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Discussion Paper

Establishing trends in ATSIC regional council populations using census data: a cautionary note

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ABSTRACT

Section 94(1) of the *Aboriginal and Torres Strait Islander Act 1989* requires regional councils to 'formulate and revise from time to time a regional plan for improving the economic, social and cultural status of Aboriginal and Torres Strait Islander residents of the region'. Guidelines for the preparation of such regional plans require that councils compile a data base on the demographic composition of their council area and to consider how various social indicators may differ in the future, say in the next five years. While not explicitly stated, the guidelines thus require that some form of demographic trend analysis be undertaken for council areas so that meaningful projections of the population to be serviced may be calculated.

This paper seeks to point out that limitations in official census data for Aborigines and Torres Strait Islanders draw into question the validity of trend analysis based on time series data for regional council areas. Accordingly, the meaningful application of projection techniques to estimate future population profiles using existing census data is severely restricted. Among the difficulties encountered in reconstructing council area populations are, census boundary changes over time, changes in enumeration techniques and coverage, the problems posed by self-identification and associated population growth, and, in some cases, the difficulty of matching ATSIC regional council boundaries with census geography.

Following discussion of these problems, detailed figures showing changes in the size of the Aboriginal and Islander populations and labour force in each council area are presented using 1976 as the base year. As expected, geographic patterns of population and labour force change are difficult to discern and exact reasons for comparative growth or decline are impossible to determine. The paper concludes that reverse projections for regional council areas using 1991 Census data would provide a more reliable basis for establishing demographic trends. Although not entirely adequate, these reconstructions for ATSIC regional councils are the only estimates of these populations that have been undertaken to date.

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Under section 94(1)(a) of the *Aboriginal and Torres Strait Islander Commission Act 1989*, a key function of the 60 regional councils created is to prepare regional plans. The Act specifically states that each regional council should 'formulate and revise from time to time a regional plan for improving the economic, social and cultural status of Aboriginal and Torres Strait Islander residents of the region'. Any regional planning exercise will require access to both historical and contemporary data sets, as a pre-requisite for meaningful assessment of future populations is an understanding of past population trends.[1]

A recent consultancy report by Coopers and Lybrand (1991) advised the Aboriginal and Torres Strait Islander Commission (ATSIC) on the implementation of ATSIC regional plans. This report recommended that regional councils should not engage in data collection and analysis, but instead utilise data already gathered and analysed by the following: the Australian Bureau of Statistics (ABS); ATSIC (from the forthcoming 1992 Housing and Community Infrastructure Needs Survey); State Governments (for example, the report commissioned by the New South Wales Office of Aboriginal Affairs, see Census Applications Pty Ltd 1990); and information published by the Centre for Aboriginal Economic Policy Research (CAEPR), Australian National University.

While it is accepted that regional councils may not have the necessary expertise or resources to undertake primary data collection, the Coopers and Lybrand report may be unduly optimistic about the quality of available data. There are three broad problems that are not addressed in their report. First, there is an acknowledged acute shortage of accurate socioeconomic data on the Aboriginal population. This shortage was highlighted in the 1970s (Altman and Nieuwenhuysen 1979: 196-8), reiterated in the 1980s in the *Report of the Committee of Review of Aboriginal Employment and Training Programs* (Miller 1985: 422-3) and emphasised again in the early 1990s in the *National Report of the Royal Commission into Aboriginal Deaths in Custody* (Commonwealth of Australia 1991: 61-2) and the conclusion to a workshop 'Aboriginal Employment Equity by the Year 2000' (Altman 1991: 168-70). In 1992, the most recently available statistics on the Aboriginal population come from the 1986 Census; these have been analysed by ATSIC regions by Tesfaghiorghis (1991a).

Second, Coopers and Lybrand do not raise any questions about the appropriateness of available statistics. This is an important issue that has been addressed on a number of occasions (see, for example, Langton 1981; Miller 1985; Altman and Taylor 1989; Altman 1991). It is an issue that is important in any assessment of the needs of the Aboriginal population relative to the general population, but is probably of greater significance in decisions that ATSIC Commissioners must make in

allocating resources to regional councils, some of which are located in extremely remote parts of Australia and are populated by very tradition-oriented people.

Third, Coopers and Lybrand understate the difficulties for data collection and analysis created by the new ATSIC regional council boundaries. These are entirely new jurisdictions in Australian public administration. While they broadly correspond to clusters of census collection districts (CDs) utilised by the ABS, statistical information by regional council jurisdictions is only available from the 1986 Census (see Tesfaghiorghis 1991a). With time, administrative data sets should also become available by ATSIC regions and such data could be of crucial strategic significance in allocating Federal, State/Territory and local government resources to Aboriginal communities.

This paper highlights some of the problems that regional councils face in finding statistical data to develop regional plans. The paper is premised on the proposition that historical information is crucial for effective planning which must include some projections. In an experimental attempt to generate historical data, current regional council jurisdictions are re-created for the 1976 Census; information for these regions was generated by the ABS as a consultancy from a list of CDs for each region provided by CAEPR.

We begin with a brief discussion about the 1971, 1976, 1981 and 1986 Censuses and the choice of 1976 Census data for this initial reconstruction. Known shortcomings with the 1976 Census that are likely to be exacerbated by any disaggregation are highlighted. Next, the procedures adopted to re-create regional council boundaries are explained in some detail. The paper then provides data on 1976 populations and labour force participation rates by regional councils and changes between 1976 and 1986. The focus on labour force participation is provided partly because of its relationship to demographic change, information which is fundamental to planning, and partly because of CAEPR's research focus on labour market issues. The paper ends with an overall assessment of the value of this reconstruction, its policy implications and alternative methods that may be developed to undertake population reconstructions.

It should be noted at the outset that this reconstruction exercise has been less successful than originally envisaged because of some problems with 1976 Census data that only became apparent when data were disaggregated into ATSIC regional council areas. Hence, while information is available by ATSIC regions for a range of socioeconomic variables (like educational status, employment status, income status and so on), the preliminary analysis undertaken here suggests that historically re-created social indicators could be of limited value for planning purposes.

(Consequently these data are not presented here, although in a later discussion paper socioeconomic indicators by ATSIC regions from 1976, 1981 and 1986 Censuses will be compared.) The analysis highlights that while census data can provide some useful social indicators at an aggregate level for analysis over time (Tesfaghiorghis and Altman 1991) and by broad State and section-of-State (Tesfaghiorghis 1991b), they might be of more limited value when disaggregated to the ATSIC regional council level. This in turn raises questions, that will not be addressed in detail here, about the appropriate means to gather the statistical information required by the ATSIC legislation.

Time-frame

The 1971 Census was the first national population census carried out after the repeal of Section 127 of the Australian Constitution by the *Constitution Alteration (Aboriginals) Act 1967*. Section 127 stated that 'In reckoning the numbers of people of the Commonwealth, or of a State or part of the Commonwealth, aboriginal natives shall not be counted'. Even though the ABS made special arrangements in 1971 to enumerate the Aboriginal population, particularly in the Northern Territory and Western Australia, a complete coverage of the Aboriginal population was not attained owing to numerous problems (see Choi and Gray 1985).

A comparison of 1971 Census data on Aboriginal populations in the States and Territories with that based on alternative population estimates made by States and Territories, on the basis of long-term records on Aboriginal people (see Table 1) identifies a possible under-estimation in the 1971 Census in the order of 25 per cent. Except in Victoria and the Australian Capital Territory, all 1971 Census counts by State and Territory were lower than the state-based estimates of populations. A crucial reason for the differences is that the 1971 Census data refer to a self-identified population, while the State and Territory estimates were based on official records of persons known to be, or considered to be, of Aboriginal or Torres Strait Islander descent (National Population Inquiry 1975: 464).

Following the experience gained during the conduct of the 1971 Census, special procedures were introduced by the ABS in the 1976 Census to ensure more comprehensive coverage. These included the separate mapping for statistical purposes of areas of high Aboriginal concentration and the introduction of special enumeration procedures to encourage community cooperation (Choi and Gray 1985). Nevertheless, the 1976 Census did not achieve complete coverage of the Aboriginal and Islander population, especially in remote areas. The ABS also found that the

Table 1. Comparison of census counts of Aboriginal and Torres Islander population in States/Territories with estimated population figures by the States/Territories, 1976.

State/Territory	1976 Census	Estimate	Covered (per cent)
New South Wales[a]	23,873	30,000	79.6
Victoria[b]	6,371	6,245	102.0
Queensland[a]	31,922	50,000	63.8
South Australia[a]	7,299	9,450	77.2
Western Australia[a]	22,181	28,000	79.2
Tasmania[c]	671	1,000	67.1
Northern Territory[a]	23,381	28,500	82.0
Australian Capital Territory[a]	255	250	102.0
All States/Territories	115,953	153,445	75.6

a. Approximate figures.
b. As at 1972.
c. Minimum estimate.

Source: National Population Inquiry (1975: 465).

completion of census schedules by persons whose general literacy was poor was problematic.

1976 Census schedules completed and collected by the ABS were never processed fully owing to budgetary constraints imposed by the Fraser Coalition Government. Thus the figures available from the 1976 Census, except for the Northern Territory, refer to estimates based on a 50 per cent sample of schedules (ABS 1976). The ABS was confident that the sampling procedure adopted in the selection of schedules for processing and the correction factors used in estimating population numbers were satisfactory and gave reliable estimates of the population. This is particularly true for geographical areas where the population is large. Choi and Gray (1985: 19) estimate that even for Tasmania and the Australian Capital Territory relative standard errors due to sample processing are only about 3 per cent and 6 per cent respectively.

The total Aboriginal population derived from the 1976 Census for Australia as a whole is not very different from the minimum estimates of Aboriginal population made by Gray and Smith (1983), who estimated the minimum population in States/Territories for the population censuses of 1976 and 1981 using figures from the 1966 and 1971 Censuses. There are, however substantial differences between the census totals and

Table 2. Comparison of 'minimum' population estimates with the census totals for States and Territories, 1976.

State/Territory	Estimated population	Census total	Difference	Difference[a] (per cent)
New South Wales	36,082	40,451	4,369	12.1
Victoria	8,997	14,760	5,763	64.0
Queensland	43,415	41,344	-2,071	4.8
South Australia	9,104	10,714	1,610	17.7
Western Australia	28,648	26,125	-2,523	8.9
Tasmania	2,781	2,943	163	5.9
Northern Territory	26,829	23,750	-3,079	11.5
Australian Capital Territory	700	799	99	14.1
Australia	156,556	160,886	4,330	2.8

a. From the estimated minimum population.

Source: Estimated population from Gray and Smith (1983: 7).

estimated minimum population in certain States and Territories as illustrated in Table 2.

The next quinquennial population census was carried out in 1981. In this census several steps were taken by the ABS to further improve the coverage of the Aboriginal population by improving field arrangements for data collection. Some of these special arrangements made in the Northern Territory are discussed in some detail by Loveday and Wade-Marshall (1985). In order to minimise the errors in the data a special census form was designed for remote areas with a predominantly Aboriginal population. This remote area form was used in Western Australia, South Australia and the Northern Territory where '... language and literacy problems make the use of the self-enumeration technique impractical' (ABS 1989: 3). As a result of these refinements and the awareness campaign carried out at the State/Territory level the coverage of Aboriginal people improved and the 1981 Census was considered to be better than the two previous censuses (Choi and Gray 1985). The census total for the Aboriginal and Torres Strait Islander population was, however, lower than that recorded in 1976. One possible reason for this anomaly may have been changes in editing instructions made by the ABS at the time of data processing (Choi and Gray 1985; ABS 1989). An additional potential problem area in 1981 was that information on completed remote area forms was transcribed on to standard household forms at ABS regional offices. This may have increased potential transcription error and introduced a lack of uniformity and centralised control over the data transcription process.

In the 1986 Census, the ABS introduced several measures to avoid such data transcription problems and to improve coverage of the Aboriginal population. In 1986, the 'Aboriginal origin' question was moved to the top of page two of the census form. This and other new procedures helped to reduce non-responses to the Aboriginal origin question; the non-response rate fell from 3.8 per cent in 1981 to 1.7 per cent in 1986 (ABS 1989: 7). The ABS also made several changes to the census field operations to ensure maximum coverage of the Aboriginal population. As a result, 1986 Census data are considered the most accurate census data to date (excluding the as yet unavailable results from the 1991 Census) although some possible under-enumeration of the Aboriginal population cannot be ruled out.

For regional planning purposes, it is desirable to have data sets for a sufficiently long period so that trends in population, demographic structure and other socioeconomic characteristics can be assessed. Because of the incomplete coverage of the 1971 Census, these data cannot be used in any experimental reconstruction of population in ATSIC regions. Instead, and notwithstanding the data limitations outlined above, the 1976 Census is taken here as a baseline to derive the maximum historical depth possible. This preliminary exercise focuses on comparing re-created 1976 ATSIC regional council populations with estimates readily available for 1986 (see Tesfaghiorghis 1991a).

Methods for reconstituting data for ATSIC regions

Prior to examining the data, a discussion of the procedures used to reconstruct population data by ATSIC regions and the limitations of the derived data is essential. The demarcation of broad ATSIC regional council boundaries involved a consultation process described briefly by Tesfaghiorghis (1991a: 1). Subsequently, the Department of Aboriginal Affairs and the ABS worked to correlate census CDs, the lowest statistical areas for which census data are collected and maintained, with regional council boundaries. In some parts of Western Australia, South Australia, Queensland and the Northern Territory such correlation was complicated by the fact that some regional council jurisdictions were defined with reference to topographical features or pastoral property boundaries and not in terms of CDs.

Consequently, several regional councils do not correspond to existing statistical boundaries. In these instances allocation of CDs was undertaken using CD maps and the pastoral map, and based on criteria such as the proximity and cultural links of the respective population in the areas. For this reason it is imperative to recognise that census-derived population

and other data for ATSIC regions are frequently estimates rather than the actual population enumerated at the census.

An additional complication for our reconstruction exercise is posed by the fact that CD boundaries change from one census to another. The nature of these changes had to be considered before a reconstruction of the population was undertaken. For this purpose, the ABS 'Collection District Conversion and Compatibility List' containing information for each CD existing in 1986 was used to ascertain whether any boundaries had changed since 1976, and comparable CD identification codes for the 1976 Census were identified.

Initially, an attempt was made to generate relevant data for regional councils from CD summary tables. However, this approach proved unsuccessful because, for confidentiality reasons, the ABS does not publish data for any CD which does not have more than 10 persons or five families. In the 1976 Census there were many CDs that had less than 10 Aboriginal or Torres Strait Islander persons. Accordingly, CD lists for ATSIC regions for the 1976 Census were provided to the ABS and special statistical tables were ordered that agglomerated CD level data at the regional council level. Since the 1986 CD list was used as the basis for identifying CD codes from the 1976 Census, there were some CDs in 1976 which did not have a comparable code in 1986 in the conversion lists. Presumably, in these areas some of the Aboriginal and Torres Strait Islander population enumerated in 1976 were not found in 1986. The ABS provided CAEPR with the requested data and the results presented in the two sections below examine population and labour force data at the regional council level for the period 1976-86. An identical process has been undertaken with the 1981 Census and these data are currently being processed for future analysis.

Population change 1976-86

Between the 1976 and 1986 Censuses the enumerated Aboriginal and Torres Strait Islander population increased from 160,886 to 227,488. This represents an intercensal increase of 66,602 or 41.4 per cent, which suggests that the Aboriginal population grew at a rate of 3.5 per cent per annum over the 10 year period. Using available data on birth and death records of Aboriginal mothers, the Australian Institute of Health (1988) estimates that the average annual growth rate of the Aboriginal population between 1976 and 1986 was 2 per cent. This estimate did not take into consideration births to non-Aboriginal mothers and Aboriginal fathers. Even if these data are available and included in the estimation, the 'real' growth rate would probably not have exceeded 2.5 per cent per annum.

There are a number of reasons for the observed large increase of population between 1976 and 1986. These include improved coverage as a result of better field arrangements and publicity campaigns, improved data processing methods and the increased tendency for people to identify their children and themselves as Aboriginal or Torres Strait Islander for census purposes. The effect of each of these factors on the total change in the Aboriginal population during the period is extremely difficult to assess. Such assessment and identification of population trends become even more problematic when population data are disaggregated to small areas such as ATSIC regions. In Table 3, the estimated population for each regional council is presented for 1976 and 1986 and annual average rates of growth are calculated. There is enormous variation in these rates of growth. Hence, while the rate of growth for the total Aboriginal and Islander population was 3.5 per cent, the mean per regional council was 3.78 per cent and the standard deviation was a high 3.68 per cent.

The average annual growth (or decline) rates of population during the 1976-86 period varies widely between the 60 ATSIC regions, ranging from a decline of 4.1 per cent (Melbourne region) to a growth of 24.2 per cent (Balgo region). Such extreme rates of change are probably a result of data problems rather than a reflection of true population trends. As discussed above, the natural increase among the Aboriginal population during the 1976-86 intercensal period, is estimated to have been between 2 and 2.5 per cent. Regional rates of natural increase can differ from the overall rate due to variations in fertility and mortality. Even assuming some margin for such variations, the very high and very low population growth rates recorded for ATSIC regions cannot be readily explained. Two possible explanations might be provided by population migration or significant changes in racial self-identification. For instance, the total population in Balgo region grew from an estimated 68 according to 1976 Census data to 761 in the 1986 Census. Given difficulties with numeration in the Kimberley in the 1976 Census acknowledged by the ABS, and given no documented evidence of large-scale movement into this region (where population is primarily concentrated in the Aboriginal township of Balgo), this estimate is obviously unreliable and should be ignored. The most likely explanation is that a difference of this scale is due to poor coverage of population in 1976.

At the other extreme is the negative growth recorded for the Melbourne region between 1976 and 1986. Such negative growth implies either rapid migration out of this metropolitan region or a rapid change in identification. Neither possibility is plausible. While Gray (1989) does provide some evidence for migration out of Victoria from the 1986 Census, it was not at such a high rate. And there is no reason to believe that there would have been a rapid decline in Aboriginal identification in Victoria alone between 1976 and 1986. In fact, the population count for

Table 3. Total Aboriginal population, rate of growth and per cent distribution by ATSIC regions, 1976-86.

Region[a]	Total population 1976	1986	Rate of growth per year	Distribution 1976	1986
NSW-Metropolitan Zone					
Sydney	14,789	18,751	2.4	9.2	8.2
NSW-West Zone					
Wirawongam	3,938	7,176	6.0	2.4	3.2
Gamilaroi	2,262	3,022	2.9	1.4	1.3
Wangkumara	3,065	3,407	1.1	1.9	1.5
NSW Far West	1,090	1,662	4.2	0.7	0.7
Murrumbidgee/ Lachlan	2,584	3,911	4.1	1.6	1.7
Deniliquin	708	990	3.3	0.4	0.4
NSW-East Zone					
Northern Rivers	2,694	4,832	5.8	1.7	2.1
Tingha	1,566	2,002	2.5	1.0	0.9
Quirindi	1,236	2,388	6.6	0.8	1.0
Taree	3,527	7,214	7.2	2.2	3.2
Bogong	1,858	1,984	0.7	1.2	0.9
Umbara	1,893	2,854	4.1	1.2	1.3
Victoria Zone					
Yangenanook	2,640	3,032	1.4	1.6	1.3
Tumbukka	2,822	3,405	1.9	1.8	1.5
Yuroke	9,299	6,173	-4.1	5.8	2.7
Launceston Zone					
Tasmanian Aboriginal	2,941	6,716	8.3	1.8	3.0
Qld-Far North Zone					
Peninsula	3,909	5,240	2.9	2.4	2.3
Gulf	1,881	2,370	2.3	1.2	1.0
Wakka Wakka/ Wadja Wadja	1,382	1,676	1.9	0.9	0.7
Yarrabah/Palm Island	1,040	2,959	10.5	0.6	1.3
Torres Strait Zone					
Thursday Island	4,288	4,224	-0.2	2.7	1.9
Qld-North Zone					
Cairns & District	5,254	8,837	5.2	3.3	3.9
Townsville	6,022	8,395	3.3	3.7	3.7
Qld-South Zone					
Gulburri	3,926	4,331	1.0	2.4	1.9
Central Queensland	4,283	6,219	3.7	2.7	2.7
Mt. Isa	2,442	3,535	3.7	1.5	1.6
Qld-Metropolitan Zone					
The Indigenous Council of Deputies	6,935	13,436	6.6	4.3	5.9
NT-Northeast Zone					
Yapakurlangu	1,742	2,255	2.6	1.1	1.0

Continued over page

Table 3. Continued

Region[a]	Total population 1976	1986	Rate of growth per year	Distribution 1976	1986
Mulgun	2,937	3,480	1.7	1.8	1.5
Miwatj	3,737	5,155	3.2	2.3	2.3
Jabiru	1,533	2,538	5.0	1.0	1.1
Victoria River	1,540	1,708	1.0	1.0	0.8
NT-Northwest Zone					
Daly River	1,228	1,480	1.9	0.8	0.7
Yilli/Rreung	3,013	6,480	7.7	1.9	2.8
Tiwi Island	1,202	1,651	3.2	0.7	0.7
South Australia Zone					
Kaurna	4,320	5,826	3.0	2.7	2.6
Murrundi	1,832	2,182	1.7	1.1	1.0
Port Augusta & Area	1,736	2,813	4.8	1.1	1.2
Wangka Pullka	748	1,083	3.7	0.5	0.5
Central Australia Zone					
Kakarrara Wilurrara	610	654	0.7	0.4	0.3
Indulkana	1,668	2,012	1.9	1.0	0.9
Harts Range	1,488	1,620	0.8	0.9	0.7
Alice Springs	2,075	3,800	6.1	1.3	1.7
Papunya	2,968	3,963	2.9	1.8	1.7
Implyara	314	599	6.5	0.2	0.3
Warburton	698	991	3.5	0.4	0.4
WA-North Zone					
Western Desert	478	1,116	8.5	0.3	0.5
Kutjungka	68	760	24.2	0.0	0.3
Yarleyel	1,201	1,317	0.9	0.7	0.6
Wunan	982	1,703	5.5	0.6	0.7
Jayida Buru	997	1,783	5.8	0.6	0.8
Bandarai Ngadu	1,385	1,473	0.6	0.9	0.6
Kullarri	1,718	2,473	3.6	1.1	1.1
Ngarda Ngull/Yarndu	2,235	3,668	5.0	1.4	1.6
WA-South Zone					
Wongi	1,826	2,417	2.8	1.1	1.1
Yamatji	3,301	4,297	2.6	2.1	1.9
Wangki Nyininy	1,761	1,587	-1.0	1.1	0.7
Kaatany Iny	2,866	3,591	2.3	1.8	1.6
WA-Metropolitan Zone					
Karikarniny	6,372	10,283	4.8	4.0	4.5
All regions	160,853	227,488	3.5	100.0	100.0

a. Regional council names are as at March 1992; a number do not correspond with names in Tesfaghiorghis (1991a). See Appendix.

Victoria in 1976 was 64 per cent higher than the estimated minimum population of the state (Gray and Smith 1983); again the probable explanation for this negative extreme case is some data collection or processing problem that resulted in over-enumeration in 1976.

It has been demonstrated that Aboriginal population increase due to changing attitudes towards self-identification and willingness to report all members of a household as of Aboriginal or Islander origin is a social phenomenon most prevalent in the urban sector (ABS 1989). It is difficult to ascertain, though, whether the higher annual average growth rates (higher than the national average) observed in most metropolitan regions (in particular, Brisbane with 6.6 per cent) and some ATSIC regions with sizeable urban populations (such as Darwin, 7.7 per cent; Dubbo, 6.6 per cent; Cairns, 5.2 per cent and Alice Springs, 6.1 per cent) are due to natural increase, increased urbanisation or changing attitudes to self-identification. In all cases there are probably elements of all three factors. On the other hand, there are some rural and remote regions, such as Mt. Barnett, Kununurra and Jigalong in Western Australia, Yulara and Jabiru in the Northern Territory and Yarrabah/Palm Island in Queensland where substantial growth rates exceeding 5 per cent per annum were also recorded and where population increase is unlikely to be explained in terms of changing attitudes towards Aboriginality or urbanisation.[2] One possibility in such cases is population movement across regional council boundaries. Such population movement can be important in some situations owing, for example, to changes in land tenure arrangements.[3] The other remaining option is natural increase, but the demographic structure of these regional populations would make natural growth at such phenomenally high levels impossible. The most plausible explanation for such changes is poor enumeration in 1976 and better coverage in the 1986 Census.

Other regions display relatively low growth rates of less than 1 per cent per year or moderate growth rates of between 2 and 4 per cent. Some of these growth rates may in fact represent the actual growth pattern. However, given some of the extreme values in growth rates already described, the improved enumeration in remote areas and the increasing tendency of Aboriginal and Islander people to state their ethnic origin, it is difficult to establish which population trend data is reliable at the ATSIC regional council level. Hence, while we advise that the data presented be treated with caution, we nevertheless believe that having 1976 Census estimates of regional council population might be of use to most regional councils in regional planning, especially if these data are qualified or substantiated by other unofficial population estimates.

Changes in the Aboriginal labour force

As noted at the outset, one of the key functions of ATSIC regional councils is to formulate regional plans to improve the economic, social and cultural status of Aboriginal and Islander residents of the region. From 1986, a central aim of Federal Government Aboriginal affairs policy, articulated in the Aboriginal Employment Development Policy (AEDP) (Australian Government 1987), has been the improvement in the employment status of Aboriginal and Islander people. A combination of these two factors would suggest that changes in the size of the labour force at the regional council level would be of critical importance both for planning purposes and for policy and program implementation. This is especially the case because the number of Aboriginal and Torres Strait Islander persons of working age (15-64 years) increased by 47 per cent for females and 55 per cent for males between 1976 and 1986.

For a variety of reasons we look at changes in labour force participation by regional councils. First, while we have outlined some anomalies in population data above, there is far less evidence of inconsistencies in classification of populations once enumerated.[4] This in itself does not mean that numeration of persons in the labour force or not in the labour force is accurate.[5] Second, while changes in a range of other socioeconomic indicators like employment/population ratios, educational status, annual median income and home ownership could have been examined, we have chosen to focus on changes in participation rates precisely because this variable is relatively straightforward; participation quantifies those aged 15-64 years who are either in employment or seeking employment. In a forthcoming discussion paper, information on selected socioeconomic indicators by ATSIC regional councils will be presented from 1976 and 1981 Censuses to supplement data published for 1986 by Tesfaghiorghis (1991a). Finally, labour force participation is an important planning variable that requires a longer-term perspective.

A number of studies have examined labour force participation from various perspectives. Tesfaghiorghis and Altman (1991: 9-13) examined changes in labour force participation between 1971 and 1986 by gender and age for Aboriginal and Torres Strait Islander people and the total population. This research indicated a broad Australia-wide trend showing decreased labour force participation for males and increased participation for females. Tesfaghiorghis (1991b: 19-20) has examined participation rates by State/Territory using 1986 Census data and noted some marked variations. Daly (1991: 2-6) similarly used 1986 Census data (from the 1 per cent public use sample) to examine differences in participation rates by section-of-State, age and gender. Between 1976 and 1986, aggregate labour force participation rate among males declined from 72.0 per cent to 65.4 per cent. By contrast, female labour force participation rates

Table 4. Labour force participation rates observed and standardised for Aboriginal population by ATSIC regions and sex, 1976-86.

Region[a]	Labour force participation rates							
	Observed				Age standardised			
	Male		Female		Male		Female	
	1976	1986	1976	1986	1976	1986	1976	1986
NSW-Metropolitan Zone								
Sydney	80.2	71.9	42.7	51.3	80.0	71.9	42.7	50.1
NSW-West Zone								
Wirawongam	74.2	68.5	24.2	31.9	74.8	68.7	24.2	31.8
Gamilaroi	69.5	71.2	23.2	58.0	68.9	71.0	23.2	57.6
Wangkumara	59.1	63.3	19.3	33.5	60.0	63.8	19.3	34.0
NSW Far West	81.0	61.1	30.7	31.8	81.5	60.8	30.7	31.4
Murrumbidgee/ Lachlan	71.4	67.1	28.2	37.0	71.2	67.1	28.2	37.0
Deniliquin	67.8	69.1	32.2	35.2	68.4	69.6	32.2	33.5
NSW-East Zone								
Northern Rivers	63.3	63.0	20.7	37.4	64.1	63.2	20.7	37.5
Tingha	50.6	61.4	15.9	34.1	51.8	60.9	15.9	33.6
Quirindi	75.6	72.8	27.7	36.4	78.5	72.8	27.7	35.3
Taree	75.6	68.5	30.7	35.4	67.6	68.7	30.7	34.9
Bogong	82.6	76.4	51.5	54.4	81.4	74.9	51.5	52.9
Umbara	75.8	67.8	19.5	36.0	76.3	67.5	19.5	35.9
Victoria Zone								
Yangenanook	75.4	69.5	39.0	38.6	72.8	49.0	39.0	25.0
Tumbukka	78.0	71.7	40.2	42.3	77.2	69.5	40.2	38.7
Yuroke	86.8	75.2	51.1	49.6	85.0	71.6	51.1	42.4
Launceston Zone								
Tasmanian Aboriginal	81.9	77.9	35.1	46.5	81.1	78.1	35.1	46.1
Qld-Far North Zone								
Peninsula	78.2	62.1	24.7	26.6	78.4	61.9	24.7	26.5
Gulf	81.7	74.9	55.0	30.1	79.8	74.4	55.0	30.4
Wakka Wakka/ Wajda Wadja	75.8	66.9	38.1	34.0	81.4	69.2	38.1	34.5
Yarrabah/Palm Is.	80.9	68.1	42.3	34.5	81.4	67.5	42.3	33.7
Torres Strait Zone								
Thursday Island	69.8	58.8	35.2	32.8	72.3	59.9	35.2	34.9
Qld-North								
Cairns & District	74.6	66.8	23.0	34.2	75.3	66.7	23.0	34.0
Townsville	73.9	68.2	24.2	36.7	73.7	68.6	24.2	36.4
Qld-South								
Gulburri	80.0	67.3	27.9	35.8	80.2	70.1	27.9	35.4
Central Queensland	77.3	75.0	24.6	36.2	77.9	75.8	24.6	35.8
Mt. Isa	86.3	74.2	21.0	31.9	86.6	74.4	21.0	31.8
Qld-Metropolitan								
The Indigenous Council of Deputies	77.0	69.3	33.2	42.1	76.2	69.0	33.2	41.5
NT-North East								
Yapakurlangu	63.7	54.6	12.3	29.1	66.0	55.0	12.3	29.4

Continued over page

Table 4. Continued

Region[a]	Labour force participation rates: Observed Male 1976	Observed Male 1986	Observed Female 1976	Observed Female 1986	Age standardised Male 1976	Age standardised Male 1986	Age standardised Female 1976	Age standardised Female 1986
Mulgun	47.8	56.9	19.3	26.1	47.2	56.6	19.3	26.2
Miwatj	63.7	49.4	12.3	24.5	66.0	49.4	12.3	24.1
Jabiru	47.8	30.8	19.3	17.0	47.2	31.2	19.3	17.1
Victoria River	63.3	51.6	31.4	19.8	63.6	51.8	31.4	21.0
NT-Northwest								
Daly River	67.1	29.3	33.0	11.9	67.6	28.7	33.0	12.4
Yilli/Rreung	63.6	59.5	33.6	40.4	65.5	59.4	33.6	40.4
Tiwi Islands	77.5	51.2	32.7	29.6	76.5	50.1	32.7	30.7
South Australia								
Kaurna	69.9	68.5	43.6	41.3	70.2	67.3	43.6	40.8
Murrundi	65.0	69.8	23.1	49.8	65.3	69.6	23.1	49.7
Port Augusta & Area	71.5	67.0	27.6	34.0	70.7	65.8	27.6	33.9
Wangka Pullka	67.9	69.5	34.4	38.0	67.7	70.3	34.4	37.0
Central Australia								
Kakarrara Wilurrara	66.4	58.2	19.4	33.7	67.6	57.8	19.4	32.8
Indulkana	72.1	57.6	55.7	39.7	70.4	57.6	55.7	41.1
Harts Range	48.9	67.4	13.0	50.4	50.4	66.1	13.0	51.0
Alice Springs	50.7	49.4	30.7	38.0	52.3	48.9	30.7	37.8
Papunya	43.7	38.2	17.3	29.2	42.8	38.3	17.3	29.7
Implyara	53.1	69.4	23.2	55.6	64.4	68.1	23.2	53.6
Warburton	61.6	38.0	18.3	38.8	60.7	36.1	18.3	39.0
WA-North								
Western Desert	52.8	60.6	10.3	37.5	53.7	59.2	10.3	39.2
Kutjungka	57.1	57.1	15.4	35.3	55.9	59.3	15.4	38.1
Yarleyel	62.4	40.9	24.4	19.4	61.5	45.3	24.4	20.1
Wunan	65.2	64.3	23.6	27.6	76.5	63.8	23.6	27.3
Jayida Buru	69.4	61.8	40.0	33.3	71.5	62.3	40.0	33.6
Bandarai Ngadu	67.9	45.6	27.7	30.4	68.9	46.2	27.7	31.3
Kullarri	59.4	56.3	23.6	30.1	59.8	56.4	23.6	31.1
Ngarda Ngull/Yarndu	71.3	63.5	29.8	30.6	71.7	63.7	29.8	30.9
WA-South								
Wongi	60.2	56.9	21.3	61.7	62.3	56.6	21.3	61.0
Yamatji	76.1	65.3	25.9	31.2	76.0	66.0	25.9	31.3
Wangki Nyininy	68.9	65.2	18.1	24.6	69.3	65.1	18.1	25.4
Kaatany Iny	61.5	60.1	22.3	28.2	61.7	58.5	22.3	27.4
WA-Metropolitan								
Karikarniny	61.3	60.3	25.8	30.2	61.3	58.7	25.8	31.1
All regions	72.2	65.4	31.6	36.0	72.2	65.3	31.6	35.9

a. Regional council names are as at March 1992; a number do not correspond with names in Tesfaghiorghis (1991a). See Appendix.

showed an aggregate increase from 30.4 per cent in 1976 to 36.0 per cent in 1986.

In Table 4 male and female labour force participation rates calculated for all regions, together with age standardised rates, are shown. The patterns of change in participation rates do not change substantially after standardising for age.[6] As with the overall participation rates, the fall in the male labour force participation rate and increase in the female rates are evident in a majority of regions. Overall, the male rate of labour force participation fell in 48 regional councils, increased in 11 and stayed the same in one (surprisingly, in Balgo). The female rate of labour force participation increased in 46 regional councils and declined in 14. Interestingly, in all cases where male labour force participation countered the overall trend and increased, female rates also increased and in all 14 cases where the female trend countered the trend and declined, male participation also declined.

There are several regions in, for instance, the eastern part of Australia, where labour force participation rates for men fell considerably (by 10 to 24 per cent). The Bairnsdale region, for instance, displayed a fall in male labour force participation of 24 per cent, but in the adjoining two regions (Melbourne and Halls Gap) the fall was not as marked (Table 4). In these three regions, contrary to the overall pattern of increased participation rates, the female labour force participation rates also showed a decline.

The observed increases in the participation rates for females are extremely high for several regions like Moree region (38 per cent), Quirindi (28 per cent) and Bourke (14 per cent). By contrast, the increases recorded for the adjacent regions in New South Wales are considerably lower. In some remote regions there were even higher relative increases in participation. In Harts Range, for example, regional council female labour force participation increased from 13.0 per cent to 51.0 per cent and at Jigalong regional council from 10.3 per cent to 39.2 per cent. In such remote areas, it is likely that increased participation was largely due to belated incorporation in the Australian social security system (see Altman and Sanders 1991).

From the regional council perspective, information on changes in male and female labour force participation is probably of greater planning value than data on population change between 1976 and 1986. It would be of particular relevance to examine why labour force participation has countered overall trends in some regional council areas, and whether such contrary trends (which, from a policy perspective, are positive for males and negative for females) are linked in any way to participation in particular employment and training programs in operation prior to the

launch of the AEDP, or to an increased number of people entering into unemployment rather than employment.

Conclusions and policy implications

This paper presents data on the Aboriginal population, its growth rate and labour force participation rates by the ATSIC regional council areas in 1976 and 1986. The focus on this issue has been stimulated, in part, by requirements for regional planning in the ATSIC legislation. It is our view that such regional plans will need access to both historical and contemporary statistical information disaggregated to the regional council level. It is also increasingly evident that the distribution of resources by ATSIC and other agencies to ATSIC regions will become an increasingly contentious issue. Accurate quantitative data will prove extremely useful to ATSIC Commissioners in making decisions about allocation of resources.

This paper shows that because of data quality problems a clear assessment of population growth patterns and labour force participation cannot be made. 1976 Census data on Aboriginal counts were particularly problematic. This is because increases in the Aboriginal population between 1976 and 1986 Censuses were influenced by coverage improvements and increased propensity for identification during the latter year and data problems in the former year discussed earlier. Efforts made by the ABS in the past to improve the enumeration and data processing procedures have undoubtedly contributed to a reasonably good coverage of the Aboriginal population in the 1986 Census.

Our analysis highlights that while census data on Aboriginal and Torres Strait Islander populations, particularly those relating to censuses prior to 1986, can provide some useful socioeconomic indicators at an aggregate level of analysis (Tesfaghiorghis and Altman 1991), they might be of more limited value when disaggregated to the ATSIC regional council level. Any broad patterns and trends established on the basis of disaggregated data even at the section-of-State level, particularly from the 1976 Census, will need to be verified when the 1991 Census data becomes available.

For regional planning purposes, it might be necessary to use 1986 Census data by ATSIC regional councils as an initial baseline of population and other socioeconomic characteristics for comparison with the 1991 Census output, when detailed data on the Aboriginal population becomes available from 1993. These two censuses together will provide a reasonably satisfactory data base on the Aboriginal population for regional planning purposes. Furthermore, demographic and socioeconomic characteristics

and their trends for the intercensal period 1986-91, could be used to undertake future projections. With time, more detailed population data from censuses, vital registration and other administrative data sets will be available by regional council areas, which will provide substantial supplementary data inputs for the regional planners in deciding priorities and the evaluation of programs.[7] More importantly, the data base established for ATSIC regions will provide a sound basis for retrospectively estimating, if necessary, regional populations and their components (such as the labour force) for earlier years like 1981 and 1976. It is likely, however, that such historical reconstruction will rapidly diminish in significance as contemporary and more reliable data bases are generated.

As already discussed, there are practical problems in reconstructing population and socioeconomic data by smaller administrative areas using historical census data reconstituted to fit ATSIC regional council jurisdictions. Such data may be of limited use for regional planning purposes and consequently we subtitle this paper 'a cautionary note'. While exact reasons for the lack of integrity of 1976 Census data are difficult to establish, a number of broader policy related issues are raised by excessive reliance on data from the five yearly censuses with known shortcomings at the regional council level. First, it might be that counter to the Coopers and Lybrand (1991) recommendation, regional councils will need to become involved in primary collection of comparable data for their own regions. Alternatively, there may be a need for special surveys that address issues of specific relevance in the division of resources between ATSIC regional councils. An example of such a special survey is the ATSIC Housing and Community Infrastructure Needs Survey to be undertaken in 1992 and 1993.

A related issue that has not been addressed in this paper, but is worthy of consideration, is linked to the additional problems that will need to be faced when seeking data that is even more disaggregated than that available at the ATSIC regional council level. Such data will be important for the more fine-grained division of resources at the intra-regional council level, as well as for community planning.

The broad thrust in Australian public administration on performance evaluation (Sanders 1991), coupled with specific developments in Aboriginal affairs like the need for ATSIC regional plans and quantitative data for proposed Federal/State bilateral agreements on service provision, underscore the need for accurate statistical information. This paper emphasises the paucity of the historical data base. While little beyond reconstruction can be undertaken to overcome this historical shortfall, it is imperative that future data collection and analysis overcomes this problem, especially for planning purposes.

The data in this discussion paper are provided for a wide audience, and especially ATSIC regional councils. To date, they provide the best available estimates of changes in regional council populations between 1976 and 1986. While we emphasise that these data cannot be used to make population projections for a number of regional councils, they might nevertheless prove useful as a historical source of data for some councils. We recommend caution in the use of these data at the regional council level and suggest that when 1991 Census output is available, a more reliable and up-to-date information base will exist both to make population projections and to reconstruct historical population trends.

Notes

1. Section 93(1) of the *Aboriginal and Torres Strait Islander Commission Act 1989* states 'The Regional Council for a region may from time to time, by resolution, determine a name, or a new name, for the regional Council'. Tesfaghiorghis (1991a: 14) noted that 32 regional councils changed their names between 1989 and 1991. Since 1991, there have been 14 further changes in names of regional councils. In the attached appendix a schedule is provided showing original regional council names, names at June 1991 (when Tesfaghiorghis prepared his discussion paper) and the latest information available from ATSIC (March 1992). In the paper we use original regional council names because they are most useful for geographically locating regional council areas.

2. It is important to note here that names used refer to regional council names and should not be confused with small urban centres having identical names.

3. For example, both census and non-census sources indicate a growth in the Aboriginal population residing at Uluru National Park between 1976 and 1986, partly in response to long-term developments that led to the transfer of title of the national park to the Uluru-Katatjuta Land Trust in 1985 (Altman 1987: 24-5). Such cases demonstrate the need for regionally-based 'ground-truthing' of census data.

4. This is demonstrated in part by the standard deviation. For males, the standard deviation of labour force participation was 10.1 per cent in 1976 and 10.8 per cent in 1986; for females it was 10.5 per cent in 1976 and 9.2 per cent in 1986.

5. Labour force size is primarily dependent on population size and activity levels. The pattern of change in regional labour force participation rates would only have been affected in part by the enumeration problems in the 1976 Census and the improved coverage in the 1986 Census. Because of data problems and the consequent artificial nature of some labour force increase, it is difficult to distinguish genuine labour force participation rates and changes that may have been observed in the regions from those entirely dependent on population change.

6. Age standardisation based on total male and female population age structure in 1976. There is little difference between observed and age standarised activity rates, as indicated by the summary means for 1986: for males overall participation declined from 65.4 per cent to 65.3 per cent and for females from 36.0 per cent to 35.9 per cent.

7. With the proviso that inconsistency in definitions of Aboriginality used in different administrative data sets will need to be rectified prior to any attempt at comparative analysis.

7. With the proviso that inconsistency in definitions of Aboriginality used in different administrative data sets will need to be rectified prior to any attempt at comparative analysis.

8. The methodology that could be used is based on the intercensal survival ratios for the regions estimated from the age distributions of the male and female populations separately. The survival ratios are the ratios of the population in a given age group to the population of the same age cohort in the previous census. For instance, the corresponding cohort for the population in the age-group 10-14 in 1991 was the 5-9 age group in 1986. The advantage of estimating populations using the census survival method, is that the assumptions on which the estimates are based and the limitations of the estimates, are known and identifiable, whereas the quality of the estimates based on historical data, such as those from the 1976 Census are uncertain.

Appendix

Table A1. Names of regional councils.

	Name in 1989[a]	Name in 1991[b]	Name as at March 1992
1	Sydney	Sydney	Sydney
2	Dubbo	Wirawongam	Wirawongam
3	Moree	Gomilaroi	Gamilaroi
4	Bourke	Wangkumara	Wangkumara
5	Wilcannia	NSW Far West	NSW Far West
6	Temora	Murrumbidgee	Murrumbidgee/Lachlan
7	Deniliquin	Deniliquin	Deniliquin
8	Casino	Northern Rivers	Northern Rivers
9	Tingha	Tingha	Tingha
10	Quirindi	Quirindi	Quirindi
11	Taree	Taree	Taree
12	Gouburn	Bogong	Bogong
13	Nowra	Umbara	Umbara
14	Bairnsdale	Bairnsdale	Yangenanook
15	Halls Gap	Halls Gap	Tumbukka
16	Melbourne	Melbourne	Yuroke
17	Launceston	Launceston	Tasmanian Aboriginal
18	Aurukun	Peninsula	Peninsula
19	Doomadgee	Gulf	Gulf
20	Woorabinda/Cherbourg	Woorabinda	Wakka Wakka/Wadja Wadja
21	Yarrabah/Palm Island	Yarrabah/Palm Island	Palm Island/Yarrabah
22	Thursday Island	Thursday Island	Thursday Island
23	Cairns	Cairns & District	Cairns & District
24	Townsville	Townsville	Townsville
25	Charleville	Gulburri	Gulburri
26	Rockhampton	Rockhampton	Central Queensland
27	Mt. Isa	Mt. Isa	Mt. Isa
28	Brisbane	Brisbane	The Indigenous Council of Deputies
29	Tennant Creek	Yapakurlangu	Yapakurlangu

Continued over page

Table A1. Continued

	Name in 1989[a]	Name in 1991[b]	Name as at March 1992
30	Mataranka	Mataranka	Mulgun
31	Yirrkala	Miwatj	Miwatj
32	Jabiru	Jabiru	Jabiru
33	Kalkaringi	Victoria River	Victoria River
34	Daly River	Daly River	Daly River
35	Darwin	Yilli/Rreung	Yilli/Rreung
36	Tiwi Island	Tiwi Islands	Tiwi Islands
37	Adelaide	Kaurna	Kaurna
38	Murray Bridge	Murrundi	Murrundi
39	Leigh Creek	Port Augusta & Area	Port Augusta & Area
40	Tarcoola	Wangka Pullka	Wangka Pullka
41	Deakin	Deakin	Kakarrara Wilurrara
42	Indulkana	Indulkana	Indulkana
43	Harts Range	Harts Range	Harts Range
44	Alice Springs	Alice Springs	Alice Springs
45	Papunya	Papunya	Papunya
46	Yulara	Yulara	Implyara
47	Warburton	Warburton	Warburton
48	Jigalong	Western Desert	Western Desert
49	Balgo	Kutjungka	Kutjungka
50	Halls Creek	Yarleyel	Yarleyel
51	Kununurra	Wunan	Wunan
52	Mount Barnett	Jayida Buru	Jayida Buru
53	Fizroy Crossing	Fitzroy Crossing	Bandarai Ngadu
54	Lagrange	Kularri	Kullarri
55	Marble Bar	Ngarda Nguli	Ngarda Ngull/Yardu
56	Kalgoorlie	Wongi	Wongi
57	Geraldton	Yamatji	Yamatji
58	Wyalcatchem	Wyalcatchem	Wangki Nyininy
59	Narrogin	Kaatanyini	Kaatany Iny
60	Perth	Karkaryiny	Karikarininy

a. As in the ATSIC legislation.
b. As current at June 1991 (Tesfaghiorghis 1991a).

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