# 6. Health status by equivalent income

The analysis above suggests that for the non-Indigenous population a negative relationship exists between per capita health expenditure and equivalent income. In contrast, for the Indigenous population there is no evidence of a significant relationship between per capita health expenditure and equivalent income. Why should there be a difference in this relationship between the Indigenous and non-Indigenous populations? As far as per capita health expenditure is concerned, there are several factors that may be relevant. These can be separated into:

•    differences in the met need for health and medical services (determined by both the number of medical conditions and the cost of treating those conditions);

•    differences in access to medical services;

•    differences in the costs of treating the same medical condition between Indigenous and non-Indigenous Australians; and

•    differences in the knowledge and perception of need, which may be influenced by cultural and educational factors.

The differences in costs may be related to geographic location or differences in behaviour between the Indigenous and non-Indigenous populations.

An additional factor, which is considered here, is difference in self-assessed health status between Indigenous and non-Indigenous Australians. This is considered important since varying levels of self-assessed health status are assumed to reflect variation in the need for medical services. The analysis in this section uses information on self-assessed health status derived from the NHS global question: 'In general would you say that your health is: excellent; very good; good; fair or poor'.[18]

While this question enables only a crude measure of health status, research has found a high correlation between self-reported health status and standard measures of well-being, such as derived from the SF-36 survey instrument.[19] For the Indigenous population, Gray (1997) has also found a reasonable degree of correlation between responses to the global health question and the reporting of long-term health conditions, at least for those respondents in non-remote areas. Taken together, this research supports the use of the self-reported single global health status question as a valid indicator of real differences in health status.

Table 6.1 presents estimates of the proportion of the non-Indigenous population that reported having fair or poor health by equivalent income. As might be expected, given the findings from social epidemiological research (Kawachi, Kennedy & Wilkinson 1999), there is a marked decline in the proportion of those reporting fair or poor health as equivalent income increases. For example, for the new OECD equivalence scale, the proportion reporting fair or poor health falls from 25.3 per cent for the lowest income quintile to just 8.5 per cent for the highest income quintile. This is consistent with the differences in per capita health expenditure by equivalent income documented in Chapters 4 and 5. That is, at least some of the difference in health expenditure between high and

low-income non-Indigenous Australians can be attributed to the better health status of the former.

**Table 6.1   Per cent reporting fair or poor health by equivalent income, non-Indigenous population**

| | Raw family income | | Henderson | | New OECD | | Per capita income | |
|---|---|---|---|---|---|---|---|---|
| Income quintile | | | | | | | | |
| | | | Per cent reporting fair or poor health | | | | | |
| 1 | 24.1 | (0.6) | 25.6 | (0.7) | 25.3 | (0.6) | 17.1 | (0.7) |
| 2 | 22.4 | (0.6) | 24.3 | (0.7) | 24.5 | (0.7) | 27.6 | (0.7) |
| 3 | 18.0 | (0.7) | 15.2 | (0.5) | 14.2 | (0.6) | 18.8 | (0.5) |
| 4 | 10.3 | (0.4) | 9.9 | (0.5) | 9.4 | (0.5) | 10.9 | (0.4) |
| 5 | 7.7 | (0.4) | 7.9 | (0.4) | 8.5 | (0.5) | 8.4 | (0.4 |

Note:    The standard errors are presented in parentheses.

Table 6.2 presents the analogous estimates of health status by broad grouping of equivalent income for the Indigenous and non-Indigenous populations. Given the relationship between age and health status, differences in self-reported health status may be partly explained by difference in age structure between the two populations, and so the data are age-standardised. This involves adjusting the Indigenous statistics using the age distribution of the non-Indigenous population as weights.

While age standardisation is a commonly used procedure, there are some doubts regarding the validity of its use in estimating Indigenous health status. There are two main concerns. First, selective mortality may introduce a systematic distortion into estimates of age-standardised health status. Second, the process of calculating equivalent income implicitly controls for the age structure of families by taking into account the number of dependants. However, the procedure for calculating equivalent income does not account for differences in the numbers of family members in old age groups who tend to have poorer health profiles. It is not possible to say conclusively whether or not age standardisation is a valid procedure in this case, and therefore both the age standardised and non-age standardised results are presented. This chapter concludes with a brief reflection on the value of age-standardising health status in the Indigenous context.

The results in Table 6.2 are consistent with those presented in Table 6.1. Thus, non-Indigenous people in high income groups tend to report significantly better health, although an exception to this generalisation arises in the per capita measure, with the high income group more likely to report poorer health. This result is largely driven by the aggregation involved in constructing Table 6.2. For example, non-Indigenous self-assessed health status in the fourth and fifth quintiles of per capita income is significantly better than in the first, second or third quintiles.

The non-age-standardised estimates for the Indigenous population reveal that there is little or no systematic relationship between income and health status. While low income groups are more likely to report poor or fair health (except for per capita income), the difference between income groups is not significant for any of the measures of equivalent income.

Consequently, the relationship between income and non-age-standardised health status can be characterised as weak, unsystematic and insignificant.

While this result is contrary to the general findings of research on the relationship between income and health status (Kawachi, Kennedy & Wilkinson 1999), it is supported by NATSIS data which revealed that Indigenous people in high income quintiles were just as likely to have a long-term health condition as other Indigenous people (Hunter 1999). Evidence of a low correlation between Indigenous health outcomes and labour force status is also available (Hunter 2000b).

The process of age standardising increases the percentage of the Indigenous population reporting poor health in the lowest income group. However, in general, the differences between income groups are still not statistically significant. Given the concerns expressed above about the extent of selective Indigenous adult mortality, this result should be viewed with suspicion. The only exception to this rule is for the raw family income scale.

Notwithstanding problems with the cross-cultural interpretation of health status, Table 6.2 also provides the opportunity to compare the health status of Indigenous and other Australians after controlling for income. The main effect of age standardising is to ensure that the reported health status of the non-Indigenous population is significantly better than that of the Indigenous population, irrespective of equivalence scale used, or income group. While there is less difference between the non-age-standardised health status of Indigenous and non-Indigenous people, there is a significant difference for most income groups at either the five or 10 per cent level. For example, in the bottom quintile of per capita income, Indigenous people are significantly more likely to report fair or poor health (24.7 per cent and 17.1 per cent respectively). Therefore, in spite of the difficulties with interpreting self-reported health status, there is evidence that Indigenous people are significantly less healthy than other Australians after the effect of income distribution is taken into account.

**Table 6.2    Self-reported health status by broad income group and Indigenous origin**

| Income quintile | Raw family income | | Henderson | | New OECD | | Per capita income | |
|---|---|---|---|---|---|---|---|---|
| Per cent of non-Indigenous population reporting fair or poor health | | | | | | | | |
| 1 | 24.1 | (0.6) | 25.6 | (0.7) | 25.3 | (0.6) | 17.1 | (0.7) |
| 2 to 5 | 17.5 | (0.6) | 17.6 | (0.6) | 17.2 | (0.6) | 19.1 | (0.6) |
| Per cent of Indigenous populaiton reporting fair or poor health (not age-standardised) | | | | | | | | |
| 1 | 31.5 | (4.0) | 28.8 | (3.5) | 29.8 | (3.4) | 24.7 | (3.4) |
| 2 to 5 | 25.1 | (4.7) | 26.9 | (4.2) | 26.5 | (5.1) | 29.6 | (6.1) |
| Per cent of Indigenous populaiton reporting fair or poor health (age-standardised) | | | | | | | | |
| 1 | 39.9 | (4.2) | 36.4 | (4.7) | 37.4 | (4.1) | 30.7 | (3.9) |
| 2 to 5 | 27.6 | (3.2) | 29.7 | (4.0) | 29.4 | (4.4) | 33.4 | (5.6) |

Note:    The standard errors are presented in parentheses.

The potential biases introduced by age standardisation are investigated further by examining estimates of self-assessed health by five-year age group for the Indigenous and non-Indigenous populations (Table 6.3). Overall, Indigenous people are more likely to report their health status as being poor or fair than other Australians. Interestingly the difference is smallest for very young and very old people. It is probably not surprising that a similar percentage of Indigenous and non-Indigenous youth indicate that they consider their health to be poor or fair. This is suggested by the arguments reviewed in Chapter 2 that poor health is the cumulative consequence of prolonged exposure to risk factors, the consequences of which are not realised in self-reported health status for some years.

It is worth noting that the reported health status of the Indigenous population converges towards that of other Australians at the oldest ages. This convergence is a result of non-Indigenous people reporting poorer health in the older age groups, rather than a change in self-reported health status for Indigenous people. Indeed, it surprising that Indigenous people aged over 75 are about 10 percentage points less likely to report having poor or fair health status than are Indigenous Australians aged in their 50s and early 60s. It is difficult to explain why reported Indigenous health status appears to improve slightly after a person turns 50 years old.

**Table 6.3   Per cent of age group whose self-assessed health status is poor or fair by age groups and Indigenous status**

|  | Indigenous (1) | Non-Indigenous (2) | Difference (1)-(2) |
|---|---|---|---|
| Age group |  |  |  |
| 15–19 | 11.7 | 8.2 | 3.6 |
| 20–24 | 16.0 | 9.3 | 6.8 |
| 25–29 | 25.4 | 9.2 | 16.2 |
| 30–34 | 27.9 | 9.7 | 18.1 |
| 35–39 | 20.5 | 10.5 | 10.0 |
| 40–44 | 34.5 | 11.2 | 23.3 |
| 45–49 | 33.5 | 14.3 | 19.2 |
| 50–54 | 52.9 | 17.7 | 35.2 |
| 55–59 | 52.7 | 24.4 | 28.4 |
| 60–64 | 57.2 | 27.2 | 29.9 |
| 65–69 | 49.6 | 29.2 | 20.4 |
| 70–74 | 49.8 | 35.9 | 13.9 |
| 75 + | 44.2 | 41.1 | 3.1 |

One reason might be found in the much higher adult mortality rates for Indigenous people, with those surviving to 'old age' tending to be genetically predisposed to better health. That is, the high rates of adult mortality among Indigenous people are selective and tend to make their health status look particularly good amongst older age groups. The process of age-standardising Indigenous statistics can distort comparisons between Indigenous and other Australians, as this process gives a higher weight to the responses of older Indigenous people on the grounds that they are under-represented relative to the rest of the population.

In summary, differences in the relationship between health expenditure and income for Indigenous and other Australians are at least partially attributable to the more uniform poor health status of the former across income groups. This may be one reason why those Indigenous Australians reporting higher incomes, with presumably more adequate access to (personal) resources, still require relatively substantial health expenditure.