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Discussion Paper



**Change in the relative distribution of  
indigenous employment by industry,  
1986-91**

**J. Taylor and Liu Jin**

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## SERIES NOTE

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Professor Jon Altman  
Director, CAEPR  
Australian National University

## **ABSTRACT**

There are a number of ways in which Aboriginal Employment Development Policy (AEDP) strategies implemented since 1987 have sought to increase the spread of indigenous employment across the range of industries. This paper uses 1986 and 1991 Census data to measure whether change has occurred in the relative distribution of indigenous employment. Dissimilarity between the distribution of indigenous and other workers across broad industry categories increased slightly between 1986 and 1991. Put another way, the net outcome of employment changes over the intercensal period meant that indigenous people became more reliant for work on relatively fewer areas of economic activity. A primary cause of this entrenchment in the labour market position of indigenous people was the fact that jobs created by the Community Development Employment Projects (CDEP) scheme comprised the bulk of new employment growth. However, not all indications are negative. At the intra-industry level, for example, some signs of reduced segregation are evident. This is most apparent in agricultural industries, mining, transport, finance, public administration, recreation and personal services. In such industries, the employment distribution of indigenous people is now more like that of the mainstream, although still notably dissimilar. Also apparent is the fact that relatively low segregation between workers observed in major cities has been sustained. In any event, it is inevitable that a degree of dissimilarity will exist between the industry distribution of indigenous and non-indigenous workers given their quite different population distributions.

## **Acknowledgments**

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Dr John Taylor is Fellow and Liu Jin is Research Officer at the Centre for Aboriginal Economic Policy Research, Faculty of Arts, Australian National University, Canberra.



Analysis of detailed employment data from the 1986 Census has revealed the precise industry mix of what was described as a distinct indigenous segment in the labour market (Taylor 1993a). Briefly, this was characterised by high levels of statistical segregation between the industry distribution of indigenous and non-indigenous workers with the former over-represented in activities aimed at servicing the indigenous population and under-represented in key industries such as manufacturing, finance, business services and retailing. While analysis of data for a point in time provides valuable insight into the structure of indigenous work relative to the mainstream, questions related to the impact of employment policies are best addressed by trend analysis. This paper seeks to establish such impacts by examining change in the relative spread of indigenous employment across industry categories between 1986 and 1991.

The policy significance of trend analysis derives from implied links between changes in social indicators and known policy applications over equivalent periods of time. In the context of the Aboriginal Employment Development Policy (AEDP) there are a number of ways in which strategies implemented since 1987 have sought to increase the spread of indigenous employment across the range of industries. For example, as part of employment strategies in the public sector, a requirement has been that all Commonwealth departments and authorities take steps to recruit indigenous personnel. Similar imperatives have also been directed towards State and Territory departments. Private sector strategies have also sought to widen the industry spread of employment by equipping indigenous people with the skills necessary to enter new areas of the labour market as well as through direct incentives to employers to engage labour. Apart from general job subsidies this has also included more active employment strategies with major employers such as Telstra, Australia Post and Qantas. One aspect of this approach, envisaged from the outset of the AEDP, was to be the development of planned industry strategies in areas such as the arts, tourism, retailing, transport, communications, banking and finance (Commonwealth of Australia 1987: 8).

Subsequent to the 1994 review of the AEDP, industry equalisation goals are more explicitly stated. For example, Recommendation 7 of the Review referred to setting 'targets for greater diversification of indigenous employment in the private sector, between employment in community organisations and other more mainstream jobs, and between industries' (Aboriginal and Torres Strait Islander Commission (ATSIC) 1994: xviii). In a similar vein, Recommendation 34 talks of 'seeking advice on industry gaps which are not receiving strategic consideration in light of an urgent need to give new impetus in the business sector given the limited employment of indigenous people across a range of industries' (ATSIC 1994: xxii). Similar aspirations to these are also to be found in the recommendations on indigenous economic development contained in the

ATSIC report to government on Native Title Social Justice measures (ATSIC 1995: 140-43).

Seemingly running counter to these aims, however, is an expansion of the Community Development Employment Projects (CDEP) scheme. To date, this component of the AEDP has had the effect of increasing indigenous workforce participation, particularly in rural areas, but overwhelmingly in community service industries. At the national level, just over half of indigenous employment growth between 1986 and 1991 is estimated to have been generated by the CDEP scheme and this would have contributed to an overall contraction of the industry base of indigenous employment during the intercensal period (Taylor 1993b).

Clearly, the net balance of employment outcomes emanating from these two thrusts of the AEDP is crucial in determining the medium-term nature of indigenous involvement in the labour market. At the same time, variation between rural and urban areas in the application of labour market programs as well as in employment opportunities is likely to result in different outcomes according to section-of-State. Also to be expected are gender variations given the quite different industry distribution of male and female employment, not least because just over two-thirds of CDEP scheme employees are male (Australian Bureau of Statistics (ABS) 1995: 51).

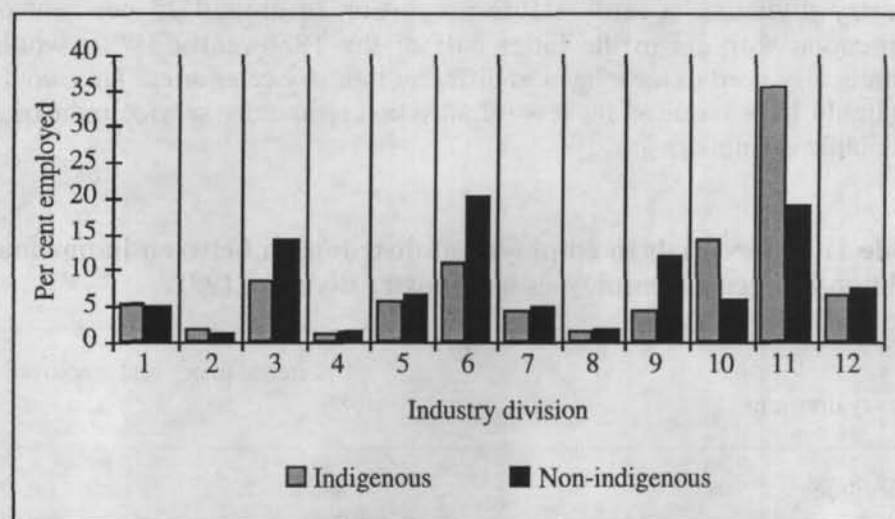
Clarification of such issues is a vital part of assessing the potential effectiveness of policies designed to achieve a broader industry base for indigenous employment. Census data provide the only source of comprehensive information for assessing outcomes in this area and these are used here in an attempt to establish whether policy interventions had any effect on the relative spread of indigenous employment compared to that of the rest of the workforce between 1986 and 1991. To this end, intercensal changes in detailed industry of employment are ascertained. A limited attempt is also made to update the analysis using employment data from the 1994 National Aboriginal and Torres Strait Islander Survey (NATSI).

### **Change in inter-industry segregation, 1986-1991**

Notwithstanding efforts to broaden the industry base of employment, indigenous workers remain far less evenly spread across the 12 major industry divisions than the workforce in general (Figure 1). This discrepancy is due to a continuing over-concentration of indigenous employment in two industries in particular - public administration and community services - and a relatively marked absence from the manufacturing industry, wholesale and retail trade and finance, property

and business services. In all other industries, indigenous representation is more or less equivalent to the national norm, at least at the broad level of industry divisions.

**Figure 1. Distribution of indigenous and non-indigenous employment by industry division, 1991.**



1. Agriculture; 2. Mining; 3. Manufacturing; 4. Electricity, water and gas; 5. Construction; 6. Wholesale and retail trade; 7. Transport; 8. Communication; 9. Finance, property and business services; 10. Public administration and defence; 11. Community services; 12. Recreational and personal services.

Differential shifts that occurred in the percentage distribution of indigenous and non-indigenous workers across industry divisions between 1986 and 1991 are shown in Table 1. Minus signs indicate industries where indigenous representation was greatest. In 1986, for example, 7.6 per cent of indigenous workers were employed in agriculture compared to 5.8 per cent of all other workers. Subtracting the indigenous proportion from that of other workers produces a differential in the proportions of -1.8. In other words, the proportion of indigenous employees engaged in agriculture in 1986 was greater than the proportion of all other workers in the same industry division by 1.8 percentage points. By 1991, the gap between the two proportions had narrowed to a position of virtual parity with indigenous representation in the industry greater by only 0.5 percentage points.

The main feature of employment change over the intercensal period was a substantial further widening of the gap between indigenous and non-



indigenous representation in community service industries. However, the expected impact of this in terms of substantially increasing overall employment segregation was offset by a narrowing of the differential between the proportions of workers in a number of other industries. As a consequence, the degree of employment segregation across industry divisions was fairly stable with only a slight rise in the index of dissimilarity from 23.2 to 25.2 (Table 1).<sup>1</sup> Thus, according to this index, to have achieved equality in the distribution of employment across the broad industry divisions, a fairly stable proportion of around 25 per cent of indigenous workers in the latter half of the 1980s/early 1990s would theoretically need to have been in different industry categories. This would inevitably have required far less reliance on community service industries and public administration.

**Table 1. Differentials in employment distribution between indigenous and non-indigenous employees by industry division, 1991.**

Industry division <sup>a</sup>	Difference in per cent employed	
	1986	1991
Agriculture	-1.8	-0.5
Mining	-0.6	-0.5
Manufacturing	6.1	5.7
Electricity, water and gas	0.3	0.3
Construction	0.4	0.9
Wholesale and retail trade	9.2	9.1
Transport	-1.1	0.6
Communication	0.5	0.4
Finance, property and business services	6.4	7.7
Public administration and defence	-6.8	-8.3
Community services	-12.7	-16.5
Recreational and personal services	0.4	1.0
Index of dissimilarity	23.2	25.7

a Excludes those inadequately described or not stated.

Source: 1986 and 1991 Censuses of Population and Housing.

This lack of movement towards equalisation in the labour market was primarily due to the growth of employment in the CDEP scheme. This is because workers in the scheme are generally classified by the census as employed in community services (mostly in community organisations) as well as in public administration (notably in local government). In 1986, the CDEP scheme operated in only 38 communities Australia-wide with a total of around 5,000 participants. This accounted for an estimated 7 per cent of

total indigenous employment.<sup>2</sup> By the time of the 1991 Census, 165 communities were participating in the scheme with the number of participants totalling 18,500. As a consequence, the CDEP scheme component of total employment is estimated to have risen to 20 per cent. Since then, the scheme has expanded further with a total of 25,166 participants in 230 communities recorded at the beginning of 1995. Using data from the NATSIS, which for the first time provided a more reliable estimate of employment in CDEP schemes, the trend towards an increasing CDEP scheme share of total employment also seems to have continued with the scheme accounting for fully 25 per cent of those in work in mid-1994 (Table 2).<sup>3</sup> Furthermore, this relative expansion seems likely to be sustained into at least the medium-term as the rate at which CDEP scheme jobs were created between 1991 and 1994 (47.4 per cent increase) is estimated to have been eight times higher than that of non-CDEP scheme employment (5.9 per cent increase). Thus, a significant and on-going effect of the CDEP scheme component of the AEDP has been to steadily reinforce a distinctly indigenous segment in the labour market with consequences for the industry spread of employment.

**Table 2. Change in indigenous employment, 1991-94.**

	1991 Census	1994 Survey	Net change	Per cent change
Employed	57,000	65,000	8,000	14.0
Population aged 15+ <sup>a</sup>	153,491	181,500	21,795	18.3
Employment/population ratio	37.0	35.8	-1.2	-3.6
CDEP employment	11,400	16,800	5,400	47.4
non-CDEP employment	45,600	48,300	2,700	5.9

a excluding those who did not state their labour force status

Source: ABS 1991 Census; (ABS 1995: 51).

At an aggregate level the scale of this CDEP scheme effect confounds any attempt to test the impact on industry spread of other AEDP initiatives, particularly those with equalisation goals in mind. However, it is possible to isolate CDEP scheme effects to some extent by controlling for key structural factors in the labour market. The first of these controls derives from the fact that indigenous employment, like its non-indigenous counterpart, is largely constructed according to gender. In particular, employment in the CDEP scheme is predominantly male. This being the case, if non-CDEP scheme policy initiatives regarding the distribution of

employment by industry have had any effect then this should be more readily apparent among female workers. Secondly, and more importantly, both the numbers engaged in CDEP schemes and the relative importance of the scheme in terms of local employment are greatest in rural areas thereby producing a substantial section-of-State variation. Based on this fact, non-CDEP scheme policy impacts on industry distribution should be most evident in urban areas, and particularly in major urban areas where CDEP scheme employment is lowest.

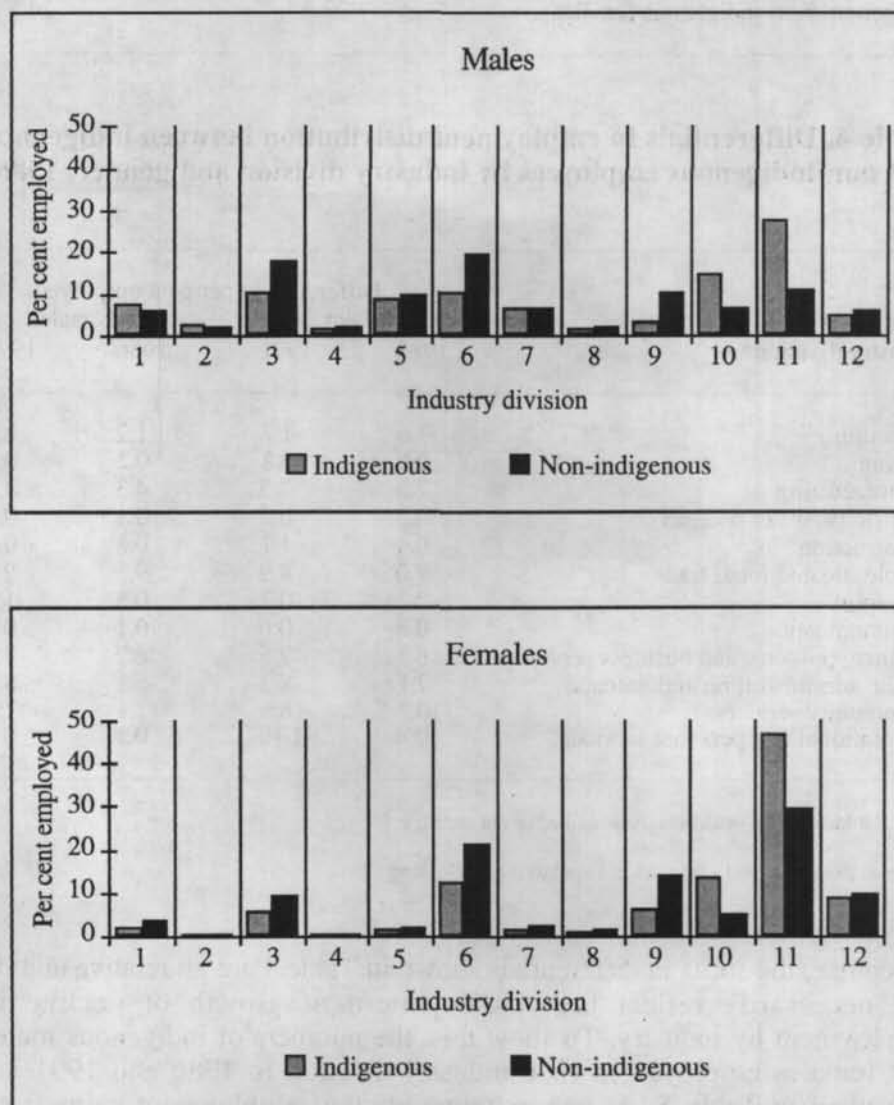
### **Gender variation in industry segregation, 1986-91**

The distribution of indigenous male and female employment across industry divisions broadly resembles that of their respective non-indigenous counterparts (Figure 2). Accordingly, the industrial spread of indigenous male employment is more even than for indigenous females with notably higher representation apparent in agriculture, manufacturing, construction and transport. By contrast, indigenous females rely heavily for employment on community service industries (Figure 2). This gap is reflected in the index of dissimilarity between indigenous males and females (Table 3). This was fairly high in 1986 (35.7) and the substantial decline to 27.4 in 1991 was due primarily to the increased share of male employment in an historically 'female' industry (community services) via the CDEP scheme. The strength of this shift in the indigenous labour market is underlined by a relative lack of change in the segregation index between non-indigenous males and females which fell only slightly from 30.1 to 28.9.

As for difference between the industry distribution of indigenous and non-indigenous workers, this increased slightly for both males and females suggesting that policy overall has failed to bring about a more even spread of employment for indigenous workers, even discounting the distortion effect of the CDEP scheme. The statistical basis for this increased segregation is revealed in Table 4 which shows inter-censal changes in the proportional differential of indigenous and non-indigenous workers employed in each industry division. Clearly, a major reason for the growing disparity between male workers was due to the CDEP scheme, as indicated by the shift towards further concentration in community services among indigenous males. In 1986, 21.2 per cent of indigenous males were employed in community services compared to a figure of 10.5 per cent for other males, producing a differential of 10.7 percentage points. By 1991, this gap had widened to 16.6 percentage points with fully 28.6 per cent of indigenous males employed in this industry. In the case of females, if any CDEP scheme effect is evident at all this seems to have been in public administration. Increased segregation between females appears to be as much due to the collective impact of indigenous workers falling slightly

further behind others in terms of representation in a number of industries, particularly in finance, property and business services.

**Figure 2. Percentage distribution of indigenous and non-indigenous employment by industry division and gender, 1991.**



1. Agriculture; 2. Mining; 3. Manufacturing; 4. Electricity, water and gas; 5. Construction; 6. Wholesale and retail trade; 7. Transport; 8. Communication; 9. Finance, property and business services; 10. Public administration and defence; 11. Community services; 12. Recreational and personal services.

**Table 3. Indexes of dissimilarity by gender groups, 1986-91.**

Gender groups	Index of dissimilarity	
	1986	1991
Indigenous males/females	35.7	27.4
Non-indigenous males/females	30.1	28.9
Indigenous/non-indigenous males	24.5	27.2
Indigenous/non-indigenous females	23.5	24.5

**Table 4. Differentials in employment distribution between indigenous and non-indigenous employees by industry division and gender, 1986-91.**

Industry division <sup>a</sup>	Difference in per cent employed			
	Males		Females	
	1986	1991	1986	1991
Agriculture	-3.6	-1.7	1.2	1.3
Mining	0.9	-0.8	-0.2	-0.2
Manufacturing	7.3	7.3	4.3	3.8
Electricity, water and gas	0.5	0.5	0.1	0.2
Construction	0.4	1.1	0.8	0.9
Wholesale and retail trade	9.0	8.9	9.5	9.2
Transport	-2.2	0.2	0.8	1.2
Communication	0.8	0.6	0.1	0.1
Finance, property and business services	6.1	7.5	6.7	7.9
Public administration and defence	-7.1	-8.2	-6.3	-8.2
Community services	-10.7	-16.6	-17.1	-17.0
Recreational and personal services	0.4	1.10	0.1	0.8

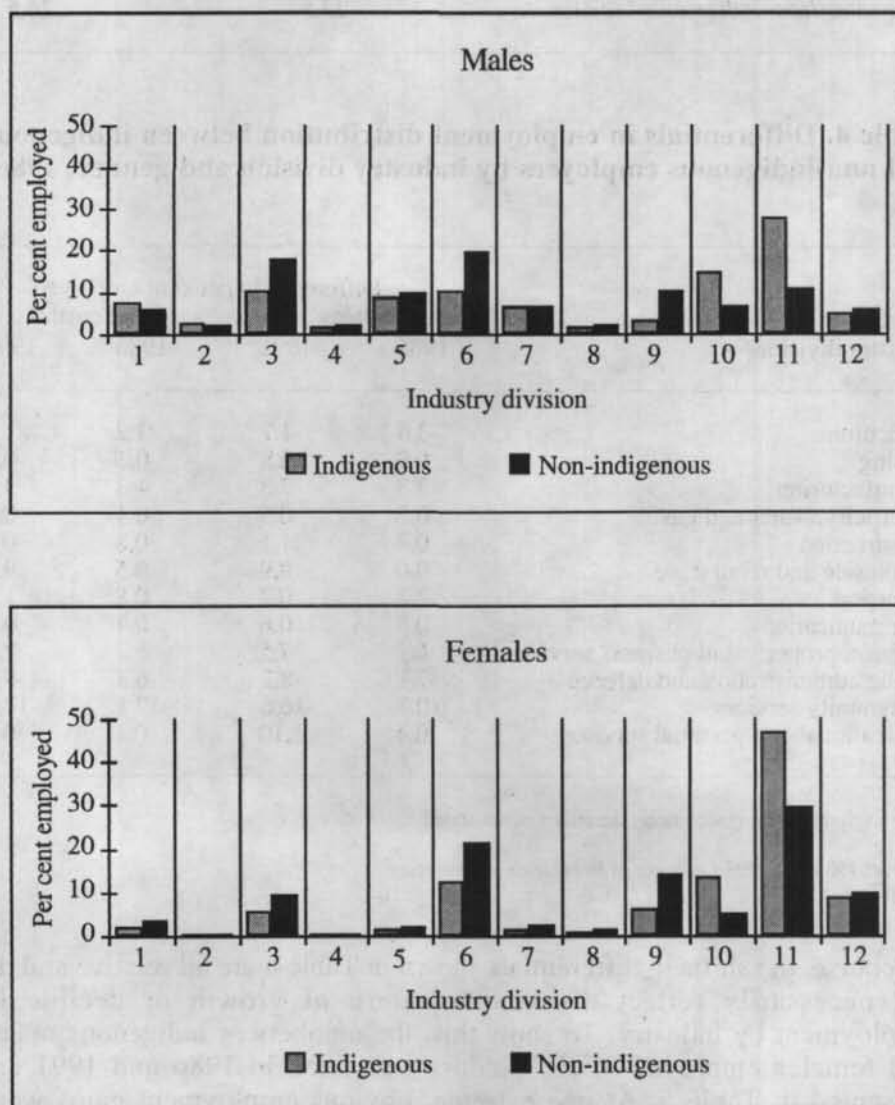
a. Excludes those inadequately described or not stated.

Source: 1986 and 1991 Censuses of Population and Housing.

Of course, the shifts in differentials shown in Table 4 are all relative and do not necessarily reflect the actual pattern of growth or decline in employment by industry. To show this, the numbers of indigenous males and females employed in each industry division in 1986 and 1991 are presented in Table 5. At one extreme, obvious employment gains were evident in public administration, community services and the wholesale and retail trade. At the other extreme, indigenous workers shared in the job losses experienced in certain industries by the workforce in general, notably in agriculture, the public utility industries of electricity, water and

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Agriculture	-3.6	-1.7	1.2	1.3
Mining	0.9	-0.8	-0.2	-0.2
Manufacturing	7.3	7.3	4.3	3.8
Electricity, water and gas	0.5	0.5	0.1	0.2
Construction	0.4	1.1	0.8	0.9
Wholesale and retail trade	9.0	8.9	9.5	9.2
Transport	-2.2	0.2	0.8	1.2
Communication	0.8	0.6	0.1	0.1
Finance, property and business services	6.1	7.5	6.7	7.9
Public administration and defence	-7.1	-8.2	-6.3	-8.2
Community services	-10.7	-16.6	-17.1	-17.0
Recreational and personal services	0.4	1.10	0.1	0.8

a. Excludes those inadequately described or not stated.

Source: 1986 and 1991 Censuses of Population and Housing.

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gas and in the transport industry. On the whole, however, the numbers employed in most industries changed only slightly.

**Table 5. Indigenous employment by industry division and gender, 1986-91.**

Industry division <sup>a</sup>	Number employed			
	Males		Females	
	1986	1991	1986	1991
Agriculture	2,524	2,280	500	433
Mining	755	811	68	108
Manufacturing	2,844	3,138	932	1,140
Electricity, water and gas	614	492	70	48
Construction	2,358	2,537	227	263
Wholesale and retail trade	2,251	3,120	1,805	2,537
Transport	2,387	1,935	253	273
Communication	448	481	215	240
Finance, property and business services	733	910	921	1,245
Public administration and defence	3,468	4,432	1,715	2,744
Community services	5,240	8,250	6,958	9,576
Recreational and personal services	1,056	1,409	1,275	1,845
Total	24,678	29,795	14,939	20,452

a. Excludes those inadequately described or not stated.

Source: 1986 and 1991 Censuses of Population and Housing.

#### *Change in intra-industry segregation*

In order to derive a more precise assessment of industry segregation between indigenous and non-indigenous workers, detailed industry class tables for each group were obtained using the full Australian Standard Classification of Industries (ASIC).<sup>4</sup> Using these fine-grained data an index of dissimilarity was calculated for each industry division and the results are presented in Table 6. In interpreting these indexes it is important to note that their comparability across ASIC divisions is reduced somewhat, owing to the tendency of the index to increase with the detail of the classification (Karmel and Maclachlan 1988). To assist in their usage, the number of classes in each major industry division is also indicated.

A number of points emerge from these calculations. First, dissimilarity between indigenous and non-indigenous females remained generally lower than between male workers. Second, in almost all industry groups the segregation of indigenous workers within industry divisions declined. The main exception to this was in community services where the already high



dissimilarity between the distribution of indigenous males and other males increased even further, no doubt due to participation in the CDEP scheme. While this pattern also emerged among females, their segregation in particular community service industries remains far less than for males owing to their relatively greater participation in activities such as education, health care and welfare services. Notwithstanding some decline in intra-industry segregation, the particular industry classes that were identified as having significant levels of over- or under-representation of indigenous workers in 1986 had barely altered by 1991 (Taylor 1993a).

**Table 6. Intra-industry indexes of dissimilarity by gender, 1986-91.**

Industry division <sup>a</sup>	Intra-industry index of dissimilarity		Industry classes
	1986	1991	
Males			
Agriculture	40.9	33.3	42
Mining	32.3	26.5	32
Manufacturing	28.5	26.9	221
Electricity, water and gas	8.2	9.0	7
Construction	17.0	17.3	25
Wholesale and retail trade	19.6	18.3	95
Transport	32.4	25.1	41
Finance, property and business services	35.5	29.4	51
Public administration and defence	30.0	23.8	9
Community services	52.4	63.1	51
Recreational and personal services	30.2	21.8	37
Females			
Agriculture	35.3	30.7	42
Mining	42.0	40.8	32
Manufacturing	26.1	31.2	221
Electricity, water and gas	8.8	13.2	7
Construction	18.9	14.1	25
Wholesale and retail trade	23.3	20.1	95
Transport	29.4	23.7	41
Finance, property and business services	28.6	20.5	51
Public administration and defence	7.4	15.2	9
Community services	31.5	38.9	51
Recreational and personal services	22.5	18.8	37

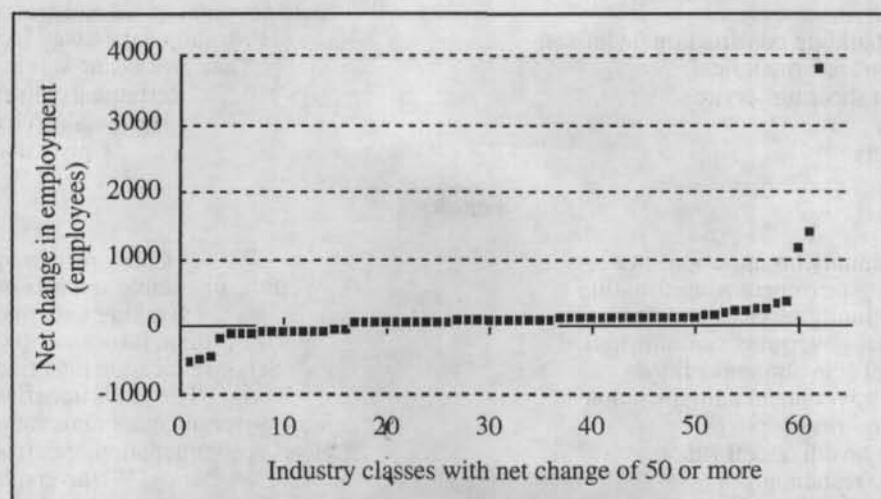
a Excluding communication.

Source : 1991 Census of Population and Housing.

### *Employment change by industry class*

Between 1986 and 1991 the number of indigenous people in employment increased by 14,017. This increase was the net result of employment gains in 303 individual industry classes and job losses in 141 industries. The remaining 168 industries experienced no net change in employment.

**Figure 3. Rank distribution of net change in indigenous employment by industry class, 1986-1991.**



Unfortunately, the rather high proportion of indigenous workers who did not state their industry of employment (7.5 per cent in 1986 rising to 11.7 per cent in 1991) limits the scope for precise allocation of job gains and losses to particular industries. However, a crude validation exercise was conducted by comparing change in detailed industry distribution from the ABS Labour Force Survey between 1986 and 1991 to coincide with that revealed by census data. This analysis suggests that non-response error would most likely be accounted for by apportionment according to industry share. It should also be noted that some employment changes by industry class were due to alterations in ABS coding procedures. For example, large gains were often made in undefined categories because of stricter application of the rules regarding allocation to a given industry class in the coding of 1991 Census data. Other examples reflect micro-economic reform and re-definitions of industry types. A good example of this is the considerable gain in employment in Universities and concomitant loss of employment in Colleges of Advanced Education due to reform of the higher education system.<sup>5</sup>

**Table 7. Rank order of top ten net employment gains by industry class and gender, 1986-91.**

Indigenous	Non-indigenous
<b>Males</b>	
Community organisations nec <sup>a</sup>	Building construction undefined
Community services undefined	Agriculture undefined
Local government administration	Cafes, restaurants
State government administration	Banking undefined
Employment services	State government administration
Non-building construction undefined	Fish shop, take-away food
Prisons, reformatories	Data processing services
Sheep shearing services	Restaurants, hotels
Police	Business services
Grocers	Universities
<b>Females</b>	
Community organisations nec	Cafes, restaurants
Local government administration	Welfare, charitable services nec
Community services undefined	Banking undefined
Federal government administration	Fish shop, take-away food
School education undefined	School education undefined
State government administration	Hospitals undefined
Employment services	State government administration
Other health undefined	Hotel accommodation undefined
Cafes, restaurants	Universities
Welfare, charitable services nec	Market, business consultancy services

a. Not elsewhere classified.

Source: 1986 and 1991 Censuses of Population and Housing.

A rank distribution of net change in employment by industry class enables identification of those industries most responsible for job growth and decline. This is shown in Figure 3 which reveals that substantial change occurred in only very few industries and these contributed to the bulk of employment change. For the indigenous workforce, one industry in particular (community organisations) stands out as the main source of employment growth accounting for almost 4,000 new jobs. Taking an overall perspective, the leading 10 industries out of a total of 303 industries that experienced job growth accounted for as much as 53 per cent of all net gain. Likewise, the leading 10 losers out of 141 declining industries accounted for 62 per cent of all net loss. Consequently, the vast majority of industry classes experienced little, if any, change in employment. It should be noted that Figure 3 shows only the extreme ends of the rank distribution comprising those industry classes with the greatest net change in employment. These account for only 10 per cent of all industry classes.

Those with a net change of less than fifty employees have been omitted as well as those with no change. The distinct S-shaped distribution that results is common to all population sub-groups; male and female, indigenous and non-indigenous.

Particular industries most responsible for the employment gains shown at the extreme right of the curve in Figure 3 are indicated in Table 7 and comparison is made with their non-indigenous equivalents. Little difference was evident between indigenous males and females with the top growing industries in each case comprising an amalgam of jobs in community organisations and local government (predominantly CDEP scheme related) as well as in areas of State and Federal public administration. This further explains the common movement regardless of gender towards increased job segregation during the inter-censal period and signals deepening entrenchment of an indigenous segment in the labour market.

Far greater contrast emerges between indigenous and non-indigenous workers. Among males, only one leading industry (State government administration) was common to both sub-groups while among females four industries were shared. Even leaving aside the dominance of CDEP scheme employment in contributing to indigenous job growth, as indicated by the top three leading industries, it appears that indigenous workers failed to keep up in major areas of employment expansion such as banking, business services, hospitality industries and data processing. The consequence is an indigenous labour force that has altered few of its distinguishing characteristics since 1986 and continues to occupy employment niches that are quite distinct from those of the mainstream (Table 8).

### **Section-of-State variation in industry segregation, 1986-91**

A key determinant of the nature and level of indigenous employment is location. This reflects the fact that many indigenous people are not resident in places where the greatest number and range of jobs are found, nor are they predisposed to changing residential location to overcome this mismatch (Taylor 1989; Taylor and Bell 1994). In remote rural areas, for example, indigenous settlement is in numerous, small-scale and widely dispersed localities. This serves to diminish economies of scale and limits the development of market thresholds for job creation. The main employment policy response in this context of seemingly limited options has been to facilitate expansion of the CDEP scheme. Not surprisingly, this is reflected in an increase in the already high industry segregation for both males and females in rural areas due to an increased over-concentration of employment in community service industries (Table 9). Interestingly, however, high rural segregation indexes also reflect the fact that non-

indigenous employment in such areas is far less dependent on community service industries. Indeed, almost one million non-indigenous workers were employed in industries other than community services in rural parts of Australia, notably in mining, agriculture, wholesaling and retailing, the construction industry and in recreational and personal service industries. Clearly, diversity of employment opportunity does exist in rural areas, it is simply segmented.

**Table 8. Rank order of top ten industry classes by indigenous and non-indigenous employment and gender, 1991.**

Indigenous		Non-indigenous
	Males	
Community organisations nec <sup>a</sup>		Motor vehicle dealers
Local government administration		Communication
Community services undefined		Local government administration
Rail transport		Defence
Welfare and charitable services nec		Agriculture undefined
Federal government administration		State government administration
State government administration		Grocers
Communication		Rail transport
Defence		Electricity
Road, bridge construction		Cafes, restaurants
Per cent of total employment: 38.4		Per cent of total employment: 16.5
	Females	
Community organisations nec <sup>a</sup>		Hospitals
Welfare and charitable services nec		Grocers
Federal government administration		Primary schools
Local government administration		Nursing homes
Hospitals		Secondary schools
Primary schools		Cafes, restaurants
State government administration		Welfare and charitable services nec
Grocers		Take-away food shops
Community services undefined		Department stores
Accommodation		Medicine
Per cent of total employment: 43.0		Per cent of total employment: 27.3

a. Not elsewhere classified.

Source: 1991 Census of Population and Housing.

The data in Table 9 also reveal a distinct settlement size gradient in the degree of dissimilarity. This shifts from major urban areas, where the difference in industry distribution between indigenous and non-indigenous

workers is relatively small and stable, to other urban areas where the gap is somewhat wider but declined slightly, to rural areas where substantial difference occurs and dissimilarity increased considerably, particularly among males. While it is true to say that nowhere did policy achieve an equalisation in the spread of indigenous employment, it seems evident from the trends by section-of-State that the likelihood of any such eventuality is confined to urban areas.

**Table 9. Indexes of dissimilarity by section-of-State and gender, 1986-91.**

	1986			1991		
	Males	Females	Total	Males	Females	Total
Major urban	14.4	17.0	15.1	15.0	17.8	15.6
Other urban	19.5	24.7	21.1	19.0	22.9	20.1
Rural	32.1	37.3	32.9	46.9	41.6	44.3

Source: 1991 Census of Population and Housing.

The section-of-State gradient in segregation is repeated at the intra-industry level (Table 10). Not only were dissimilarity indexes lowest in urban areas, and especially major urban areas, they were also more stable over time than in rural areas. Of particular note is the extreme dissimilarity between rural workers in community service industries, followed increasingly by those in public administration. Aside from the preeminence of community organisations as employers of indigenous labour, this level of concentration is as much to do with the fact that indigenous people simply do not participate in a myriad of activities that other rural people are engaged in. In 1991, for example, no rural-based indigenous people were employed in as much as 43 per cent of the 612 industries classes. The equivalent rates of absence from industries in major cities and other urban areas were 24 per cent and 29 per cent respectively. Also of interest is the fact that segregation of indigenous workers in finance, property and business services declined in urban areas but rose in rural areas.

A nominal measure of the particular industry concentrations responsible for employment segregation can be established by simply ranking the top ten industry classes of employment. This is done for each section-of-State in Tables 11 and 12 and reveals far greater concentrations of indigenous employment in a few industry categories but again with substantial variation between town and country. For example, in rural areas as much as two-thirds of all indigenous male employment was accounted for by the top

ten employing industries compared to only one-quarter of non-indigenous employment. By contrast, in major urban areas, the equivalent proportions were 25 per cent and 16 per cent. A similar pattern of job concentration is also evident among females.

**Table 10. Intra-industry segregation by section-of-State, 1986-91.**

Industry Division <sup>a</sup>	1986			1991		
	Major urban	Other urban	Rural	Major urban	Other urban	Rural
1	27.7	20.1	44.7	35.1	35.1	37.2
2	19.8	29.2	36.2	28.4	25.1	34.5
3	21.6	31.4	35.8	22.5	28.8	36.7
4	10.1	17.2	3.8	9.3	18.5	13.2
5	14.7	20.2	26.0	14.8	19.0	24.4
6	15.9	16.3	34.2	14.3	17.9	32.2
7	20.7	30.8	45.8	20.4	27.7	35.6
8	25.3	38.1	39.0	19.1	30.1	43.1
9	10.3	21.9	33.4	13.2	24.0	44.3
10	25.5	31.4	63.2	27.8	36.1	71.2
11	24.4	23.2	30.2	18.4	20.0	20.0

1. Agriculture; 2. Mining; 3. Manufacturing; 4. Electricity, water and gas; 5. Construction; 6. Wholesale and retail trade; 7. Transport; 8. Finance, property and business services; 9. Public administration and defence; 10. Community services; 11. Recreational and personal services.

a Excluding communication.

Source: 1991 Census of Population and Housing.

While some of the main employing industries were common to both indigenous and non-indigenous workers, though in somewhat different rank order, others were quite different. The striking feature, however, is the fact that seven of the ten leading industries for males in major urban areas and six of the ten among females were shared by all workers. In other urban and rural areas, the equivalent proportions for males were consistent at three out of ten, while among females they fell from five to two out of ten. This suggests that the industry profile of indigenous workers in major cities coincides much more with that of the mainstream. As a consequence, the creation of an indigenous segment in the labour market is very much a non-urban, or at least non-metropolitan, phenomenon. The overriding characteristic of this appears to be a relative increase in the importance of government and indigenous community service industries as opposed to

those concerned with a more diverse range of activities such as hospitality, education, agriculture, mining, health and defence.

**Table 11. Rank order of top ten industry classes by indigenous and non-indigenous male employment and section-of-State, 1991.**

Indigenous		Non-indigenous
	Major urban	
Federal government administration		Communication
Communication		Motor vehicle dealers
Local government administration		Defence
Defence		State government administration
State government administration		Federal government administration
Rail transport		Cafes, restaurants
Motor vehicle dealers		Grocers
Welfare, charitable services nec <sup>a</sup>		Local government administration
Builders, hardware dealers nec		Hospitals
Grocers		Take-away food shops
Per cent of total employment: 24.6		Per cent of total employment: 16.7
	Other urban	
Local government administration		Local government administration
Rail transport		Motor vehicle dealers
Community organisations nec		Electricity
Welfare, charitable services nec		Communication
Meat, smallgoods		Rail transport
State government administration		Defence
Federal government administration		Grocers
Road, bridge construction		Secondary schools
Communication		Black coal
Non-building construction nec		State government administration
Per cent of total employment: 32.9		Per cent of total employment: 19.9
	Rural	
Community organisations nec		Agriculture undefined
Local government administration		Milk cattle
Community services undefined		Sheep
Meat cattle		Local government administration
Agriculture undefined		Sheep-cereal grains
Welfare, charitable services nec		Meat cattle
Rail transport		Motor vehicle dealers
Grocers		Defence
Road, bridge construction		Sheep-meat cattle
Cereal grain, sheep, cattle undefined		Communication
Per cent of total employment: 63.3		Per cent of total employment: 26.8

a Not elsewhere classified.

Source: 1991 Census of Population and Housing.



**Table 12. Rank order of top ten industry classes by indigenous and non-indigenous female employment and section-of-State, 1991.**

Indigenous		Non-indigenous
	<b>Major urban</b>	
Federal government administration		Hospitals
Welfare and charitable services nec <sup>a</sup>		Grocers
State government administration		Primary schools
Hospitals		Nursing homes
Nursing homes		Department stores
Grocers		Welfare and charitable services nec
Employment services		Cafes, restaurants
Communication		Cafes, restaurants
Primary schools		Take-away food shops
Accommodation		Federal government administration
Per cent of total employment: 35.6		Per cent of total employment: 27.1
	<b>Other urban</b>	
Welfare and charitable services nec		Hospitals
Hospitals		Grocers
Federal government administration		Primary schools
Local government administration		Secondary schools
Community organisations nec		Nursing homes
State government administration		Take-away food shops
Accommodation		Accommodation
Primary schools		Cafes, restaurants
Grocers		Welfare and charitable services nec
Preschools		Medicine
Per cent of total employment: 41.7		Per cent of total employment: 31.8
	<b>Rural</b>	
Community organisations nec		Agriculture undefined
Local government administration		Hospitals
Community services undefined		Primary schools
Primary schools		Grocers
School education undefined		Milk cattle
Welfare and charitable services nec		Secondary schools
Grocers		Nursing homes
Hospitals		Accommodation
Federal government administration		Cafes, restaurants
Community health centres		Meat cattle
Per cent of total employment: 62.7		Per cent of total employment: 29.6

a Not elsewhere classified.

Source: 1991 Census of Population and Housing.

those concerned with a more diverse range of activities such as hospitality, education, agriculture, mining, health and defence.

**Table 11. Rank order of top ten industry classes by indigenous and non-indigenous male employment and section-of-State, 1991.**

Indigenous		Non-indigenous
	<b>Major urban</b>	
Federal government administration		Communication
Communication		Motor vehicle dealers
Local government administration		Defence
Defence		State government administration
State government administration		Federal government administration
Rail transport		Cafes, restaurants
Motor vehicle dealers		Grocers
Welfare, charitable services nec <sup>a</sup>		Local government administration
Builders, hardware dealers nec		Hospitals
Grocers		Take-away food shops
Per cent of total employment: 24.6		Per cent of total employment: 16.7
	<b>Other urban</b>	
Local government administration		Local government administration
Rail transport		Motor vehicle dealers
Community organisations nec		Electricity
Welfare, charitable services nec		Communication
Meat, smallgoods		Rail transport
State government administration		Defence
Federal government administration		Grocers
Road, bridge construction		Secondary schools
Communication		Black coal
Non-building construction nec		State government administration
Per cent of total employment: 32.9		Per cent of total employment: 19.9
	<b>Rural</b>	
Community organisations nec		Agriculture undefined
Local government administration		Milk cattle
Community services undefined		Sheep
Meat cattle		Local government administration
Agriculture undefined		Sheep-cereal grains
Welfare, charitable services nec		Meat cattle
Rail transport		Motor vehicle dealers
Grocers		Defence
Road, bridge construction		Sheep-meat cattle
Cereal grain, sheep, cattle undefined		Communication
Per cent of total employment: 63.3		Per cent of total employment: 26.8

a Not elsewhere classified.

Source: 1991 Census of Population and Housing.

**Table 12. Rank order of top ten industry classes by indigenous and non-indigenous female employment and section-of-State, 1991.**

Indigenous		Non-indigenous
	<b>Major urban</b>	
Federal government administration		Hospitals
Welfare and charitable services nec <sup>a</sup>		Grocers
State government administration		Primary schools
Hospitals		Nursing homes
Nursing homes		Department stores
Grocers		Welfare and charitable services nec
Employment services		Cafes, restaurants
Communication		Cafes, restaurants
Primary schools		Take-away food shops
Accommodation		Federal government administration
Per cent of total employment: 35.6		Per cent of total employment: 27.1
	<b>Other urban</b>	
Welfare and charitable services nec		Hospitals
Hospitals		Grocers
Federal government administration		Primary schools
Local government administration		Secondary schools
Community organisations nec		Nursing homes
State government administration		Take-away food shops
Accommodation		Accommodation
Primary schools		Cafes, restaurants
Grocers		Welfare and charitable services nec
Preschools		Medicine
Per cent of total employment: 41.7		Per cent of total employment: 31.8
	<b>Rural</b>	
Community organisations nec		Agriculture undefined
Local government administration		Hospitals
Community services undefined		Primary schools
Primary schools		Grocers
School education undefined		Milk cattle
Welfare and charitable services nec		Secondary schools
Grocers		Nursing homes
Hospitals		Accommodation
Federal government administration		Cafes, restaurants
Community health centres		Meat cattle
Per cent of total employment: 62.7		Per cent of total employment: 29.6

a Not elsewhere classified.

Source: 1991 Census of Population and Housing.

### **Caveat on industry profiles**

One drawback from these industry profiles is the absence of data that reflect the involvement of indigenous people in economic activities that census methodology is ill-equipped to record. One example, of particular relevance here, derives from the practise in census enumeration of coding participants in CDEP schemes as employed in local government or community service industries. This reflects the ASIC convention of classifying, in all instances, industry of employment according to the *main* economic activity undertaken by the employer rather than by the employee (ABS 1985). Thus, if an individual indicates that they work for a community council, then their industry of employment will be coded as local government or community services despite the fact that they may actually be engaged in running a community store or in screen printing and, therefore, in essence, part of the retail or manufacturing industries. The likelihood of a community organisation appearing on census forms as the employer would appear to be greater among the indigenous population, given the relatively simple and dependant economic structure of many indigenous localities with most work establishments owned and operated by community organisations. It is not surprising, then, to find that growth of employment in local government and community service industries has been largely responsible for increased industry segregation, particularly in rural areas.

It would appear, however, that official data have some potential to mask industrial diversity. While this is applicable to the whole population, the contention here is that a greater potential exists in regard to indigenous employment. Some measure of this is provided by data from the ATSI survey of CDEP scheme activities for a sample of communities across Australia covering approximately two-thirds of scheme participants at the end of 1994. This indicates that a wide range of activities were supported by the scheme and that less than half of the sample participants (43 per cent) were employed in activities that unequivocally related to the provision of community services. The remainder were engaged in activities more closely associated with other industries, particularly construction, agriculture and recreation and personal service industries (Table 13). The spread of employment revealed by these data is also consistent with findings of the 1992 assessment of the CDEP scheme which recorded a similar range of activities, although with no indication of the numbers involved in each (Deloitte Touche Tohmatsu 1993: 52-3). Whatever the relativities of such latent activity with regard to the rest of the population, the issue here is that indigenous workers appear to be engaged in a wider range of industrial tasks than is readily apparent from census data and this needs to be acknowledged by policy makers, particularly in planning training programs.

**Table 13. Employment in CDEP scheme activities: sample communities, December 1994.**

Activity	Number of participants	Per cent of total
Community service activities		
Women's resource centre	977	5.5
Youth resource centre	244	1.4
Child care	319	1.8
Aged care	179	1.0
Health work	623	3.5
Education	307	1.7
Community maintenance	4,983	28.1
Sub-total	7,632	42.9
Other activities		
Selling goods and trade	762	4.3
Broadcasting	183	1.1
Building and construction	1,572	8.8
Sport and recreation	897	5.1
Traditional/cultural	2,319	13.0
Mechanical	398	2.2
Arts and crafts	1,799	10.1
Agriculture	1,788	10.1
Tourism	418	2.3
Sub-total	10,136	57.1
Total	17,768	100.0

Source: Form CDEP8A, ATSI Central Office, Canberra.

### Policy implications

Despite efforts articulated in policy to expand the industry base of indigenous employment, dissimilarity between the distribution of indigenous and other workers across broad industry categories increased slightly between 1986 and 1991. Put another way, the net outcome of employment changes over the intercensal period meant that indigenous people became more reliant for work on relatively fewer areas of economic activity. These were mostly in community and government sector industries. A primary cause of this entrenchment in the labour market position of indigenous people was the fact that jobs created by the CDEP scheme comprised the bulk of new employment growth, thereby raising the proportion of workers in community services and public administration. Even after partially controlling for this effect, however, the situation in terms of relative industry distribution was found to have altered little.

In seeking to establish links between policy effectiveness and change in social indicators, one weakness of trend analysis is the limited time span for which data are available. In addressing issues related to the AEDP, for example, census data can only provide a basis for appraising signs of policy impacts to 1991. This may be too short a frame of reference as the full impact of employment policies is only likely to be discernible over much longer periods. However, some basis for monitoring on-going employment trends is provided by the 1994 NATSIS. If anything, this suggests that the shift towards increased segregation in the labour market has continued to the present.

Not all indications are negative, however, as much depends on the scale at which industry data are analysed. At the intra-industry level, for example, some signs of reduced segregation are evident. This is most apparent in agricultural industries, mining, transport, finance, public administration, recreation and personal services. In such industries, the employment distribution of indigenous people is now more like that of the mainstream, although still notably dissimilar. Also apparent is the fact that relatively low segregation between workers observed in major cities has been sustained. In any event, it is inevitable that a degree of dissimilarity will exist between the industry distribution of indigenous and non-indigenous workers given their quite different population distributions.

From a policy perspective, a crucial question raised by segmentation in the labour market is whether this is likely to hinder access for indigenous people to future areas of employment growth. If indigenous people are overly-concentrated in industries that are set for decline, what is the prognosis for their participation in the labour market? At the purely statistical level, the answer to this seems reasonably positive as the major concentrations of indigenous workers, in community services, public administration and, to a lesser extent the wholesale and retail trade, are in three of the six broad industry categories that are projected to experience above average employment growth to the year 2001 (Department of Employment, Education and Training (DEET) 1991: 17). However, the argument has been raised before that over-reliance on community and government sector employment leaves indigenous workers potentially vulnerable to the vagaries of government spending (Altman and Daly 1992: 14-15).

Whatever the relative merits of occupying particular niches in the labour market may be, at a more practical level the primary and increasingly urgent task of the AEDP is to ensure that the creation of new job opportunities simply keeps up with the expansion of the working-age population. Even to sustain indigenous employment at its relatively low level would require an additional 2,000 jobs per annum to the year 2001, to say nothing of achieving statistical equality with the rest of the population

(Altman and Gaminiratne 1994). To this end, AEDP strategies now combine with the case management and job guarantee initiatives announced as part of the government's White Paper on Employment, *Working Nation* (Commonwealth of Australia 1994). While it remains to be seen how effective these new measures will be, a major problem with labour market programs to date has been the lack of observable job growth despite substantial numbers of program participants (Taylor 1993b: 3). One explanation offered for this has been the view that many program placements have not represented 'new' entrants to 'new' jobs, but simply the same individuals recycled several times through a constant, or even declining, pool of positions (Johnston 1991: 73). Another factor has been the short duration of job subsidies and program support combined with the high attrition rates among program participants. Clearly, one measure of success for the *Working Nation* initiatives will be to ensure sustained program participation and outcomes that lead to actual growth in employment. Part of the tactic in this regard should be to ensure that the range of opportunities for industry training, accreditation and entry is widened.

An immediate handicap to improving program outcomes, however, is the limited skill base of many indigenous job-seekers as this may effect the level of demand for their labour. Not surprisingly, the census data reveal that industries under-employing indigenous workers are still those that require high human capital endowments, such as medicine, education, accounting, computing and various trades-based industries. Equally, however, there are many examples of other major employers, such as shops, cafes and restaurants, stores and banks, where this is less so and where factors such as discrimination or cultural preferences and characteristics may be more responsible. Whatever the case, the labour market is increasingly dynamic and if the aim of policy is to ensure that indigenous job seekers are not left further behind in a changing and increasingly competitive labour market then there is a need for forecasting of likely areas of employment growth (and decline) and an attempt to target training and work experience towards matching supply with anticipated demand. Regional options for this in terms of community-based export generating activities and import substitution activities have been canvassed elsewhere (Taylor 1995).

While there is no doubt that the attachment of indigenous workers to the mainstream labour market remains marginal, it does not seem to follow that entrenchment of a distinctly indigenous labour market necessarily limits the scope for employment across a range of industries, at least not to the extent suggested by official statistics. Nor should this necessarily be a cause for concern. For many indigenous communities, whether urban- or rural-based, participation in a limited range of industries may be precisely in keeping with employment aspirations especially if this involves work in

a more culturally-attuned situation. At the same time, evidence from the section-of-State analysis suggests that the nature of indigenous work in rural and urban settings is increasingly dissimilar, with the former ever more narrowly focused and reliant on special programs and the latter more broadly ranged and closely aligned with the fortunes of the mainstream labour market. This mirrors the empirical reality reported for the population generally in that segmented labour markets become self-reinforcing over time, particularly in a spatial context (Hunter 1994). The risk, it seems, in rural areas, is that this may lock in income inequalities by limiting the range of options available to indigenous labour.

### Notes

1. In a statistical sense, segregation refers to the degree of difference in the pattern of proportional distribution between two otherwise similar sets of data. A relative measure of such difference is provided by a wide range of segregation indices and one commonly used in studies of labour force segregation, the index of dissimilarity, is applied here. This is calculated by summing the absolute differences between the per cent of all indigenous people employed in different industries and dividing the answer by two. For example, using hypothetical data showing the percentage of indigenous and non-indigenous workers employed in three industries:

	Indigenous employed (per cent)	Non-indigenous employed (per cent)	Absolute difference
Industry A	65	20	45
Industry B	10	50	40
Industry C	20	30	10
Total	100	100	95

In this case, the index of dissimilarity would equal  $95/2 = 47.5$  per cent. In other words, almost half of indigenous workers (or non-indigenous workers) would have to change their industry of employment in order to eliminate the difference in the statistical distributions. The index thus ranges from zero (no segregation) to 100 (complete segregation). For further discussion of the index methodology see Jones (1992).

2. Not all participants in the CDEP scheme were in employment. For example, a proportion were dependant spouses. While figures of the actual number of scheme employees are not readily available one rule of thumb applied has been a ratio of 60:40 workers to participants (Taylor 1993c: 34-5). This is no more than an educated guess based on the middle of the range from 30 per cent to 90 per cent being the proportion of workers to participants reported from a sample of 21 communities participating in the scheme by Deloitte Touche Tohmatsu (1993: 51). Interestingly, the same calculation applied to scheme participants in mid-1994 (23,500) produces a figure of scheme employees (14,100) which is close to that reported by the NATSIS (16,800) which directly elicited information on employment in the scheme.



- 3 It should be noted that employment data from the 1991 Census and the 1994 NATSIS are not strictly comparable due to the different methods of enumeration. If anything, it appears that the collective effect of these variations is likely to have resulted in a slight under-estimate of NATSIS employment levels compared to those derived from the census.
4. The ASIC structure includes 12 industry divisions which are comprised of 612 industry classes.
5. The S-shape of the curve in Figure 3 may be somewhat accentuated by a tendency for some large gainers to be mirrored by large losers in related industries. The ABS offers two explanations for this. First, industry restructuring has created new coding descriptors for essentially the same industry class. A good example of this is the re-designation of Colleges of Advanced Education as Universities. Another is the fact that many acute care hospitals, particularly in country areas, now have a considerable nursing home component. The second explanation advanced is a change in coding methodology and approach between the two censuses. In the 1986 Census, coding was done manually and considerable discretion was applied in deciding which code to apply. In 1991, computer assisted coding techniques enforced more stringent adherence to coding procedures. One effect of this seems to have been an apparent increase in 'not further defined' categories.

## References

- Altman, J.C. 1988. *Aborigines, Tourism and Development: the Northern Territory Experience*, North Australia Research Unit, Darwin.
- Altman, J.C. and Daly, A.E. 1992. 'Do fluctuations in the Australian macroeconomy influence Aboriginal employment status?', *Economic Papers*, 11 (3): 32-49.
- Altman, J.C. and Gaminiratne, K.H.W. 1994. 'Employment implications of the growth of the indigenous Australian working-age population', *Australian Bulletin of Labour*, 20 (1): 29-45.
- Aboriginal and Torres Strait Islander Commission (ATSIC) 1994. *Review of the Aboriginal Employment Development Policy*, ATSIC, Canberra.
- Aboriginal and Torres Strait Islander Commission (ATSIC) 1995. *Recognition, Rights and Reform: A Report to Government on Native Title Social Justice Measures*, Strategic Planning and Policy Branch, ATSIC, Canberra.
- Australian Bureau of Statistics (ABS) 1985. *Australian Standard Industrial Classification, Volume 1: The Classification*, cat. no. 1201.0, ABS, Australian Government Publishing Service, Canberra.
- Australian Bureau of Statistics (ABS) 1995. *National Aboriginal and Torres Strait Islander Survey 1994: Detailed Findings*, cat. no. 4190.0, ABS, Australian Government Publishing Service, Canberra.
- Commonwealth of Australia 1987. *Aboriginal Employment Development Policy Statement, Policy Paper No. 1*, Australian Government Publishing Service, Canberra.
- Commonwealth of Australia 1994. *Working Nation: Policies and Programs*, Australian Government Publishing Service, Canberra.

- Deloitte Touche Tohmatsu, 1993. *No Reverse Gear: A National Review of the Community Development Employment Projects Scheme*, Report to the Aboriginal and Torres Strait Islander Commission, Canberra.
- Department of Employment, Education and Training (DEET) 1991. *Australia's Workforce in the Year 2001*, Australian Government Publishing Service, Canberra.
- Hunter, B. 1994. 'The spatial structure of the labour market', *Discussion Paper No. 306*, Centre for Economic Policy Research, Australian National University, Canberra.
- Johnston, E. (Chair) 1991. *Review of the Training for Aboriginals Program*, Report to the Ministers for Employment, Education and Training and Aboriginal Affairs (DAA), DEET, Aussie Print, Canberra.
- Jones, F. L. 1992. 'Segregation indices: an historical and conceptual note', *Australia and New Zealand Journal of Sociology*, 28 (1): 105-110.
- Karmel, T. and Maclachlan, M. 1988. 'Occupational sex segregation - increasing or decreasing?', *Economic Record*, 64: 187-95.
- Taylor, J. 1989. 'Public policy and Aboriginal population mobility: insights from the Katherine region, Northern Territory', *Australian Geographer*, 20 (1): 47-53.
- Taylor, J. 1993a. 'Industry segregation among employed Aborigines and Torres Strait Islanders', *Australia and New Zealand Journal of Sociology*, 29 (1): 3-20.
- Taylor, J. 1993b. *The Relative Economic Status of Indigenous Australians, 1986-91*, CAEPR Monograph No. 6, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Taylor, J. 1993c. *Regional Change in the Economic Status of Indigenous Australians, 1986-91*, CAEPR Monograph No. 5, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Taylor, J. and Bell, M. 1994. 'The mobility status of indigenous Australians', *CAEPR Discussion Paper No. 78*, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Taylor, J. 1995. 'Indigenous employment and job segregation in the Northern Territory labour market', *CAEPR Discussion Paper No. 83*, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.

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