



Long-Term Unemployment in Tasmania: A Statistical Analysis

Research Paper

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Executive Summary

- The number of long-term unemployed in Tasmania rose significantly during the early 1980s and increased again in the first half of the 1990s. Since 1999-00, the number has declined steadily to be at a level similar to that in the early 1980s.
- The recent strength in the Tasmanian economy has enabled a substantial number of the long-term unemployed to gain employment.
- The share of total unemployment accounted for by long-term unemployment has remained above 30 per cent in Tasmania since 1982 and has been consistently above that of Australia over the past 20 years.
- The average duration of periods of long-term unemployment in Tasmania has also been above that of Australia, with both generally increasing since the early 1990s.
- The incidence of long-term unemployment in Tasmania has been highest among males, among persons aged 25 to 44 and in the North-West and West of Tasmania. However, the extent of long-term unemployment for each of these groups has diminished significantly since 2002-03.
- When classified according to shared socio-demographic characteristics, analysis indicates that the Tasmanian long-term unemployed can be grouped into six distinct clusters. The six clusters identified are:
 - younger non-indigenous males with a low skill occupational background;
 - older, skilled rural males, with a high rate of disability;
 - low-skilled urban males, very long-term unemployed;
 - skilled females;
 - younger low-skilled females; and
 - young indigenous males.
- The Tasmanian clusters align with those in the national long-term unemployed population identified in a 2001 study undertaken by the Centre for Economic Policy Research within the Australian National University.
- The socio-demographic characteristics most likely to be associated with protracted periods of long-term unemployment are:
 - low levels of education;
 - low-skilled employment experience;
 - having some disability; and
 - coming from an indigenous background.

Introduction

For the majority of people of working age, the opportunity to participate in the workforce provides the basis for personal and economic well-being. Involuntary unemployment, even for a short time, is likely to reduce a person's standard of living and impose considerable financial difficulties. The negative economic and social consequences of being unemployed tend to increase with the duration of unemployment. In addition, those experiencing a protracted period of unemployment are less likely to appeal to prospective employers due to actual, or perceived, skills erosion and lack of contemporary vocational knowledge.

Long-term unemployment may not only cause poverty, but may also lead to related social consequences which include health problems, a loss of self confidence, together with stress on families, children and relationships.¹ According to a survey conducted by the Tasmanian Council of Social Services (TasCOSS), those unemployed for a long time may also suffer social isolation and an inability to participate in community life. Long-term unemployment is not only a problem concerning the community, but is also an economic and political problem of concern to governments.

Until very recently, Tasmania's labour market had been under-performing relative to the Australian labour market for a protracted period. This was true across all measures of performance, including the relatively high incidence of long-term unemployment (defined as those unemployed continuously for more than one year).

While Tasmania has recorded a significant improvement since 2001 in important labour market aggregates such as total numbers employed and the reduction in the overall unemployment rate and also the long-term unemployment rate, the long-term unemployed continue to represent a relatively large proportion of the total unemployed. As a proportion of all unemployed, the Tasmanian rate of long-term unemployment remains above 30 per cent and the gap between Tasmania and Australia on this measure has widened since the late 1990s.

This provides clear evidence that a significant number of persons remain unsuccessful in obtaining employment, which represents a continuing challenge to public policy makers. The Economic Research Unit within the Department of Treasury and Finance has prepared this research report to provide more insights into the long-term unemployment problem to assist future policy development. This report does not seek to provide a detailed explanation of the causes of, or the trends in, long-term unemployment in Tasmania, but to provide a description of these trends and an analysis of the socio-economic characteristics of Tasmania's long-term unemployed.

¹ For example, see Mathers, C.D. and Schofield, D.J (1998) "The health consequences of unemployment: the evidence" *Medical Journal of Australia*, 1998; 168: 178-182. www.mja.com.au/public/issues/feb16/mathers/mathers.html

Part 1 of the report provides an account of the nature of long-term unemployment in Tasmania from a macroeconomic perspective. ABS data are used to describe the trends in long-term unemployment in Tasmania, and to compare the trends with those for Australia as a whole.

Part 2 of the report presents results of a more detailed analysis of Tasmania's long-term unemployed using information provided by the Australian Government Department of Employment and Workplace Relations (DEWR).² A statistical technique called *cluster analysis* is performed to identify groups of individuals within this population possessing a range of similar characteristics. Some elements of the research undertaken for this report follow that used in a study of Australian long-term unemployment by Dockery and Webster.³ The findings of the current report are compared with those of Dockery and Webster. This Part also identifies some key issues that may be of interest to policy makers in this area.

² DEWR released this dataset to the Tasmanian Department of Treasury and Finance under the Memorandum of Understanding (MOU) between the Tasmanian Government and DEWR and the release of such data is done on an ad hoc basis only.

³ Dockery, A.M. and Webster, E. (2001) "Long-term Unemployment and Work Deprived Individuals: Issues and Policies" CEPR Discussion Paper No. 445, Centre for Economic Policy Research, Australian National University, Canberra.

1. Long-Term Unemployment in Tasmania – the Macroeconomic Perspective

Australian Bureau of Statistics (ABS) information from the monthly Labour Force Surveys (LFS) provides the most appropriate data to examine the Tasmanian experience with long-term unemployment, due to its widespread use, the consistency of measurement over time and across Australia and the length of the time series available.

This information can be described as “macroeconomic” in nature, in that it involves estimates of the incidence of long-term unemployment at an aggregate level. The characteristics of the specific individuals in the LFS sample are used by the ABS only to derive the estimates for the State’s labour force aggregates. The information made available by the ABS does not provide details on persons within that population. Part 2 of this paper provides an analysis of this latter type.

1.1 Definition of Long-Term Unemployment

As defined by the ABS, the unemployed are those aged 15 years or more who are not employed, but are actively seeking work and are available to start work within four weeks.

The ABS defines the long-term unemployed as persons who have been unemployed continuously for 52 weeks or more. For this purpose, the ABS measures the duration of unemployment from the time since a person either last worked in any job for two weeks or more or began actively looking for work, with whichever is the lesser period recorded as the duration of unemployment.⁴ As either of these criteria must have applied continuously for 52 weeks or more for an individual to be classified as long-term unemployed, the official statistics are likely to understate the extent of the problem. In particular, discouraged jobseekers who have ceased to actively look for work will not be counted as long-term unemployed.

1.2. Long-Term Unemployment in Tasmania

Total long-term unemployed

Long-term unemployment had been very low in Tasmania in the late 1970s, but rose considerably following the national recession of the early 1980s and increased again as a result of the early 1990s recession, as Chart 1 below shows. The total number of long-term unemployed peaked at over 12 000 during 1992-93.

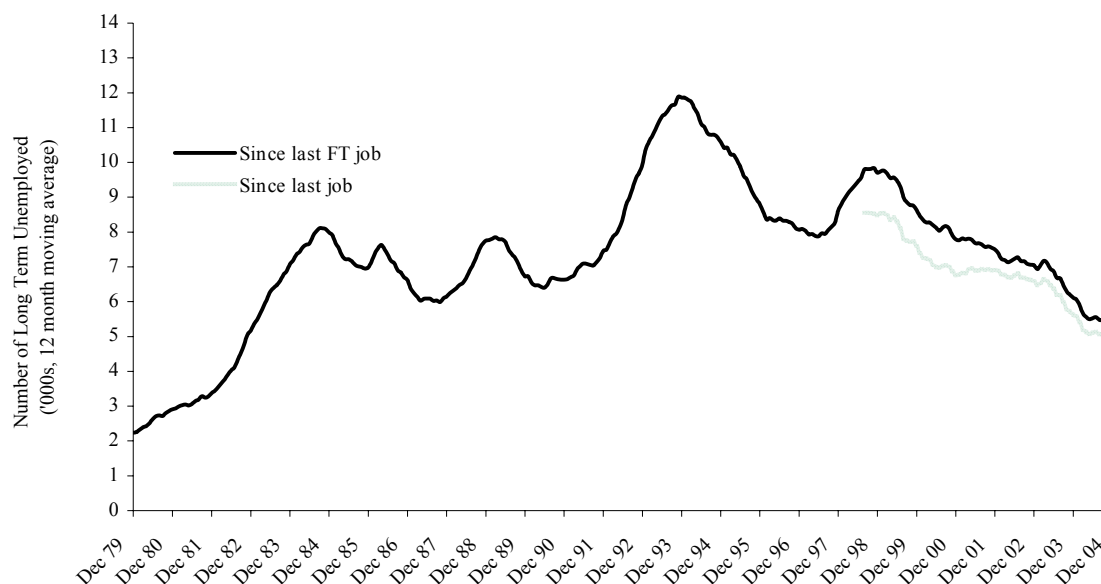
Since 1999, the number of long-term unemployed in Tasmania has declined as the State’s labour market conditions have improved. The very significant jobs growth over this time (particularly since 2001), in parallel with the fall in long-term unemployment, suggests that the economic recovery has provided employment for a substantial number of those formerly unemployed for a considerable period.

⁴ For practical reasons, when measuring long-term unemployment the ABS does not apply the requirement that a person must have been able to commence work within four weeks throughout the duration of their unemployment.

It is also likely that some of the decline in the number of long-term unemployed since the late 1990s is attributable to the outward migration of long-term unemployed Tasmanians. In the five years to June 2004, just over 70 000 persons migrated interstate, a proportion of whom are likely to be long-term unemployed persons seeking employment opportunities interstate.

Chart 1 includes two measures of long-term unemployment, reflecting the decision of the ABS to introduce an alternative estimate in 2001, for which data have been produced covering the period from 1997 only. Until 2001, the ABS measured the duration of unemployment from the time since a person was last employed full-time for at least two weeks. The definition that is now applied relates to the period elapsed since the last job of at least two weeks' duration was held, whether full-time or not. However, as Chart 1 shows, the difference between the data for this and for the measure available since 1978, though significant in the late 1990s, has recently become minor.

Chart 1: Average Number of Long-Term Unemployed in Tasmania, 1979 – 2004



Source: *Labour Force, Australia*, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).

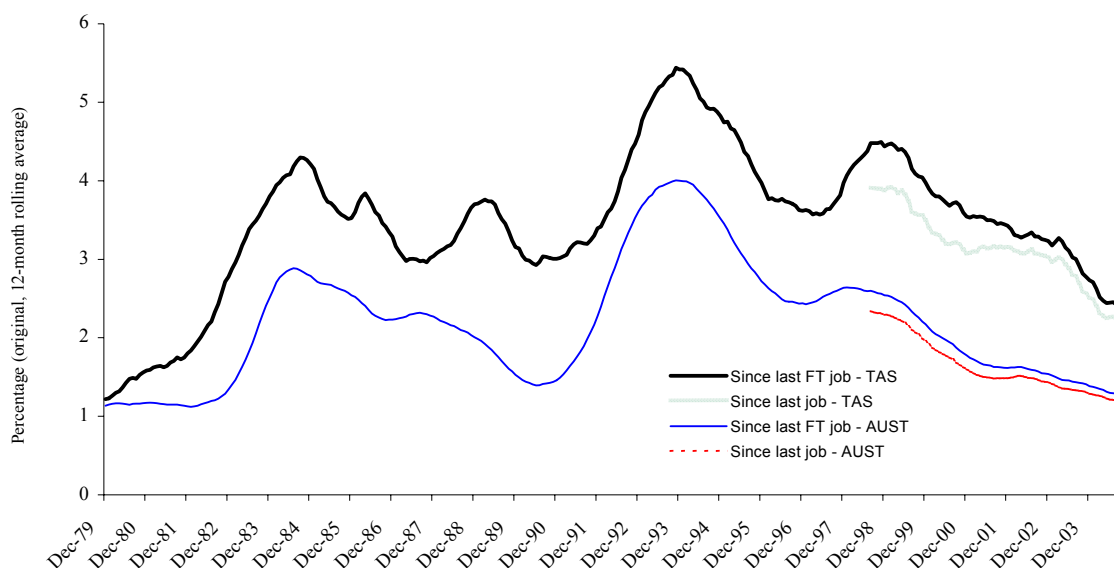
Comparison with Australia

Tasmania's rate of long-term unemployment, expressed as a percentage of the labour force, has consistently been above that of Australia over the past 25 years, as Chart 2 shows. However, there has been an underlying decline in long-term unemployment rates in Tasmania and nationally since the early 1990s (with the exception of 1997-98). Furthermore, the gap between the rates of Tasmania and Australia has narrowed since 2002-03. As in Chart 1, estimates are based on periods of unemployment measured from both the time of: (i) the last full-time job; and (ii) the last job of any kind held for at least two weeks (from 1997).

In terms of employment cycles during this period, the overall trends are very similar, reflecting Tasmania's close links with, and dependence on, the performance of the national economy.

The substantial increase in the Tasmanian long-term unemployment rate in the early 1990s is attributable, in part, to the national recession and also to the significant reduction in employment in the Tasmanian public sector at that time. Since then, the rate of long-term unemployment in Tasmania has halved, with the greatest reduction occurring since 1999. As discussed earlier, it is likely that the improvement in Tasmania’s long-term unemployment situation has been the product of both migration of long-term unemployed people to interstate (particularly in the period 1999-2002) and the rapid growth in the number of jobs in the Tasmanian economy since 2002.

Chart 2: Long-Term Unemployment Rate (as percentage of labour force), Tasmania and Australia, 1979 – 2004

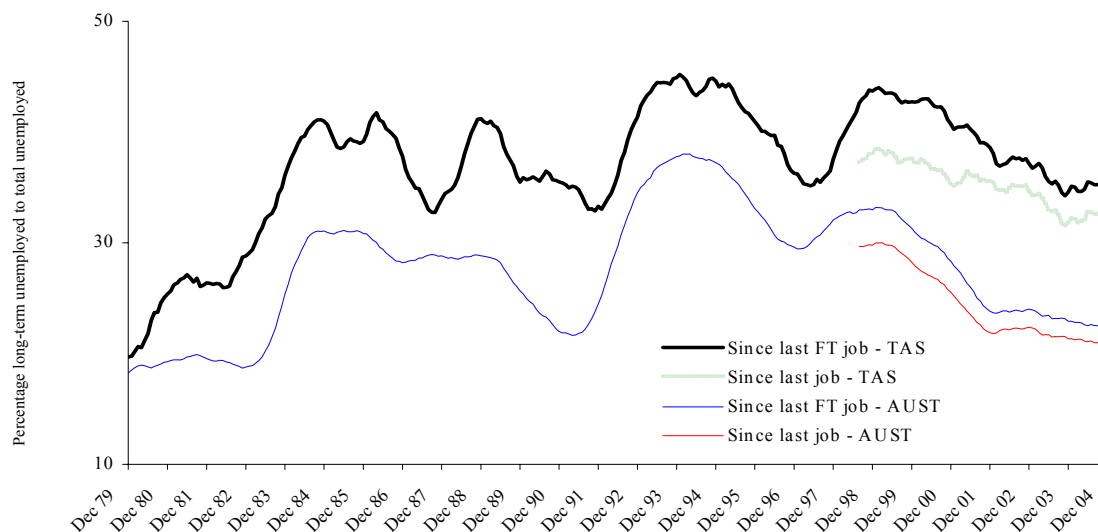


Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

The long-term unemployment rate can also be measured as a percentage of the total unemployed, as shown in Chart 3. On a 12-month moving average basis, the rate in November 2004 was 32 per cent in Tasmania, which compares with 21 per cent in Australia. Chart 3 shows that, on this measure, the gap between the rates in Tasmania and Australia has remained relatively large over the past five years.

The primary reason for the significant disparity between Tasmanian and Australia has almost certainly been the capacity of the national economy to satisfy the growing demand for labour by employing a relatively high proportion of the previously long-term unemployed. By contrast, in Tasmania, the increased demand for labour has been met more by the shorter term unemployed, and the growth in Tasmania’s labour force, which has been stronger than the national labour force growth rate.

Chart 3: Long-Term Unemployment Rate (as percentage of total unemployed), Tasmania and Australia, 1979 – 2004

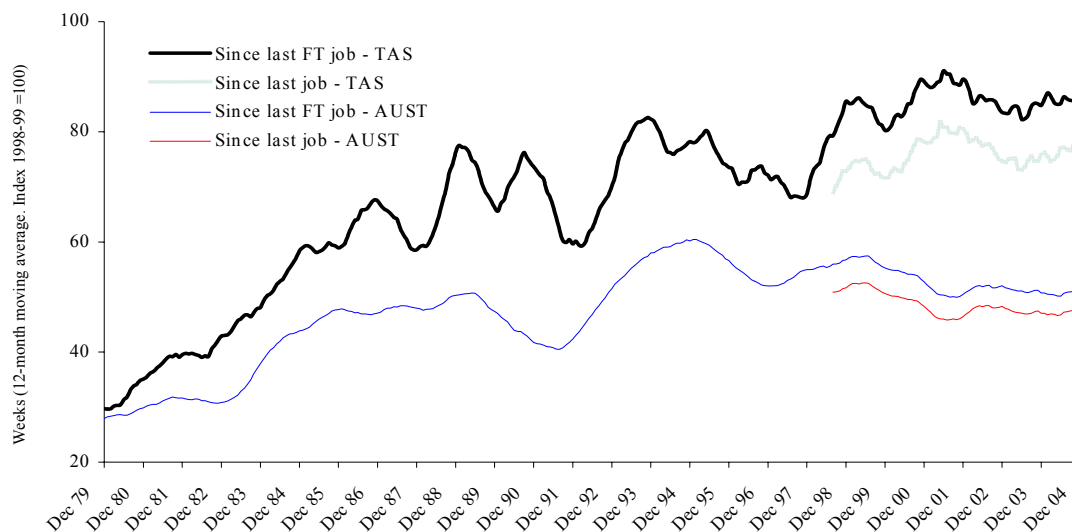


Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

While the number of the long-term unemployed and the rate have both fallen, the average duration of unemployment in Tasmania has generally increased over the past decade, as Chart 4 shows. Nationally, the average duration of unemployment has shown little change over this period.

Consequently, the margin between the two average durations has widened over time, particularly since the late 1990s. In 2003-04, the average period since a Tasmanian unemployed person held a full-time job was 86.4 weeks, while the figure for Australia was only 50 weeks. When measured from the time since a job of any kind was held for at least two weeks (as also shown in Chart 4), the 2003-04 results are 77 weeks and 46.8 weeks for Tasmania and Australia, respectively.

Chart 4: Average Duration of Unemployment, Tasmania and Australia, 1979 - 2004



Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

The fact that the absolute number of long-term unemployed in Tasmania has declined substantially in recent years (Chart 1), while the average duration of unemployment has shown some underlying increase (Chart 4), suggests that a significant proportion of those unemployed for a longer time have remained unemployed despite the improved labour market conditions.

This is confirmed from an examination of the average duration of unemployment amongst the long-term unemployed only. Measured from the elapsed time since a job of any kind was held, the average duration of unemployment for the long-term unemployed in 1999-00 was 178 weeks, while in 2003-04 it had risen to 206 weeks, or almost four years. The corresponding national figures were 150 weeks and 174 weeks, demonstrating that the gap between Tasmania and Australia has widened. Many long-term unemployed persons may be considered to belong to a group of unemployed who face very significant barriers to obtaining a job.

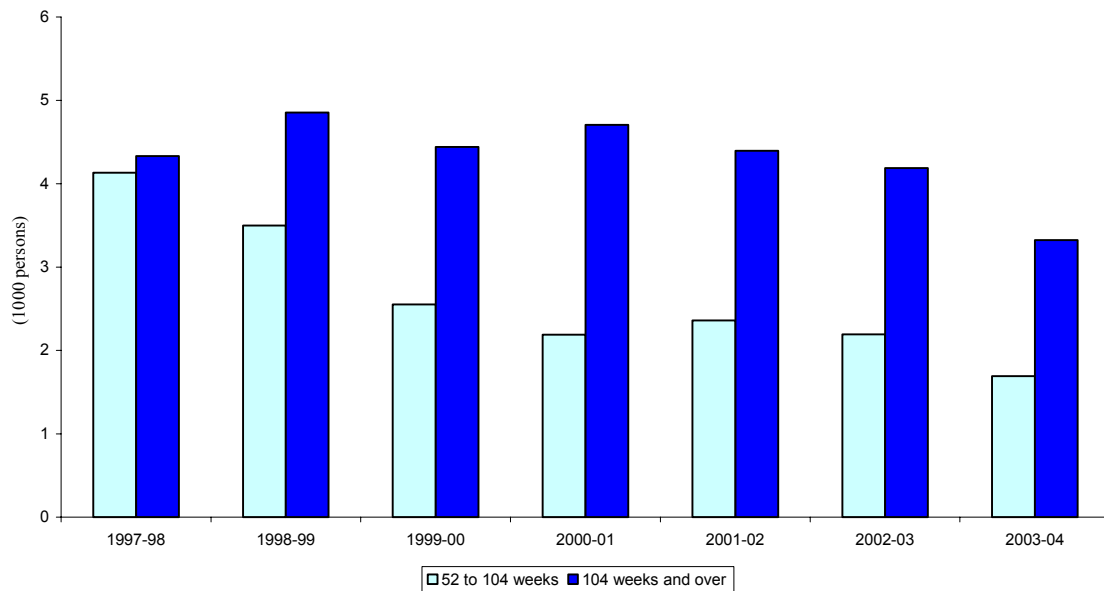
Total Tasmanian long-term unemployed: duration

Tasmania's long-term unemployment duration can be examined in more detail. Chart 5 shows, for the period 1997-98 to 2003-04, the number of persons unemployed for 52 weeks or longer, together with those who have been unemployed continuously for 104 weeks or longer. This latter group is described by the ABS as the *very long-term unemployed* (VLTU). Chart 5 demonstrates that, in each year, there were more VLTU in Tasmania than there were people unemployed for between 52 and 104 weeks.

While the number of both groups has fallen in recent years, over this six year period the number of long-term unemployed has fallen by more than the decline in the VLTU. Although the rapid growth in Tasmanian employment since 2001 has involved the employment of both long-term unemployed and the VLTU, there are significant constraints on the capacity of many very long-term unemployed persons to obtain

employment. This accounts for the increasing average duration of unemployment in recent years.

Chart 5: Long-Term and Very Long-Term Unemployed, Tasmania, 1997 – 2004



Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

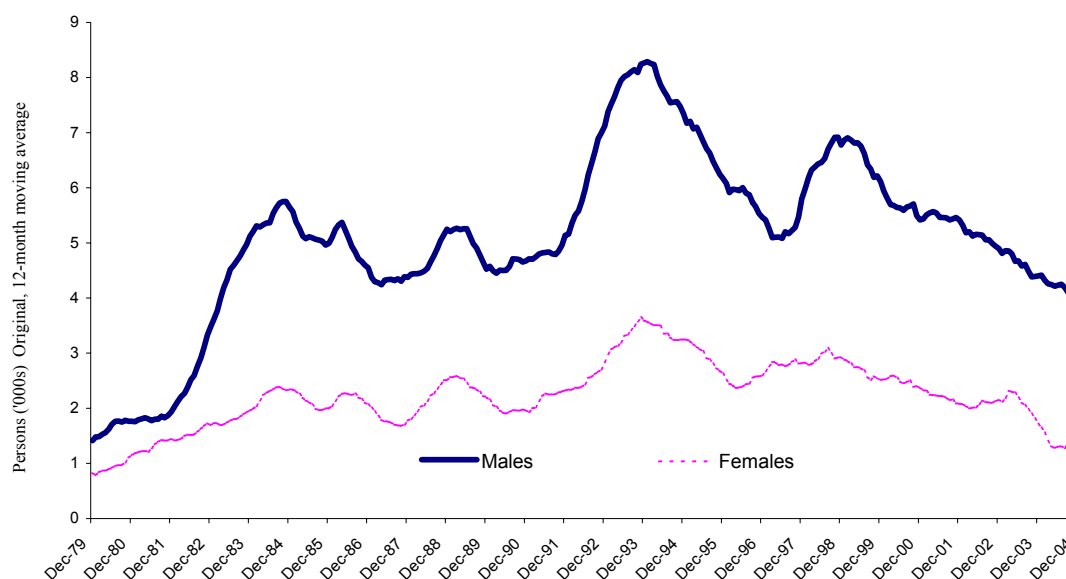
Total Tasmanian long-term unemployed: by gender

Not surprisingly, given their generally higher rate of participation in the labour force, males have consistently accounted for the majority of the long-term unemployed in Tasmania. Chart 6 gives the trends in male and female long-term unemployment since 1979, measured as the time since the last full-time job of at least four weeks was held. On this basis, on average in 2003-04 there were 4 200 males (accounting for 77 per cent of the total) classified as long-term unemployed by the ABS, while the figure for females was 1 300 (23 per cent).

Over the same period, the proportion of the Tasmanian labour force accounted for by males was 55.2 per cent. This shows that there is a relatively greater proportion of the male labour force who are long-term unemployed. Expressed as a percentage of the labour force by gender (again since the last full-time job), the male long-term unemployment rate averaged 3.4 per cent in 2003-04, compared to a female long-term unemployment rate of 1.3 per cent.

Aside from the significant difference between the genders regarding absolute numbers of long-term unemployed, Chart 6 shows that the overall trends since 1979 are very similar, with the impacts of the major economic downturns clearly evident. In the case of both males and females, the numbers of long-term unemployed peaked in 1993 and have subsequently shown a long-term decline, though there was a temporary increase in the late 1990s.

Chart 6: Tasmanian Long-Term Unemployment, by Gender, 1979 – 2004

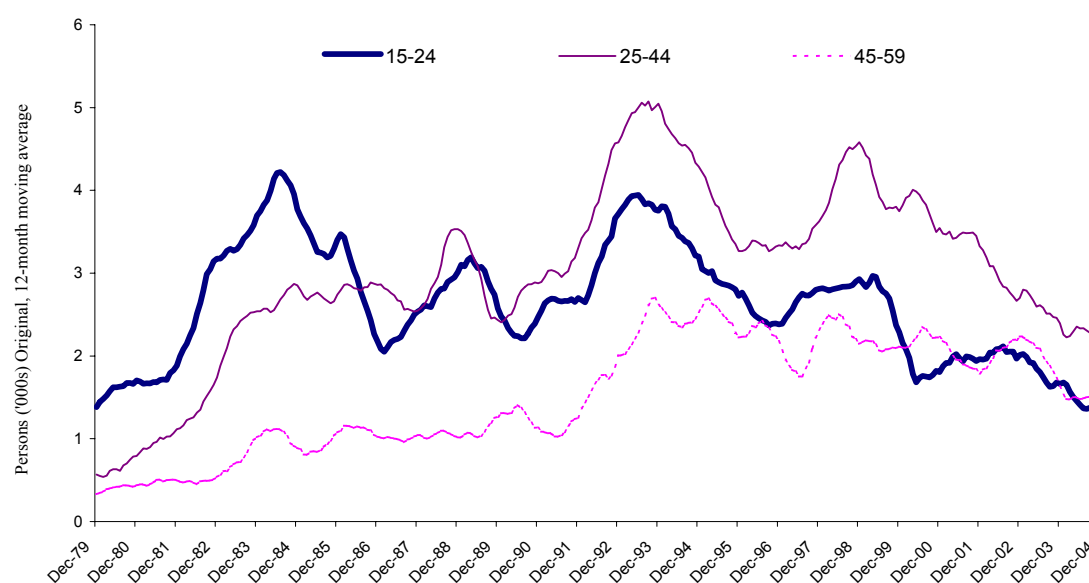


Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

Total Tasmanian long-term unemployed: by age

The tendency of different age groups in Tasmania to experience long periods of unemployment is of interest in regard to developing policy responses. Chart 7 shows the trend in long-term unemployment in Tasmania for the three major age groups since 1979.

Chart 7: Tasmanian Long-Term Unemployment, by Major Age Group, 1979 - 2004



Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001 on AUSSTATS (Table UM3).*

Persons aged 15 to 24 years are likely to suffer unemployment due to a lack of both work experience and (increasingly) suitable academic qualifications. Chart 7 shows

that the overall trend in long-term unemployment for this youngest age group has been a significant decline in numbers since the early 1980s. This age group was more greatly affected by the 1982-83 recession than the other two age groups and therefore had a higher starting level. The general economic recovery in Tasmania since 2001 has led to a reduction in long-term unemployment for this age group, although evidently with some lag as the downward trend had not been pronounced until relatively recently.

Chart 7 indicates that, of the three groups, those aged from 25 to 44 years have generally accounted for the largest share of long-term unemployment. This would be expected as this age group has a high degree of participation in the workforce. The size of this group increased significantly in the wake of the early 1980s recession, but, unlike the 15 to 24 age group, it appears to have been even more greatly affected by the recession of the early 1990s.

The latter event pushed the average number of long-term unemployed aged 25 to 44 to around 5 000 in 1993-94. Another peak was reached in early 1999, although since then the average number of unemployed has declined at a steady rate to around half the level of 1993-94. The chart suggests that a significant number of the new jobs created in the Tasmanian economy in recent years have been taken by persons formerly in this group of long-term unemployed.⁵

Although generally the smallest of the three age groups in regard to the number of long-term unemployed, the 45 to 59 years age group has experienced the smallest decline in long-term unemployment since the early 1990s. This segment of the Tasmanian labour force was particularly affected by the national recession of the early 1990s and, most likely, the significant reduction in Tasmanian public sector employment (in both the General Government sector and for government businesses) that occurred at that time.

The trend shown in Chart 7 supports the widely held view that employees who lose their jobs at a later age are likely to face significant difficulties in re-entering the workforce, particularly in light of structural changes in the economy which have devalued certain types of skills and experience. Despite this, the most recent period of sustained employment growth in Tasmania has had some positive impact on long-term unemployment in the 45 to 59 years age group.

Total Tasmanian long-term unemployed: by region

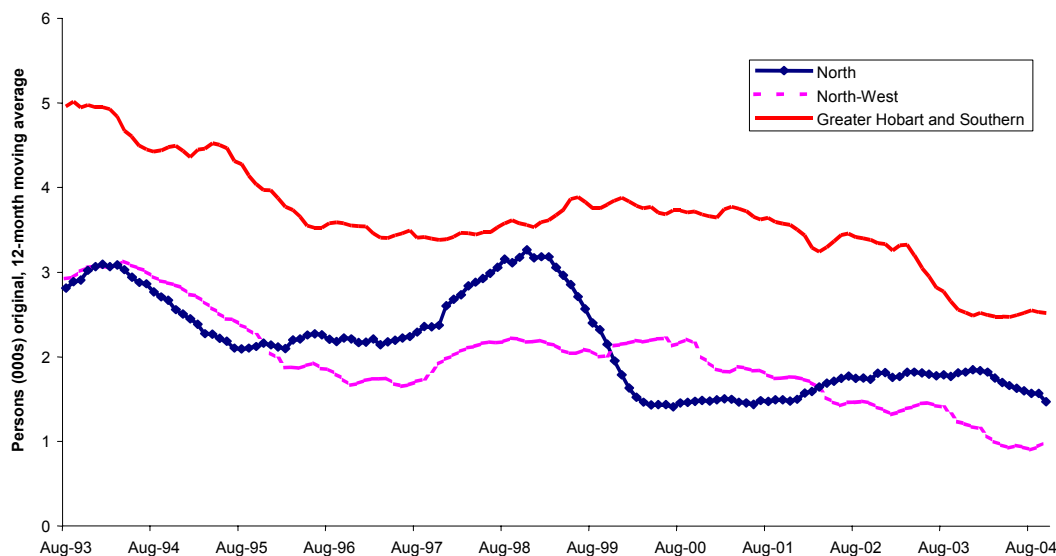
The absolute level of long-term unemployment in each of Tasmania's three statistical regions since 1992 is shown in Chart 8 below.⁶ Relative to the extent of the problem in the early 1990s, all regions have recorded marked recoveries, particularly in the North-West (including the West Coast) where the number of long-term unemployed has declined by around two-thirds. A very similar trend to the North-West has been experienced in Greater Hobart and Southern Tasmania, though the proportionate decline in long-term unemployment has been smaller.

⁵ In addition, some of these persons may have left the labour force entirely, or moved into the next age group.

⁶ ABS data covering earlier periods on a comparable basis were not available.

The trend for Northern Tasmania has been marked by a strong increase in long-term unemployment in 1998 and 1999, followed by a very sharp decline until early 2000, after which levels have shown little change.

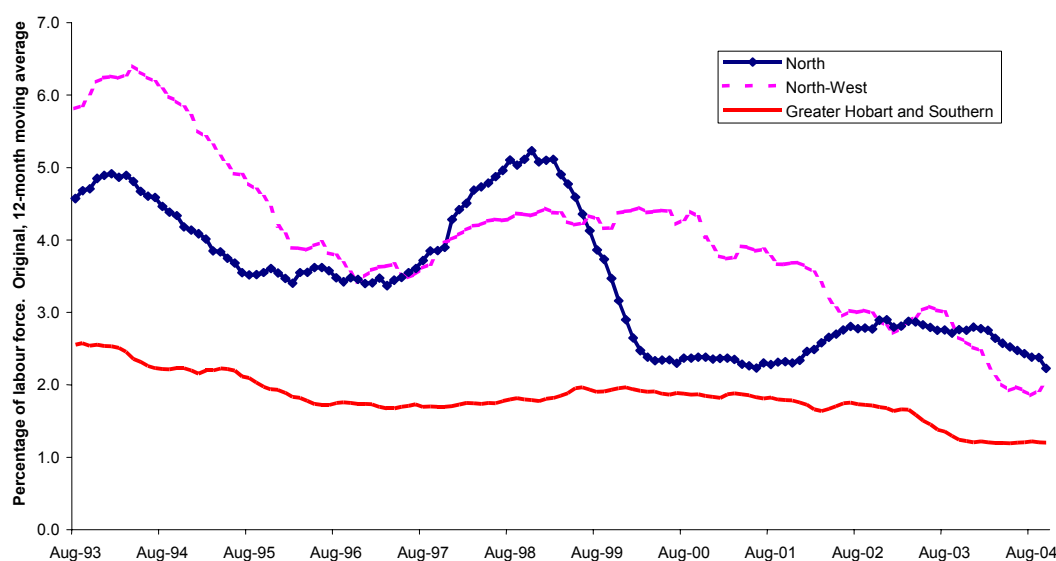
Chart 8: Tasmanian Long-Term Unemployed, by Region, 1993 - 2004



Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

Chart 9 below shows the rate of long-term unemployment in each region as a proportion of its labour force, which is defined as the sum of all employed and unemployed persons residing in each region.

Chart 9: Tasmanian Long-Term Unemployed, by Proportion of Labour Force by Region, 1993 - 2004



Source: *Labour Force, Australia, ABS Cat No 6291.0.40.001, on AUSSTATS (Table UM3).*

Chart 9 demonstrates that since the early 1990s the rate of long-term unemployment has been higher in the North and North-West regions, with the Greater Hobart-Southern region displaying the lowest level throughout. For example, until 2001, the proportion of long-term unemployed in the North-West labour force was at least twice that for the Greater Hobart-Southern region.

The disparity between the South and the other regions is attributable, in part, to the nature of the industry profiles of these areas, with the North and North-West regions having greater reliance on industries more heavily affected by structural changes in the State, and to national and global economic changes over the 1980s and 1990s. Such changes included increasing use of technology, reduction in tariff protection and greater capital mobility towards countries with competitive advantages. Those workers affected, predominantly males in unskilled and semi-skilled occupations, experienced difficulties in obtaining alternative employment due to a lack of suitable opportunities in their region. While the same economic influences were also felt in the southern Tasmania, the greater presence of the public sector and private sector service industries in that region most likely dampened their effects on long-term unemployment.

The long-term unemployment rates in the three regions have converged considerably since 2001-02, and the gap between the three regions is now the smallest since 1993. Two factors that may explain this convergence are intrastate migration of the long-term unemployed from the North and North-West regions to the South, and a greater propensity of employers in the North and North-West to meet the increased labour demand from the pool of long-term unemployed, rather than from the shorter term unemployed or from growth in the labour force.

1.3 Summary of Recent Trends in Tasmanian Long-Term Unemployment

Based on official data from the ABS, the following summary of long-term unemployment in Tasmania can be made:

- The number of long-term unemployed in Tasmania rose significantly during the early 1980s and increased again in the first half of the 1990s. Since 1999-00, it has declined steadily to be at a level similar to that seen in the early 1980s. The recent strength in the Tasmanian economy has enabled substantial numbers of the long-term unemployed to gain employment. However, there appears to be a hard core of very long-term unemployed who continue to experience particular difficulties in securing employment.
- The average rate of long-term unemployment in Tasmania, expressed as a proportion of total unemployment, has remained above 30 per cent since 1982 and has been significantly higher than for Australia as a whole. Furthermore, the gap has widened in recent years.
- The average duration of long-term unemployment in Tasmania has also been above that of Australia, and has been increasing since the early 1990s.
- In 2003-04, males accounted for three-quarters of the long-term unemployed, although they account for only 55 percent of the labour force. Male and female long-term unemployment in Tasmania has followed similar trends since 1979, although the rate of long-term unemployment among males has always been higher than among females.
- Over the past 25 years, the levels of long-term unemployment in Tasmania have been highest among the 15 to 24 and 25 to 44 age groups. Compared to the early 1990s, long-term unemployment for those aged 45 to 59 is currently significantly greater. While the level of long-term unemployment has declined for all three age groups since 2002-03, the smallest proportionate decline has been in the 45 to 59 age group.
- The North-West of Tasmania has experienced the highest levels of long-term unemployment in relative terms, with the Northern region the next highest. Long-term unemployment has fallen in all three regions since 2002-03, with the decline in the long-term unemployment rate being greater in the North and North-West than in the South.

2. Long-Term Unemployment in Tasmania – a Microeconomic Perspective

Relative to the labour force as a whole, the long-term unemployed tend to be: less educated; less skilled; less likely to speak and write English well; more likely to reside in lower socio-economic locations; and more likely to live with other non-working adults. However, not all long-term unemployed person will possess all, or even most, of these traits and some individuals will depart widely from this profile.

For the purpose of developing policy responses to the long-term unemployment problem, it is useful to understand in some detail the socio-demographic profiles of the long-term unemployed and whether there are any identifiable sub-groups within the total long-term unemployed population. This requires an analysis of that population in which the socio-demographic characteristics of each of the persons involved are examined. For this report, a body of data containing such information has been obtained from the Australian Government and a statistical technique called *cluster analysis* has been applied to these data.

2.1 Methodology

Cluster analysis is an exploratory data analysis tool for solving classification problems. Its primary use is in identifying groups (or “clusters”) of similar entities in a population of data points. Generally, this identification process works by sorting data points (for example, individual people) into clusters so that the degree of association is strong between members of the same cluster and weak between members of different clusters.

In the context of this report, cluster analysis has been used to identify subsets of the long-term unemployed population that appear to be grouped according to shared socio-demographic characteristics. The clusters of long-term unemployed have been constructed on the basis of the mean values of each of the variables in the dataset. A detailed description of the cluster analysis employed in this study is presented in Appendix 1.

2.2 Data Description

The data used in this study are from a unit record file of Australian Government benefit recipients obtained from the Department of Employment and Workplace Relations (DEWR).⁷ The unit record file, extracted on 28 November 2003, is a list of all job seekers in Tasmania on either the Newstart or Youth Allowance⁸ who have been unemployed for over 52 weeks. A total of 11 846 persons was listed.⁹

⁷ This information belongs to DEWR, although the data are obtained from applications for unemployment benefits received by Centrelink from the general public. Through a data warehousing arrangement, DEWR copies this information into its own system so that it can undertake various analyses that are not routinely performed by Centrelink.

⁸ This refers specifically to the Youth Allowance payable to the unemployed and not the benefit of the same name paid to students to support their undertaking of study.

⁹ As at February 2005, the number of long-term unemployment benefit recipients had fallen to 10 740 persons.

The ABS data on long-term unemployment presented in Part 1 of this paper cannot be directly compared with the data in this Part. The two sources give quite different estimates of the extent of the long-term unemployment problem in Tasmania, as the measures are derived from two separate processes.

The ABS estimates are obtained from the monthly Labour Force Survey (LFS), a survey of a randomly selected sample of households in every state and territory. In comparison, the statistics from the unit record file are not estimates from a survey, but a file from an administrative system that records details of all those who had received unemployment benefits payments for over one year. While notionally both groups represent “the unemployed”, in practice some persons counted in one group will not be counted in the other.

In order to be classified as unemployed by the ABS, respondents to the LFS must satisfy the definition used by the ABS. This definition is described on page 3 of this report and it imposes requirements that are relatively stringent in nature. The criteria that must be satisfied in order to receive either of the two Australian Government unemployment benefits differ from the ABS unemployment criteria, principally in that jobseekers are permitted to work part-time and continue receiving unemployment benefits (provided their income remains below the specified threshold level). The ABS classifies anyone working at least one hour in the LFS reference week as being employed. This is the main explanation for why the number of persons recorded as long-term unemployed in the unit record file is significantly higher than the estimate made by the ABS.

An additional source of difference between the two data sources is that eligibility for the Australian Government unemployment benefits is means-tested, while income and assets are not directly relevant to the ABS process. Consequently, a person who is ineligible to receive Australian Government assistance can still be classified as unemployed by the ABS.

In regard to estimates of the duration of unemployment, ABS statistics and the unit record data will also be inconsistent. While the unit record data records the duration of unemployment, it does not make allowance for intermittent periods of full-time work that may be obtained by a benefit claimant. Though their benefits will be suspended while persons work full-time, those registered with Centrelink will remain on the system and their duration of registration will not be altered.¹⁰ Pre-existing claimants are able to remain on the system for periods of up to 13 weeks, during which they can be working and ineligible for receiving benefit payments.

Also, persons may defer applying for benefits for some period after becoming unemployed. Both of these factors affect interpretation of the unit record statistics in relation to the length of time a person has been unemployed. The ABS measures the duration of unemployment from the date the respondent last had any form of employment for a period of at least two weeks. Therefore, the duration of unemployment as estimated by the ABS is likely to be shorter than that recorded by the unit record statistics.

¹⁰ This practice is followed for administrative efficiency so that these persons do not need to be re-registered on the system when, due to subsequent loss of work, they require their benefits to be re-activated.

The two sets of estimates may also diverge as the ABS relies on the memory recall (and truthfulness) of survey respondents, while the unit record dataset is obtained from an administrative system that automatically records duration of receipt of the allowance.

Finally, the ABS measures referred to in this report are generally annual averages of individual monthly values, which will remove the impact of seasonal factors on the results. Conversely, the unit record dataset relates to a specific point in time and therefore this information may be affected by seasonal and other factors which would render it less representative of the underlying situation than a series of figures averaged across time.

Despite these differences, the information in the unit record file provides a rich body of data on persons who have been unemployed, or under-employed, for lengthy periods. It is highly useful as a resource for detailed analysis, as each individual is cross-classified by a range of relevant characteristics. To the extent that it lists every individual in a specified sub-population, the unit record dataset is more comprehensive than the ABS information, which estimates the size and nature of sub-populations from relatively small samples of Tasmanian households.

While the ABS estimate of the scale of long-term unemployment differs markedly (at least in recent times) from the number in the unit record file, there is consistency between them in the key features where data are available, such as the relative proportion of males and females, the age distribution of the long-term unemployed and the proportion that are very long-term unemployed.

2.3 Details of the Unit Record File

All individuals in the unit record file are cross-classified by ten characteristics, these being: gender; whether or not of non-English speaking background (NESB); indigeneity; whether disabled or not; highest level of education; residential postcode; age group; occupational group; and duration in receipt of the benefit.

Before discussing the results of the cluster analysis, it is worthwhile examining the overall demographic characteristics of the almost 12 000 individuals in the unit record dataset. Table 1 shows the distribution of unit record file members across the ten different demographic characteristics.¹¹

¹¹ See Appendix 1 for advice on interpretation of the DEWR dataset.

Table 1: Unemployment Benefit Recipients: Overall Characteristics Obtained from the Unit Record File

<i>Variable</i>	<i>Percentage</i>			
Gender	<i>Male</i> 73.1	<i>Female</i> 26.9		
NESB	<i>Yes</i> 2.6	<i>No</i> 97.4		
Indigenous	<i>Yes</i> 5.3	<i>No</i> 94.7		
Disability	<i>Yes</i> 17.1	<i>No</i> 82.9		
Urban/Rural	<i>Urban:</i> 77.8	<i>Rural:</i> 22.2		
Duration	<i>3 years or less:</i> 42.3	<i>Over 3 years:</i> 57.7		
Region	<i>South:</i> 47.2	<i>North:</i> 28.7	<i>North-West:</i> 24.1	
Occupation	<i>Low skilled:</i> 54.5	<i>Semi-skilled:</i> 35.8	<i>Highly skilled:</i> 9.7	
Education (Highest level)	<i>Did not complete Year 10:</i> 23.5	<i>Completed Secondary School:</i> 63.1	<i>Trade/TAFE qualification:</i> 8.3	<i>Tertiary qualification:</i> 5.2
Age	<i>15-19:</i> 7.0 <i>35-39:</i> 9.4 <i>55-59:</i> 8.6	<i>20-24:</i> 19.9 <i>40-44:</i> 10.3 <i>60-64:</i> 1.2	<i>25-29:</i> 13.7 <i>45-49:</i> 10.2	<i>30-34:</i> 11.1 <i>50-54:</i> 8.7

Source: Australian Government and Treasury.

Table 1 indicates that males account for almost three-quarters of the long-term unemployed. Relatively few of the long-term unemployed have a non-English speaking background (3 per cent) or identify themselves as indigenous (5 per cent).¹² Just over one-sixth of the benefit recipients are classified as having a disability. These people are not disabled to the extent that they are unable to work; that is, they are not sufficiently impaired to qualify for the Disability Support Pension (DSP). While persons with this classification will be physically unable to perform some occupations, they have been assessed as being capable of a range of tasks sufficient to gain employment of some kind.

More than three-quarters of the long-term unemployed reside in, or are in close proximity to, urban areas. “Urban” is defined as population centres with over 5 000 residents.¹³

In regard to duration of unemployment, the unit record data reveal the same trend as the ABS data presented in Part 1, in that a greater number of persons have been unemployed for a very long-term (over three years) than those unemployed for a shorter period (between one and three years). As discussed below, in this context the length of “unemployment” should be regarded as the period for which a person has not held a full-time job of more than three months’ duration. Such persons may have held a part-time job throughout this period.

¹² See more detailed advice on interpretation of this variable in Appendix 1 (page 40).

¹³ The Tasmanian population centres classified as “urban” for this analysis are: Hobart, Launceston, Devonport, Burnie-Somerset, Kingston-Blackmans Bay, Ulverstone and Bridgewater-Gagebrook. A detailed explanation of the classification process is provided in Appendix 1.

Relative to shares of the total Tasmanian population, the long-term unemployed are found in slightly higher proportions in the North-West of the State, while the share in the Northern region is equal to, and that of the Southern region slightly below, their shares of total population, respectively.

Over half of the long-term unemployed identified themselves as having been previously employed or currently seeking employment in a low-skilled occupation, which includes jobs such as labouring and elementary level clerical, sales and service positions. Less than 10 per cent of the persons were classified as having a highly skilled vocational background, including professionals, managers and administrators.

For the educational attainment variable, almost one-quarter of the benefit recipients fell into the lowest of the four bands, representing those not having completed Year 10. The majority of persons on the unit record file are in the second band, having completed no studies beyond secondary school (that is, Year 12). Only 13 per cent had completed studies beyond secondary school, which includes trade and TAFE qualifications.

Around 45 per cent of the long-term benefit recipients were aged between 20 and 34 years, while those aged over 50 years accounted for 18.5 per cent of the total. These shares are similar to those in the ABS data for late 2003.

2.4 Tasmanian Long-Term Unemployed vs. Overall Tasmanian Labour Force: Comparison of Characteristics

Part 1 of this report detailed the socio-demographic characteristics of the long-term unemployed as defined by the ABS Labour Force Survey (LFS), while Part 2.3 provided a description of the characteristics of the Tasmanian long-term unemployed, as represented by the unit record dataset.¹⁴ Notwithstanding the issues addressed in Part 2.2, this section compares the characteristics of these groups with those of the wider Tasmanian labour force (as defined by the ABS).

Some socio-demographic characteristics contained in the unit record dataset are not recorded in the LFS. These are indigeneity, rural/urban location and level of educational attainment. In such cases, for the purposes of this section, a comparison is made between the long-term unemployed and the total adult Tasmanian population (irrespective of labour force status), as recorded in the 2001 Census.

- *Gender*

Males represent a significantly higher proportion of the Tasmanian long-term unemployed than they do of the entire labour force. In both the unit record and ABS data, males account for around three-quarters of the long-term unemployed, but they represent only 55 per cent of the labour force (ABS).

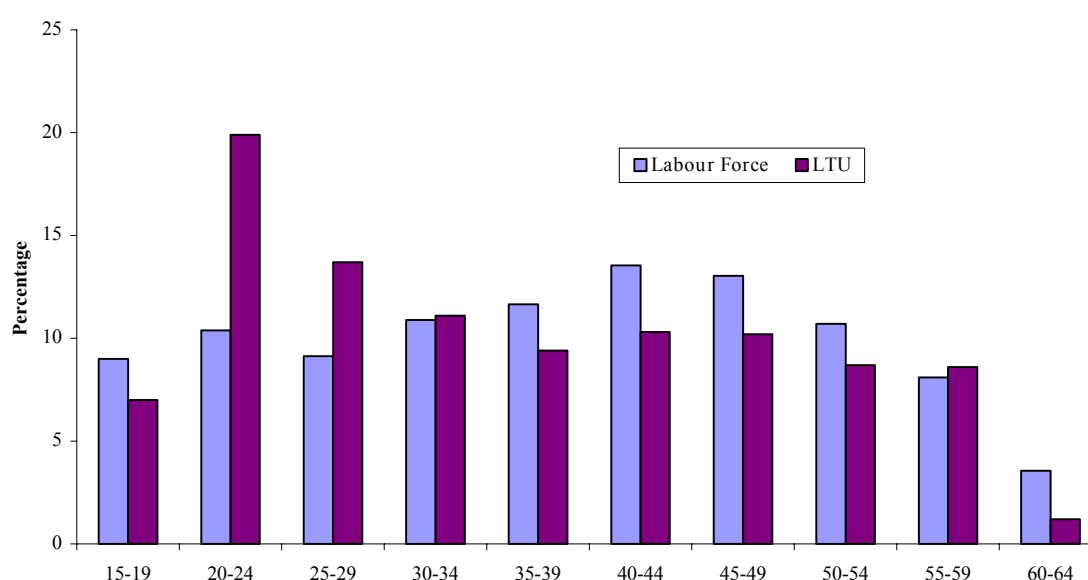
¹⁴ As stated on page 17, these two sets of statistics are generally consistent regarding characteristics of the long-term unemployed population.

- *Age*

There are some notable disparities between the age distribution of the long-term unemployed and that of the overall labour force in Tasmania. Chart 10 shows the age distribution of these two groups, with the data for the long-term unemployed sourced from the unit record dataset.

The shares of the long-term unemployed exceed those of the labour force in the age groups 20-24, 25-29, 30-34 and 55-59. Most significantly, those aged between 20 and 29 account for nearly 34 per cent of the long-term unemployed, but only 19.5 per cent of the entire labour force. Conversely, the shares in the labour force for ages between 35 and 55 exceed (by over 10 per cent) the share of that age range in the long-term unemployed population. The ABS estimates of the long-term unemployed from the LFS confirm that the long-term unemployed fall disproportionately into the age groups of 20-24, 25-29 and 55-59.

Chart 10: Comparison of Long-Term Unemployed with Total Labour Force by Age



Source: Australian Government and Labour Force, Australia, ABS Cat No 6291.0.55.001.

One notable feature of Chart 10 is the low proportion (as evident from the unit record dataset) of the long-term unemployed in the 15 to 19 years age group, particularly when compared to that of the 20 to 24 age group. However, this may not necessarily indicate that this age group does not experience significant labour market disadvantages. The sudden rise in long-term unemployment in the 20 to 24 age group evident in the unit record dataset indicates that, in addition to the passage of time, various institutional factors reduce the incidence of long-term unemployment for persons below 20 years of age and that these factors either cease, or become less significant, around the age of 20.

Most fundamentally, many persons aged 15 to 19 years are likely to have been participating in the labour market for a relatively brief period of time. This will

reduce the number of these people having received unemployment payments for over one year, even if they have been unemployed for most, or all, of the time since they entered the labour market.

Of the two age groups, 15 to 19 years olds have a significantly lower labour force participation rate than do 20 to 24 year olds. In 2003-04, the average participation rate for 15 to 19 year olds was 58.2 per cent, while that for the 20 to 24 age group was 76.8 per cent. The primary reason for the lower labour market participation of 15 to 19 year olds is that the majority of this age group are in full-time education. This alone will lower their representation in the unit record dataset of long-term unemployed, as students are not eligible to receive unemployment benefits (that is, Newstart and Youth Allowance¹⁵).

For those teenagers not in full-time education or employment, some may be working casually and not registered as a recipient of unemployment benefits. Persons aged 20 to 24 also not in full-time education or employment are likely to be competing with teenagers for casual positions, but the requirement for them to be paid higher rates than the teenagers will lead to a greater likelihood of unemployment for the older age group.

Another possible explanation for the low proportion of teenagers in the unit record dataset relates to the income and assets tests applied to eligibility for the benefits. A parental income test is applied to the Youth Allowance (the unemployment benefit paid to persons under 21), while it is not applied to the Newstart allowance. A percentage of teenagers who are unemployed and otherwise would be eligible to receive the Youth Allowance may not satisfy the income test once their parents' income is taken into account. This will be less likely to impact on those in the 20 to 24 age group, thus increasing their eligibility for the relevant benefit payments.

A comparison with the ABS estimates of long-term unemployment by age indicates that the recognition of parental income is lowering the relative proportion of teenagers in the unit record dataset. In 2003-04, teenagers accounted for 10 per cent of the long-term unemployed population as estimated by the ABS, while those in the 20 to 24 age group accounted for 17.3 per cent. This difference in shares is substantially lower than that in the unit record statistics, where the corresponding shares are 7 per cent and 20 per cent, respectively.

- *Indigeneity*

The indigenous represent a higher proportion of the long-term unemployed than of the wider working age population. In the 2001 Census, just over 3 per cent of Tasmania's working age population identified themselves as indigenous, while the proportion of long-term unemployed in the unit record dataset was 5.3 per cent.

- *Urban/rural*

The long-term unemployed are more highly concentrated in urban areas. For the Tasmanian adult population, about 71.2 per cent live in urban areas. However, 77.8 per cent of the long-term unemployed (unit record dataset) live in urban areas.

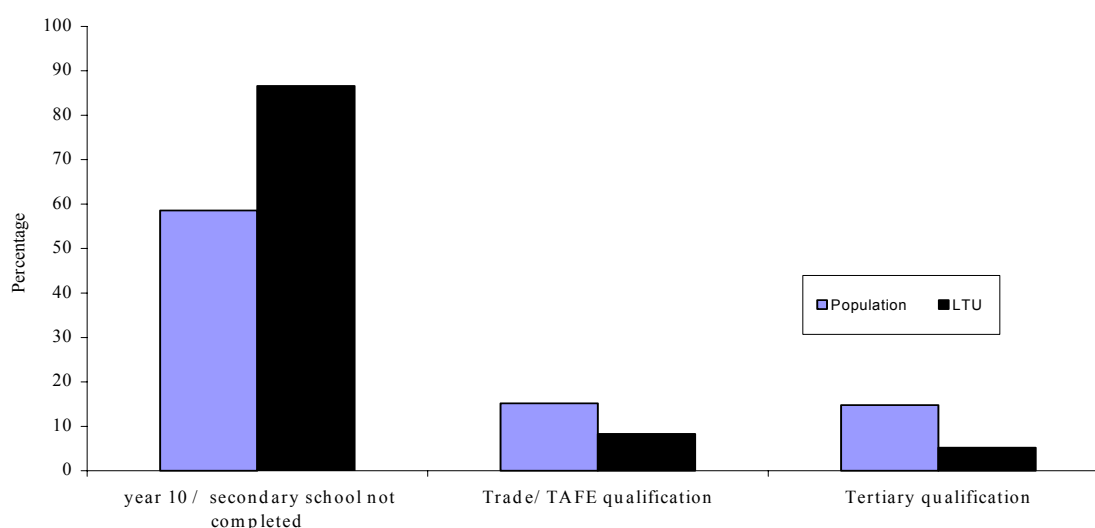
¹⁵ See footnote 8 (page 14).

As the concept of “urban area” is defined more narrowly in relation to the unit record dataset than in the ABS data, the disparity between the two populations would be even greater had it been possible to use fully consistent definitions.

- *Education*

The long-term unemployed population is distinguished by its relatively low level of educational attainment. The unit record dataset reveals that about 86 per cent of Tasmanian long-term benefit recipients do not possess post-Year 12 qualifications (Year 12) and only 5 per cent have tertiary qualifications. However, the 2001 Census shows that only 59 per cent of the Tasmanian adult population have not been educated beyond Year 12, while about 15 per cent have tertiary qualifications.

Chart 11: Comparison of Long-Term Unemployed with Total Labour Force by Education Level

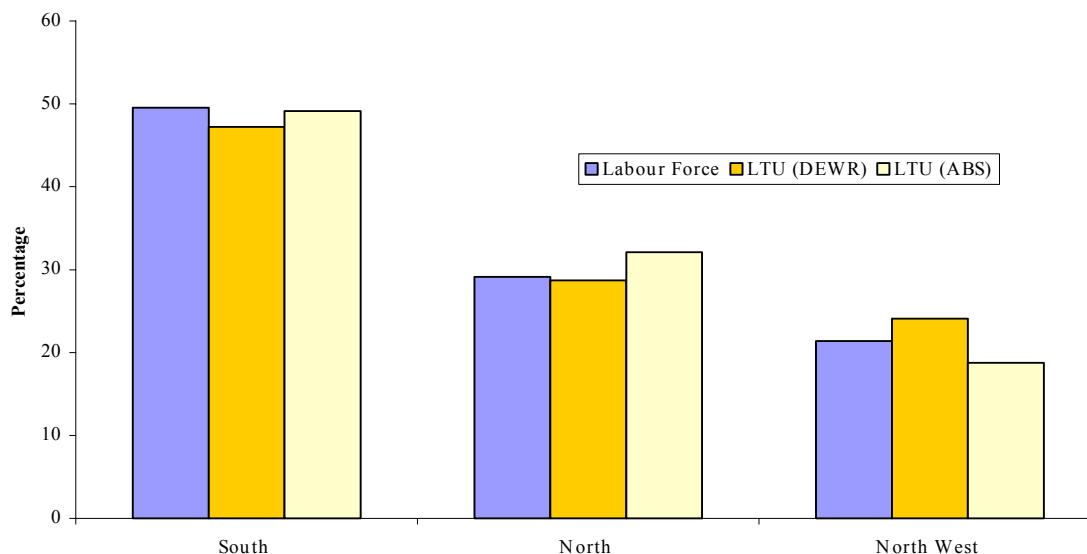


Source: Australian Government and ABS (2001 Census – Basic Community Profiles)

- *Region*

The distribution of the long-term unemployed across Tasmania’s regions is not significantly different from that of the wider labour force. The relative shares by region are shown in Chart 12. The most notable region is the North-West, which has a slightly higher share of the long-term unemployed than of the State’s labour force (2.7 percentage points more according to the unit record dataset). However, this trend for the North-West is not confirmed by the LFS data for 2003-04, which indicates that the Northern region has relatively more long-term unemployed.

Chart 12: Comparison of Long-Term Unemployed with Total Labour Force by Region

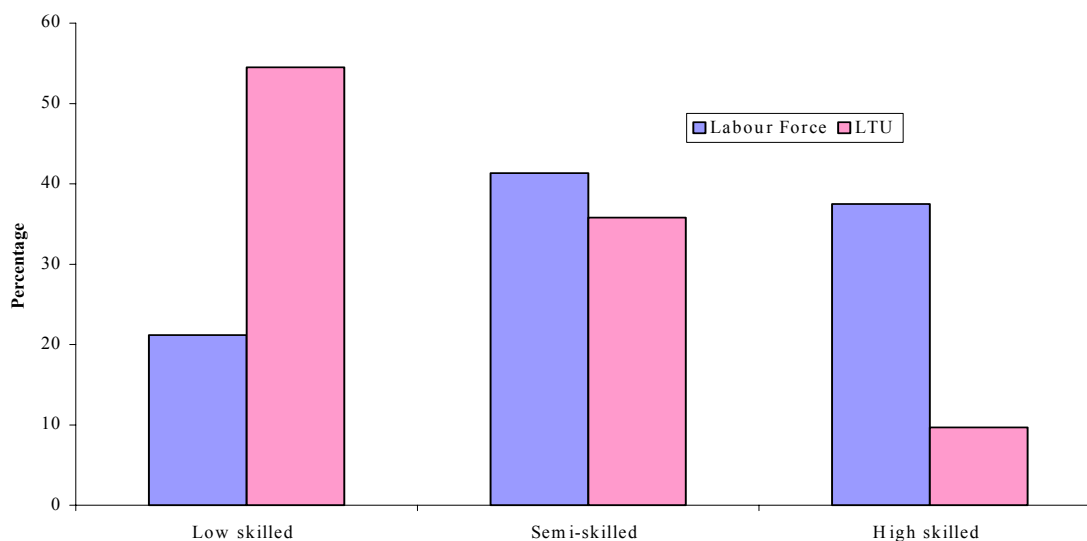


Source: Australian Government and Labour Force, Australia, ABS Cat No 6291.0.55.001.

- *Occupation*

As might be expected, the Tasmanian long-term unemployed tend to have a less-skilled occupational background than does the wider labour force. As shown in Chart 13, in the Tasmanian labour force only 21 per cent are classified as “low skilled”, while 37 per cent are “highly skilled”. In the unit record dataset, almost 55 per cent fall into the low skilled category and only 10 per cent have a highly skilled vocational background.

Chart 13: Comparison of Long-Term Unemployed with Total Labour Force by Occupation



Source: Australian Government and Labour Force, Australia, ABS Cat No 6291.0.55.001.

2.5 Cluster Analysis Results

Cluster analysis was applied to the entire unit record dataset of 11 846 long-term unemployed and the results are summarised below.

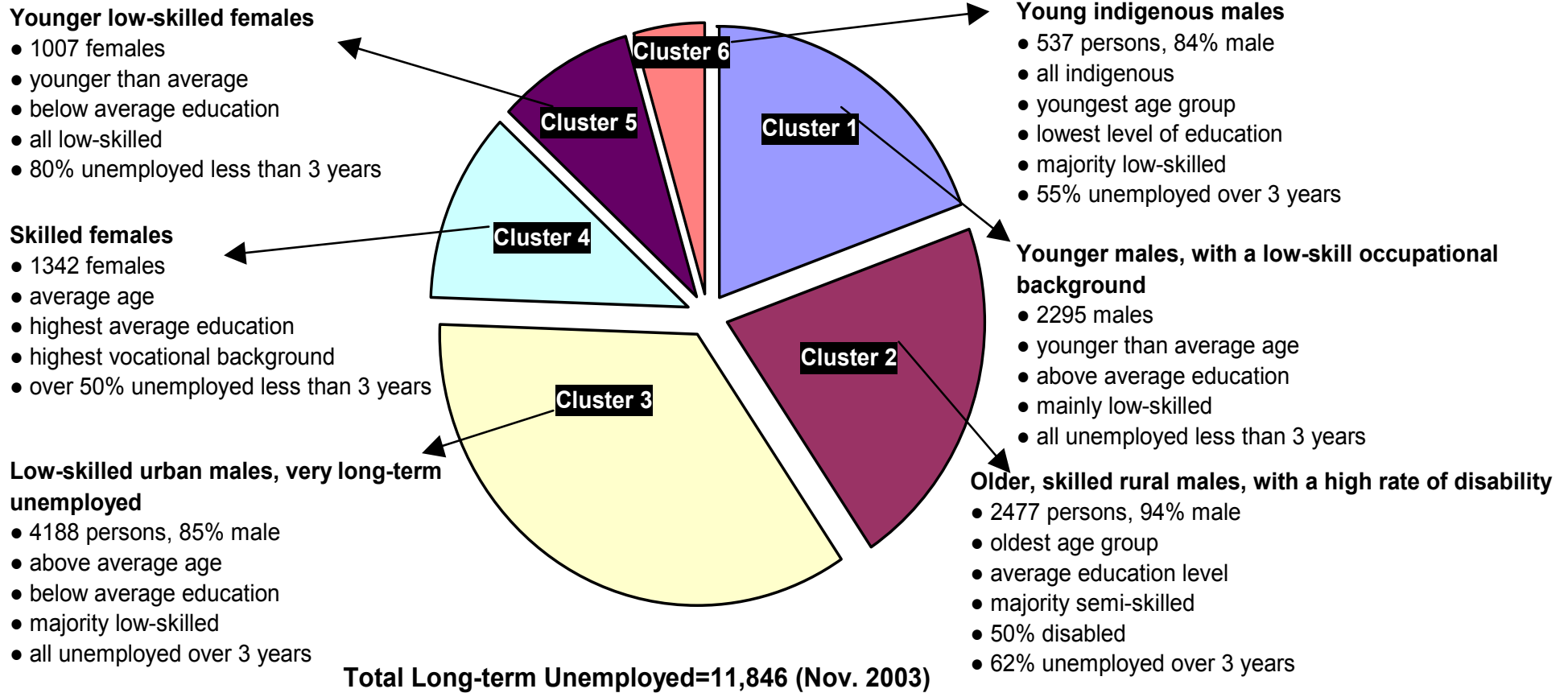
The clustering technique employed uses the mean (or average) values of each variable to group the data points. In interpreting the results of the cluster analysis, the primary guide is a comparison of the calculated mean value of a variable for any cluster with the mean of that variable for the entire dataset. Therefore, in the summary descriptions given below, references to “the average” refer only to the mean value for that variable for all persons in the unit record dataset. They do not relate to averages for the wider State or national population.

Cluster names should be interpreted as describing the characteristics of the majority of the cluster, not every single member of the cluster. This approach to naming clusters is consistent with that used by Dockery and Webster in their analysis of Australian long-term unemployment referred to in the previous section.

Detailed results, including cluster and total means, are provided in Appendix 2. The cluster analysis results for the entire Tasmania dataset suggest that the long-term unemployed in Tasmania can be classified into six clusters according to shared socio-economic characteristics.

The characteristics and relative size of each cluster are displayed in Chart 14 below.

Chart 14: Clusters of the Tasmanian Long-Term Unemployed



More detailed descriptions of each cluster are provided below.

Group 1: Younger males, with a low-skill occupational background

- 2 295 persons, all male;
- about 77 per cent located in urban areas;
- younger than average age, predominantly late-teens to early 20s;¹⁶
- above-average educational attainment, with the majority having completed Year 12, though significant numbers have lower, and higher, levels of qualifications;
- mainly low-skilled vocational background;
- less than four per cent are NESB or have some disability and none is indigenous; and
- all have been unemployed for a period of one to three years.

Group 2: Older, skilled rural males, with a high rate of disability

- 2 477 persons, over 90 per cent male;
- significant numbers in all three regions, with almost 85 per cent living in rural areas;
- clearly the oldest cluster – average age of 38 years and the highest concentration in the over 50 range;
- marginally above-average educational attainment, due to significant share with trade/TAFE qualifications, with a minority not having completed schooling as far as Year 10;
- The majority have semi-skilled vocational background, with second-highest concentration in the high-skilled category;
- insignificant proportions of NESB and indigenous;
- almost 50 per cent have a disability, the highest of any group and almost three times the total long-term unemployed average; and
- over 60 per cent unemployed for more than three years.

¹⁶ Refer to Appendix 2 for details of the Tasmanian cluster means.

Group 3: Low-skilled urban males, very long-term unemployed

- 4 188 persons, 85 per cent male;
- the second most urbanised of the clusters, with three-quarters located in the seven major urban centres;
- above-average age – 20 to 30 years most prominent, but significant shares in all age groups through to 55 years;
- below-average educational attainment as, although most have completed Year 12, the proportion not completing Year 10 is the highest of any cluster;
- second lowest vocational background of all clusters and the large majority fall into the low-skilled category;
- only small proportions are NESB and disabled, while none is indigenous; and
- the longest unemployment duration of any cluster – all have been unemployed for over three years.

Group 4: Skilled females

- 1 342 persons, females only;
- regional distribution similar to that of the total population. Almost 67 per cent live in the major urban areas;
- marginally below-average age and the main concentrations are in the 15 to 25 and 40 to 50 years age groups;
- the highest average educational attainment with the smallest share of all clusters in the lowest education category, the majority having completed secondary school and the share with tertiary qualifications having the highest of all clusters;
- clearly the highest average for vocational background as all are either semi-skilled or high-skilled, with the share of high-skilled the largest of all clusters;
- only small proportions of NESB and indigenous;
- a below-average proportion are disabled; and
- third-lowest average duration of unemployment – over half have been unemployed for between one and three years.

Group 5: Younger low-skilled females

- 1 007 persons, all female;
- evenly distributed across the three regions, with a relatively large proportion (just over half) living outside the major urban areas;
- younger than average age group, predominantly 15 to 25 years;
- below-average educational attainment as although the majority have completed Year 12, the proportion not completing Year 10 is high and all have only low-skilled vocational experience;
- about two per cent are indigenous, seven per cent have some disability and fewer than three per cent are NESB; and
- about 80 per cent have been unemployed for less than three years.

Group 6: Young indigenous males

- 537 persons, 84 per cent males;
- all are indigenous;
- more are located in the North-West than the North (with highest share in the South) and 44 per cent live outside the major urban areas;
- the youngest of all clusters, mainly concentrated under 25 years, with the lowest shares in all age groups over 40 years;
- the lowest average educational attainment, with a substantial number not having completed Year 10 and few qualified beyond secondary school;
- majority have low-skilled occupational background;
- below-average incidence of disability, although the second-highest proportion after Group 2; and
- duration of unemployment similar to average – 55 per cent over three years.

As expected, the cluster analysis has identified six groups within the long-term unemployed population that are quite distinct from each other. The differences in the groups may provide some explanation of the causes and nature of long-term unemployment. The descriptions of each cluster are necessarily generalisations: unidentified characteristics peculiar to each individual (such as a criminal record) may be equally relevant in explaining their long-term unemployment situation.

A number of the groups are characterised by persons with low levels of educational attainment. This could be expected to be a significant factor limiting the ability of these persons to gain employment (particularly full-time) and to gain a level of remuneration from employment that would end their reliance on Australian Government benefits. The level of academic qualifications demanded by employers has increased over time and is likely to continue to do so. As a greater share of those entering the labour force complete Year 12 and have post-school qualifications, the relative employment disadvantage experienced by the less educated will increase.

In the prevailing labour market it is likely, though not inevitable, that persons lacking post-school qualifications will also be restricted to vocational experience in lower-skilled occupations (and some may be entirely lacking in employment experience). These people are more likely to continue requiring benefits as they will be competing largely for positions with lower levels of remuneration and jobs that are part-time or casual in nature. A continued lack of demonstrable experience in semi- or high-skilled vocations will reinforce the disadvantaged position of these persons and tend to result in protracted periods of reliance on the income support system.

Groups 3, 5 and 6 have educational attainments below the average of all long-term unemployed in the unit record dataset. A significant proportion within each of these groups has not completed Year 10 of schooling. These groups are also characterised by persons with a low-skilled vocational background or who seek employment in low skilled occupations. Beyond these important shared traits, these three groups display significant differences which are discussed below.

In two of these groups (5 and 6), the members are younger than average, with those under 25 years dominant. This suggests that a substantial proportion within Groups 5 and 6 are likely to have very limited, or perhaps no, employment experience. While younger jobseekers may be able to be employed at lower direct cost, this labour market advantage could be offset by their relative lack of experience.

Both Groups 5 and 6 have experienced a duration of unemployment (more accurately, a duration of reliance on income support payments) below the average for the long-term unemployed as whole. Particularly in the case of Group 5, almost 80 per cent have been unemployed for less than three years, suggesting that interventions to assist these women are important before their period of unemployment becomes more protracted and more difficult to address.

Group 6 comprises entirely indigenous males. The highest indigenous share of any other cluster is only five per cent. The general level of low socio-economic status amongst the indigenous population is widely recognised. It is likely that indigeneity alone is not the primary explanation for the long-term unemployment experienced by these men, but rather that it is associated with other characteristics that are both more prevalent in the indigenous community and more likely to impact negatively on successful participation in the labour market.

However, there may be merit in considering specific policy responses for the indigenous long-term unemployed, given that the analysis has identified this group as a separate, though small, cluster. Despite the relatively young age of those in this cluster, over half of those in Group 6 have been without significant full-time

employment for over three years, in contrast with other groups comprising younger persons where a majority have been unemployed for less than three years.

Group 3 is the largest single cluster identified, with over 4 000 members. While sharing the characteristics of low educational attainment and vocational skills with Groups 5 and 6, Group 3 has an older age profile. In addition, all persons in Group 3 have been reliant on income support for over three years.

The combination of traits displayed by Group 3 suggests that a substantial proportion of these may be older male blue-collar workers that have become disconnected from the labour market by structural changes in the economy. These changes have resulted in a shift in the relative importance to overall employment away from traditional primary and secondary industries towards service industries that require markedly different skills from employees. In addition to fewer suitable jobs being available, the age of members of Group 3 may be a directly negative factor in that some may be competing for jobs against younger persons who, even if also unskilled, can be employed at lower wage rates.

Group 2 is another cluster that contains many persons that are likely to have been adversely affected by the longer term structural changes in the Tasmanian economy. This group comprises almost entirely males, with an average age of 38 years and a higher share of persons over 45 than any other cluster. Group 2 is distinguishable from the above groups in that its members are, on average, more highly educated and have experience in more highly-skilled occupations. The majority of Group 2's members have been educated to Year 12 or beyond and this group has the highest proportion of people with a trade or TAFE qualification. Semi-skilled and high-skilled occupations predominate.

The apparent contrast between the past and current employment circumstances of Group 2 members suggests that many experienced involuntary loss of a full-time job, possibly after a long career of continuous employment. Since that time, many may have been unable to regain a suitable replacement full-time position.

While an older age and fewer relevant skills and experience are likely to be significant re-employment barriers for Group 2, almost half of these persons are recorded as having a minor disability which would further reduce what may be already limited job prospects. Almost 85 per cent of those in Group 2 reside outside the seven major urban areas, which could represent an additional barrier to re-employment due to distance from the location of most employment opportunities. Around 62 per cent of those in Group 2 have been unemployed for longer than three years, compared with 58 per cent for all long-term unemployed, indicating the difficulties faced by those in this cluster.

The remaining two clusters identified, Groups 1 and 4, display characteristics that provide less obvious explanations for the long-term unemployment of their members.

Group 1 comprises younger non-indigenous males living mainly in the larger urban centres. The majority have completed Year 12 and some have qualifications beyond this level. Despite this, the group's vocational background is clearly skewed towards low-skilled jobs. It is probable that one factor relevant here is that education or

training beyond Year 12 is becoming a pre-requisite for an increasing range of full-time positions and those without such qualifications face limited opportunities.

All members of Group 1 have been receiving income support for less than three years, which may be partly a product of their younger age, but also due to the fact that persons with these socio-demographic traits are generally less disadvantaged in respect to the labour market than those in the other clusters.

Group 4 is an interesting cluster because, from the limited information available, its members appear to have characteristics less likely to lead to long-term unemployment. It comprises over 1 000 people, around 45 per cent of whom have been reliant on income support for over three years. All members of Group 4 are female and the group has clearly the highest average of all clusters for both educational attainment and occupational skill level. Group 4 is the only cluster in which the proportion of those with a tertiary education exceeds the proportion that has not completed Year 10. It is also the only cluster where no members have a “low-skill” occupational classification. Group 4 does not display any traits against the remaining variables that provide an obvious explanation for their unemployment situation.

The age distribution of Group 4 is noteworthy in having two separate concentrations – the first in the under 25 age group and a smaller one in the 40 to 50 years age group. The younger element may be restricted to mainly part-time or casual employment due to a lack of relevant vocational experience preventing them from gaining a full-time position in their chosen field. For some, time away from the workforce to have children may have impacted on their capacity to accrue relevant work experience. In addition, there may simply be fewer opportunities in Tasmania to work full-time in the occupations for which they are academically qualified. Issues of a similar nature could also explain long-term unemployment in the older element of Group 4.

Educated women may be experiencing difficulty returning to full-time work of the desired kind following a lengthy period away from the workforce to engage in child-rearing. Alternatively, they may have undertaken post-secondary studies later in life and have found that a lack of applicable vocational experience has prevented them obtaining full-time employment work in a field related to these studies.

2.6 Summary of Factors Determining Long-Term Unemployment

The following general conclusions can be made concerning which personal characteristics are significant in explaining the incidence and duration of unemployment:

1. persons with low levels of educational attainment, particularly those that have not completed secondary school, are more likely to be unemployed for extended periods;
2. persons with vocational experience restricted to low-skilled occupations also tend to be unemployed for longer periods;

3. persons with minor disabilities are more likely to experience long periods of unemployment, particularly if they are in older age groups;
4. males are generally more likely than females to experience very long periods of unemployment;
5. younger people tend to experience shorter periods of unemployment, apart from indigenous persons (particularly males) who seem to have greater difficulty avoiding reliance on income support payments; and
6. there is no clear evidence that being located in rural areas increases the risk of very long-term unemployment.

2.7 Comparison of Findings with the National Study

In 2001, Michael Dockery and Elizabeth Webster of the Centre for Economic Policy Research (Australian National University) published a discussion paper on Australian long-term unemployment. The main objectives of this paper were to assess the effectiveness of Australian Government labour market programs in addressing the problem of long-term unemployment and to review the success or otherwise of the self-evaluation components of these programs. To meet the first objective, Dockery and Webster undertook cluster analysis of a detailed dataset of the national long-term unemployed population.

The dataset used by Dockery and Webster in their cluster analysis contained eleven characteristics.¹⁷ These were:

- sex;
- birthplace;
- language first spoken and English proficiency;
- age;
- disability;
- work history;
- job seeking history;
- last full-time occupation;
- reason ceased last job; and
- education.

Some measures in the national study are the same as those used in this study, namely sex, age, education, job-seeking history, disability and language background. These common benchmarks provide a basis for comparing the findings between the two studies.

¹⁷ The source of this information was a unit record file from the ABS longitudinal Survey of Employment and Unemployment Patterns (SEUP) covering the period 1995-1997. The number of Tasmanians in the SEUP was judged to be too low to be used for cluster analysis in this study.

Dockery and Webster identified five clusters in the national long-term unemployed population which they described as:

1. less attached older females;
2. non-English speaking background (NESB) people;
3. most deprived men;
4. second-generation NESB older men; and
5. first job seekers.

With two exceptions, the clusters identified by Dockery and Webster are broadly consistent with those identified for Tasmania in this report, suggesting that similar economic and social forces are operating in both economies. The most notable source of difference was that several of the clusters for Australia are characterised by NESB persons. These account for a much lower proportion of the Tasmanian population than nationally and are therefore likely to be less significant in Tasmania's long-term unemployed population.¹⁸

The clusters identified by Dockery and Webster are compared below with those from this study for Tasmania. However, as the data used by Dockery and Webster were obtained in 1995, there may have been some changes in the characteristics of the national long-term unemployed since that time.

2.7.1 Matching Clusters

2.7.1.1 Tasmania - Younger low-skilled females, Young indigenous males Australia - First job seekers

Aspects of two Tasmanian clusters have significant similarities with one of the groups identified by Dockery and Webster.

Tasmania:

The *Younger low-skilled females* and *Young indigenous males* clusters in the Tasmanian statistics have a number of characteristics in common. Aside from age, persons in both groups have below-average education and the large majority have experience or employment intentions in low-skilled vocations. Most of them have been receiving benefits for a period of one to three years. Together, these two groups account for 13 per cent of the long-term unemployed population.

Australia:

The *First job seekers* cluster identified in the national study is characterised by persons that are younger than average and the least educated - about 80 per cent did not complete secondary school. By definition, these persons have never been employed in a full-time position before. This cluster comprises approximately even

¹⁸ According to the 2001 Census, 15.2 per cent of the Australian population speaks a language other than English at home, while the corresponding figure for Tasmania is only 3.1 per cent.

numbers of males and females. It represents 17 per cent of the total long-term unemployed.

The Tasmanian unit record file did not indicate whether the benefit recipients had been employed before, so a direct comparison on this basis cannot be made. However, while the Commonwealth benefit recipients are permitted to have part-time jobs while receiving benefits, it is likely that some proportion of those in the Tasmanian clusters have also never held a full-time job. The ABS data used by Dockery and Webster did not record indigeneity, although it would be expected that the *First job seekers* cluster would include a significant number of young indigenous persons.

2.7.1.2 *Tasmania - Low-skilled urban males, very long-term unemployed*
Australia - Most deprived men

Tasmania:

The educational attainment of this cluster is below the average for the entire long-term unemployed population. Most members of this cluster have a low-skilled vocational background and all have been without a significant full-time job for more than three years. Although, on average, the cluster is marginally above average in age, those aged 20 to 30 years are heavily represented in this cluster, which accounts for 35 per cent of the total unit record dataset.

Australia:

This group represents 17 per cent of the population studied by Dockery and Webster. Three-quarters of the “most deprived men” cluster in Australia are males. They tend to be younger than average and most have previously worked in a low skilled manual or service job. About 40 per cent in this group had been retrenched from their last job. All have spent over half their time since ceasing full-time education seeking employment. Dockery and Webster identify this group as one “that should be of considerable concern”.¹⁹

These two groups are quite similar in gender (male), educational/vocational skills (low) and duration of unemployment (high). While it is not possible to quantify the proportion of the Tasmanian group that was retrenched from their last job, it may be comparable to that of the *Most deprived men* group. The Tasmanian group accounts for a greater share of total long-term unemployment persons than the corresponding national group, although this may be partly because it includes more persons from older age groups than does the national *Most deprived men* group.

¹⁹ “Long-term Unemployment and Work Deprived Individuals: Issues and Policies”, page 13. (see footnote 3 on page 2).

2.7.1.3 *Tasmania - Older skilled rural males, with a high rate of disability*
Australia - Second generation NESB older men

Tasmania:

This group, which accounts for 21 per cent for the total long-term unemployed, mainly comprises older males and is particularly notable for the high incidence of disability (50 per cent). Educational attainment is above average, while it has the second-highest level of vocational skills of any cluster. The duration of unemployment is generally quite long, with over 60 per cent without significant periods of full-time work for more than three years.

Australia:

The *Second generation NESB older men* group accounts for 28 per cent of the total long-term unemployed at a national level. The age is above average, as is the incidence of disability. About 20 per cent of this group formerly worked in a white-collar vocation and a high percentage suffered retrenchment from their last job. Relative to their total working career, they have generally spent a shorter period out of work than the other clusters.

Aspects of the Tasmanian cluster have significant parallels with this group identified by Dockery and Webster, although the Tasmanian cluster includes a higher share of the disabled. As mentioned previously, the fact that NESB is a defining characteristic at the national level, but not for Tasmania, is consistent with the differing traits of the wider populations.

2.7.2 *Non-Matching Clusters*

Two of the five clusters identified by Dockery and Webster do not align closely with any of the Tasmanian clusters isolated for this report. Similarly, two of the six Tasmanian clusters do not correspond closely with any of the clusters detailed by Dockery and Webster.

Less attached older females (Australia)

This consists mainly of females (about two-thirds) and accounts for 21 per cent of the long-term unemployed. They are slightly older than average, while also being less well educated. Three quarters previously worked in low or medium-skilled occupations.

Skilled females (Tasmania)

This contains females of slightly below-average age²⁰ possessing the highest educational attainment and vocational skills of any Tasmanian cluster. Over half have been receiving benefits for less than three years.

Based on the information available, it appears that the main difference between the two groups above is that those in the Tasmanian *Skilled females* group seem to have a

²⁰ Though, as previously discussed, it includes a significant sub-group between the ages of 40 and 50 years.

higher education level than do the national *Less attached older females*. This is perhaps surprising, given that the overall level of educational attainment in Tasmania is known to be lower than that nationally. It is possible that the smaller Tasmanian economy provides fewer full-time employment opportunities for more educated women in this broader demographic group, with some being forced to rely on occasional work only.

NESB speaking background people (Australia)

This cluster identified by Dockery and Webster lacks a match in the Tasmanian clusters. It accounts for 18 per cent of the total long-term unemployed and comprises mainly older males living in urban areas, half of which are described as not speaking English well. Despite this, 20 per cent have a white-collar employment background and they are the best educated of the national clusters, with 14 per cent possessing a degree or higher qualification (from their country of origin). As with the *Second generation NESB old men* cluster, a large proportion were retrenched from their last job. Language barriers or language-related skill shortage results in high unemployment for these people.

Younger males with a low skilled occupational background (Tasmania)

This is the final un-matched Tasmanian cluster. It is distinguished from the predominantly male national clusters of Dockery and Webster principally by the (marginally) above-average educational level of its members and the shorter duration (all less than three years) of their unemployment. While the cluster analysis by Dockery and Webster has not isolated a group similar to this one at the national level, substantial numbers of similar persons may be present among the Australian long-term unemployed. However, the results indicate that there may be relatively more of these younger unemployed males in Tasmania.

To the extent that difficulties in achieving suitable job-matching is an explanation of long-term unemployment for this group in Tasmania, the absence of a similar group nationally may be explained by the larger and more diverse job markets that allow for a greater degree of job-matching.

The *Younger males with a low skilled occupational background* group is likely to be one of the least disadvantaged of the Tasmanian groups and, consequently, may have been one of the groups most assisted by the sustained employment creation in the Tasmanian economy since mid-2002.

2.7.3 Key Policy Issues Identified by Dockery and Webster

On the basis of their research, Dockery and Webster (2001) identified the following key policy issues.

- Labour market programs need to become more sophisticated in order to recognise, and respond to, the different barriers to employment faced by groups (that is, clusters) within the long-term unemployed. Various policy responses were proposed for the five clusters identified, including: subsidies to attract early school leavers back to education and training; encouraging more specialised Job Network providers to deal with the older disabled male unemployed; and the creation of

public sector work programs, such as those provided by some European governments, that entail a guarantee of employment for a specified period alongside members of the normal workforce.

- Given the consensus view that the net impact of government labour market programs for the long-term unemployed is small, there must have been deficiencies in past and ongoing program evaluation processes. This needs to be addressed through more rigorous research in re-designing programs, to be facilitated in part by providing greater access to government data for independent researchers.

The Australian Government has the primary responsibility for developing and implementing employment programs. It is evident that there has been a significant reduction in numbers in the long-term unemployed group. However very long-term unemployment remains a problem in Tasmania and some new policy responses to this issue would be warranted.

The Tasmanian Government has also considered what additional programs it may wish to introduce to supplement any actions taken by the Commonwealth. One current initiative is the *Partnerships to Jobs* program, which is targeted at the long-term unemployed. The information in this report may assist Government agencies in identifying further cost-effective measures to address long-term unemployment in Tasmania.

Appendix 1: Cluster Analysis Methodology and Statistical Issues

Methodology

Cluster analysis is a classifying technique used to determine the natural groupings within a set of observations. Its objective is to sort cases (people, items, events, etc) into groups or clusters so that the degree of association is strong between members of the same cluster and weak between members of different clusters. Each cluster thus describes, in terms of the data collected, the class to which its members belong.

Cluster analysis is thus a tool of discovery. It may reveal associations and structure in data which, though not previously evident, nevertheless are sensible and useful once found. The results of cluster analysis may contribute to the definition of a formal classification scheme, or indicate rules for assigning new cases for identification and diagnostic purposes. Clustering techniques have been applied to a wide variety of research problems. It is of great utility in classifying a “mountain” of information into manageable meaningful piles.

There are several general types of cluster analysis methods and within each of these there are numerous specific methods. Hierarchical cluster analysis and partition cluster analysis are the most commonly used general methods. Hierarchical clustering creates clusters in a multi-level structure where individual clusters are subsets of larger clusters. Partition (non-hierarchical) methods break the observations into a distinct number of non-overlapping groups. The main objective of using cluster analysis for this paper was to classify the long-term unemployed into separate groups in order to better understand the characteristics of these persons and how different characteristics may be linked. Thus, non-hierarchical (partition) cluster analysis suits the purpose better because it produces non-overlapping groups.

For this study, the statistical software package STATA (Version 8) was used to perform the cluster analyses and associated statistical tests.

Optimum number of clusters

An important decision in applying non-hierarchical cluster analysis is to determine the optimal number of clusters for a given data set, as this is not determined by the analysis itself. The normal practice (as followed here), is to test a range of cluster sizes and examine the results to identify the optimum number. “Stopping rules” can be used to compare the suitability of different numbers of clusters on an objective basis.

There are a large number of cluster stopping rules. Everitt, Landau, and Leese (2001) and Gordon (1990) discuss the problem of determining the number of clusters and describe several stopping rules. Milligan and Cooper (1985) provide an evaluation of 30 stopping rules. The Caliński and Harabasz (1974) pseudo-F index and the Duda and Hart (1973) $Je(2)/Je(1)$ index were identified as two of the best rules in their evaluation.

The Caliński & Harabasz index may be applied to both non-hierarchical and hierarchical cluster analysis. The greater the value of the Caliński & Harabasz

pseudo-F index, the more separate the clusters. For this study, the optimal number of clusters for Tasmania has been identified based on the value of the Caliński & Harabasz pseudo-F index. The results of these tests are shown in Table 1A below, which demonstrates that the appropriate number of clusters in this case is six.

Table 1A: Optimal Number of Clusters

<i>Number of Groups</i>	Calinski/Harabasz pseudo-F Index
2	21.79
3	162.14
4	68.77
5	96.05
6	166.50
7	106.49
8	75.52
9	82.41

Cluster analysis used

As stated above, “partition” cluster analysis has been used for this study. *Kmeans* and *kmedians* are the more commonly used partition clustering methods.

Both *kmeans* and *kmedians* clustering are iterative procedures that partition the data into *k* groups or clusters, where “k” is specified by the user. The procedure begins with *K* initial group centres and each observation is assigned to the group with the closest centre. Either the mean (*kmeans*), or the median (*kmedians*), of the observations in each group is calculated and then the observations are re-assigned to groups based on their distance from the computed means (or medians). This process is repeated by the program until all observations remain in the same group from the previous iteration.

Kmeans clustering has been chosen for this study for the following two reasons.

Firstly, the computation process of *kmeans* clustering takes all detailed characteristics of each observation into account. In *kmeans* clustering, the mean of the observations assigned to each of the groups is computed while for *kmedians* clustering, the median of the observations assigned to each of the groups is computed. The *kmeans* cluster test is preferred because the actual value of each observation is incorporated in the final reference value, unlike *kmedians* where the value of each observation is only relevant to the extent that it is used to order the observations according to size.

Secondly, *Kmeans* clustering was applied in the study by Dockery and Webster (2001). This enables a stronger basis for comparison between the Australian results from that study and the Tasmanian results produced here.

Standard deviation and Kernel Density (Kdensity)

Some post-test techniques were used to see how the observations in each cluster were distributed around the cluster mean for each variable. This was important so that a meaningful assessment could be made of the relative strength of specific characteristics across different clusters. The standard deviation was calculated to

assess this distribution, that is, to give an indication of how closely (or widely) the individual values are spread around their mean value. The standard deviation values for each cluster are listed in Appendix 2.

Further, the *Kdensity* function in STATA was applied to produce graphs (attached in Appendix 3) showing the relative density of observations across clusters for each variable.

Probability density is a property of a cluster (or any set of observations) that defines the concentration of data points in a particular area of the domain of all observations relative to other areas of that domain. There are various methods available to represent the probability density of a dataset, the simplest and most widely used being the histogram. Kernel density (“*kdensity*”) estimation is a more computer-intensive method which represents the density function as a smoothed curve. It is also superior to the histogram method in that it is independent of the choice of origin, while the shape of a histogram is largely dependent on the number and midpoint of columns chosen.

As with a histogram, in *kdensity* estimates the range is divided into intervals. However, in *kdensity* the intervals are allowed to overlap and, rather than a simple count of occurrences in each interval, for each observation in the dataset a weight between zero and one is assigned according to the distance between the observation and the centre of the interval (that is, the density). This process is undertaken through the entire range of the data with the interval effectively “sliding” along the x-axis. Simultaneously, the weighted values of the observations are summed, with the weights being calculated on the basis of a function termed the *kernel*. Plotting these weights at each *x* value produces the curved form of the graph.

The *kdensity* estimates for the variables education, age, region and occupation are shown in the graphs in Appendix 3. As these were the only variables in the dataset of a non-binary nature, *kdensity* was required to ascertain the distribution of observations across the categories for these variables. For the remaining six variables, *kdensity* was not required as the binary nature of these variables meant that the proportion of observations in each category was equivalent to the cluster mean value, as reported automatically by the program.

Broadly, the graphs in Appendix 3 should be interpreted in the same manner as histograms. For example, for the final graph in Appendix 3 (page 44), which shows the density estimate for the *occupation* variable, there is a much higher proportion²¹ of observations in cluster/group 4 with a value of “1”²² than in cluster 6. Further, there are no observations in the category “0” for cluster 4, while this is the largest category of observations for cluster 6. The patterns observed in this particular chart suggest that the observations in group 6 are more widely dispersed around the mean, which is confirmed by the finding that the standard deviation of group 6 is higher than that of group 4 for the occupation classification.

²¹ “Proportion” is relevant here (rather than “probability”), because for continuous (ie. non-binary) variables the density is not measured on a probability scale. For this reason, it is possible for the density values to exceed 1.00, as shown in Appendix 3.

²² Category 1 is defined as a semi-skilled vocational background.

Statistical Issues

Interpretation of the DEWR statistics

Part 2 of this paper draws on a unit record file from the Department of Employment and Workplace Relations (DEWR) of long-term claimants of Australian Government unemployment payments. There are certain limitations of this dataset, some of which were discussed in Section 2.2.

- The dataset used in this report was extracted by DEWR in November 2003. At that time, the Department was in the early phase of a new Job Network contract period. This meant that data on jobseekers supplied by Job Network providers were relatively recent and incompletely updated. Some indicators, such as disability and occupational choice, were recorded by Centrelink when the job seeker first registered for an allowance and may not have been updated.
- The “occupation” variable represents a choice of occupation by job seekers. It may represent: (i) the occupation they have had in the past; (ii) a change of occupational choice because they can no longer, or do not wish to participate in their previous occupation; or (iii) a new field they wish to enter, which might include young people with an interest in apprenticeships.
- Unlike the ABS Labour Force Survey, job seekers can also be working and receiving an allowance simultaneously (and therefore could be recorded by the payments system as long-term unemployed), but have been working part-time during the entire period. This may be more important in Tasmania than nationally because the State has the highest rate of part-time employment in Australia and also below average wages, a high level of seasonal work and the highest percentage of allowance recipients receiving casual earnings in Australia.
- The “duration” variable does not necessarily refer to the period of unemployment. Some job seekers may defer registering for allowance for a period of time, which will understate their period of unemployment. There are also “allowable breaks” for unemployment allowances (usually 13 weeks) where a job seeker can gain employment and still be registered as unemployed. When their allowance is reinstated, the period of unemployment is continuous from the original start date.

Geographic location variables

Prior to conducting the cluster analysis, it was decided that the location of the long-term unemployed in Tasmania was information that may be useful in framing policy responses to the findings. The original unit record dataset from DEWR recorded the postcode of every benefit recipient and therefore it is possible to interrogate this information if location at such a level of detail is required.

However, in order for location to be incorporated into the cluster analysis, it was necessary to aggregate the postcode flags into larger geographic areas. Without doing so, the very large number (relative to the other variables) of possible values for the location variable would render it essentially useless in the cluster analysis output.

It was decided to aggregate the postcode values into two separate new variables, these being “region” and “urban/rural”. The most consistent and readily available basis on which to construct these variables was the geographical classification system used by the Australian Bureau of Statistics (ABS). In broad terms, the task was then to convert the postcode information in the DEWR file to both statistical region and (either) urban or rural area.

“Postcode” is not a geographic identifier recognised in the ABS geographical hierarchy and, in fact, there is no definitive reference available that maps postcodes to areas at a high level of detail. However, the ABS does recognise (and maintain highly detailed maps for) a geographic identifier called “postal area”. With a number of insignificant exceptions, the postcodes in Tasmania align relatively closely with ABS postal areas. The conversion from postcode to postal area was achieved simply by assuming that these two identifiers were equivalent.

As postal areas aggregate closely to the statistical region boundaries used by ABS (these being Northern, Greater Hobart-Southern and Mersey-Lyell), it is possible to associate every postal area with a statistical region of which it is a part. The main exception is postal area 7215, which covers the towns of Coles Bay and Bicheno. This postal area straddles the boundary between the Northern and Greater Hobart-Southern regions. As the large majority of the population in this postal area resides in the Northern region, all records with this identifier have been classified to Northern.

A different process was required to construct the urban/rural variable. The decision was taken that for this exercise “urban” would be defined as population centres with at least 5 000 persons. These centres were identified from ABS publication 2016.6 as being Hobart, Launceston, Devonport, Burnie-Somerset, Kingston-Blackmans Bay, Ulverstone, Bridgewater-Gagebrook and New Norfolk.

Postal areas corresponding to each of these centres were identified from a detailed concordance provided by ABS. In every case, the relevant postal area/s extended beyond the boundary of the urban centre to encompass areas classified as “rural”. The concordance allowed the percentage of the population in each postal area lying within the urban centre to be calculated. This is significant because all records with the same postal area needed to be flagged as either “urban” or “rural”; it was not possible to differentiate on this basis within individual postal areas. Therefore, unless a high proportion of the population in each postal area resided within the target urban centre, potential inaccuracies would be introduced if all records in the DEWR dataset corresponding to that postal area were designated as “urban”.

The above considerations led to New Norfolk being omitted from the list of centres that would be regarded as urban. According to 2001 Census figures, almost half of the population in the postal area encompassing New Norfolk (7140) resides in rural areas outside the town boundaries. Consequently, it was determined that the cluster analysis results would be misleading if all records with the postal area 7140 were classified as being urban.

For the remaining seven major urban areas, the percentage of the population in the relevant postal areas recorded as being urban according to the strict definition was at least 75 per cent, and in four cases it was over 90 per cent. This range was deemed to

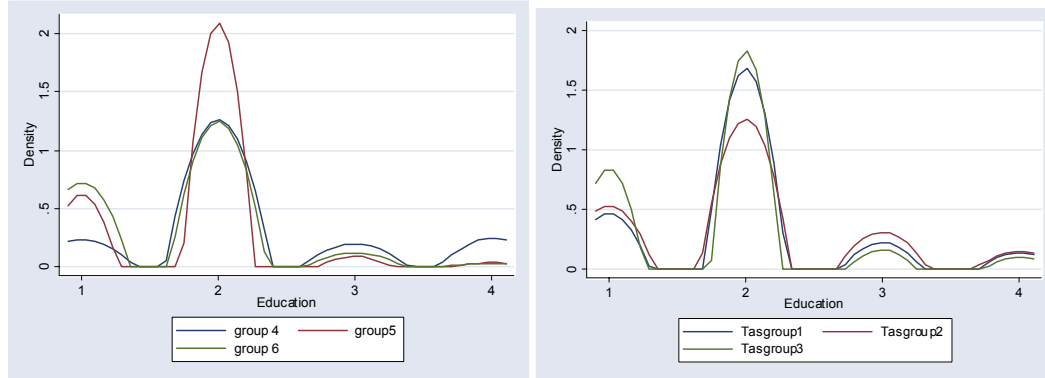
be acceptable on the grounds of accuracy. An implicit assumption with this approach is that the distribution of the long-term unemployed between the urban and rural elements of the relevant postal areas is the same as that for the general population.

Appendix 2: Kmeans Cluster Analysis Results - Tasmania

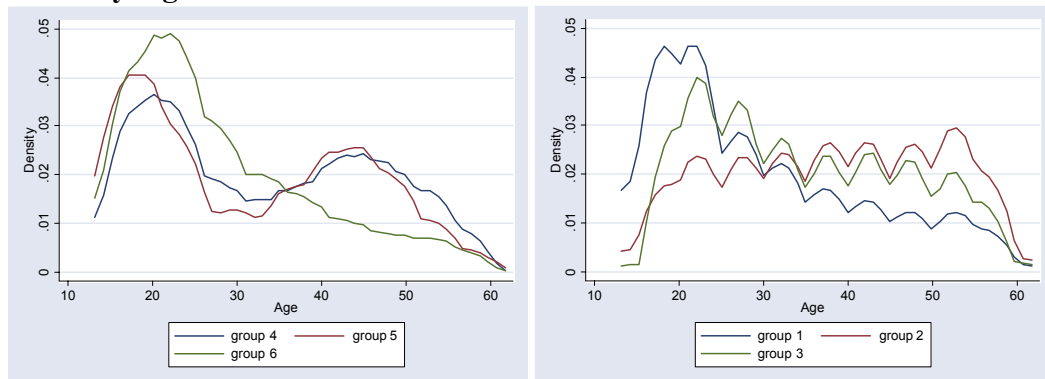
Characteristics	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Total
Number	2295	2477	4188	1342	1007	537	11846
	Mean Value						
Gender	1 <i>Male only</i>	0.939 <i>Mainly male</i>	0.855 <i>Mainly male</i>	0 <i>Female only</i>	0 <i>Female only</i>	0.84 <i>Mainly male</i>	0.73
<i>(Std deviation)</i>	0	0.23	0.35	0	0	0.36	0.44
NESB	0.031 > average <i>Still low %</i>	0.029 > average <i>Still low %</i>	0.023 <i>Not an issue</i>	0.035 > average <i>Still low %</i>	0.026 <i>Not an issue</i>	0 <i>No one</i>	0.026
<i>(Sd deviation)</i>	0.17	0.16	0.14	0.18	0.15	0	0.15
Indigenous	0 <i>No one</i>	0.006 <i>Not an issue</i>	0 <i>No one</i>	0.046 <i>Not an issue</i>	0.02 <i>Not an issue</i>	1 <i>All are indigenous</i>	0.053
<i>(Std deviation)</i>	0	0.075	0	0.21	0.14	0	0.22
Disability	0.038 <i>Not an issue</i>	0.497 > average <i>(Highest) 49.7 %</i>	0.105 <i>Not an issue</i>	0.098 <i>Not an issue</i>	0.071 <i>Not an issue</i>	0.132 <i>Not an issue</i>	0.172
<i>(Std deviation)</i>	0.19	0.50	0.30	0.29	0.25	0.33	0.37
Education	2.01 <i>Higher than average</i>	2.027 <i>Higher than average</i>	1.838 <i>Lower than average</i>	2.231 <i>Higher than average</i>	1.839 <i>Lower than average</i>	1.739 <i>Lower than average</i>	1.951
<i>(Std deviation)</i>	0.70	0.79	0.67	0.81	0.52	0.61	0.72
Region	0.678 <i>Likely more South</i>	0.827 <i>Likely more North/NW</i>	0.735 <i>Likely more South</i>	0.762 <i>(About average)</i>	0.981 <i>Likely more North/NW</i>	0.784 <i>(About average)</i>	0.769
<i>(Std deviation)</i>	0.79	0.81	0.81	0.79	0.78	0.85	0.81
Urban/Rural	0.225 <i>Mainly urban</i>	0.844 <i>Mainly rural</i>	0.25 <i>More urban</i>	0.328 <i>More urban</i>	0.517 <i>More rural</i>	0.436 <i>More urban</i>	0.409
<i>(Std deviation)</i>	0.41	0.36	0.43	0.47	0.50	0.49	0.49
Age	29.47 <i>Younger than average</i>	38.0 <i>Oldest group</i>	34.81 <i>Older than average</i>	32.91 <i>Younger than average</i>	30.82 <i>Younger than average</i>	27.65 <i>Youngest group</i>	33.56
<i>(Std deviation)</i>	12.29	12.45	11.87	13.04	13.21	10.84	12.69
Occupation	0.475 <i>Likely more low skilled</i>	0.984 <i>More semi-skilled</i>	0.276 <i>More low skilled</i>	1.208 <i>Likely more high skilled</i>	0 <i>Low skilled only</i>	0.439 <i>Likely more low skilled</i>	0.55
<i>(Std deviation)</i>	0.67	0.58	0.54	0.40	0	0.60	0.66
Duration	0 <i>All < 3 yrs</i>	0.62 <i>More >3 yrs</i>	1 <i>All > 3 yrs</i>	0.44 <i>More < 3 yrs</i>	0.21 <i>Mainly < 3yrs</i>	0.55 <i>More > 3yrs</i>	0.57
<i>(Std deviation)</i>	0	0.48	0	0.49	0.41	0.49	0.49

Appendix 3: Density Graphs for the Continuous Variables²³

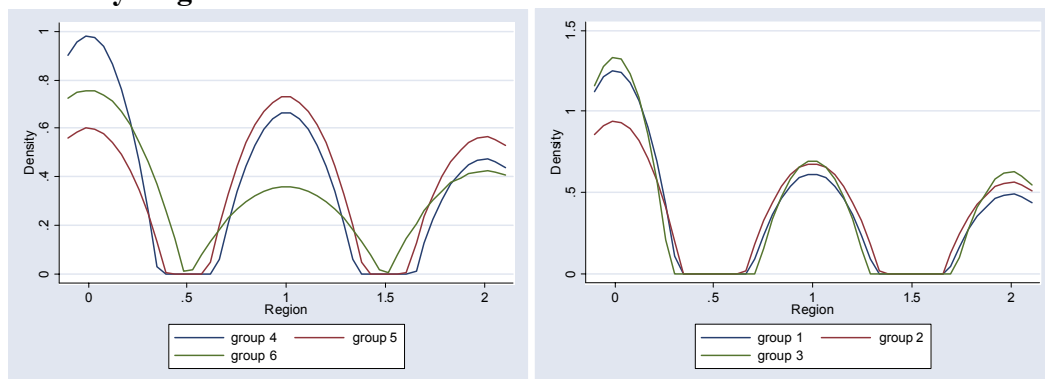
Kdensity-Education



Kdensity-Age



Kdensity-Region



²³ See Appendix 1 for advice on interpretation of these charts.

Kdensity-Occupation

