in managing particular Aboriginal hostels. At the same time, while their representation as public policy managers, in particular, was significantly greater than non-Aboriginal and Torres Strait Islanders, the actual numbers involved (38 males and 17 females) were very small. Conversely, as much as 24 per cent of Aboriginal males employed in this ASCO group were farm managers, but this was far less than the proportion of other Australian males so employed. A similar situation occurs with Aboriginal females, many of whom in this ASCO group (21 per cent) were shopkeepers. The occupational pattern of segregation among Torres Strait Islanders was slightly different with males over-represented as farm managers, shop keepers and accommodation and tavern managers and under-represented as general managers and sales managers. The pattern among female Torres Strait Islanders was the same as that for Aboriginal females.

Professionals

High indexes of dissimilarity in professional occupations are due to a polarisation of employment patterns with Aborigines and Torres Strait Islanders concentrated in social service-type professions and all other workers in professions that are more technically-based. The major exception relates to jobs in education with Aboriginal and Torres Strait Islander males significantly under-represented as secondary school teachers along with their female counterparts who are also far less likely than other Australian females to be employed as primary school teachers.

Para-professionals

The pattern of occupational separation noted above for professionals is repeated among para-professionals. As much as 46 per cent of Aboriginal males in this occupational group and 51.6 per cent of

Aboriginal females are employed as welfare workers. Torres Strait Islanders show a similar pattern of concentration, although Torres Strait Islander males are also over represented in jobs with the police force. By contrast, Aborigines and Torres Strait Islanders are less likely to be found in more technical occupations such as electrical technicians, surveying technicians and registered nurses when compared with other para-professionals. In the last case, this is despite the fact that 30.4 per cent of Aboriginal female para-professionals and 60.3 per cent of Torres Strait Islander females were employed as registered nurses. The relative balance of employment in professional occupations generally seems to reflect the greater involvement of Aborigines and Torres Strait Islanders in community service type-industries (Taylor, 1993).

Tradespersons

High segregation in trade occupations is largely due to the relative exclusion of Aborigines and Torres Strait Islanders from just two (out of a possible 60) occupational units which employ large numbers of other trade workers. Remarkably, as much as 50.3 per cent of other Australian male tradespersons are employed as vehicle mechanics. This compares with only 7.8 per cent of Aboriginal males and 8.7 per cent of Torres Strait Islander males. Likewise, 31.2 per cent of other Australian females are employed as hairdressers compared to only 16.8 per cent of Aboriginal females and 23.4 per cent of Torres Strait Islanders, who are also under-represented as garment tradespersons.

Clerks

A semblance of skills-based segregation is apparent among clerical workers. Compared to other clerks, Aboriginal and Torres Strait Islander males are far less likely to be employed as accounting or purchasing clerks, although the precise disposition of aboriginal male clerical workers is difficult to establish as slightly more than one-third of them are classified as 'not further defined'. Aboriginal and Torres Strait Islander females are also notably under-represented as accounting clerks as well as office secretaries, stenographers and data processing machine operators. Compared to other females they are more likely to be employed as filing clerks, typists and teacher's aides. This last

TABLE V
Over- and under-representation of Aboriginal males by occupational unit group[a]

Over-representation	Under-representation
Managers and administrators	
Public policy managers	Sales managers
Accommodation and tavern managers	Farm managers
Other managing supervisors	
Professionals	
Counsellors	Electrical engineers
Ministers of religion	Medical practitioners
Personnel specialists	Accountants
Education researchers	Computing professionals
	Secondary school teachers
Para-professionals	
Welfare para-professionals	Electrical technicians
	Building, architectural and surveying technicians
	Inspectors and regulatory officers
Tradespersons	
Carpenters and joiners	Vehicle mechanics
Gardeners	
Clerks	
Clerks (nfd)[b]	Accounting clerks
Filing clerk	Transport and despatch clerks
Teacher's aides	Purchasing clerks
Salespersons and personal service workers	
Bar attendants	Insurance brokers and agents
Child care	Real estate agents
Refuge and related workers	Sales representatives
Enrolled nurses	Sales assistants
Other personal service workers	
Plant and machine operators and drivers	
Excavating and earth moving operators	Bus and tram drivers
Truck drivers	Fire fighters
Agricultural plant operators	Automobile drivers
	Forklift drivers
Labourers and related workers	
Labourers (nfd)	Assemblers
Farm hands and assistants	Other trade assistant and factory hand
Nursery garden labourers	Storemen
Railway labourers	Guards and security officers
	Kitchenhands

[a] Above or below average percentage differentials.
[b] nfd = 'not further defined'.

TABLE VI
Over- and under-representation of Aboriginal females by occupational unit group[a]

Over-representation	Under-representation
Managers and administrators	
Public policy managers	Farm managers
Accommodation and tavern managers	
Other managing supervisors	
Professionals	
School teaching (nfd)[b]	Primary school teachers
Counsellors	Secondary school teachers
Personnel specialists	Accountants
Education researchers	Computing professionals
	General medical practitioners
Para-professionals	
Welfare para-professionals	Registered nurses
Tradespersons	
Cooks	Hairdressers
Gardeners	Garment tradespersons
Craft workers	
Clerks	
Clerks (nfd)	Office secretaries and stenographers
Typing clerks	Data processing machine operators
Filing clerks	Accounting clerks
Teacher's aides	
Salespersons and personal service workers	
Child care	Sales assistants
Refuge and related workers	
Enrolled nurses	
Plant and machine operators and drivers	
Bus and tram drivers	Textile machinists
Automobile drivers	Plastic production mach. operators
Truck drivers	Fabric production mach. operators
Wood processing machine operators	Photogr. products mach. operators
Food processing machine operators	
Labourers and related workers	
Labourers (nfd)	Assemblers
Cleaners	Handpackers
	Kitchenhands
	Storewomen

[a] Above or below average percentage differentials.
[b] nfd = 'not further defined'.

occupational concentration partly reflects the important role played by female Aboriginal workers in the delivery of educational services in remote areas (Taylor, 1992, p. 179).

Salespersons and Personal Service Workers

Once again, the balance of employment in sales and personal services is suggestive of greater Aboriginal and Torres Strait Islander involvement in the delivery of community services. At the same time, those occupations from which they are relatively absent, insurance brokers and agents, real estate agents, sales representatives and sales assistants are distinctly urban-based and may reflect something of the geographic imbalance between indigenous and other Australians. That is not to say that total exclusion from these occupations exists. On the contrary, 34 per cent of aboriginal males in this ASCO group and 29 per cent of females are employed as sales assistants, though this is significantly less than in the rest of the workforce.

Plant and Machine Operators, and Drivers

The greater tendency for Aborigines and Torres Strait Islanders to be more widely spread around the country and in less urbanised circumstances may partly account for the relative balance of employment among plant and machine operators and drivers. Those occupational units with a relative surplus of Aboriginal and Torres Strait Islander males are spatially ubiquitous and rurally-oriented, certainly more so than some of those in which they are under-represented, such as bus and tram driver, which are more likely to be urban-based. Equally, however, relative exclusion from certain low-skilled occupations may reflect partial ethnic closure due to processes of labour market segmentation (Jones, 1991). The same goes for Aboriginal and Torres Strait Islander females who are under-represented in a range of manufacturing occupations which are generally located in larger urban centres and tend to employ migrant females from non-English speaking backgrounds (Campbell, Fincher and Webber, 1991; Jones, 1992b). Once again, however, this is despite the fact that 37 per cent of Aboriginal females in this ASCO group and 32 per cent of Torres Strait Islanders were employed as textile sewing machinists.

Labourers and Related Workers

Elements of geography are also apparent in the relative balance of employment in the lowest skilled occupations. Most notable here is the over-representation of Torres Strait Islander males as railway labourers and fishermen and deckhands, reflecting both spatial and structural elements of their involvement in the labour market (Taylor and Arthur, 1992). Remnants of historical attachment to the labour force are also evident in the over-employment of Aboriginal males as farm hands and railway labourers. As with the previous ASCO group, those labouring occupations from which Aborigines and Torres Strait Islanders are relatively excluded are generally found in urban-based economic activities often, though not exclusively, associated with manufacturing industry.

Occupational Concentration

Despite clear evidence of segregation within the workforce, the extent of concentration into just a few occupations is no more marked among Aborigines and Torres Strait Islanders than among other workers. Using the numbers employed in each ASCO unit as a basis for ranking, more than one-third of all male workers and almost half of all female workers are accounted for by the top ten out of 282 occupations (Table VII). While such high levels of occupational concentration are characteristic of the Australian labour market generally, significant variation in the particular occupations involved have been noted for different sub-groups within the workforce reflecting occupational niches and processes of labour market segmentation. When comparing Anglo-Celtic Australians with those of Italian, Greek and Chinese ancestry, for example, Jones (1992b) found high levels of occupational concentration but in widely differing activities.

As far as Aborigines and Torres Strait Islanders are concerned, the greatest difference from the rest of the workforce is displayed by male workers who share only three of the top ten jobs with other males in the workforce (truck drivers, carpenters and joiners, other trades assistants and factory hands). In contrast, Aboriginal and Torres Strait Islander females show the same high level of job concentration as other females in as many as seven of the same occupations. The differences between these groups reveal aspects of the occupational niches which

characterise the Aboriginal and Torres Strait Islander labour market. Male occupations which are prominent in this regard include welfare para-professionals, railway labourers, farm hands, fishermen and deck-hands. These contrast with other Australian males, who are more concentrated in trades and managerial occupations. This variation partly reflects an industry focus on community services (Taylor, 1993), as well as geographic, historical and cultural factors which have limited the range of employment opportunities available to Aborigines and Torres Strait Islanders to specific occupations. Discrepancies in female occupational concentration are closely associated with employment in different aspects of community services delivery. Thus, Aboriginal females tend to be teacher's aides, welfare para-professionals and child care and refuge workers, while other Australian females are overly-represented as registered nurses and primary school teachers.

OCCUPATIONAL PRESTIGE AND SOCIOECONOMIC STATUS

ASCO is a skill-based classification with an explicit ranking of job status from the most skilled (managers and administrators, professionals) to the least skilled (labourers and related workers). The actual ranking of occupations is a complex procedure but is basically carried out according to the imperatives of modern industrial society using two distinct criteria: skill level and skill specialisation. The skill level of an occupation is a function of the amount of formal education, on-the-job training and previous experience deemed to be necessary before an individual can satisfactorily perform the set of tasks involved. Skill specialisation, on the other hand, is a function of the field of knowledge required, tools or equipment used, materials worked on and goods and services produced in relation to the tasks performed (Australian Bureau of Statistics, 1986, p. 3). Both of these criteria are defined by ASCO in terms of the necessary requirements for the performance of a set of tasks for a given occupation.

With its emphasis on the different educational and training requirements of jobs, ASCO thus provides an improved basis for nominal measurement of relative employment status compared to the CCLO which was concerned more with industrial sector of employment. However, the ASCO focus on skills still overlooks popular ratings of the social standing of different occupations as well as their manifest

TABLE VII
Rank order of top ten occupational unit groups by employment of Aboriginal, Torres Strait Islander and other Australian males and females, 1986

Males		
Aboriginal	Torres Strait Islander	Other Australians
Labourers (nfd)[a]	Truck drivers	Vehicle mechanics
Farm hands	Labourers (nfd)	Farm managers
Truck drivers	Railway labourers	Truck drivers
Other trades assistants and factory hands	Fishermen, deckhands	Sales assistants
Cleaners	Other trades assistants and factory hands	Metal fitters, machinists
Welfare para-professionals	Carpenters and joiners	Carpentres and joiners
Railway labourers	Storemen	Storemen
Other constrn and mining labs	Cleaners	Managing supervisors
Excavating, earth moving operators	Trades assistants	Accounting clerks
Carpenters and joiners	Plant and machine operators (nfd)	Other trades assistants and factory hands
Top ten employment		
7,891	1,190	1,666,167
Per cent of total employment		
34.4	33.1	36.4
Females		
Aboriginal	Torres Strait Islander	Other Australians
Cleaners	Cleaners	Sales assistants
Clerks (nfd)	Sales assistants	Accounting clerks
Teacher's aides	Accounting clerks	Office secretaries and stenographers
Sales assistants	Office secretaries and stenographers	Registered nurses
Welfare para-professionals	Other clerks	Clerks (nfd)
Accounting clerks	Typing clerks	Receptionists and info clerks
Receptionists and info clerks	Clerks (nfd)	Cleaners
Typing clerks	Kitchenhands	Farm managers
Office secretaries and stenographers	Cashiers	Typing clerks
Child care, refuge workers	Teacher's aides	Primary school teachers
Top ten employment		
6,686	964	1,125,920
Per cent of total employment		
47.8	46.3	45.2

[a] nfd = 'not further defined'.

outcomes in terms of economic rewards and general life chances. While these generally correlate well with qualifications and other indicators of skill level, some variation does exist. Thus, from a policy or social science perspective, it is insufficient to simply compare the occupational distribution of different groups in the workforce and hope to derive confident conclusions regarding their relative economic and social well-being. With this in mind, a number of alternative occupational scales have been developed with the aim of amalgamating the above considerations into a single measure of socioeconomic status. The most recent of these in Australia is the ANU3 scale which provides prestige ratings linked to ASCO occupational units which reflect aggregate differences in job entry requirements, economic rewards, power and privilege as well as popular judgements about the social standing of jobs (Jones, 1989, pp. 195—96).[4] Leaving aside questions of cross-cultural relevance for the moment, application of such a scale to the analysis of occupational segregation should therefore enable a more rigorous assessment of the relative standing of Aborigines and Torres Strait Islanders in the Australian labour market.

In brief, the ANU3 scale provides a composite measure of socio-economic status for each occupational unit group and ranges from a low of zero (ASCO unit group 8901, ushers and door attendants) to a high of 100 points (unit group 2303, specialist medical practitioners). The overall distribution of ANU3 scores across the full ASCO range displays marked positive skewness with a standard deviation of 23.4 around a fairly low mean of 34.8. While closely tied to ASCO rankings (high scores tend to be concentrated among managers, administrators and professionals and low scores among labourers), the scale also reveals a wide variation of prestige levels around the mean for each major ASCO group with considerable scope for overlap (Table VIII). For example, some para-professional occupations have prestige scores lower than some labouring occupations. Rather than complicating matters, this serves to underline the need for adopting such a scale so as to override the inconsistencies inherent in using ASCO alone as a basis for occupational comparisons.

In order to apply these ratings as a means of comparing the relative standing of Aborigines, Torres Strait Islanders and others in the workforce, ANU3 scores for each occupational unit have been weighted by the appropriate number of workers in each category and the average

TABLE VIII
Range and mean of ANU3 scores by major ASCO group

	Range	Mean	*n*
Managers and administrators	39.9 — 97.0	60.9	21
Professionals	31.9 — 100.0	64.6	62
Para-professionals	25.9 — 66.8	43.9	22
Tradespersons	3.4 — 39.5	24.1	60
Clerks	14.3 — 33.8	25.6	23
Sales, personal services	9.5 — 49.8	30.4	20
Plant and machine operators	3.4 — 35.9	12.3	40
Labourers	0.0 — 30.4	10.7	34
Total		34.8	282
Standard deviation		23.4	

Source: Adapted from Jones (1989).

weighted scores for major ASCO groups are shown in Table IX. Overall, average socioeconomic status scores for Aboriginal and Torres Strait Islander males are substantially lower than that of other male workers while noticeably less difference exists between the average status of Aboriginal and Torres Strait Islander females and other females. At the same time, standard deviations indicate very little difference in the spread of status scores around individual means further pointing to the relatively low standing of jobs among Aboriginal and Torres Strait Islander males. As far as intra-occupational status is concerned, a more varied pattern emerges with Aboriginal and Torres Strait Islander males displaying somewhat higher average status than their female counterparts in some occupations (professionals, sales and personal service workers, plant and machine operators) but not in others. At the same time, there is a clear overall tendency for the gap in socioeconomic status due to Aboriginality to narrow as occupational skill levels decline. For example, Aboriginal males in managerial and administrative occupations tend to have significantly lower status than other Australian males in the same occupational group. By contrast, those in low skilled occupations, such as plant and machine operators and labourers, share similar low status with their non-Aboriginal and Torres Strait Islander counterparts.

The conclusion that ANU3 scores reveal little sex difference in

TABLE IX
Mean weighted ANU3 scores by major occupational group: Aboriginal, Torres Strait Islander and other males and females, 1986

	Mean weighted ANU3 score					
	Aborigines		Torres Strait Islanders		Others	
	males	females	males	females	males	females
Managers, administrators	41.5	48.5	48.4	46.2	52.4	48.7
Professionals	54.1	49.9	52.1	51.4	63.0	58.7
Para-professionals	38.9	41.4	41.0	46.0	39.4	46.2
Tradespersons	22.4	25.0	23.3	26.1	27.1	26.1
Clerks	17.2	24.2	19.7	23.9	18.7	24.7
Sales, personal services	26.8	24.5	28.1	23.4	30.0	24.2
Plant, machine operators	10.7	7.7	10.4	6.7	11.0	7.0
Labourers	8.5	7.5	8.7	8.1	8.9	8.5
Total	18.1	23.8	18.8	23.4	30.3	29.5
Standard deviation	23.3	20.3	22.6	19.6	20.3	19.6

average status among Australian workers generally is consistent with findings elsewhere (Jones, 1992b, p.70). Of greater interest, however, is the observation that among Aboriginal and Torres Strait Islander workers, females have generally higher job prestige than males. The reason for this may be partly similar to that advanced for the higher than expected prestige ratings among females in general — the fact that even detailed occupational codings, such as ASCO, overlook different levels of seniority and responsibility within otherwise similar jobs. For example, Jones (1992b, p. 71) cites an example of the ASCO coding for university teachers who all receive the same classification with no distinction drawn between professors at one end of the salary and seniority scale and tutors at the other. In occupations such as this, and no doubt in many others, females tend to be concentrated at the lower end of the seniority scale and are also more likely than males to be in part-time employment.

One illustrative example of such hidden segregation is provided by data on employees of the Aboriginal and Torres Strait Islander Commission (ATSIC), although a much wider scrutiny of employment data would be needed to fully substantiate the case. Of all Aboriginal and Torres Strait Islander clerical workers in ATSIC in 1990—91, 54 per

cent out of a total of 189 females were in the lowest four job classifications compared to only 18.9 per cent out of a total of 133 males. A similar seniority effect is evident when controlling for Aboriginality as three-quarters (75.2 per cent) of all other Australian clerical workers were classified in middle to senior public service ranks, compared to just over half of all Aborigines and Torres Strait Islanders (55.8 per cent) (ATSIC, 1992). Notwithstanding such issues of job seniority, it is likely that the overwhelming concentration of Aboriginal and Torres Strait Islander females in semi-skilled occupations, compared to the male emphasis on unskilled labouring jobs, is still sufficient to account for their overall higher occupational status.

POLICY IMPLICATIONS

While it has long been recognised that indigenous Australians who enter the workforce are employed disproportionately in lower skilled, lower status jobs, this paper presents for the first time the precise details of their occupational difference from the rest of the workforce. It also attempts to equate this with relative socioeconomic status. Although there is some apparent convergence over time in the occupational profiles of Aboriginal, Torres Strait Islander and other workers, the evidence for this is inconclusive due largely to inconsistencies in occupational time series data. Meaningful assessment of such temporal shifts properly awaits comparison with 1991 Census results.

Whatever the case, it is clear that if policies designed to achieve broad statistical equity in employment and economic status between all Australians are to be followed through to a successful conclusion, then substantial upgrading of Aboriginal occupational status, at least among males, will be a prerequisite. As this goal is only implicitly embedded in initiatives such as the AEDP, questions regarding what the appropriate indicators of such a shift might be, and at what level of occupational disaggregation equality might be sought, remain largely unanswered. For example, at the broad level of major ASCO groups, Aboriginal and Torres Strait Islander females share much the same occupational profile as other females in the workforce. At more detailed intra-occupational levels, however, they are often highly segregated into particular jobs. At

the same time, within the ASCO structure, knowledge of the individual occupations that employ people indicates little other than the relative skill levels required for job entry. Thus, in the context of policies aimed at improving economic status, it may be necessary to incorporate other related indicators, such as the economic rewards and prestige attached to occupations, and for this purpose an ASCO-linked socioeconomic status scale has been employed.

To date, Aboriginal employment policies have tended to respond to occupational imbalances in the workforce as perceived at the broadest level of analysis. Clearly, it is important to go beyond this and identify the particular jobs in which Aboriginal and Torres Strait Islander workers congregate. The reason for this stems from shifts in occupational structure that are expected to occur in coming years. The Australian labour market is increasingly dynamic, and during the 1990s the workforce is projected to become generally more skilled at the expense of jobs at the lower end of the ASCO scale (Department of Employment, Education and Training, 1991). These changes to the workforce are driven by two main effects — an industry structure effect, which results from trends in industry output and productivity, and an occupational share effect, which reflects the shifts occurring in the occupational mix of individual industries. Computer programmers, for example, can expect to increase their share of employment within virtually all industries, whereas jobs as farm hands are rapidly disappearing as they are dependant on employment in a declining industry.

Thus, while the overall trend is towards higher skilled occupations, the outcome in terms of individual jobs is potentially mixed. On the basis of detailed occupational projections to the year 2001 prepared by the Department of Employment, Education and Training (1991), it is apparent that Aborigines and Torres Strait Islanders are concentrated in a number of occupations that are set for relative decline, such as farm hands, machine operators, cleaners, receptionists, drivers and trades assistants. The actual level of concentration in such jobs may also be greater than the data suggests as 'labourers not further defined' form the largest single occupational group among Aboriginal males. At the same time, other concentrations are evident in jobs that are projected to grow in importance, such as welfare para-professionals, sales assistants, child care and refuge workers, construction labourers,

registered nurses and carpenters and joiners. The general outcome in terms of future employment growth for Aborigines and Torres Strait Islanders is therefore difficult to predict, except to say that there appears to be some prospect of expansion in certain favorably inclined occupations but this is likely to be cancelled out by job losses in other occupations that are less secure.

Notwithstanding these overall industry and occupation effects, however, it is also conceivable that Aboriginal and Torres Strait Islander job growth is driven in part by its own internal dynamic through the mechanisms of employment policies aimed at the indigenous population. Put simply, there may also be an 'Aboriginal' industry effect. For example, in 1991—92, the Community Development Employment Projects (CDEP) scheme was employing some 18,000 workers in 168 communities (Altman and Daly, 1992a). Given the emphasis in the scheme on providing unskilled employment alternatives to social security, the overall effect on Aboriginal and Torres Strait Islander employment profiles (which will be reflected in 1991 Census data in unknown ways) is likely to reinforce the overall concentration in low status occupations. Elsewhere, the Review of the Training for Aboriginals Program (TAP) (Johnston, 1991) found that there exists a high dependence on Aboriginal community organisations to provide employment opportunities to TAP placements. At the same time, employment outcomes for those placed in community sector jobs were both more successful than other placements and more likely to secure employment in professional or skilled positions (Johnston, 1991, p. 94). This is attributed to the types of skills required for work in community organisations which include those used by public sector officers as well as other skills which are more culturally derived.

Apart from providing Aboriginal people with a leading edge in certain segments of the labour market, this growing focus on jobs that are linked in some way to either servicing the Aboriginal and Torres Strait Islander population or to funding regimes designed specifically to engage Aboriginal labour, brings into question the wholesale application of socioeconomic ratings, such as in the ANU3 scale, as an appropriate basis from which to measure relative standing in the workforce. In Aboriginal and Torres Strait Islander segments of the labour market, culturally-derived skills may form an important part of

human capital that such ratings do not account for. The basic policy implication to be drawn from this is that Aboriginal and Torres Strait Islander people may still experience employment growth despite their relatively low occupational standing in an increasingly skilled workforce. Whether, in the process, they will also acquire an occupational profile that more closely approximates that of the rest of the workforce, and whether, indeed, this represents a meaningful goal in the face of geographic and cultural realities, remains a moot point.

NOTES

[1] At the 1991 census, 265,463 Australians (1.5 percent of the population) identified themselves as being of Aboriginal or Torres Strait Islander origin. Of these, 238,576 stated Aboriginal origin and 26,897 Torres Strait Islander origin.

[2] The CDEP scheme is a 'work for the dole' scheme which offers Aboriginal and Torres Strait Islander communities, usually in remote areas where formal labour markets do not exist, the option of employment in community-oriented projects in return for social security entitlements plus on-costs.

[3] The ASCO structure contains four levels, although data are only available from the census for the first three of these. Eight major occupational groups represent the broadest level of the classification. These are sub-divided into 52 minor groups which, in turn, comprise 282 unit groups identified on the basis of skilled specialisation.

[4] To use Jones' (1989, p. 196) own phraseology, the ANU3 scale has a demonstrable socioeconomic basis in the Australian labour market. It has tight links to popular ratings of the general social standing of jobs, and provides a bridge between these to ASCO via such census characteristics as age, sex, employment status, employment sector, hours worked, income, qualifications and years of schooling.

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