

2. Demography of the Pilbara region

A range of counts and estimates are available for the Indigenous and non-Indigenous populations of the Pilbara and its constituent parts. For example, the ABS provides a de facto count of people who were deemed to be present in the region on each census night (7 August 2001 at the most recent census). Then there is a de jure count of people across Australia who indicate that the Pilbara is their usual place of residence on census night. These two counts are also available for SLAs and IAs found within the region, while de facto counts are available for ILs. It is also worth noting that the ABS gathers information on estimated population numbers for all discrete Indigenous communities, no matter how small, via the CHINS which is now rolled out three months ahead of each census. Finally, in recognition of the fact that the census fails to count some people, the ABS develops post-censal estimates of the 'true' resident population by augmenting their SLA usual residence counts according to an estimate of those missed (undercount), along with other demographic adjustments. This produces an Estimated Resident Population (ERP), which, in effect, becomes the official population of each SLA for the purposes of electoral representation and financial distributions.

It should be emphasised that official ERPs are only available at the SLA-level, and so estimates of the population within the region at levels below this have to be derived by ratio allocation of the overall Pilbara ERP to constituent parts. In terms of the present exercise that is concerned with the relative status of Indigenous people, it is helpful that separate calculations of Indigenous and non-Indigenous ERPs have also been made by the ABS since 1996. These are constructed by applying differential estimated undercount rates, and by distributing (pro rata) those usual residents who did not answer the ethnicity question on the census form.

As to the measurement of demographic change in the region since mining operations commenced more than 40 years ago, it is also fortunate that the ABS has retained the statistical geography of the Pilbara SD over this period. This provides for a fairly complete analysis of population change over time, including a measure of variable growth and redistribution within the Pilbara. Of course, many of these changes reflect the varying fortunes of the mining industry over the past few decades, while for Indigenous people they reflect the myriad influences on their location due to mining development, changes in the pastoral industry and in government policy, and in their own access to kin and country.

Population size

At the 2001 Census, a total of 42 411 persons were counted by the ABS as present on census night (7 August 2001) in the Pilbara (Table 2.1 p. 10). Of these, 5736

indicated an Indigenous status in response to the census question on ethnicity, and 33 622 indicated non-Indigenous status. Thus, as many as 3053 individuals (7%) provided no response to this question, and so their Indigenous status was indeterminate. Of the entire population counted within Australia on census night, a smaller total (37 135) nominated one of the Pilbara SLAs as their usual place of residence. Thus, the overall usual residence count was 12 per cent lower than the place of enumeration count, with as many as 5276 individuals counted in the region as temporary residents from elsewhere.

Table 2.1. Indigenous and non-Indigenous census counts and post-censal estimates: Pilbara SD,^a 2001

	Indigenous	Non-Indigenous	Not stated	Total
Census count (de facto)	5736	33 622	3053	42 411
Usual residence count (de jure)	5579	28 744	2812	37 135
Estimated usual residents (ERP)	6514	32 947	n/a	39 463

^aIncorporates Ashburton, Roebourne, Port Hedland, and East Pilbara SLAs.

Source: ABS customised tables.

It is clear that almost all of these temporary people are non-Indigenous since the number of Indigenous usual residents of the Pilbara was almost identical to the number counted as present there on census night. On this evidence, more than 10 per cent of the non-Indigenous population present in the Pilbara at any given time is visiting the region from somewhere else in Australia, at least during the dry season when the census is conducted. This issue will be revisited when analysing the composition of the Pilbara labour force; suffice it to say here that temporary residents form an important part of the Pilbara demography and add complexity to the task of estimating and projecting population levels.

ERP figures for the Pilbara are shown in the final row of Table 2.1. As noted earlier, these purport to represent 'true' levels of the Indigenous and non-Indigenous resident populations of the region. However, when interpreting these, it is important to note that ABS ERPs have been observed to differ from other (unofficial) population estimates generated by alternate means (Taylor & Bell 2001, 2003). Also for noting are methodological tendencies within the special procedures adopted by the ABS in remote communities and urban town camps in northern Australia that are likely to produce an undercount of Indigenous people (Martin & Taylor 1996; Sanders 2002; Taylor 2005b). This places an onus on the standard ERP methodology to adequately compensate for these shortcomings, and the capacity to achieve this has been questioned especially given the lack of a post-enumeration survey check of enumeration coverage in remote areas (Taylor & Bell 2003). However, Table 2.1 does show that the ERP upward adjustment to the Indigenous usual residence count was quite substantial at 16.8 per cent – anything higher than this would require compelling corroborative evidence, and none is readily apparent.

The figures in Table 2.1 raise a subtle but important point about regional population shares and quotas. Strictly speaking, the correct means for deriving the Indigenous share of the Pilbara regional population is to use the ERP figures. On this basis, Indigenous people represent 16.5 per cent of the Pilbara resident population. However, as we have seen, there are many others (over 5000) who are likely to be found in the Pilbara at any given time (at least on the basis of the 2001 reported levels), and the suspicion is that many of these are workers or are at least potentially available to compete for work. While this point will be further developed later, there might also be a case for arguing that the Indigenous share should be derived using the de facto population as the denominator, in which case in 2001 the share would have been 14.5 per cent (excluding those who did not state Indigenous status). Admittedly, this produces only minor variation and so the point may seem trivial. However, in a scenario where fly-in-fly-out (FIFO) regimes might be greatly extended, and where large temporary workforces can move into the region during ramp-up phases of resource development, the de facto population can become very substantial. If, in such instances, ratio shares are based on de facto rather than de jure counts then the Indigenous share could be considerably diminished. We should also note the importance of accounting for relative age distribution (since the Indigenous regional share of working-age population is much lower than the share of total population), while alternate projections of future population can also produce quite different outcomes in terms of rising and falling shares.

Sub-regions

The primary sub-regional breakdown of the Pilbara is by the four Shires that correspond to SLAs. Table 2.2 p. 12 shows the distribution of Indigenous and non-Indigenous ERP populations in each of these. The coast versus inland divide in the distribution of the Pilbara population is readily evident, with Roebourne and Port Hedland Shires standing out with the largest populations and accounting for 70 per cent of overall numbers due to the presence of major port, processing, and service towns. The less populous inland shires of Ashburton and East Pilbara reflect the location of various mine sites, mining towns, and discrete Indigenous communities. Within this broad framework variation does occur between Indigenous and non-Indigenous distributions. Thus, Indigenous people are more heavily represented in East Pilbara Shire, and considerably outweighed in Roebourne Shire. Of course, these numbers reflect ERPs only. If we were to add to this the presence of temporary residents (as estimated from the place of enumeration counts) then the numbers in the non-Indigenous column would rise overall by almost 3000, with the distribution of these temporary numbers fairly evenly distributed across the Shires.

Table 2.2. Indigenous and non-Indigenous population^a distribution by Pilbara SLAs, 2001

SLA	Indigenous	Non-Indigenous	Total
Ashburton	732 (11.2) ^b	5213 (15.8)	5945 (15.0)
Roebourne	1878 (28.8)	13 180 (40.0)	15 058 (38.1)
East Pilbara	1611 (24.7)	4232 (12.8)	5843 (14.8)
Port Hedland	2293 (35.2)	10 322 (31.3)	12 615 (32.0)
Total	6514 (100.0)	32 947 (100.0)	39 461 (100.0)

^aERPs.

^bPercentages in parentheses.

As noted, ERP figures are available only at SLA-level. However, one way to develop similar estimates of the regional population according to a geography that more closely relates to the distribution of Indigenous population in different parts of the region, is to divide up the Indigenous and non-Indigenous ERPs according to the observed pro rata share of each IA. Results of this ratio allocation are shown in Table 2.3 p. 12.

Table 2.3. Ratio allocation of 2001 Pilbara ERPs to Indigenous Areas in the Pilbara SD

Indigenous Area	Indigenous % of Pilbara UR ^a count	Non-Indigenous % of Pilbara UR resident	Derived Indigenous ERP	Derived Non-Indigenous ERP	Derived total ERP	Indigenous % of total derived ERP
Roebourne	10.2	0.6	663	205	869	76.4
Roebourne bal	8.5	9.6	556	3159	3715	15.0
Karratha	10.2	31.2	666	10 290	10 955	6.1
Ashburton	11.0	16.0	718	5273	5991	12.0
East Pilbara (W)	3.7	1.6	238	517	755	31.5
East Pilbara (E)	11.5	10.8	750	3565	4315	17.4
Jigalong	4.9	0.1	321	18	340	94.6
Marble Bar	2.1	0.3	134	83	217	61.9
Yandeyarra	3.4	0.0	220	13	232	94.6
Port Hedland (T)	2.6	0.2	167	81	248	67.2
Port Hedland	32.0	29.6	2082	9744	11 826	17.6
Total	100	100	6514	32 947	39 463	16.5

^aUR = usual residence.

Thus, the Indigenous usual residence count in Karratha (755) represented 10.2 per cent of the Indigenous usual residence count for the whole of the Pilbara. This same percentage of the Pilbara Indigenous ERP produces an Indigenous population estimate for Karratha of 666. In turn, the equivalent non-Indigenous proportion is 31.2 per cent, which produces an estimate of 10 290 for the non-Indigenous population of Karratha. All told, then, the 2001 ERP of Karratha is calibrated at almost 11 000, only 6 per cent of which is Indigenous.

A substantial proportion of both the Indigenous and non-Indigenous populations of the Pilbara is located in Port Hedland. At the same time, many other areas of

the Pilbara (Roebourne, Jigalong, Marble Bar, Yandeyarra, and the areas adjacent to Port Hedland) have overwhelmingly Indigenous populations, while in some other areas (East Pilbara W) the Indigenous population share is also way above the regional average. The main exceptions are Karratha and Ashburton where company and other towns predominate. The simple point here is that over vast tracts of the Pilbara region, the 16 per cent global Indigenous share statistic can be misleading as large parts of the country away from the demographic influence of urban centres and mine sites remain essentially Indigenous domains where Indigenous people and their institutions predominate.

Population growth

Time series analysis of these estimated populations is rendered problematic by the lack of official Indigenous/non-Indigenous estimates at the SLA-level prior to 1996, plus the fact that intercensal estimates prepared by the ABS do not include an Indigenous component. Nonetheless, total estimates are available for the Pilbara back to 1976. For these earlier dates, respective census counts can be used to derive an Indigenous share of population with which to pro rata the total ERPs to Indigenous and non-Indigenous categories. This is crude, but effective, in establishing relative growth trends. The results of this manipulation are shown in Table 2.4 p. 13, while the same data are shown graphically in Figure 2.1 p. 14.

Table 2.4. ERP by Indigenous status: Pilbara SD, 1976–2006

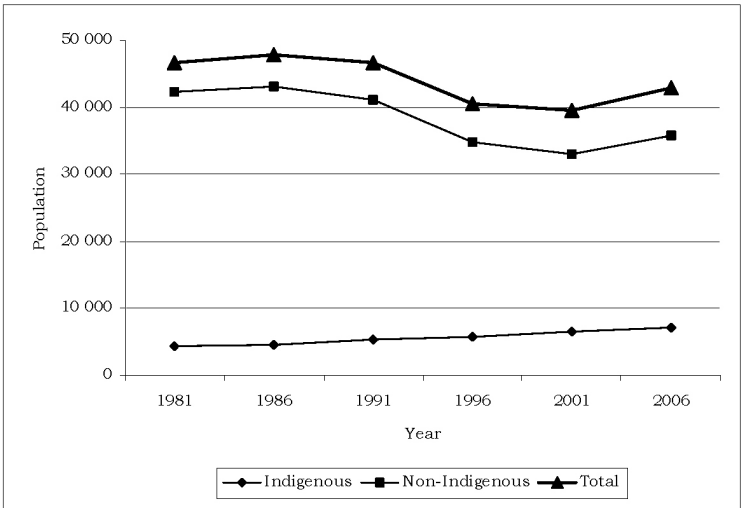
Year	Indigenous ^a	Non-Indigenous	Total
1976	n/a	n/a	38 750
1981	4336	42 294	46 630
1986	4582	43 147	47 729
1991	5400	41 150	46 550
1996	5721	34 705	40 426
2001	6514	32 947	39 461
2006 ^a	7141	35 759	42 900

^aIndigenous estimate based on projection by Yohannes Kinfu and authors. The estimate of total population in 2006 is derived from the Western Australian Planning Commission 2005. All non-Indigenous estimates are derived as a residual.

While the Indigenous population has grown steadily over the past couple of decades, and continues to do so, the non-Indigenous population (being an essentially migrant-based group) has waxed, then waned, and waxed again in response to the cycles of regional economic fortune. Thus, after rising to a peak in the mid-1980s, the non-Indigenous population declined for more than a decade, and has revived again in recent years. Over the same period, the Indigenous population has steadily grown. Consequently, from being just 9 per cent of the Pilbara resident population in 1981, it is estimated that Indigenous people will account for 16.6 per cent of the regional total by 2006. As can be seen, it is

actually growth in the Indigenous population that has provided a brake on regional population decline for much of the past two decades.

Figure 2.1. Indigenous and non-Indigenous estimated population levels: Pilbara SD, 1981–2006



Source: ABS; Western Australian Planning Commission 2005; Indigenous population projections from calculations by Yohannes Kinfu and author.

Population distribution

The nature and extent of Indigenous participation in the regional economy can be greatly affected by the spatial distribution and residential structure of the population. One way of depicting this distribution has already been presented using Indigenous Areas (Table 2.3). While this revealed some concentration of Indigenous population in urban areas, the full extent of this was hidden.

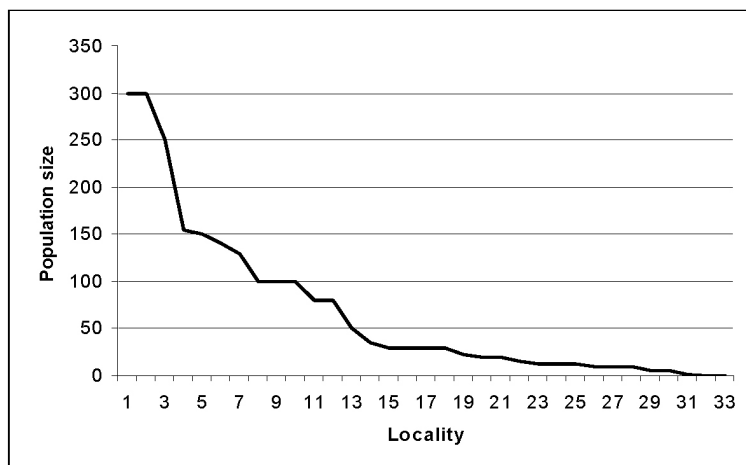
According to 2001 Census data, fully 67 per cent of the Pilbara’s Indigenous population is resident in one of the 10 main towns including (in rank order) Port Hedland, Karratha, Roebourne, Wickham, Tom Price, Newman, Onslow, Dampier, Paraburdoo, and Pannawonica. While there has undoubtedly been a shift over time towards more urban residence, there is a problem in reading too much into this trend as the particular census geographic units employed here mask considerable diversity of residential circumstances of Indigenous people within the region.

Fortunately, the ABS has acquired a new means of representing Indigenous population distribution via the CHINS. This is rolled out ahead of the national census and includes an estimate of the resident population of all discrete Indigenous communities across the nation. According to the 2001 CHINS, a total of 33 discrete Indigenous communities were located within the Pilbara region

with a collective estimated population of 2246.¹ A number of these communities are close to urban centres, while most are remote small townships and outstations. Fig. 2.2 shows the size of these settlements in rank size order.

Aside from a couple of localities that have populations of around 300 persons (Jigalong and Yandeyarra), all others are smaller with many having less than 50 persons. These localities are widely scattered and represent living areas close to country (Fig. 2.3). What they signify are individual and collective choices to pursue non-urban lifestyles more in tune with customary norms. Ironically, given the location of many of these settlements, residents of most discrete communities find themselves physically much closer to inland mine sites than their more urbanised Indigenous counterparts along the coast. Notwithstanding this, factors other than relative proximity play a role in determining participation in the regional economy.

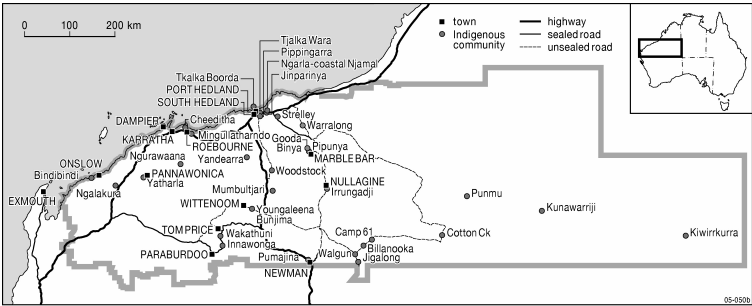
Figure 2.2. Rank size distribution of discrete Indigenous communities in the Pilbara SD, 2001



Source: ABS CHINS 2001 Confidentialised Unit Record File.

¹ This CHINS reports estimates of the usual resident population of each community based on information provided to survey collectors by key informants in community housing organisations, councils and resource centres. The figures are more akin to service populations.

Figure 2.3. Distribution of discrete Indigenous communities in the Pilbara SD, 2001

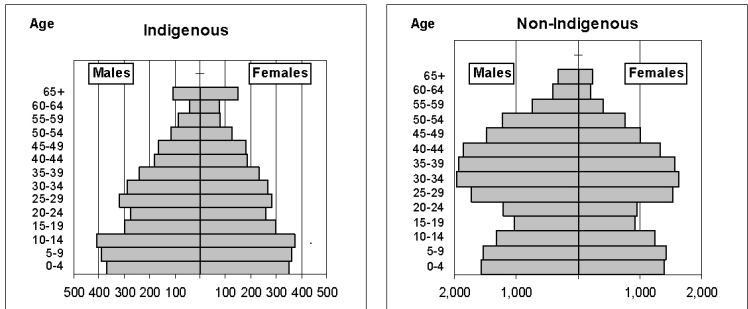


Source: ABS CHINS 2001 Confidentialised Unit Record File.

Age composition

A further demographic feature that has implications for current and future economic status is the contrast between the age distribution of the Indigenous and non-Indigenous populations as shown in Fig. 2.4 for the Pilbara as a whole. For the Indigenous population, several features are noteworthy. First, the relatively broad, though progressively narrowing, base of the age pyramid describes a population with recently reduced, but still relatively high fertility (a total fertility rate of 2.9). Second, the rapid taper with advancing age highlights continued high adult mortality. Third, the relative absence of young adults aged 15–24 suggests out-migration at these ages for both males and females. Fourth, uniformity in the decline of population with age suggests net inter-regional migration balance. Finally, relatively large numbers of women in the child-bearing ages, and even larger cohorts beneath them, indicates high potential for future growth in numbers.

Figure 2.4. Distribution of the Indigenous and non-Indigenous populations² of the Pilbara SD by age and sex, 2001



² Based on 2001 ABS ERP.

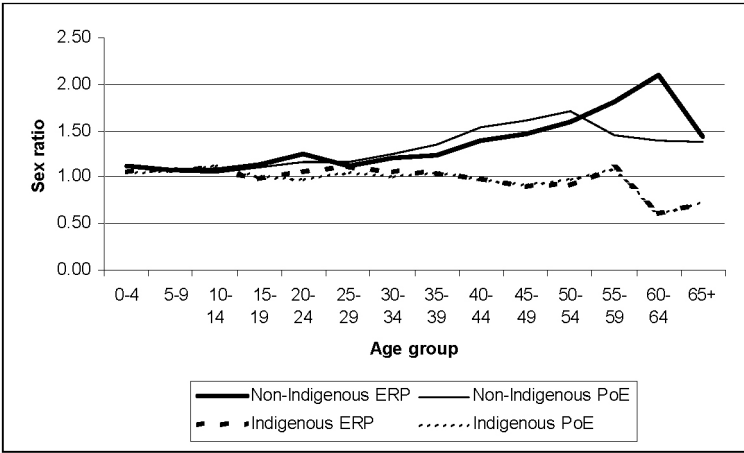
By contrast, the non-Indigenous age distribution is typical of a population that is subject to selective inter-regional migration producing net gains among those of working age and their accompanying children, and net losses in the teen-ages and at older working and retirement ages. Also evident is a predominance of male in-migration at all adult ages. Underlying this pattern are very high rates of population turnover in line with the pattern observed generally across remote Australia (Taylor & Bell 1999). Furthermore, there has been stability in the shape of this non-Indigenous age pyramid over time, reflecting the ongoing role of this region within the Western Australian economy as a place of selective migration tied to short-term employment opportunity (Bell & Maher 1995). As a consequence, the Indigenous share of the regional population varies substantially according to age group, as Table 2.5 shows. Overall, the resident population of working age (15 years and over) amounts to 28 716, of whom 4256 (15%) are Indigenous. For the most part, among those under 20 years of age, Indigenous people account for between one-fifth and one-quarter of the regional population. However, this proportion drops in the working-age groups to between 10 and 20 per cent (or even lower for males) until the post-retirement years above 65 where the Indigenous proportion once again rises, especially among females.

Table 2.5. Indigenous percentage of five-year age groups: Pilbara SD, 2001

Age group	Males	Females
0–4	19.1	20.1
5–9	20.3	20.3
10–14	23.5	23.1
15–19	22.3	24.7
20–24	18.6	21.4
25–29	15.5	15.6
30–34	12.7	14.1
35–39	11.1	12.9
40–44	9.0	12.3
45–49	10.0	15.2
50–54	8.6	14.0
55–59	10.2	15.7
60–64	9.9	27.1
65 +	25.0	39.8
Total	19.1	23.4

The effect of this relative distribution by age and sex is reflected in the difference between Indigenous and non-Indigenous sex ratios as shown in Fig. 2.5. These are shown for both the ERP and place of enumeration (PoE) census counts. Thus, using both data sources, the Indigenous sex ratio is fairly close to parity but slightly in favour of males up to around age 35, after which point it tends to fall below parity, especially after age 55 due to relatively higher mortality among Indigenous males.

Figure 2.5. Indigenous and non-Indigenous sex ratios by age: Pilbara SD, ERP and place of enumeration counts 2001



The non-Indigenous sex ratio is quite different with males predominant at all ages, especially over 30 years. Also of interest is the added difference evident between the non-Indigenous ERP and census counts, with males in the ERP profile more prominent in later ages over 50 years, and those in the census count profile more prominent in middle ages between 30 and 50 years, but declining as a ratio thereafter. This latter observation is likely to reflect the male-based composition of temporary workers in the 30–50 years age group.

Population projections

To date, policy development involving Indigenous populations has typically been reactive to needs as they become revealed (e.g. in terms of post-facto responses to housing shortages or employment needs), as opposed to being proactive in seeking to anticipate and plan for expected requirements. However, being proactive requires a measure of future requirements for infrastructure, programs, and services – a practice that is standard procedure for mainstream regional planning, and not least for mining industry business units. However, it is something that is rarely achieved, or even attempted, for Indigenous communities, where the approach to regional or settlement planning is much more prospective.

For example, State and local government planning authorities routinely develop future scenarios and often seek budgetary allocations on the basis of anticipated needs. A key element in this process is the production of small-area population projections or forecasts. While the ABS provides official projections of State and Territory and SLA populations, the individual States and Territories, in turn, also produce regional and local area projections, often down to the Local Government Area level (Bell 1992; Western Australian Planning Commission

2005). For these purposes a standard cohort-component methodology is generally applied, and this practice is adopted here to project the Indigenous population of the Pilbara to 2016. Ideally, population projections for a region such as the Pilbara that experiences major shocks to its regional economy would attempt to account for these and methods are available using input-output techniques and simple demographic-economic impact forecasting (Phibbs 1989). However, these require whole-of-region data input, especially in regard to workforce demand and composition (for example in terms of the FIFO component), and this task is a major enterprise by itself. As for the Indigenous population, however, relative detachment from the mainstream economy leaves it less susceptible to demographic-economic impacts and so a standard cohort-component methodology remains applicable.

Indigenous population projection assumptions

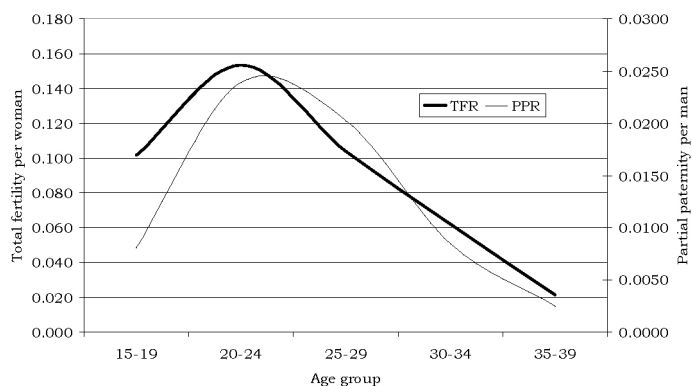
The cohort-component method carries forward the 2001 Indigenous ERP to 2016 by successive five-year periods. The projection is based simply on ageing the population by five-year blocs, subjecting each group to age- and sex-specific mortality, fertility and net migration regimes according to the following assumptions:

- Survival rates from the latest official Indigenous life tables for Western Australia (ABS 2004) are applied and held constant for the projection period. This assumption is consistent with evidence that life expectancy generally for Indigenous people has shown little sign of improvement in recent times (Kinfu & Taylor 2005).
- Age specific fertility rates (ASFRs) based on births to Indigenous women in the Western Australian Midwives Notification System for the Pilbara SD are applied. These data produce a Total Fertility Rate (TFR) of 2.9, which is substantially higher than the Indigenous TFR of 2.2 for Western Australia as a whole and is more in line with rates reported from similar remote regions of northern Australia (Kinfu & Taylor 2005). An additional fertility component is provided by Indigenous births to non-Indigenous mothers. This is estimated from registered births data supplied by the ABS to produce a partial paternity rate of 0.31. As indicated in Fig. 2.6, Indigenous women's fertility remains relatively high at teenage years and peaks relatively early. Both of these ASFRs are held constant for the projection period, although the indications from fertility trend data for Western Australia as a whole would suggest that the former be allowed to decline over the time, and that the latter should rise. In the absence of any model as to how this might apply in the Pilbara region, both have been held constant.
- Migration is the most difficult to measure and yet most crucial component of regional population change in the sense that it has the potential to have the greatest demographic impact. One complicating issue for the Indigenous

population is the prevalence of short-term circular movement in the overall context of total mobility (Taylor 1998; Taylor & Bell 2004), although in many remote regions, such as the Pilbara, the same can be said for the non-Indigenous population as well (Bell 2001; Bell & Ward 2000).

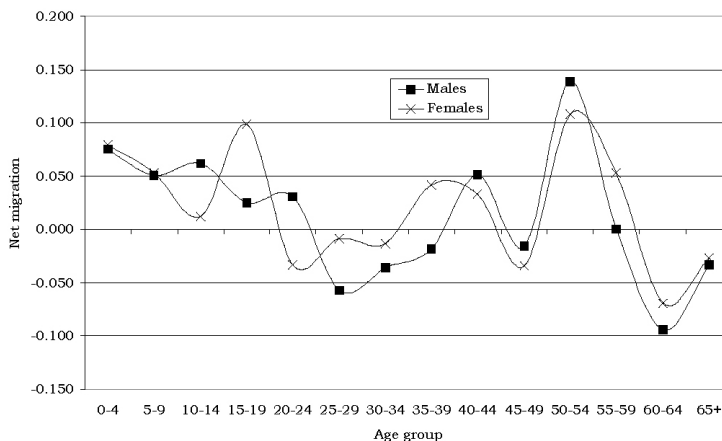
- The indication from the ERP age distribution, with its loss of population in the 15–24 years age group, is that net migration does play an important role in shaping the composition of the Pilbara Indigenous population with consequences for future growth. In order to explore a means of capturing this effect, age- and sex-specific net migration rates were calculated using five-year inter-regional migration data from the 2001 Census. The result, shown in Fig. 2.7, yields a highly confused and counter-intuitive pattern of movement with net gains of children up to 19 years, and net losses for most adult years up to age 49, followed by substantial gains and losses among older people. Overall, the net effect is a migration gain of around 130 persons. However, in the previous intercensal period the Indigenous population of the Pilbara experienced net migration loss of a similar magnitude (Taylor & Bell 1999). In the absence of any logical pattern to these migration flows, and with no operational model of migration in and out of the region, these data are excluded from the calculation and migration rates are simply held constant at zero for all ages over the projection period.
- Finally, no allowance is made for population change via shifts in Indigenous identification.

Figure 2.6. Total fertility and partial paternity rates: Indigenous males and females in the Pilbara SD, 2001



Source: Customised ABS tables, calculations by Yohannes Kinfu.

Figure 2.7. Age- and sex-specific pattern of Indigenous net migration: Pilbara SD, 1996–2001



Source: Customised ABS tables, calculations by Yohannes Kinfu.

Against these parameters, the projection is conducted separately for males and females in five-year blocs from 2001 to 2016. Projected births for the 2001–06 period are added to the existing 2001 population and each cohort is then subjected to respective survival and net migration rates to arrive at an estimate of the population in each age group in 2006. This process is continued through to 2016.

As for projections of the non-Indigenous population, the simple approach adopted here is to derive these as a residual between the Indigenous projections and projections of the total regional population. Projections for the total population have been produced by the Western Australian Planning Commission using 2001 ERPs as the base (Western Australian Planning Commission 2005). However, given that the assumptions underlying the development of estimates for the Indigenous and total populations are inevitably quite different, the creation of a residual (non-Indigenous) population in this way is statistically problematic. Any estimation and projection of a ‘non-Indigenous’ population would ideally need to be guided by its own unique underlying assumptions, and the development of these is beyond the scope of the present exercise. Indeed, the social construction of such a population raises questions as to whether it is statistically possible at all. Nonetheless, an ability to consider the likely changing balance of Indigenous to non-Indigenous population shares in the region is critical to the establishment of meaningful quotas and targets in such areas as labour market planning. While the residual method of estimation is therefore retained, any conclusions drawn are presented as a guide only.

Table 2.6. Indigenous population of the Pilbara region by five-year age group: 2001 and 2016

Age group	ERP 2001	Projection 2016	Net change	% change
0–4	720	1059	339	47.0
5–9	754	993	239	31.7
10–14	784	906	122	15.6
15–19	600	712	112	18.6
20–24	537	738	201	37.5
25–29	601	756	155	25.8
30–34	555	569	14	2.6
35–39	474	499	25	5.3
40–44	368	542	174	47.4
45–49	344	484	140	40.6
50–54	240	393	153	63.9
55–59	162	285	123	76.2
60–64	118	241	123	104.7
65–69	257	336	79	30.9
Total	6514	8515	2001	30.7

Source: Based on calculations by Yohannes Kinfu and authors.

Indigenous population totals projected from 2001 to 2016 for the Pilbara region are shown in Table 2.6 by five-year age group, together with numeric and percentage change from the 2001 ERP. Overall, by 2016, the Indigenous population is projected to increase by 31 per cent to reach a population of 8515, an increase of some 2000 persons. As shown by the percentage change in each age group, much of this growth will occur in later years over the age of 50, while numerically there are large gains at younger ages. However, shifts in the size of individual five-year age groups are as much a function of the shape of the base ERP population and the overall ageing of prior cohorts. Some of the variability in growth rates by age group can be ironed out by aggregation. This also has the advantage of focusing on ranges that typically form the target of policy intervention, as shown in Table 2.7.

Table 2.7. Distribution of the Pilbara Indigenous population by select age groups: 2006–2016

Age group	2006	2016	Change (no)	Change (%)
0–4	911	1059	148	16.2
5–14	1470	1899	429	29.2
15–24	1371	1450	79	5.8
25–54	2769	3244	475	17.1
55 +	619	863	244	39.4
Total	7141	8515	1372	19.2

Source: Based on calculations by Yohannes Kinfu and authors.

The selection of age groups is dictated somewhat by the availability of ERP data at five year intervals only. Thus, the infant years leading up to compulsory schooling are identifiable as 0–4 years, but for the years of compulsory schooling we are forced to use 5–14 years. Thereafter, we can identify the transition years

from school to work as ages 15–24 years, while the prime working-age group is identified here as ages 25–54. Typically in the Australian workforce, and in International Labour Organisation convention, working age extends to 64 years with those over 65 years representing the aged and pensionable. However, given the evidence for premature ageing in the Indigenous population in the context of high levels of adult mortality and morbidity (Divarakan-Brown 1985; Earle & Earle 1999), the top of the working-age range has been set here at the earlier age of 55 years.

In Table 2.7, rather than report these data for the base year (2001), the projected year (2006) has been selected as the base in order to focus on likely growth in these cohorts from the present into the immediate years ahead. The results indicate an imminent infant population of some 900 accounting for almost 13 per cent of the regional total, while the 'school-age' population of almost 1500 is just over one-fifth of the regional population. Those in the transition years from school to work number almost 1400, again almost one-fifth of the population, while the working-age group of almost 2800 comprises more than one-third of the total and is the largest single social policy grouping. By comparison, the aged population is relatively small, even given the lower age at which group is set to start. If we look at how these groups are projected to grow over the next ten years, we observe the greatest numeric increase among those of prime working age, followed by those of school age. The other feature is the relatively large proportional increase in the aged population.

As for projections of the total Pilbara population, these have been being prepared by the Western Australian Planning Commission. They indicate a population of 42 900 by 2006 – a figure that is somewhat above the ABS ERP for the Pilbara in 2004 of 39 311. It is to be expected that the recent expansion of mining and related infrastructure development in the region will lead to enhanced population growth. Thus, a total of 21 development projects valued at \$27.3 billion were committed or being considered for investment in the Pilbara at the end of 2003 (Argus Research 2004: 7). Not surprisingly, the biannual labour market forecasts produced by the Centre of Policy Studies, Monash University (December 2004 version) indicate a 12 per cent expansion in overall numbers employed in the Pilbara from 22 241 in 2003–04 to 24 957 by 2011–12. However, the Monash model is essentially a top-down perspective of employment change and while this provides the advantage of locating the Pilbara within a defensible view about the future of the Australian economy, it has only limited capacity to incorporate local bottom-up information which severely constrains its application in a region as dynamic as the Pilbara. Accordingly, any estimates from this source are used cautiously, and almost certainly refer to conservative minimum levels.

As for what this sort of expansion might imply for total population growth based on population multipliers, a crude way of establishing some measure of this is

by assuming that the employment to population, and working-age to total population, ratios remain constant throughout the forecast period. So, with an estimated regional employment to population ratio of 78.7 in 2004, and a working-age share of population of 72.7, the Monash employment forecast figure for 2011–12 would imply a total population by then of around 43 600. This is not inconsistent with the Planning Commission projection of 44 400 by 2011, and given that the Monash employment forecast may well be conservative it lends some credence to the Commission's figures.

Thus, if we adopt the Planning Commission's projections for the total population on the strength of this corroborative evidence, we can now derive an estimate of the projected non-Indigenous population to continue on the historic series in Table 2.4 by assuming that this is the residual from projections of the Indigenous and total populations. As shown in Table 2.8, compared to the recent decline shown in Table 2.4, the non-Indigenous population is set to increase over the next decade to reach almost 40 000 by 2016. However, this still represents a lower rate of growth than projected for the Indigenous population, and so the Indigenous share of the regional population will continue to rise, reaching 18 per cent by 2016.

Table 2.8. Projected non-Indigenous population: Pilbara SD, 2006–2016

	2006	2011	2016
Total	42 900	44 400	46 600
Indigenous	7 141	7 817	8 515
Non-Indigenous	35 759	36 583	38 085

Sources: Total projections from Western Australia Department for Planning and Infrastructure; Indigenous population projections based on calculations by Yohannes Kinfu and authors.

While these projections are correct according to the algorithms applied, they are only preliminary and there are several refinements that, if developed, would provide for greater certainty in the assumptions. In particular, there may be scope for some refinement of net migration assumptions if we had a greater appreciation of the general social and economic factors that may induce migration. An allied issue here would be more detailed analysis of inter-regional population movement for education and training purposes. Also, as noted, a more customised mortality profile is under construction and may be applied.

One device frequently deployed to canvass a range of possible projection outcomes is the calculation of several projection series based on varying assumptions. The current calculations involve the use of only one series. An obvious option, then, for further development of these projections would be to generate alternative scenarios based on possible combinations of falling/rising/stable fertility and mortality and varying assumptions about net migration. While there is some heuristic potential here, it obviously makes sense to base such exploration on plausible indicators, and so the indicators themselves would also need to be assessed as part of a longer-term project.

Finally, in using the projections as a means of targeting policy, it is possible to estimate the future size of the Indigenous and non-Indigenous resident labour force by applying labour force participation rates to the projected working-age populations. If select employment/population ratios are also applied, then the quantum of need for additional job creation can also be calculated according to specified or agreed employment levels. This exercise essentially represents a regionalised version of similar calculations of Indigenous employment demand made at the national level (Hunter & Taylor 2004; Taylor & Hunter 1998), and it is to this task that we now turn.

