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**Change in the relative economic
status of indigenous males in the
1980s: Australia and the United
States compared**

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- assist in the development of government strategies aimed at raising the level of Aboriginal and Torres Strait Islander participation in the labour market.

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ABSTRACT

The 1980s saw some significant changes in the income distribution in Australia and the United States of America (US). The purpose of this paper is to examine how these changes have affected the relative income status of indigenous males in each country. In 1980, the average income of a Native American male was 58.3 per cent, and that of the average Australian indigenous male was 50.5 per cent of their white counterparts. By the end of the decade, the relative income position of the two indigenous groups had reversed. The average Native American male had an income equal to 48.2 per cent of white Americans and the average indigenous Australian male had an income equal to 55.5 per cent of non-indigenous Australian males. This reversal in relative positions involved swimming against the tide of a widening income distribution in Australia. Much of this improvement for indigenous Australian males can be attributed to government policy initiatives, both those directed specifically toward indigenous Australians and those of a more general nature in the area of welfare policy. Native Americans in the US have not received the same attention from government. It is, however, important to note that the employment rate among Native Americans has remained well above that of indigenous Australian males, 60 per cent compared with 45 per cent. The Australian welfare system has played an important role in raising the relative income of indigenous Australian males.

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Foreword

This discussion paper is a revised version of an earlier paper titled 'Welfare and economic progress of indigenous men of Australia and the US 1980-90' published by the Centre for Economic Policy Research (CEPR), Research School of Social Sciences (RSSH), Australian National University as Discussion Paper No. 318 (October 1994). The paper has been amended both to fit the CAEPR Discussion Paper series style and also to better target the audience for our discussion papers.

CAEPR and CEPR have enjoyed a very close collaboration since the establishment of CAEPR in 1990. Professor Bob Gregory served on the CAEPR Advisory Committee from 1990-94 and Dr Anne Daly held a research fellowship at CAEPR from 1991-94 jointly funded by RSSH and CAEPR. Dr Daly is currently a part-time Visiting Fellow at the Centre. The continuing collaboration both with the Economics Program, RSSH and with the University of Canberra where Dr Daly is now a Lecturer in Economics, is very pleasing and hopefully will continue.

Jon Altman
Series Editor
April 1995

During the 1980s labour market conditions for low-skilled low-paid men deteriorated in Australia and the United States of America (US) (Katz and Murphy 1992; Gregory 1993; Borland and Wilkins 1994). In such an environment it might be thought that indigenous men would fare badly.¹ They tend to be over-represented among the unskilled and have always found it difficult to find employment.

In Australia, however, it became an increasing government priority during the 1980s to improve the economic wellbeing of indigenous people and by the end of the decade more was being spent on identified Aboriginal programs than all the income that Aboriginal men and women earned from employment. Indigenous men were subject to two countervailing forces: broad changes in the economy working against them, and government initiatives working in their favour.

Economy-wide forces were also working against indigenous people in the US but government made no attempt to offset them. Government expenditure on indigenous people is less than in Australia and appears to have fallen over the decade.

The issue of the implications of government policy for the changing economic status of indigenous people is an important one. Earlier research suggests that the experience of indigenous males and females in terms of employment and income has been quite different over the past 20 years (see for example Daly 1995). It was therefore decided to focus a paper on the experience of each sex in turn. This paper consists of a comparison of the economic wellbeing of indigenous men in these two countries, and how it has changed over the decade (see Gregory 1991 for an earlier discussion of these issues). There will be a subsequent paper addressing the issue of the relative status of indigenous females. This paper should provide some insights into the extent to which large increases in government expenditure can offset adverse labour market trends for males. It should also place the low level of economic wellbeing of Aboriginal men in an international context.

Part two of the paper presents the stark macro-picture. At the beginning of the 1980s the average income of an Australian indigenous male was 50.5 per cent of his white counterpart (see endnote 1). In the US the indigenous income ratio was 58.3 per cent. There was a cross-country difference of 15 per cent in favour of Native American males.

By the end of the decade the relative income position of the two indigenous groups had reversed. The Aboriginal income ratio increased 10 per cent and that of our sample of Native American men fell 17 per cent. Aboriginal men gained approximately 30 per cent relative to Native Americans; an extraordinary turnaround.

The source of this large change appears to lie in Australian Government initiatives and substantial increases in expenditure directed towards indigenous people, rather than cross-country differences in the adverse impact of general economic factors on the labour market of the low-skilled. Both indigenous groups were required to swim against a strong economic current. One group moved forward, the other slipped back.

An important finding of the cross-country comparison is the role of general policies as well as targeted government expenditure in determining outcomes. The generosity of the welfare system, as it applies to all men, and labour market regulations, which influence wage relativities for the low-paid, crucially affect outcomes for indigenous people through their effects on income inequality. Australian experience suggests that the Australian welfare system and labour market regulations compress the income distribution and, as a result, low-skilled and low-paid indigenous people gain a great deal of income from the effects of these institutional features. If, in the pursuit of labour market deregulation, Australian minimum wages fall, and the US experience is relevant, Aborigines currently in employment may lose considerable purchasing power. We estimate that if Australian income dispersion widened to that of the US then, *ceteris paribus* (other things being equal or unchanged), indigenous men would lose 28 per cent of their income. This is after making allowance for increased employment that might flow from lower wages and welfare payments.

The third part of the paper presents an analysis of the history of the 1980s that generated income gains for Aborigines and income losses for Native Americans. The story is complicated, and there are numerous data difficulties, but the following key facts emerged.

- i Aggregate employment earnings in each country fell substantially for indigenous males and by similar amounts over the decade. Aboriginal income fell by about 11 per cent, excluding from employment income an estimate of payment to Aborigines under the Community Development Employment Projects (CDEP) scheme. Earnings of Native Americans fell by 19 per cent.
- ii Although aggregate employment earnings fell by similar amounts in each country, the process differed in important ways. Native Americans maintained employment but suffered large falls in average earnings. Indigenous Australians experienced large falls in employment but increased average income.
- iii Individual indigenous income in the US fell throughout the income distribution range. Native Americans with high incomes also suffered a deterioration in relative income status. In Australia the income of all groups increased.

- iv Non-employment income in the US did not change over the decade. As a result there was nothing to offset the fall in employment income. In Australia, non-employment income rose substantially and more than offset the fall in employment income. The increase arose from greater access to unemployment benefits, paid without any constraint on duration, but mainly from higher benefit levels relative to average earnings.

The paper finishes with some concluding comments, outlines where further research should proceed, and stresses the need for a better data base to inform decision making in the important area of government expenditure on indigenous people.

The economic wellbeing of indigenous males during the 1980s: a decade of moving forward for Aborigines and backwards for Native Americans

Data sources

Indigenous people are a small proportion of Australian and US populations; approximately 1.5 per cent and 0.5 per cent respectively. Both populations are increasing quickly as a result of high fertility levels, declining death rates, reduced under-enumeration in census collections and increased self identification.²

There is considerable economic variation among indigenous peoples. Those who live on reservations in the United States, or in the outback in Australia, typically receive lower incomes than those employed in cities, mainly because job opportunities are limited (Snipp 1989; Daly 1992; Taylor 1993b). Native American men who only speak a native language typically receive 40 per cent less income than those who speak English only.³ When one spouse only is Native American, family median income is 23 per cent higher than when both family members are Native Americans. In Australia the family income gap between one spouse only and both spouses Aboriginal is even greater. This paper makes none of these or many other interesting distinctions and treats indigenous men as a group. There is value in disaggregating the data further but it would lead to a much larger study.

The data are drawn from the census in each country. The Australian data include all self-identified Aborigines and Torres Strait Islanders. For ease of analysis the US data are taken from the 5 per cent census sample of the six States with the largest indigenous populations - California, Alaska, New Mexico, Arizona, North Carolina and Oklahoma. This included 12,148 Native American males in 1980 and 17,612 in 1990.⁴ At 1980 these States accounted for 53 per cent of the indigenous population of the United States, most of the cities of large Native American concentration and the major Indian reservations.⁵ The largest tribal groups in this sample are

Cherokee, Apache, Pueblo, Lumbee and Choctaw. The two comparative groups are defined as follows: Australian whites are defined as all non-Aborigines, and US whites are defined as US born non-Hispanic whites.

The income data are aggregate annual income from all sources, as reported by men aged 15-64 years, in the 1979 and 1989 censuses for the US and 1981 and 1991 for Australia.⁶ We refer to the 1979 and 1981 comparison as 1980, and the 1989 and 1991 comparison as 1990. The data will usually be presented as a male per capita indigenous-white income ratio, which we will refer to as the income ratio, and, as such, represents a summary measure of indigenous-white differences in employment rates, hours of work, hourly wages, welfare payments and other income. We prefer to work with an income ratio in the first instance, even though the hourly wage is the usual focus of economic analysis.⁷ The income ratio will be a better measure of wellbeing as it includes income from all sources.

A simple technique of analysis

To begin to understand why income ratios differ so much across the two countries, and why they have changed over the decade, the 1980 cross-country income gap is divided into two parts.

The first part is determined by the position of indigenous men on the white male income distribution ladder. The location of indigenous men will depend on their individual endowments, such as education and labour market experience, and the rate of return to those endowments. Thus, on average, indigenous men may be lower down the income ladder in one country because their average human capital endowments are lower, relative to whites, or because their human capital delivers a lower rate of return. The second part is the extent to which the white male income distribution ladder is compressed in each country. Other things being equal the income of all disadvantaged people will be lifted to be closer to white mean income in the country where income distribution is most compressed.

This dichotomy of the position on the income ladder and the extent to which the income ladder is compressed, should be particularly useful as it coincides with a policy division. There is a clear distinction between specific interventions aimed to move indigenous people up the ladder, such as special subsidies for indigenous male education, and general policies to compress income distribution and increase the relative income of all low income people through higher levels of unemployment benefits. The dichotomy has other advantages. It might be argued that income ladder position is, on average, a better measure of the economic progress of indigenous peoples than the income ratio which aggregates ladder position and income compression effects.⁸

This simple framework, which only requires data cross-tabulations from each census, will provide the starting point for an analysis of income ratio

differences across countries and through time. It will enable us to compensate, to some degree, for the lack of a sufficiently large public use Australian census tape.

The 1980 data

Consider first, the proportion of indigenous males in each white income decile, the principal determinant of the position of indigenous men on the income ladder in each country (Table 1). In 1980, 50.9 per cent of Aboriginal men, aged 15-64 years, received income which placed them in the same income range as the bottom two deciles of the Australian white male income distribution (Column 1). In the US the indigenous proportion was smaller at 37.6 per cent (Column 3). At the other end of the income ladder only 1.1 per cent of Aborigines and 3.6 per cent of Native Americans were placed in the same income bracket as the top 10 per cent of white males. Although, in both countries, indigenous men are disproportionately concentrated at the bottom of the income ladder, and under-represented at the top, it is apparent that Native Americans are better placed than indigenous Australians. The fact that there is a greater proportion of Native Americans higher up the income distribution should raise the income ratio in the US.

The income compression effect is more favourable in Australia where the effect of labour market institutions on the wage structure, and the effect of the welfare system on the income of those not employed, has lifted the income of low income recipients quite markedly.⁹ The greater income compression is evident in Column 9 of Table 1 which indicates that in 1980, the mean income of Australian white males in the lowest income decile, relative to the white male mean income, is 11.7 times that of their US counterparts.¹⁰ In the second lowest decile the ratio in favour of Australia is 2.4. It is only in the top three deciles that income ratios favour US white males. The greater income compression in Australia places indigenous people at a considerable advantage since they are over-represented at the bottom and a greater compression lifts their mean income relative to whites.

The combined effect of compression and position on the income ladder determines the income ratio which is presented in Table 2. The income compression of each country at each date is indicated by the Columns of Table 2. The ladder position is indicated by the rows. Thus the principal diagonal lists actual income ratios, the product of ladder position and income compression at the same date and in the same country. At 1980 the Australian ratio is 50.5 per cent (Row 1, Column 1). On average Aboriginal males aged 15-64 years, receive half the income of their white counterparts. In the US the ratio is 58.3 per cent (Row 3, Column 3). Indigenous men in both countries were obviously very disadvantaged but on the basis of the income ratio Native Americans were 15 per cent better off than indigenous Australians.

Table 1. Mean income and proportion of indigenous and white males classified by white male income deciles Australia and the US 1980 and 1990.

Aborigines Within Australia white Income deciles		Native Americans Within US white Income deciles		Native Americans Within Australia white Income deciles		US whites Within Australia white Income deciles		Australia/US White mean Income ratios ^a	
1980 Per cent	1990 Per cent	1980 Per cent	1990 Per cent	1980 Per cent	1990 Per cent	1980 Per cent	1990 Per cent	1980 Per cent	1990 Per cent
1	2	3	4	5	6	7	8	9	10
24.3	18.7	21.1	21.9	32.3	36.2	17.4	16.1	11.7	22.9
26.6	23.9	16.5	20.1	15.4	10.6	10.4	6.5	2.4	2.1
20.9	17.1	13.2	13.1	12.7	13.8	10.1	11.1	1.7	1.5
10.1	12.1	12.3	11.1	6.6	9.1	7.2	8.6	1.5	1.4
5.6	8.4	8.1	9.7	4.1	6.2	4.9	7.9	1.3	1.3
4.6	8.2	8.8	7.6	4.6	4.9	5.6	5.3	1.1	1.1
3.2	3.5	7.3	5.5	4.4	4.3	5.8	6.5	1.0	1.1
2.3	4.4	4.7	4.9	4.9	4.1	7.7	7.5	0.9	1.0
1.5	2.0	4.5	4.1	6.4	5.6	15.1	11.4	0.9	0.9
1.1	1.8	3.6	2.1	8.6	5.2	15.9	19.3	0.7	0.7

a. Mean incomes within each decile are standardised by the mean white income of each country.

The relative importance of income ladder position and income compression

How much of the 15 per cent income gap can be explained by cross-country differences in income ladder position and how much by cross-country differences in income compression? These questions can be answered by the following calculations. First, we calculate the effect of different income compression in each country by keeping the ladder position constant in Australia but changing the income compression to that of the US (Table 2, Row 1, Column 2).¹¹ This calculation can be thought of either as bringing indigenous Australians to the US, and placing them in the same ladder position as they were in Australia, or, alternatively, as stretching the white Australian income ladder to be the same as the US.

The change to the longer ladder in the US reduces the income ratio from 50.5 to 36.2 per cent. Since the position of Aboriginal males on the Australian white male income ladder has been fixed, the 14.3 percentage point gap measures the advantageous effect of greater income compression in Australia. Income compression, therefore, is very important. If the Australian income distribution were to change to that of the US, indigenous Australian males would lose 28 per cent of their income. Obviously, indigenous people have a direct interest in economic policy as it relates to income compression. In Australia, for example, policies to deregulate labour markets, which might lead to an income distribution more similar to the US, would lead to lower income for Aborigines, given their current ladder position.

We now calculate an income ratio for the differences in the average ladder position across countries.¹² On the basis of the 1980 US income distribution, the indigenous-white ratio for Australia of 36.2 per cent can be compared directly to the Native American-white ratio of 58.3 per cent (Row 2, Column 2). The position of Australian indigenous males on the income ladder is 22.1 percentage points worse than Native Americans.

The 1980 data from Table 2 are summarised in Table 3. There is a -7.8 percentage point gross income gap. It is apparent that the large 14.3 percentage point compression effect in Australia has acted to obscure the very disadvantageous -22.1 percentage point relative position on the income ladder. The position of Aborigines on the 1980 Australian income ladder is much worse than might be thought from a cross-country comparison of the gross income ratios unadjusted for different degrees of compression.

What is the better measure of Aboriginal economic welfare relative to Native Americans: the -22.1 percentage point gap in ladder position, or the -7.8 percentage point gross income gap unadjusted for compression effects? It is not possible to answer this question in a definitive way. It depends upon whether indigenous people compare themselves to average income levels in the community or to the incidence of poverty among whites.

Table 2. Male indigenous-white mean income ratios United States and Australia, 15-64 years, 1980 and 1990.

Ladder Position	Income Compression			
	1980 Australia 1	1980 US 2	1990 Australia 3	1990 US 4
All males				
Australia 1980	50.5	36.2	-	-
US 1980	67.1	58.3	-	-
Australia 1990	60.6	-	55.5	44.4
US 1990	-	51.4	57.4	48.2
Employed males				
Australia 1980	65.2	46.2	-	-
US 1980	77.7	67.8	-	-
Australia 1990	62.4	-	66.7	52.3
US 1990	-	61.4	69.9	58.0

Table 3. A cross-country allocation of the indigenous-white income gap percentage points, United States and Australia, 1980 and 1990.

	Actual Income Ratio			Hypothetical income ratio	Australia-United States gap ecomposition	
	Australia US (a)	United States (b)	Australia- United States gap (a)-(b)	Australia ladder United States Compression (c)	Position on white income ladder ^a (c)-(d)	Degree of income compression (a)-(c)
1980	50.5	58.3	-7.8	36.2	-22.1	14.3
1990	55.5	48.2	7.3	44.4	-3.8	11.1

a. Based on US income compression.

We suggest, for cross-country comparisons, that position on the income ladder is perhaps a better measure, at least of indigenous economic progress. Position on the ladder emphasises the wellbeing of Aborigines, relative to whites, purged of general differences that affect the white income distribution across countries. The 14.3 percentage point income gap in ladder position also seems to better approximate the large gap suggested by other measures of wellbeing. For example, life expectancy for Aboriginal males at 1980 was about 56 years, which is similar to the 1950 life expectancy of Native American males and 11 years less than that of Native Americans at 1980.¹³ Similar large gaps exist in relative education levels of Aborigines and Native Americans. In 1980 one in eight adult

Aboriginal males had never attended school. Among Native Americans the ratio was a low one in forty. At the other end of the education process less than 4 per cent of Aboriginal males had attended an educational institution to the age of 18 years or more. For Native Americans more than half had done so.

Different government policies during the 1980s

Despite the low economic status of indigenous groups in each country government priorities over the last decade have been quite different. US policy consists of minimum government intervention and makes an important distinction between Native Americans in the general community and those on or near reservations and Trust lands. Those on reservations and Trust lands usually receive resources for government services such as health, education and social services directly from the Federal government in place of accessing the usual range of government services. Those outside reservations and Trust lands are usually treated in the same way as other members of the community.

It is not possible to measure the exact quantity of government resources directed towards Native Americans, and whether this differs greatly from general citizen entitlements. But it does seem to be the case that the quantity of government resources directed towards Native Americans on or near reservations and Trust lands has fallen. Funds for economic development, measured in real terms, fell by two-thirds between 1980 and 1990 and the Bureau of Indian Affairs education budget fell by 50 per cent (Levitan and Miller 1991). The 1995 historical estimates presented to the US Senate indicate that 1980 per capita Federal Government expenditure on Native Americans had fallen to 55 per cent below that for the wider population. In real terms, expenditure on Native Americans on reservations and Trust lands had halved (Senate Report 1994: 103-238).

It is also not possible to be precise about Australian data, but expenditure trends over the 1980s have been quite different from the US. The Australian Government has increasingly accepted a degree of responsibility and level of expenditure on the welfare of its indigenous people that is far beyond that accepted by the US Government.¹⁴ For 1990-91 the Labor Government spent at least \$1,020 million on identified Aboriginal programs, which is just under \$8,000 per Aboriginal adult (Australian Government 1992). Some of this expenditure includes the welfare entitlements paid through the Aboriginal and Torres Strait Islander Commission (ATSIC) to indigenous Australians, for example through the CDEP scheme, but other expenditure is additional to the range of government services available to all Australians. This figure exceeds the total income from employment as reported by all Aboriginal males and females in the 1991 Census (Table 4). Furthermore, large items of government expenditure such as pensions, sole parent allowances and unemployment benefit payments are excluded.

Table 4. Commonwealth expenditures and sources of Aboriginal income, 1990-91.

	Census Gross income \$ million	Census Employment \$ million	Identified expenditure by Commonwealth Government			Total \$ million
			Education \$ million	Labour and employment \$ million	Housing \$ million	
Male	972	635				
Female	826	372				
Total	1,798	1,007	203	306	291	1,020

This is not an exhaustive list. Not all expenditure can be identified. Aboriginals receive other expenditure; aged pensions, sole parent pensions, unemployment benefits, health expenditure and so on as part of general government services.

It is widely accepted that Australian Government programs have been effective in achieving intermediate objectives of increasing the education levels of Aboriginals and increasing part-time employment through extensive job subsidies but there must be some disappointment that the income ratio has changed so little. An increase of 10 per cent in the income ratio from 50.5 to 55.5 per cent seems small relative to the major expansion of government expenditure. There are two important factors at the macro level that may suggest that the return to government expenditure is much higher, and that government policies have been more successful.

The 1990 data: measuring the effect of adverse compression changes

Since the mid 1970s, Australian and US income distributions have widened. For example, over the 1980-90 decade the white income ratio of the 10th to the 90th percentile fell 10 per cent in Australia and 21 per cent in the US. The success of indigenous policies at a time of increasing income dispersion, therefore, should be assessed not only by any improvements in Aboriginal income but also by the income reduction that may have been avoided.

To help quantify the effect of increasing income dispersion, a hypothetical 1990 income ratio is constructed on the assumption that the white income distribution remained unchanged from 1980. The Australian hypothetical income ratio is calculated on the basis of the 1980 Australian income distribution (Column 1, Table 2) and the position of Aboriginal males on 1990 income ladder (Row 3, Table 2). Thus, the income ratio was 50.5 in 1980 (Row 1, Column 1) and, if compression had not changed, the income ratio would have increased to 60.6 per cent (Row 1, Column 3). This suggests that Aboriginal males have moved up the income ladder by 20 per cent, a remarkable achievement in 10 years. It suggests further that there should be a greater degree of optimism over progress in the decade. Since the actual ratio in 1990 is 55.5, and not 60.6 per cent, it follows that the

general economic forces widening income dispersion over the 1980s were sufficient to reduce the observed improvement to 8 per cent below what would otherwise have been predicted.

Another factor which might increase our assessment of the estimated return to government expenditure is an interaction effect between changes in the whole income distribution and indigenous males' position on the ladder. To this point it has been assumed that distributional changes and ladder position are independent. Perhaps this assumption is false, and economic forces which widen the income distribution also move indigenous men down the income ladder *ceteris paribus*. For example, it is conceivable that discrimination against low-skilled minority males increases when general economic forces reduce income and job opportunities for the less-skilled and low-paid. One rough way of assessing whether income distribution and ladder effects are independent might be to examine the US experience and use US outcomes as the Australian counterfactual of what would have been observed if Australian Government expenditure had not increased.

Over the decade the income ratio of Native American men fell from 58.3 to 48.2 per cent. To measure the contribution of change in the US income distribution, we calculate a 1990 hypothetical income ratio on the basis of 1980 US white male income distribution (Column 2, Table 2) and the position of Native American males on the 1990 income ladder (Row 4, Table 2). Under these assumptions the income ratio falls from 58.3 per cent in 1980 to 51.4 per cent in 1990, a loss of 12 per cent. This is an estimate of the extent to which Native Americans have slipped down the white male income ladder. The further fall from 51.4 to the observed 1990 income ratio, 48.2 per cent, is the result of increased income dispersion. The 6 per cent loss attributed to changes in the income distribution in the US is less than the 9 per cent loss in Australia.

In summary these calculations suggest the following:

- i The better income performance of Aborigines over the decade occurred despite a widening income distribution in Australia (Table 3).
- ii The large turn-around in the relative position of Aborigines and Native Americans originates in changing positions on the income ladder; an improvement of 20 per cent for Aborigines and a deterioration of 12 per cent for Native Americans (Table 2).
- iii The adverse distributional change in the US was associated with a fall in ladder position of Native American men. This suggests that forces leading to a widening income distribution may also be moving Native Americans down the income ladder. Consequently, it may be reasonable to believe that Australian Government policies enabled Aboriginal males not only to mitigate the adverse direct effects of

reduced compression but also to offset the indirect effects of movement down the income ladder. Under these assumptions there was a much larger improvement in the economic position of Aboriginal males relative to what otherwise may have happened. It could be argued that the success of government policies should be measured by excluding adverse compression changes. Thus the success would be measured as a 20 per cent move up the income ladder in Australia plus the avoidance of the 12 per cent fall down the ladder that occurred in the US. This would represent substantial success in such a short period.

If we were to stop here it would be possible to feel optimistic as to the outcomes of the great social experiment and large government expenditure directed towards Aborigines during the 1980s. The 1980 income ratio per adult male aged 15-64 years, translates into an income gap of \$11,683 per annum (1990 prices). By 1990 the gap between the average income of a white male and that of an Aborigine had closed by \$1,180. This appears to be a very slow rate of progress, and quite disappointing when placed against the estimated \$8000 of identified Aboriginal Commonwealth Expenditure per adult male for the year 1990/91. But there is good news. If the widening income distribution had not adversely affected Aboriginal income, and removed some of the potential gain, the gap would have closed by \$2,384. Finally, if changes in compression and ladder position are not independent, and the experience of Native Americans is accepted as a counterfactual, then the move up the ladder, relative to the fall that was avoided, suggests a gain of \$3,794. These calculations suggest that at least in the short term, government expenditure has contributed to a closing of the income gap between indigenous and other Australians.

Further conjectures on government expenditure, the rise of the aboriginal middle class and loss of employment among the low paid

The analysis and judgments in the previous section were based on treating Aborigines as a group and ignoring questions of which Aborigines received more income and what the source of that income was. As we attempt to answer these questions a more pessimistic story begins to emerge.

Employment

In US and Australian societies male employment is generally regarded as a good thing. Employment enables individuals to increase income levels and be integrated more fully into society. Relatively few people would regard as a satisfactory state of affairs a situation in which working-age men are permanently supported by unemployment benefits.

These views are reinforced by the income data. Employment is the principal source of income for US and Australian white males (Table 5 and Table 6). About 81 per cent of white males aged 15-64 years, were

employed in 1980 and in both countries they accounted for over 90 per cent of the income of the group. Employment rates for indigenous males are lower and, as a result, employment accounts for less of their income. The Australian employment-population ratio for indigenous males was a very low 48.9 per cent. The comparable ratio in the US was 63.3 per cent, almost one-third higher than that of Aborigines. An important objective of Australian Government policy over the 1980s, therefore, was to create more employment opportunities for indigenous people.

Table 5. White and indigenous male employment-population ratios Australia and United States, 1980 and 1990.

	Australia		United States		Change 1980-90	
	1980 Per cent	1990 Per cent	1980 Per cent	1990 Per cent	Australia Per cent	US Per cent
Employment-Population Ratios						
Whites	81.2	73.2	80.9	81.4	-9.9	0.6
Indigenous	48.9	44.9	63.3	60.1	-8.2	-5.1
CDEP adjusted	48.9	36.2			-26.0	
Above white median employment income	8.1	9.8	19.7	17.2	21.0	-12.7
Below white median employment income	40.8	35.1	43.3	42.8	-14.0	-1.2
CDEP adjusted	40.8	26.4			-35.3	

Table 6. White and indigenous male income shares from employment, Australia and United States, 1980 and 1990.

	Australia		United States		Change 1980-90	
	1980 Per cent	1990 Per cent	1980 Per cent	1990 Per cent	Australia Per cent	US Per cent
Income shares from employment						
Whites	93.6	88.4	91.9	92.3	-5.6	0.4
Indigenous	72.8	65.3	83.6	81.9	-10.3	-2.0
CDEP adjusted	72.8	59.1			-18.8	
Above white median employment income	21.8	27.1	53.3	48.6	24.3	-8.8
Below white median employment income	50.9	38.2	30.1	31.3	-25.0	4.0
CDEP adjusted	50.9	31.9			-37.3	

By 1990, the Australian indigenous employment-population ratio, as measured in the census, had fallen a further 8 per cent to 44.9 per cent. Such an outcome cannot be viewed as significant economic progress, especially as employment of Native Americans, without significant government intervention, only fell 5 per cent. The best that can be said is that there has been a slowing down in the rate of decline in the Aboriginal employment-population ratio from the 19 per cent fall of the previous decade. It appears from census data that employment prospects for Aborigines have increased marginally relative to whites. We will argue, however, that the census data are misleading and that Aboriginal employment, measured on a consistent basis, has continued to decline substantially.

Adjusting the Census Data

During the 1970s the Federal Government introduced a special employment scheme for Aborigines, the CDEP scheme. This scheme operates mainly in Aboriginal communities in remote settlements or in small country towns. It involves all members of the community giving up individual entitlements to unemployment benefits so that the benefit is paid directly to an Aboriginal community organisation which then undertakes projects to employ members of the group. On average, participants are paid the equivalent of unemployment benefits in return for part-time work. The Federal Government adds 20 per cent to the benefit level to cover overheads and Aboriginal organisations have potential access to a further 20 per cent for the purchase of equipment.

The CDEP scheme was created to enable Aborigines not in wage employment to undertake socially useful activities. The intention was to use unemployment benefits and overhead add-ons to create better economic infrastructures for Aboriginal communities, promote business opportunities and to help move Aborigines into mainstream employment. The CDEP scheme was also to provide on-the-job training and to strengthen social structures thereby improving health and wellbeing. As CDEP employment is overwhelmingly part-time and as workers are usually paid the equivalent of unemployment benefits, the program would be better thought of as an unemployment scheme, administered by Aborigines, rather than a substitute for mainstream employment.

It is not known exactly how many Aboriginal males participate in the CDEP scheme but participation has grown rapidly.¹⁵ At the time of the 1981 Census CDEP participants would probably have been less than 3 per cent of all adult males. A decade later the proportion involved might be 14 per cent. Given the large scale nature of the CDEP scheme, and its rapid growth, there is considerable value in separating CDEP employment from other employment. However, the CDEP scheme covers the whole range of employment experiences. In some communities, a 'no work no pay' rule applies and participants are effectively engaged in mainstream

employment. In other CDEP communities, the scheme basically acts as a vehicle for the distribution of welfare entitlements and there is little socially useful output. A separate category for CDEP employment would enable us to document underlying changes in mainstream job opportunities for Aborigines more carefully.

It is not a straightforward task to adjust the census data for CDEP employment, given the mixed nature of the employment generated under the scheme. The intention in the 1981 Census was to classify CDEP participants as unemployed. In the 1991 Census CDEP participants were to be classified as employed, although the intention was partly frustrated and CDEP participants are spread throughout census labour force categories. Neither census directly identified CDEP participants. Furthermore, although other official data can be used to quantify the number of participants it does not list gender or numbers employed.

Perhaps the conservative and best approach to estimate male CDEP employment, and to put the 1981 and 1991 Census data on a consistent footing, is to assume that 60 per cent of CDEP participants are male and 60 per cent are classified as employed in the 1991 Census (Taylor 1993a).¹⁶ On this basis 6,480 Aboriginal males involved in CDEP would be included in 1991 Census employment and 4,320 males in the non-employment category.¹⁷ These numbers suggest that total male CDEP employment could account for 30 per cent of Aboriginal employment in 1991.

When the estimate of CDEP employment is subtracted from the census employment data, we find that Aboriginal employment outside the CDEP scheme has fallen from 48.9 to 36.2 per cent of the male population aged 15-64 years, a fall of 26 per cent between 1981 and 1991. Once CDEP employment is excluded it becomes clear that Government policy has been unsuccessful at halting the decline in mainstream employment.¹⁸ A loss of one in four Aboriginal jobs over a decade, after allowing for population change, is greater than the 19 per cent employment loss between the 1971 and 1981 Census. It is a remarkable fact that in 1971, 60.4 per cent of Aborigines were employed, a ratio similar to that of Native Americans, and while the Native American employment-population ratio has changed only marginally, that of Aborigines outside the CDEP scheme has fallen to 36.2 per cent, a loss of two jobs in five over the two decades.

The Aboriginal employment-population ratio, outside the CDEP scheme, is now half that of white Australians. Where has this extraordinary job loss occurred? To answer this question we focus on jobs classified by the income they produce.

The loss of low paid jobs and the rise of the Aboriginal middle class

Unlike the US census, the Australian census does not provide income data classified by source. Consequently we make do with the following

approximation. Annual income of those employed at the time of the census is treated as employment income and annual income of the non-employed is treated as non-employment income.¹⁹ The population is then divided into three groups: those not employed at the time of the census, those employed with annual income levels that place them below the white median employment income and those employed with income that places them above white median employment income. For the moment we will not distinguish between mainstream jobs and CDEP employment.

In 1980, 40.8 per cent of Aboriginal males were employed and received an annual income below the white employed male median income (Table 5). Only 8.1 per cent of Aboriginal males were employed and received an income above this level. This proportion represents a very small employed Aboriginal middle class which is one-sixth of the size of the white middle class.²⁰ This pattern of employment differs markedly from that of Native Americans where the employed middle class was more than twice as large as that of employed Aborigines.²¹

Over the decade the change in the employment pattern of Native Americans was concentrated among the middle class who lost 13 per cent of their jobs. There was a marginal fall in employment at lower income levels. In Australia, by contrast, the employment pattern changed in the opposite direction. Jobs were gained above white median employment income and lost below. The employment loss at low wages, where over 80 per cent of employed Aborigines were located in 1980, has been quite substantial. The job loss, not adjusting the census for CDEP employment, was of the order of 14 per cent. When account is taken of the CDEP scheme to estimate the loss of mainstream jobs the picture becomes more pessimistic.

CDEP participants are usually paid the wage equivalent of unemployment benefits. Consequently they should be found among those receiving income below that of the median employed white male. If our estimate of CDEP participants classified as employed in the census are subtracted from low-wage employment it becomes apparent that all the job loss over the last decade has been concentrated among low-paid Aborigines where employment has fallen 35 per cent. One in three jobs at below white male median employment income have been lost over the decade.

It is apparent that the employment distribution among Aborigines has become increasingly polarised. The bulk of usual employment opportunities at low wages are disappearing to be replaced by a small proportion of high income jobs, at one extreme, and low paying part-time jobs in the CDEP scheme at the other. There is an employment crisis among unskilled Aborigines which has worsened between the census dates depending on the extent to which CDEP employment can be regarded as a mainstream job. Among Native Americans, in contrast, the employment

distribution became less polarised over the 1980s as employment opportunities were disproportionately lost from the top of the income distribution.

Why did Aboriginal income increase despite large employment falls?

It is remarkable that despite such large mainstream employment loss Aborigines have managed to increase their income 10 per cent at the same time that Native Americans have maintained employment but lost 17 per cent of their income. What is the source of this Aboriginal income increase that has more than offset a 26 per cent loss of non-CDEP employment?

The first part of the story is that all the increase in the indigenous-white income ratio in Australia can be attributed to non-employment income. The growth of income in Australia outside of mainstream employment has been very large and this experience is different from the US. This is made clear in Table 7 which expresses indigenous income as a ratio of the average income per white male and divides the ratio into components. The income ratios are directly comparable to those of Table 2. It is also apparent that virtually all the income fall for Native Americans has been associated with a loss of employment income of 9.2 percentage points. The loss of employment income translates almost one-to-one into a loss of aggregate income. Among Native Americans there is a close relationship between the income ratio and employment income changes.

Table 7. Indigenous income as a ratio of average income per white male.

	Australia			US		
	1980 Per cent	1990 Per cent	Change Per cent	1980 Per cent	1990 Per cent	Change Per cent
Income ratios						
Total income	50.5	55.5	9.9	58.3	48.2	-17.3
Employment income	36.7	36.2	-1.4	48.7	39.5	-18.9
CDEP adjusted	36.7	32.7	-10.9			
Non-employment income	13.7	19.2	40.1	9.6	8.7	-9.4
CDEP adjusted	13.7	23.2	69.3			
Employment income above white male median income	11.1	15.1	36.0	31.1	23.4	-24.8
Employment income below white male median income	25.7	21.2	-17.5	17.6	15.1	-14.2
CDEP adjusted	25.7	17.7	-31.1			

If we make an extreme assumption and group CDEP and non-employment income together and focus on mainstream employment income (census

employment income minus CDEP census employment income), we find that mainstream employment income fell less in Australia, 4.0 percentage points, and it did not translate into a one-to-one fall in total income. The increase in aggregate income of those not in mainstream employment was so large that it not only offset the mainstream employment income loss but increased aggregate income a further 5.0 percentage points. Inspection of Table 7 indicates that the 9.5 percentage point increase in non-mainstream employment income for Aborigines (23.2-13.7) can be allocated to a 6.0 percentage point increase in CDEP income and a 3.0 percentage point increase in income for those not employed and outside CDEP.²²

Income from mainstream employment is becoming less and less important as an income source for Aborigines. Mainstream employment at the time of the 1980 Census accounted for 72.8 per cent of income and fell to 59.1 per cent of all income at 1990 (Table 6). Among Native Americans 83.6 per cent of their income at 1980 was associated with employment at the time of the census and by 1990 the income share had fallen marginally to 81.9 per cent.

The second part of the story is that among whites and Aborigines, above average per capita income increases have occurred in labour force categories where Aborigines are over-represented. Among the non-employed, per capita real income increased 13 per cent for both whites and Aborigines (55.1 per cent of indigenous Australians and 26.8 per cent of white males were not employed). Among employed Aborigines, using the Census definition of employment, per capita real income increased 3 per cent over the decade. There was no aggregate real income increase among the employed of the white community.

The third part of the story links the pattern of employment loss to the change in the income ratio. The Aboriginal employment loss is concentrated among the low-paid where heavy job loss has minimum impact on the income ratio. The income gap between employment at low wages, unemployment benefits and CDEP employment is small. For example, 13 per cent of employed Aboriginal males in 1981 reported income less than the level of unemployment benefits for a single man, and 30 per cent reported income less than unemployment benefits for a married man with a dependent spouse and two children. At the other extreme, where the income gap between a well-paid job and unemployment benefits is large, the number of employed Aborigines is increasing. The pattern of employment change therefore is increasing average income, *ceteris paribus*. The 4.0 percentage point increase in Aboriginal income, at income levels above the white median, has done a great deal to offset the 4.5 percentage point loss of employment income among the low-paid (Table 7).

Where does this leave our assessment of economic progress among Aborigines? On the negative side it is a disappointing outcome that large

amounts of Australian Government expenditure, \$8,000 per adult male in 1990/91, have been associated with the growth of non-employment income rather than employment income. It would be preferable to see indigenous men becoming more independent of welfare. Another disappointing outcome is the failure to reverse the loss of mainstream employment, especially among the majority of employed Aborigines who earn low income.

On the positive side, it is often argued when assessing the change in economic progress for a minority group that special attention should be placed on the development of a middle class. An employed middle class provides role models and a clear demonstration that there is a way out of poverty (Smith and Welch 1989). Australia has quite clearly begun down this path. If the Aboriginal middle class group grows it will increasingly offset the deteriorating economic fortunes of the majority of unskilled Aborigines.

Finally, although employment losses among low-skilled Aborigines have been large, and Aborigines are increasingly relying on part-time CDEP employment and unemployment benefits, the income of those in the lower income deciles has increased relative to the past. Figure 1, for example, shows the decade change in Aboriginal income at each decile, deflated by white median income. The 15-20 per cent increase in total income at each end of the income distribution is clearly evident. Income increases have been lowest in the middle deciles, but all groups have increased income relative to whites. Figure 1 also includes the change in employment income over the decade. Employment income has fallen significantly among the low paid (primarily a reflection of the growth of CDEP part-time employment) and increased substantially for the top seven deciles. The widening gaps between total income and employment income of those at low income levels is the result of the Australian welfare system, which has increased total income for welfare recipients, and CDEP employment, which has decreased employment income for the low paid.

Even though Aborigines have suffered heavy mainstream job loss their income at each decile has increased relative to Native Americans. Figure 2 presents Native American income at each decile divided by Aboriginal income, where the income of each group has been standardised by the median income of white males. The effect of a narrower income distribution in Australia is particularly important. In 1980 the bottom 40 per cent of Native American males received less income than their Aboriginal counterparts. For the remaining 60 per cent, the superior ladder position of Native American males dominated and increased their income above that of Aborigines. Native American income at the top decile, for example, was 60 per cent greater than that of Aborigines. By 1990 the income position of Aborigines, relative to Native Americans, had improved at every decile. Now only 30 per cent of Native Americans on the highest

rungs of the income ladder do better than their Australian counterparts. The majority of Native Americans, 70 per cent, receive less income.

Figure 1. Aboriginal total and employment income by decile.

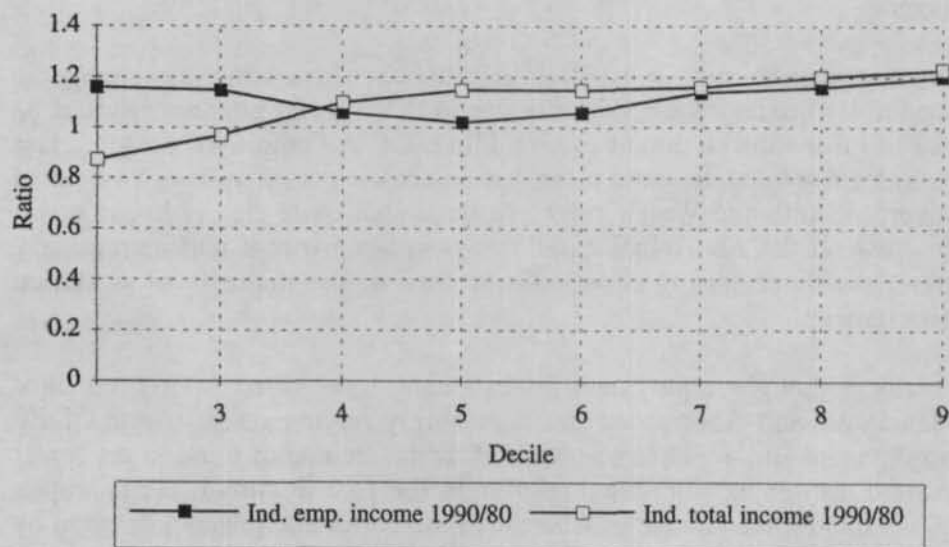
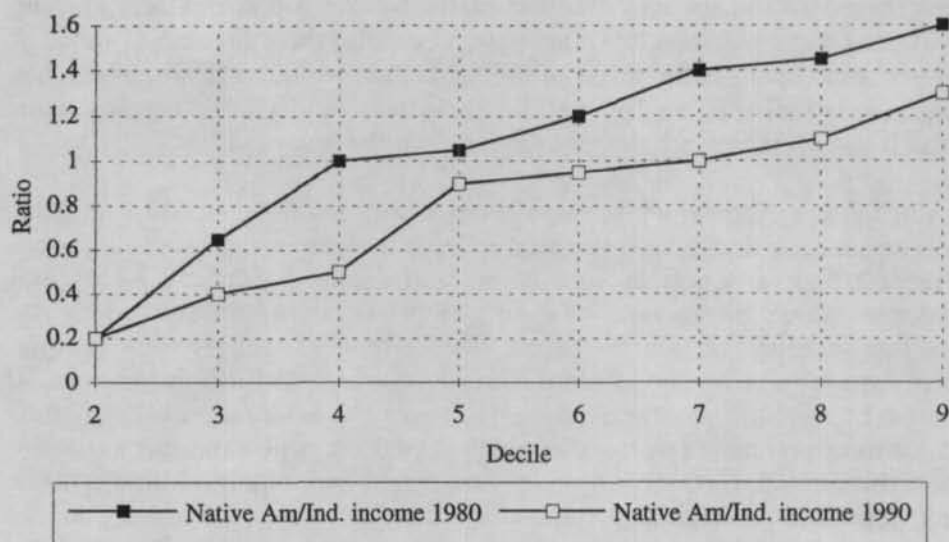


Figure 2. Native American/Aboriginal income by decile.



Concluding remarks

It is impossible to describe the changing economic wellbeing of these two groups of indigenous males without attributing a large role to government. Government is important in two ways. First, it sets the institutional framework within which the labour market operates. Thus, despite lower education levels, Aborigines receive much higher wages than Native Americans because the Australian system of award wages compresses the wage distribution. In addition, relative to the US, the welfare state is more generous towards the poor and as a result non-employment income is higher in Australia. We estimate that in 1980 these factors increased Aboriginal income by about 40 per cent relative to the income they would have received if the Australian income distribution was the same as that of the US. The second important way that government impacts on economic welfare is through expenditure policy. The Australian Government has been directing increasingly large sums of expenditure towards indigenous people; the US has not.

The contrast in outcomes has been sharp. Native Americans have maintained employment but suffered large income falls of 17 per cent. Aborigines have lost one quarter of their mainstream employment but increased aggregate income by 10 per cent. If income is taken as the sole criterion then Australian Government policy outcomes, as measured in the 1991 Census, seem disappointing relative to past Aboriginal income levels, especially in the light of the very large sums of government expenditure directed towards increasing their welfare, but rather successful relative to the poor experiences of Native Americans.

The most pessimistic Australian story for males relates to mainstream employment. On the positive side a small proportion of Aborigines have found access to high paying jobs, usually associated with government funding for the Aboriginal community. Over the decade the number of Aborigines earning more than white median employment income has increased by about 1,200 males, adjusted for population changes. On the negative side, a much larger 10,000 Aboriginal males, who would normally be employed at low wages, could not find employment and are either CDEP participants, unemployed, or not in the labour force. Changes at the bottom of the income distribution are the most worrying. The long term wellbeing of Aborigines cannot improve with ever shrinking employment levels and increasing dependence on part-time CDEP employment in return for unemployment benefits. Indeed, it could be argued that mainstream employment opportunities have deteriorated more than indicated here. No account has been taken of large job subsidies and temporary employment in government programs other than CDEP.

It takes substantial time to change the economic circumstances of minority groups that receive so little income relative to the white community. It may

take many decades for Aboriginal income to approach more closely that of the white community. Over the next decade increases in the income ratio are likely to be driven by increased income for those at the top of the income distribution ladder. The most likely outcome, based on present trends, is that income distribution within the Aboriginal community will become increasingly polarised. It is difficult to escape the conclusion that to increase employment income for the majority of Aborigines to the level of whites it will be necessary for Aborigines currently residing in remote communities to gain access to the range of employment opportunities that are normally available to the white community. This will probably require a large change in the geographic location of a significant proportion of the Aboriginal population.

Assessing the role of different government policies in each country is made difficult by the inadequacies of Australian data. There are three major problems. The most important is that the 1 per cent sample of Australian Aborigines taken from the census is too small. It effectively excludes any sophisticated statistical analysis. There is no obvious reason why the Australian Government should not release an over-sampled set of Aboriginal data taken from the census. The second problem is that census data are collected five years apart and it is, therefore, difficult to monitor changes in a rapidly changing environment. This limitation may be reduced if the National Aboriginal and Torres Strait Islander Survey is conducted at regular intervals by the Australian Bureau of Statistics. The third problem, from a research viewpoint, is the inadequacy and inaccessibility of much of the administrative database that relates to government expenditure on Aborigines. More needs to be done to relate these data to the census and to increase research accessibility. Given the strong priority placed on Aboriginal wellbeing more information is needed so that progress can be measured and policies improved.

Notes

1. The terms indigenous, Aboriginal and Aboriginality will be used here to relate to populations of Aboriginal and Torres Strait Islanders living in Australia. The terms indigenous and Native Americans will be used to describe the indigenous populations of the United States of America. For Australia, the term white covers non-indigenous Australians and in the US, American-born non-Hispanic whites.
2. Population definition is a complex issue (Choi and Gray 1985; Snipp 1989 Chapter 3). The population of Native Americans, as measured by the US census, increased 79 per cent over the decade 1970-80. About 60 per cent of this growth is attributable either to increased self identification on the census form or inadequate correction for under-registration of Native American births (Passel and Berman 1986). Estimates of the population of Aborigines has been subject to similar influences. Census estimates indicate a 39 per cent increase in the Aboriginal population between 1971 and 1976 and 43 per cent between 1981 and 1986. Between 1976 and 1981, however, census data suggest that the Aboriginal population fell, which is just one of the more spectacular examples of the

difficulties associated with working with census data (Gray and Tesfaghiorghis 1991). Over the decade 1980-90 the rapid population growth has continued in both countries.

3. With respect to English language facility the indigenous groups were similar in 1980. About 7 per cent of both groups do not speak any English. Native Americans, however, seem to have kept a firmer hold on their native language; the proportion who speak only English is 68 per cent whereas for Aboriginals the proportion is 77 per cent.
4. The qualitative nature of the results reported are also to be found in the full sample of Native Americans. There are minor differences, however. The fall in the income ratio between 1980 and 1990 defined across all of the US is 13 per cent. The fall in our sample is 17 per cent.
5. The largest six cities of Indian concentration are included in the sample. They are Los Angeles, Tulsa, Phoenix, Oklahoma City, Albuquerque, San Francisco and Riverside. The major reservations are also included: Navajo, Gila River, Papago, Fort Apache, Hopi, Zuni Pueblo, and San Carlos. The only large reservation missing is Pine River (population 11,882) which is in South Dakota. At the time of the 1980 Census each reservation outside the six States in the sample had populations less than 6,000 Native Americans.
6. The census data were collected at different points of the domestic economic cycles. The US economy was weaker in March 1980 (unemployment 7.1 per cent) than March 1990 (unemployment 5.5 per cent). The Australian economy was stronger in June 1981 (unemployment 4.5 per cent) recession in June 1991 (unemployment 9.1 per cent). As the income of indigenous males may be more cyclically sensitive than other males, the census data is likely to understate trend income gains made by indigenous Australians and trend income losses in the US. However, there is insufficient information about the cyclical sensitivity of indigenous incomes to adjust the data.
7. In addition, the data from the Australian census severely limit our analysis. Income is not classified by source, the hours data are grouped in broad categories, 1-15 hours for example, and a precise measure of the hourly wage is not possible. A further limitation to the analysis is the small sample size of indigenous Australians in the public use sample of the census limiting the scope for regression analysis. The 1991 Census tape, for example, includes only 719 Aboriginal men, aged 15-64 years, of whom 232 were employed full-time. Such small numbers preclude the usual application of human capital regression analysis to explain the income differences between groups in terms of human capital attributes and their returns.
8. More formally we proceed as follows, white males in each country, and at each date, are ranked by reported income levels and the population divided into deciles (that is the income distribution is divided into ten equal parts). Then the income ratio, \bar{Y}^I/\bar{Y}^W , is written as the sum of ten terms, each the product of three components,

$$(1) \quad \frac{\bar{Y}^I}{\bar{Y}^W} = \sum_{i=1}^{10} \Pi_i \Phi_i \frac{\bar{X}_i^I}{\bar{X}_i^W}$$

The first two components are used to provide measures of the position of indigenous males on the white male income ladder; Π_i is the proportion of indigenous men whose income falls in the i^{th} white income decile and Φ_i is the ratio of the indigenous to the white male income mean within each white income decile, \bar{X}_i^I/\bar{X}_i^W . The exponents I and W represent indigenous and white

respectively. The third component, \bar{X}_i^w / \bar{X}^w , measures white male mean income in each decile as a ratio of the overall white male mean income and is used to calculate income compression.

9. Australian wage setting institutions have developed an extensive system of legally binding minimum award wages for most occupations. These awards are well above the US minimum wage. In addition, the welfare system, in terms of access and benefit levels, is also generous relative to the US (Bradbury 1993). Demonstrations of the importance of institutional factors as a determinant of the wage structure can be found in Gregory and Daly (1991) and Blau and Kahn (1993).
10. In Australia the lowest income category is zero income. The US data can include negative income values. We have placed all negative incomes in the US at zero to establish comparability with the Australian data.
11. This hypothetical income ratio for Australia is calculated on the assumption that:
 - i the 1980 Australian white male income compression, \bar{X}_i^w / \bar{X}^w , is changed to that of US white males at 1980 and,
 - ii the Aboriginal ladder position is not changed. That is, Aboriginal income is adjusted, *pari passu*, to maintain, Π_i , the original proportion of Aboriginal people within each white income decile, and, Φ_i , the ratio of Aboriginal to white income within each decile.
12. The usefulness of this dichotomy depends in part on compression being determined primarily by general factors which affect the income distribution of white and indigenous peoples to approximately the same extent. If white income compression is determined by influences unique to that group then it would be misleading to do as we have done and assume that the indigenous income distribution would adjust in the same manner as the assumed change in the white male income distribution.
13. The life expectancy gap between Aboriginal and white Australian males at 1980 was approximately 17 years; four to five times the 3.6 year gap in the indigenous-white male life expectancy in the US (Snipp 1989).
14. It is difficult to measure increases in expenditure on a consistent basis over the decade. However, it appears that between 1982 and 1990, for example, government expenditure on education and training for indigenous people increased 350 per cent in real terms. Total expenditure with the Department of Aboriginal Affairs increased 60 per cent (Altman and Sanders 1991).
15. For a description of the CDEP scheme see Sanders (1993). For a discussion of the problems encountered when relating CDEP employment to census employment see Altman and Daly (1992).
16. These are referred to as conservative assumptions because many Aboriginal females receive sole parent allowances and therefore will not be counted as CDEP participants, thus increasing the proportion of CDEP participants who are male. In addition census enumerators were instructed to count CDEP participants as employed irrespective of whether they actually worked in the week before the census date (Taylor 1993a).
17. These estimates suggest that 50 per cent of the increase in Aboriginal employment between 1981 and 1991, as measured by the census, is CDEP employment.

18. If all CDEP male participants were recorded as employed, the Aboriginal non-CDEP employment-population ratio would fall to 32 per cent; an extraordinarily low and depressing figure. This employment level would be 44 per cent of that of white Australians and 53 per cent of that of Native Americans.
19. This is the usual assumption adopted by those who analyse earnings equations based on census data because there are no data as to those who are in full-year full-time employment. As a result the annual income collected in the census cannot provide an accurate estimate of the weekly or hourly wage. In the US census it is possible to be more precise because data exist on weeks worked. In Australia the only data available are labour force status at the time of the census and estimated annual income. The rough approximation adopted above will be inaccurate for individuals, unless they are divided into those who work all year and only receive employment income and those who are not employed at all during the year and only receive income from other sources. In aggregate, some of these problems will cancel out.
20. We are not using the term middle class in the usual way. Most people think of middle class as being located in the middle of the income distribution rather than being located in the top half.
21. For all white males aged 15-64 years, the proportion receiving income above the white male employed median income in 1990 was 45 and 38 per cent in the US and Australia respectively.
22. CDEP income is assumed to be \$6,000 per adult male which is a little less than the maximum rate of unemployment benefit of \$145 per week for 1990-91. This assumption allows the average male CDEP participant to be outside the scheme for 10 weeks per year. If it is assumed that male participants receive CDEP income all year, then the loss of income for Aboriginal males outside the CDEP scheme is greater.

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