

**BEYOND THE UNEMPLOYMENT RATE:
TOWARDS A MORE COMPREHENSIVE METHOD FOR MEASURING
LABOUR UNDERUTILISATION**

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TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vii
ABSTRACT	x
DECLARATION	xii
ACKNOWLEDGMENTS	xiii
PUBLICATIONS AND PRESENTATIONS	xv
1 INTRODUCTION.....	1
1.1 Introduction	1
1.2 A brief history of the debates about alternative measures of labour underutilisation	5
1.3 Rationale, aims and approach of the thesis	12
1.4 A brief history of Australian labour market statistics.....	16
1.5 Outline of the thesis.....	31
2 CONTEMPORARY LABOUR FORCE INDICATORS: METHODOLOGICAL CONSIDERATIONS	34
2.1 Introduction	34
2.2 The definition of employment, unemployment and underemployment.....	35
2.3 The labour force participation rate and hidden unemployment	44
2.4 The seasonal adjustment process.....	49
2.5 Visible underemployment	52
2.6 Invisible underemployment.....	54
2.7 The unemployment rate is really a proxy measure of Gross Domestic Product	57
2.8 Constructing labour market indicators	61
2.9 An evaluation of the seasonally adjusted unemployment rate	66
2.10 An evaluation of the volume measures of labour underutilisation.....	69
2.11 Conclusion.....	72
3 ALTERNATIVE LABOUR FORCE INDICATORS: UNWEIGHTED INDEXES	75
3.1 Introduction	75
3.2 Health of the Labour Force Indices	77
3.3 The Job Quality Index	82
3.4 Measuring the Job-poor Labour Force	85
3.4.1 Introduction	85
3.4.2 The Structural Exclusion Index	86
3.4.3 The Adult Wage Polarisation Index.....	89
3.4.4 The Adult Employment Vulnerability Index	91
3.5 The Real Unemployment Rate.....	94
3.5.1 Introduction	94
3.5.2 The Corrected Unemployment Rate	94
3.5.3 The Real Unemployment Rate	96
3.6 Radar charts.....	99
3.7 The Household, Income and Labour Dynamics in Australia (HILDA) Survey	103
3.8 An hours-based measure of unemployment.....	106
3.9 Conclusion.....	109
4 ALTERNATIVE LABOUR FORCE INDICATORS: WEIGHTED INDEXES	111
4.1 Introduction	111
4.2 Econometric regression	112
4.2.1 Introduction	112
4.2.2 The Misery Index.....	114
4.2.3 The Illfare Function	117

4.2.4 An hours-based rate of hidden unemployment.....	123
4.2.5 Total Labour Underutilisation	127
4.2.6 Summary	130
4.3 Factor Analysis: Principal Components Analysis.....	131
4.3.1 Introduction	131
4.3.2 Socio-Economic Indexes for Areas	133
4.3.3 Summary	135
4.4 Logistic regression analysis: The Partial Credit Model	137
4.4.1 Introduction	137
4.4.2 The Partial Credit Model.....	138
4.4.2 Strength and weaknesses of the Partial Credit Model	140
4.5 Conclusion.....	142
5 THREE NEW LABOUR MARKET INDICATORS	144
5.1. Introduction	144
5.2 The Real Unemployment Rate	147
5.2.1 Real unemployment	147
5.2.2. The real unemployment rate: The method	149
5.3 The hours unemployment rate.....	157
5.3.1 The hours-adjusted unemployment rate <i>CU7</i>	157
5.3.2 The hours unemployment rate: The method	166
5.4 The comprehensive unemployment rate	169
5.4.1. The hours-adjusted unemployment rate <i>CU8</i>	169
5.4.2 The comprehensive unemployment rate: The method.....	173
5.5 Conclusion.....	177
6 LABOUR FORCE TRENDS ONE: THE OFFICIAL STORY OF THE SOUTH AUSTRALIAN LABOUR FORCE 1989 TO 2005.....	179
6.1 Introduction	179
6.1.1 Introduction	179
6.1.3 Aims of this chapter	180
6.2 Unemployment in Australia and South Australia	181
6.2.1 Unemployment in South Australia	181
6.2.3 South Australia compared to the other states	185
6.3 Other labour market indicators.....	187
6.3.1 Introduction	187
6.3.2 Long-term unemployment.....	188
6.3.3 Average duration of unemployment	192
6.3.4 Australia and South Australia: Annual earnings	196
6.3.5 Summary	200
6.4. Employment growth: The South Australian experience	201
6.4.1 Introduction	201
6.4.2 Total employment growth.....	203
6.4.3 Male employment growth	205
6.4.4 Female employment growth.....	208
6.4.5. Summary	210
6.5 Conclusion.....	211
7 LABOUR FORCE TRENDS TWO: THE REAL STORY OF THE SOUTH AUSTRALIAN LABOUR MARKET 1989 TO 2005.....	214
7.1 Introduction	214
7.2 Hidden unemployment: The real unemployment rate.....	216
7.2.1 Introduction	216

7.2.2 Labour force participation gaps	218
7.2.3 Hidden unemployment: The real unemployment rate for South Australia	222
7.3 Visible underemployment: The hours unemployment rate for South Australia	229
7.4 Hidden unemployment and visible underemployment: The comprehensive unemployment rate for South Australia	235
7.5 Conclusion.....	241
8 LABOUR FORCE TRENDS THREE: THE REAL STORY OF THE AUSTRALIAN LABOUR MARKET 1989 TO 2005	245
8.1 Introduction	245
8.1.1 Introduction	245
8.1.2 Aim of this chapter	246
8.2 The conventional wisdom about the Australian labour market.....	248
8.3 An alternative view of the Australian labour market: The real unemployment rate.....	254
8.3.1 Introduction	254
8.3.2 New South Wales	256
8.3.3 Victoria.....	259
8.3.4 South Australia	261
8.3.5 Western Australia	263
8.3.6 Queensland	266
8.3.7 Tasmania	268
8.3.8 Summary	269
8.4 An alternative view of the Australian labour market: The hours unemployment rate .	270
8.4.1 Introduction	270
8.4.2 New South Wales	271
8.4.3 Victoria.....	274
8.4.4 South Australia	276
8.4.5 Western Australia	279
8.4.6 Queensland	280
8.4.7 Tasmania	282
8.4.8 Summary	284
8.5 An alternative view of the Australian labour market: The comprehensive unemployment rate.....	285
8.5.1 Introduction	285
8.5.2 New South Wales	287
8.5.3 Victoria.....	290
8.5.4 South Australia	292
8.5.5 Western Australia	295
8.5.6 Queensland	297
8.5.7 Tasmania	299
8.5.8 Summary	300
8.6 Conclusion.....	302
9 IMPLICATIONS FOR THE MEASUREMENT OF LABOUR UNDERUTILISATION	305
9.4 Some recommended changes for the Labour Force Survey	318
9.5 Conclusion.....	321
9.6 Suggestions for further research.....	324
BIBLIOGRAPHY	326

LIST OF TABLES

Table 2.1: Criteria to be used when constructing labour force indexes and indicators.....	66
Table 2.2: Evaluation of the seasonally adjusted unemployment rate.	67
Table 2.3: Evaluation of the volume measures of labour underutilisation	71
Table 3.1: Items making up the Health of the Labour Market Indices	80
Table 3.2: Component indicators of the Job Quality Index	84
Table 3.3: The Job Quality Index, 1996 to 2001	84
Table 3.4: The Structural Exclusion Index	87
Table 3.5: Structural Exclusion Index, May 1998, Canada	87
Table 3.6: Adult Wage Polarization	90
Table 3.7: Adult Employment Vulnerability Index	93
Table 3.8: Alternative measures of coalfield unemployment, April 1991	98
Table 3.9: Underutilisation, unemployment and underemployment among the workforce aged 15 to 64, per cent, Australia, 2001	104
Table 3.10: Underutilisation and unemployment measures, Australia, 1980 to 2000	107
Table 4.1: Misery Index, Australia 1978 to 2005, per cent	115
Table 4.2: Estimates of the level of unemployment, USA 1976 to 1990	120
Table 4.3: Estimates of the welfare cost of unemployment, Australia, 1975 to 1997	121
Table 4.4: Underutilisation and unemployment measures, Australia, 1980 to 2000	124
Table 4.5: Estimates of the welfare cost of unemployment, Australia, 1980 to 2007, selected years	126
Table 4.6: Trend unemployment rate and total labour underutilisation, Australia, 1980 to 1995, per cent	130
Table 5.1: Evaluation of real unemployment.....	148
Table 5.2: Labour force participation rate, Australia, persons, 1989 to 2005, per cent ...	151
Table 5.3: Labour force participation rate, Australia, males, 1989 to 2005, per cent.....	152
Table 5.4: Labour force participation rate, Australia, females, 1989 to 2005, per cent ...	153
Table 5.5: Evaluation of the real unemployment rate	157
Table 5.6: The Bureau of Labor Statistics alternative measures of labour underutilisation	159
Table 5.7: Alternative measures of labour underutilisation and underemployment for Australia.....	159
Table 5.8: Evaluation of the hours-adjusted unemployment rate CU7	164
Table 5.9: Evaluation of the hours unemployment rate	168
Table 5.10: Evaluation of the hours-adjusted unemployment measure CU8	172
Table 5.11: Evaluation of the comprehensive unemployment rate.....	177
Table 6.1: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005	182
Table 6.2: Trend unemployment rate, Australia by State, 1989 to 2005, per cent	186
Table 6.3: Long-term unemployed as a percentage of total unemployment, Australia and South Australia, per cent, 1989 to 2005	189
Table 6.4: Average duration of unemployment, Australia and South Australia, weeks, 1989 to 2005	193
Table 6.5: Adult average weekly earnings Australia, 1989 to 2005, dollars.....	197
Table 6.6: Adult weekly earnings South Australia, 1989 to 2005, dollars.....	198
Table 6.7: Employment growth Australia, 1989 to 2005, ('000s).....	202
Table 6.8: Employment growth South Australia, 1989 to 2005, ('000s)	202
Table 7.1: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent	220

Table 7.2: Trend and real unemployment, South Australia, 1989 to 2005, per cent	223
Table 7.3: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent.....	232
Table 7.4: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent	236
Table 8.1: Trend unemployment rate, Australia, persons, 1989 to 2005, per cent	248
Table 8.2: Trend unemployment rate, Australia, males, 1989 to 2005, per cent	249
Table 8.3: Trend unemployment rate, Australia, females, 1989 to 2005, per cent	249
Table 8.4: Real unemployment rate, Australia, persons, 1989 to 2005, per cent	255
Table 8.5: Real unemployment rate, Australia, males, 1989 to 2005, per cent	256
Table 8.6: Real unemployment rate, Australia, females, 1989 to 2005, per cent	256
Table 8.7: Hours unemployment rate, Australia, persons, 1989 to 2005, per cent	272
Table 8.8: Hours unemployment rate, Australia, males, 1989 to 2005, per cent.....	273
Table 8.9: Hours unemployment rate, Australia, females, 1989 to 2005, per cent.....	273
Table 8.10: Comprehensive unemployment rate, Australia, persons, 1989 to 2005, per cent	286
Table 8.11: Comprehensive unemployment rate, Australia, males, 1989 to 2005, per cent	286
Table 8.12: Comprehensive Unemployment Rate, Australia, females, 1989 to 2005, per cent	287

LIST OF FIGURES

Figure 1.1: Australian Bureau of Statistics, Labour Force Framework	23
Figure 1.2: Labour supply activity framework	25
Figure 1.3 Australian Bureau of Statistics, conceptual framework, underemployed workers	28
Figure 2.1: The participation and unemployment rates, Australia 1978 to 2005, per cent .	47
Figure 3.1: Adult Wage Polarization, age and median wage, May 1998	91
Figure 3.2: European Union labour force performance, 1997 and 1992, employment indicators, USA	102
Figure 3.3: European Union Labour Force performance, 1997 and 1992, Unemployment Indicators, USA	102
Figure 3.4: Underutilisation and unemployment measures, Australia, 1980 to 2000	109
Figure 4.1: Misery Index, Australia 1978 to 2005, per cent	116
Figure 4.2: Seasonally adjusted unemployment rate and hours-adjusted unemployment, Australia, 1980 to 2000	125
Figure 5.1: Labour force participation rate, South Australia and Australia, persons, 1989 to 2005, per cent	151
Figure 5.2: Labour force participation rate, South Australia and Australia, males, 1989 to 2005, per cent	154
Figure 5.3: Labour force participation rate, South Australia and Australia, females, 1989 to 2005, per cent	156
Figure 6.1: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005, Persons	184
Figure 6.2: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005, males	184
Figure 6.3: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005, females	185
Figure 6.4: Trend unemployment rate, Australia by State, 1989 to 2005, per cent	186
Figure 6.5: Long-term unemployed as a percentage of total unemployment, Australia and South Australia, persons, per cent, 1989 to 2005	190
Figure 6.6: Long-term unemployed as a percentage of total unemployment, Australia and South Australia, males, per cent, 1989 to 2005	192
Figure 6.8: Average duration of unemployment, Australia and South Australia, persons, weeks, 1989 to 2005	195
Figure 6.9: Average duration of unemployment, Australia and South Australia, males, weeks, 1989 to 2005	195
Figure 6.10: Average duration of unemployment, Australia and South Australia, females, weeks, 1989 to 2005	196
Figure 6.12: Adult weekly earnings Australia and South Australia, females, 1989 to 2005, dollars	199
Figure 6.13: Adult weekly earnings Australia and South Australia, persons, 1989 to 2005, dollars	199
Figure 6.14: Employment growth Australia and South Australia, full-time employment, persons, 1989 to 2005, index numbers	204
Figure 6.15: Employment growth Australia and South Australia, part-time employment, persons, 1989 to 2005, index numbers	204
Figure 6.16: Employment growth Australia and South Australia, full-time employment, males, 1989 to 2005, index numbers	206

Figure 6.17: Employment growth Australia and South Australia, part-time employment, males, 1989 to 2005, index numbers	206
Figure 6.18: Employment growth Australia and South Australia, full-time employment, Females, 1989 to 2005, index numbers	209
Figure 6.19: Employment growth Australia and South Australia, part-time employment, females, 1989 to 2005, index numbers	210
Figure 7.1: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent, persons.....	221
Figure 7.2: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent, males.....	221
Figure 7.3: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent, females.....	222
Figure 7.4: Trend and real unemployment, South Australia, 1989 to 2005, per cent, persons	224
Figure 7.5: Trend and real unemployment, South Australia, 1989 to 2005, per cent, males	226
Figure 7.6: Trend and real unemployment, South Australia, 1989 to 2005, per cent, females	228
Figure 7.7: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent, persons.....	233
Figure 7.8: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent, males.....	234
Figure 7.9: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent, females.....	234
Figure 7.10: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent, persons.....	237
Figure 7.11: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent, males.....	238
Figure 7.12: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent, females.....	240
Figure 8.1: Trend unemployment rate, New South Wales, 1989 to 2005, per cent	251
Figure 8.2: Trend unemployment rate, Victoria, 1989 to 2005, per cent	251
Figure 8.3: Trend unemployment rate, South Australia, 1989 to 2005, per cent.....	252
Figure 8.4: Trend unemployment rate, Western Australia, 1989 to 2005, per cent	253
Figure 8.5: Trend unemployment rate, Queensland, 1989 to 2005, per cent	253
Figure 8.6: Trend unemployment rate, Tasmania, 1989 to 2005, per cent.....	254
Figure 8.7: Real unemployment rate, New South Wales, 1989 to 2005, per cent	257
Figure 8.8: Real unemployment rate, Victoria, 1989 to 2005, per cent	260
Figure 8.9: Real unemployment rate, South Australia, 1989 to 2005, per cent.....	262
Figure 8.10: Real unemployment rate, Western Australia, 1989 to 2005, per cent	265
Figure 8.11: Real unemployment rate, Queensland, 1989 to 2005, per cent.....	267
Figure 8.12: Real unemployment rate, Tasmania, 1989 to 2005, per cent.....	269
Figure 8.13: Hours unemployment rate, New South Wales, 1989 to 2005, per cent.....	274
Figure 8.14: Hours Unemployment Rate, Victoria, 1989 to 2005, per cent.....	275
Figure 8.15: Hours unemployment rate, South Australia, 1989 to 2005, per cent	277
Figure 8.16: Hours unemployment rate, Western Australia, 1989 to 2005, per cent.....	280
Figure 8.17: Hours unemployment rate, Queensland, 1989 to 2005, per cent	282
Figure 8.18: Hours unemployment rate, Tasmania, 1989 to 2005, per cent.....	284
Figure 8.19: Comprehensive unemployment rate, New South Wales, 1989 to 2005, per cent	290

Figure 8.20: Comprehensive unemployment rate, Victoria, 1989 to 2005, per cent	291
Figure 8.21: Comprehensive unemployment rate, South Australia, 1989 to 2005, per cent	294
Figure 8.22: Comprehensive unemployment rate, Western Australia, 1989 to 2005, per cent	297
Figure 8.23: Comprehensive unemployment rate, Queensland, 1989 to 2005, per cent...	298
Figure 8.24: Comprehensive Unemployment Rate, Tasmania, 1989 to 2005, per cent....	300

ABSTRACT

The official labour force statistics that are used in Australia have serious limitations. While appropriate for characterising the employment and unemployment situations of a labour market dominated by standard employment relations, however, they may now be inappropriate as standard employment relations no longer dominate the Australian labour market. Over the past 25 years, significant restructuring of both the economy and the labour market has occurred resulting in slower growth of full-time employment, a substantial increase in part-time work, a continued decline in the male labour force participation rate and a continued increase in the female participation rate. As a result, two serious problems emerged in the Australian labour market in the wake of the recession of the early-1990s, a substantial increase in both hidden unemployment and visible underemployment, which were not reflected in the official Australian measures of labour underutilisation, that is the *seasonally adjusted unemployment rate* and the *trend unemployment rate*.

Up until the late-1980s, hidden unemployment and visible underemployment were not important sources of labour underutilisation in Australia, but they now contribute significantly to the level of labour underutilisation. Herein lies the problem that is the crux of this thesis. The growth in hidden unemployment and visible underemployment means that the official measures of labour underutilisation for Australia, the *seasonally adjusted unemployment rate* and the *trend unemployment rate*, no longer provide accurate estimates of labour underutilisation. In fact, they essentially only measure cyclical unemployment and frictional unemployment, which are the core forms of unemployment and joblessness associated with standard employment relations. Consequently, they no longer provide an

appropriate basis for the development of employment, economic and social policy in Australia. New indicators are needed that yield better measures of labour underutilisation and hence provide a better basis for public policy.

This thesis develops three new labour market indicators that are then used to re-examine the experience of the South Australian labour market over the period 1989 to 2005. The first section of the thesis provides a critical review of the official Australian Bureau of Statistics labour force indicators, and a range of alternative labour force indicators that have been developed since the 1990s. This discussion leads to the development of three new labour force indicators with the particular characteristic of providing broad accessibility for labour market analysts and policy makers including those who generally are not literate in econometric techniques. The second section uses these labour force indicators to re-examine, and re-interpret, the experience of the South Australian labour market over the period 1989 to 2005. The third section draws conclusions from this analysis, arguing in particular that the actual level of labour underutilisation in South Australia is about treble the level that is obtained from either the *seasonally adjusted unemployment rate* or the *trend unemployment rate*. Some key policy implications of this finding are then discussed.

DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being available for loan and photocopying.

SIGNED: _____ DATE: _____

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The industry partner, a union, was concerned that the real extent of labour underutilisation in South Australia during the 1990s was much higher than the official unemployment rate suggested because relevant information about visible underemployment and hidden unemployment is not collected as part of the Labour Force Survey, neither during the monthly survey or the quarterly supplementary survey. Hence, these forms of labour underutilisation are underestimated. So, at an early stage in the planning of this thesis, that is, during the preparation of the relevant ARC Linkage grant application, it was decided

that this thesis would focus entirely on the quantitative aspects of labour market restructuring. Hence, there has been little engagement in this thesis with that body of literature that explores the qualitative dimension of labour market restructuring. This focus on the quantitative, rather than the qualitative, dimension of the issues explored in this thesis, to a large degree, reflects the needs of the industry partner of this project.

PUBLICATIONS AND PRESENTATIONS

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1. (2004) Beyond the Unemployment Rate: Three New Measures of Labour Underutilisation for South Australia, *Australian Bulletin of Labour*, 30(1) pp. 46–63.
2. (2005) (with Burgess, J and Campbell, I) The Australian Labour Market in 2004, *Journal of Industrial Relations*, 47(2), pp. 133–150.
3. (2008) Beyond the Unemployment Rate: Is Immigration Really the Solution to the Australian Skills Shortages Problem? *International Journal of Employment Studies*, Vol. 15, No. 1, pp. 119–136.

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1. (2001) Measuring Labour Market Malaise: Does One Size Fit All?, *Proceedings*, 9th Annual International Employment Relations Association Conference and Symposium, Singapore.
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3. (2004) Why are there no inflationary pressures in Australia? Insights from the South Australian labour market, *The Path to Full Employment, Proceedings 6th Path to Full Employment Conference and 11th National Conference on Unemployment*, Newcastle, 8–10 December 2004, pp. 60–73.
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1. (2002) Unemployment Figures: The Story Behind the Numbers, paper presented to the Annual Conference of the South Australian Economic Teachers Society, Adelaide University, 8 November, 2002.
2. (2004) Beyond the Unemployment Rate: Implications for South Australian Employment Policy, paper presented at the Australasian Political Studies Association Conference 2004, 29 September–1 October 2004.

3. (2004) The Partial Credit Model: Towards a Better Schools Funding Model, paper presented at the Seventh Annual Education Conference, Flinders University, 18 November 2004.

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1. (2003) A Review of Labour Force Indicators, A report prepared for the South Australian Review of Employment Programs, Department of Premier and Cabinet.
2. (2003) (with Coffee N and Medlin C) South Australian Public Sector Workforce, A report prepared for the South Australian Review of Employment Programs, Department of Premier and Cabinet.
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4. (2005) (with Spoehr J) Employment and Workforce Development, in *State of South Australia: Trends and Issues*, JD Spoehr (ed.), Wakefield Press, Adelaide, pp. 133–150.
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1 INTRODUCTION

1.1 Introduction

The official labour force statistics that are currently used in Australia have serious limitations as they underestimate the extent of labour underutilisation in the Australian labour market. This thesis aims to make a contribution to the debate about how to better measure labour underutilisation in the Australian labour market. The current suite of labour force statistics that are produced by the Australian Bureau of Statistics considerably underestimate the extent of labour underutilisation in Australia, a situation that the Bureau has been trying to rectify for over a decade. Basing fiscal and monetary policy settings on a very narrow measure of labour underutilisation, such as the *seasonally adjusted unemployment rate* or the *trend unemployment rate*, is fraught with problems. If policy makers at both the Federal and State level are to develop appropriate economic and social policy they require more comprehensive estimates of the extent of labour underutilisation, rather than focus on fluctuations in cyclical unemployment, or demand deficient unemployment, as shown by the existing headline unemployment measures. That is, they need to reflect changes in a broader range of forms of labour underutilisation. Hopefully, the results of this thesis can inform the process that the Australian Bureau of Statistics is using to further develop its volume measures of labour force underutilisation. This thesis will argue that although the measures of labour underutilisation that are constructed by the Australian Bureau of Statistics became more sophisticated over the course of the twentieth century, they are based on out-dated conceptions of employment, unemployment and

joblessness. Hence, new measures of labour underutilisation, in addition to the present suite of unemployment measures, are required.

The introductory chapter to this thesis firstly will briefly outline the emergence of a body of research on alternative measures of labour underutilisation. It will then identify the rationale, aims and approach of this thesis in relation to that body of research. In order to provide some essential background to the thesis topic a brief history of the development of the existing official Australian labour market statistical framework is provided. A brief summary is then provided of each of the chapters of the thesis.

Central to this thesis is an examination of changes in the level of labour underutilisation in the South Australian labour market over the period 1989 to 2005. However, the term ‘labour underutilisation’ is a contested term. That is, different labour market analysts define and operationalise the term differently. Moreover, the related terms ‘unemployment’, ‘underemployment’ and ‘visible underemployment’ are also contested terms. Hence, it is difficult for a study to proceed if its underlying concepts are contested. Therefore, one of the first tasks that needs to be undertaken is to define all contested terms in order to provide a conceptual framework for the study. The operationalisation of the terms explored in this thesis is the focus of chapter 2. Nevertheless, these key contested terms will be briefly introduced here in order to set the stage for the rest of the thesis.

Labour underutilisation is a term used to describe the level of excess labour capacity in an economy. It can be measured using either population or hours-based estimates (Australian Bureau of Statistics 2012d; 7). To better measure the extent of labour underutilisation in Australia, the Australian Bureau of Statistics (2002b; 7) introduced three new measures of labour underutilisation, the underemployment rate, the labour force

underutilisation rate and the extended labour force underutilisation rate, to complement the unemployment rate. However, these are person rates of labour underutilisation and hence tend to underestimate the true extent of labour underutilisation.

The Australian Bureau of Statistics also recognises that person rates of labour underutilisation underestimate the true level of labour underutilisation in Australia. So, in 2003, the Australian Bureau of Statistics developed an hours-based measure of labour underutilisation, the *volume labour force underutilisation rate* (Australian Bureau of Statistics 2012d; 3). This is an alternative to measure ‘the total volume of underutilised labour in the labour force (hours preferred by those in unemployment, plus additional hours preferred by those in underemployment), as a percentage of the volume of potential hours in the labour force’ (Australian Bureau of Statistics 2012d; 3). However, as this measure does not include any estimates of hidden unemployment, it too underestimates the true level of labour underutilisation. Hence, this study is an attempt to develop more comprehensive hours-based measures of labour underutilisation.

Unemployment is related to the concepts of worklessness or joblessness. That is, adults who are actively seeking work, but who are unable to find paid work outside of the home. The definition of unemployment that is used in this study is the official Australian Bureau of Statistics (2012c; 12) definition of employment. That is, ‘unemployed persons include all people aged 15 years and over who were not employed during the reference week, that is they have not had one hour or more of paid work in a week (or unpaid work in a family business or farm) and;

- had actively looked for full-time or part-time work at any time in the four weeks up to the end of the reference week and were available for work in the reference week; or
- were waiting to start a new job within four weeks from the end of the reference week and could have started in the reference week if the job had been available then.’

All other people are regarded as not in the labour force and therefore are not included in the official unemployment statistics (ACOSS 2003; 10). Hence, official statistics on unemployment provide only a partial picture of the total level of labour underutilisation in the economy.

Underemployment is an important component of underutilised labour resources in the economy. The Australian Bureau of Statistics (2012c; 11) defines this concept as ‘underemployed workers are employed persons age 15 and over who want, and are available for, more hours of work that they currently have. They comprise:

- persons employed part-time who want to work more hours and are available to start work with more hours, either in the reference week or in the four weeks subsequent to the survey; or
- person employed full-time who worked part-time hours in the reference week for economic reasons (such as being stood down because of insufficient work being available). It is assumed that these people wanted to work full-time in the reference week and would have been available to do so.’

The Australian Bureau of Statistics publishes a headcount underemployment rate that expresses the number of underemployed workers as a percentage of the labour force. Recently it has also begun to calculate a volume underemployment rate, which measures the additional hours of labour preferred by underemployed workers, as a percentage of the volume of potential hours in the labour force.

Hidden unemployment refers to the levels of involuntary joblessness and underemployment that are not counted in the official unemployment statistics (ACOSS 2003; 10). The Australian Bureau of Statistics states that the hidden unemployed are ‘not considered to be unemployed, but are regarded as being marginally attached to the labour force’. They can be thought of as ‘potentially unemployed’ when, or if, their circumstances change, but are regarded as being on the fringe of labour force participation until then (Australian Bureau of Statistics 2012e; 5). However, for the purpose of this thesis the definition of hidden unemployment developed by Beatty and Fothergill (1997; 138) will be

used. People experiencing this form of labour market exclusion are hidden unemployed because they might reasonably expect to work in a fully employed economy. That is, these people withdraw from the labour market because they know that they do not have a reasonable chance of meeting their labour market aspirations in the current economic climate, but they will re-enter the labour market if the economy improves. In this thesis, alternative measures of labour underutilisation are explored. An attempt is made to include hidden unemployment and underemployment in order to construct a more comprehensive way of measuring labour underutilisation.

1.2 A brief history of the debates about alternative measures of labour underutilisation

The existing body of research on alternative measures of labour underutilisation has developed rather unevenly over the past few decades, reaching a peak in the late-1980s to the early-2000s and then waning thereafter, reflecting the fact that approaches to the collection of labour market data are essentially products of their time. The wave of research to develop better labour market indicators that emerged from the late-1980s to the early-2000s reflects the economic scenario of the late-1980s and early-1990s. The early-1990s, in particular, was associated with a worldwide recession. Labour markets were plunged into crisis, but Burke and Shields (1999), for example, argued that official labour market indicators in many industrialised nations, for example, the USA, the UK, Canada and Australia, seemed to bear little resemblance to the state of the labour market. That is, the official measures of unemployment tended to substantially underestimate the level of labour underutilisation that occurred during the recession of the early-1990s. The recession

of the late-1980s and early-1990s led to labour market restructuring in many developed nations, including Australia. This restructuring in turn led to the substantial growth in previously unimportant forms of labour underutilisation, that is, hidden unemployment and visible underemployment, as well as growth in various forms of marginal attachment to the labour market, all of which remained largely unaccounted for and hence underestimated in the official unemployment rate.

The increased level of labour underutilisation that occurred in Australia during the recession of the early-1990s as a result of labour market restructuring was observed by a number of labour force analysts in the latter half of the 1990s working within a 'political economy' or 'heterodox economics' framework to develop better labour force indicators. In the British context two of the leading researchers in this area are Christina Beatty and Stephen Fothergill at Sheffield Hallam University (see for example: Beatty and Fothergill 1998 and 2003a). In the Australian context, the group of researchers who have made the most significant contribution to this debate are Bill Mitchell, Ellen Carlson and their colleagues at the Centre of Full Employment and Equity (CofFEE) at the University of Newcastle (see for example: Mitchell and Carlson 2000 and Mitchell 2007). Both of these groups of researchers have attempted to construct labour market indicators that provide more comprehensive estimates of the extent of labour underutilisation using official labour force data published by the Australian Bureau of Statistics. Their goal was to develop measures that more fully informed the policy development process so that all people who had been adversely affected by cyclical variations in the demand for labour or the restructuring of the labour force could be identified and assisted.

In Australia at this time, several political economists argued that, behind the official story of an unprecedented period of sustained economic growth and employment growth during the recovery from the recession of the early-1990s, the Australian labour force was in fact in crisis (see for example: Bell 2000, Bell 2002, Burgess 2003, Campbell 1997 and Campbell 2008). The labour market crisis was due to the deterioration in the quality of jobs, especially in terms of both employment security and income sufficiency. Of particular relevance to this study, was substantial growth in two forms of labour underutilisation, hidden unemployment and visible underemployment, both of which are underestimated by the official unemployment rate. Hence, it became increasingly obvious that official measures of labour underutilisation for Australia, such as the *seasonally adjusted unemployment rate* or the *trend unemployment rate*, provided an incomplete picture of what happened to both the quantity and the quality of the employment that was created in Australia during the recovery from the recession of the early-1990s. Therefore, it is not surprising that at this time a number of Australian labour market analysts began to argue that the official unemployment rate no longer provided accurate estimates of the extent of labour underutilisation in Australia (see for example: Mitchell 2000b, Mitchell and Carlson 2000, Wooden 1996 and Campbell 2008). Indeed, this body of literature argues that the official unemployment rate substantially underestimates the level of labour underutilisation in Australia, highlighting the need for new, more comprehensive measures of labour underutilisation.

However, as the Australian labour market approached full employment during the early to mid-2000s, at least as shown by the official measures of labour underutilisation, the impetus for research into alternative labour market indicators appears to have waned. As a consequence, apart from a few notable exceptions such as the ongoing publication of

CofFEE's alternative labour market indicators, the level of published academic research on the topic has declined significantly since the early-2000s. This thesis argues, however, that continuing research on this topic is still required. Furthermore, despite the important contribution of these labour market indicators to the debate as to the real level of labour underutilisation in the Australian labour market, it will be argued that economic modelling is not the best method to use when constructing measures of labour underutilisation, and further refinements are yet needed.

Since 1997 the Australian Bureau of Statistics has published data relating to underemployed workers. However, the Australian Bureau of Statistics (2002b; 7) has also recognised that despite the sophistication of the two most common measures of labour underutilisation, the *seasonally adjusted unemployment rate* and the *trend unemployment rate*, a single labour market indicator is not capable of capturing the complexity of the contemporary Australian labour market. Consequently, the Australian Bureau of Statistics adopted three supplementary measures of labour underutilisation to complement the *trend unemployment rate*¹. These three measures of labour underutilisation are:

- the long-term unemployment rate
- the labour force underutilisation rate and
- the extended labour force underutilisation rate.

The *extended labour force underutilisation rate* is a new labour market indicator that has been developed by the Australian Bureau of Statistics to overcome the problems associated with relying solely on the *trend unemployment rate*. The Australian Bureau of Statistics

¹ As discussed in the following chapter, the Australian Bureau of Statistics prefers that labour market analysts use the *trend unemployment rate* rather than the *seasonally adjusted unemployment rate* as the headline measure of labour underutilisation in Australia as it overcomes some of the shortcomings of the *seasonally adjusted unemployment rate*. The Australian Bureau of Statistics defines a person as employed if they work for at least one hour or more for pay or profit is considered to be employed.

argues that this indicator takes the measure of labour underutilisation beyond what is conventionally measured in the labour force statistics because it combines measures of the unemployed, the underemployed and two groups of people who are marginally attached to the labour force into a single labour market indicator. This is an important contribution to this debate. Moreover, it may be argued that the Australian Bureau of Statistics has done far more than other statistical bodies in comparable countries in terms of developing better measures of labour underutilisation. However, data for this measure are only available since 1994, which limits its use, especially with respect to describing the contours and dynamics of unemployment and underemployment during the recession of the late-1980s and early-1990s (Australian Bureau of Statistics 2002a).

The Australian Bureau of Statistics (2002b) has also argued that the *extended labour force underutilisation rate* has one important shortcoming that severely limits its usefulness. Like the *trend unemployment rate*, it is a person rate of unemployment (Australian Bureau of Statistics 2002b; 7, Paul 1991). However, the Australian Bureau of Statistics acknowledges that estimates of labour underutilisation should use a time rate of unemployment, preferably an hours-based unemployment rate, rather than a person rate of unemployment, in order to identify not just the number of people who are employed and unemployed, but also the intensity of unemployment that is experienced by both the employed as well as the unemployed. That is, labour underutilisation in Australia should be measured as the sum of the number of additional hours that people would like to work, expressed as a percentage of the total labour force, which is also expressed as hours.

In 2003, the Australian Bureau of Statistics published data for the following three 'experimental volume measures of labour force underutilisation':

- volume unemployment rate:
- volume underemployment rate: and
- volume labour force underutilisation rate (Australian Bureau of Statistics 2008).

The last of these three measures is a very exciting new official, albeit experimental, labour market indicator because it is promoted as a comprehensive hours-based measure of labour underutilisation. This is exactly the type of measure that this thesis is searching for or hoping to construct. These experimental labour market indicators are based on labour market data collected by the Australian Bureau of Statistics, so they meet all the data criteria outlined in Table 2.1. However, an evaluation of this measure revealed a few shortcomings with respect to interpretive and labour force criteria. First, the relevant Australian Bureau of Statistics literature does not fully specify the model, so reproducibility and transparency are a concern. Second, these measures are only available for Australia as a whole, which limits their use in comparative analysis. Third, they are only available annually, rather than monthly or quarterly, since 2002, so they have limitations as a time series. However, the fourth concern is possibly the most limiting. These measures are based directly on data collected during a quarterly Supplementary Labour Force Survey. So, the estimates of cyclical unemployment, frictional unemployment and visible underemployment are as good as possible. However, the concern is with the estimates of hidden unemployment that are derived from the Labour Force Survey. The literature reviewed in later chapters of the thesis will argue that the discouraged worker effect, which is the only component of hidden unemployment that is captured by the Labour Force Survey, substantially underestimates the true level of hidden unemployment. Consequently, these weaknesses were conceptualised as gaps in the literature that this

thesis might address and hence these shortcomings provide further justification for the present study².

It might be argued that the Australian Bureau of Statistics already provides an adequate set of volume measures of labour underutilisation that are available for individual states, more frequently than annually and for years before 2002 for two reasons. It is true that the data required to construct these labour market indicators are constructed from data collected during the quarterly Supplementary Labour Force Survey, and are available in Data Cubes. In addition, the Australian Bureau of Statics outlines the methods by which these labour force indicators are constructed in its publications (see for example Australian Bureau of Statics 2012d). However, there are two problems with this argument. First, labour market analysts and labour market policy makers do not want to construct their own labour market indicators from raw labour force data, they need labour market indicators. Second, although the method for construction of the volume measures of labour underutilisation are outlined in a number of Australian Bureau of Statistics publications, the method is not fully specified in these publications. So, while in theory the Australian Bureau of Statistics publishes volume measures of labour underutilisation quarterly and for individual states, in practice this is not the case.

² The volume measures of labour underutilisation are explored in more depth in chapter 2. Those discussions outline even more shortcomings with the volume measures of labour underutilisation. Nevertheless, their contribution to this debate should be acknowledged as an exciting development with great promise.

1.3 Rationale, aims and approach of the thesis

Although some significant progress has been made towards the development of better measures of labour underutilisation in Australia, there remains a need to develop more comprehensive measures in order to provide a more informed basis for public policy. As recognised by the Australian Bureau of Statistics, these alternative estimates of labour underutilisation should be derived from an hours-based unemployment rate. The question is however, which of the many alternative measures of labour underutilisation that have been discussed in the literature is the best method to calculate such a measure of labour underutilisation. This thesis will contribute to this research agenda by seeking to thoroughly evaluate existing alternative measures of labour underutilisation and from this analysis will aim to develop a number of more comprehensive measures of labour underutilisation. The study will then utilise these new measures to re-examine the experiences of the South Australian and Australian labour markets over the period between 1989 and 2005 in order to illustrate the effects of applying a more comprehensive set of indicators of the extent of labour underutilisation to a specific time and place.

Quite a lot of social indicator movement literature was explored to strengthen the conceptual framework of the thesis. It was also expected that a sub-set of the social indicator literature would be identified that comprehensively explores the desirable characteristics of social indicators, especially labour market indicators. However, it was soon discovered that this literature does explore the desirable characteristics of social indicators, but not in a systematic way. So, one of the first tasks that was undertaken was to pull this material together to provide a single set of criteria that can be used to evaluate the usefulness, or otherwise, of labour market indicators. These criteria could also be used as a

framework within which to construct new labour market indicators. As a consequence of the need to undergo this process, the aim of the thesis was re-formulated to investigating and advancing the search for a methodology to more comprehensively measure labour underutilisation. The development and application of such a set of criteria might be seen as contribution towards the achievement of the aim of this thesis.

In particular, this thesis examines the work of two groups of researchers and attempts to address the research questions that are set out below by building upon the approaches of these two groups. The first is the research conducted by Beatty and Fothergill at Sheffield Hallam University. They have developed an interesting method to better measure labour underutilisation. However, their method is particular to the UK and needs to be tailored to the Australian context. The second is the work undertaken primarily by Mitchell and Carlson at the Centre of Full Employment and Equity at the University of Newcastle, Newcastle, New South Wales. They have developed a useful conceptual approach to measuring labour underutilisation, but scope exists for a number of methodological improvements to be made, as discussed in chapter 4.

To illustrate the significance of developing more adequate measures of labour underutilisation, this thesis develops and utilises three alternative labour market indicators to argue that during the recession of the early-1990s the real level of labour underutilisation in Australia was between double and treble the level indicated by the *trend unemployment rate*. Moreover, it will be argued that the Australian labour market in general, and the South Australian labour market in particular, took a decade or so to fully recover from the recession and not the three or four years that the *trend unemployment rate*

suggested. That is, the recession was deeper and more prolonged than the headline measures of labour underutilisation indicated.³

Labour force statistics are not ends in themselves. They inform public policies that are designed to stop people from becoming unemployed, to assist the unemployed back into work and to address the broader social issues that are caused by unemployment and underemployment. So, if the official labour force statistics do not provide an accurate picture of the extent and nature of unemployment, underemployment and labour underutilisation, then public policy will not be effective. At best, poorly informed policy will simply be a waste of scarce social resources. At worse, poorly informed policy could exacerbate, rather than ameliorate, the economic and social problems that are associated with unemployment, underemployment and labour underutilisation. Hence, the aim of this thesis is to contribute further to the debate about how best to develop new measures of labour underutilisation in order to provide a more informed basis for social, industry and employment policy.

This thesis will argue that the official measures of labour underutilisation for the Australian labour market, that is the *seasonally adjusted unemployment rate* and the *trend unemployment rate*, substantially underestimate the level of labour underutilisation because they are person rates of unemployment. Moreover, the thesis will argue that accurate

³ This observation is not just of historical interest. At the time of writing, the Australian and the South Australian economies were recovering from the slowdown caused by the Global Financial Crisis. During 2008 and 2009 the *trend unemployment rate* for Australia and South Australia rose from a little over four per cent, the lowest level in a generation, to a little under six per cent, without the economy slipping into recession. The official statistics show that the Global Financial Crisis led to a mild slowdown in the economy, whereas an examination of broader measures of labour underutilisation would suggest otherwise. This thesis will argue that regardless of how high the *trend unemployment rate* rises during an economic downturn or recession the real level of labour underutilisation in Australia will be considerably higher because it is a broader measure of labour underutilisation.

measures of labour underutilisation can only be obtained from an hours-based rate of unemployment (see for example: Wooden 1996 or Mitchell and Carlson 2000). Hence, this thesis proceeds in four stages. The first stage is a review of the current headline or official labour market indicators that are used to describe the level of labour underutilisation in Australia. The focus of this discussion is to evaluate the strengths and weaknesses of these measures. The second stage reviews a number of alternative labour market indicators that have appeared in the literature since the early-1990s. The goal of this discussion is to evaluate these labour market indicators to assess their usefulness as measures of labour underutilisation in Australia. The third stage of the thesis reflects on the results of stage two in order to construct three new measures of labour underutilisation. Finally, these three new labour market indicators are used to tell a more informed story about the dynamics of labour underutilisation using the South Australian and Australian labour markets over the period 1989 to 2005 as examples.

Argy (2005; 5) argued that the Australian economy and labour market boomed during 1989 then slid into 'the recession we had to have' during 1990 and 1991 as a result of the decision of the Reserve Bank of Australia to hike interest rates just as the global economy was slipping into recession. Although the economy was showing signs of recovery from the recession by 1993, the recovery was not fully completed until 2005. This is when the official unemployment rate had not only fallen to pre-recession levels, but had fallen to levels not seen since 1978. It was therefore decided that the time-frame of this thesis should be restricted to the period 1989 to 2005. This would allow changes in the level of labour underutilisation in Australia and South Australia to be examined over the course of an entire business cycle.

1.4 A brief history of Australian labour market statistics

This section provides a brief historical sketch of the methodological development of labour force statistics in Australia. The discussion focuses on the evolution of the unemployment rate as the official measure of labour underutilisation in the Australian economy⁴. In essence, measures of labour underutilisation, such as the unemployment rate, have tended to be time and place specific. That is, they have been developed in order to gather information about the state of the labour market at a particular point in time. They have then been used to develop public policy that was designed to address the related economic and social problems associated with a particular episode of unemployment. Hence, as the nature of unemployment problems changed and the focus of public policy changed, then so too have the measures of labour underutilisation that were developed⁵.

Denman and McDonald (1996) argued that over the past century two distinct methodological approaches to the collection of labour market data, and hence the calculation of unemployment statistics, have been developed. The first approach to generating unemployment statistics is based on administrative sources of data, such as records of the number of people who are registered as unemployed with a union or a government employment agency. The second method involves the use of household

⁴ The term unemployment is a relatively new addition to the English language. The word 'unemployment', as distinct from 'unemployed', was introduced into political economy by Hobson in 1888 to describe the 'involuntary idleness of the able-bodied' (Garside 1980; 1). In the same year, the word unemployment, was included in the *Oxford English Dictionary* for the first time as 'the state or fact of being unemployed: the prevalence or extent of this state' (Onions 1992; 2414).

⁵ However, the following section argues that the Australian labour market has changed so much over the period 1989 to 2005, as a consequence of the recovery from the recession of the early-1990s, that the present measures of unemployment no longer provide accurate estimates of labour underutilisation in Australia. Sub-section 1.4 outlines recent attempts to develop new measures of labour underutilisation that can be used to bring these problems to the attention of Australian policy makers.

surveys and records to compile information about the labour force participation of respondents. Between 1913 and 1978 the official unemployment figures for Australia were based on administrative sources. Since February 1978, the official Australian labour force statistics, which includes the *trend unemployment rate* and the *seasonally adjusted unemployment rate*, have been derived from the Labour Force Survey, which is a survey of a representative sample of Australian households that is conducted monthly by the Australian Bureau of Statistics.

The first official unemployment figures for Australia as a whole were derived from trade union returns. Between 1913 and 1942 the information that was provided to the Commonwealth Bureau of Census and Statistics (now the Australian Bureau of Statistics) by trade union secretaries provided the official unemployment data in Australia. The possibility to register with the various Colonial arbitration courts and wages boards, which were first established in the 1860s, was a strong incentive for Australian workers to unionise (Turner and Sandercock 1983). Therefore, as union coverage spread, both geographically and sectorally, during the latter half of the nineteenth century and the early decades of the twentieth century, especially after Federation and the adoption of the 'New Protection' (Forster, 1977), unions became increasingly important as sources of labour force information, particularly data relating to the number of unemployed workers.

However, it was not until 1913 that the Commonwealth Statistician tapped this well of labour force data in order to produce a series of unemployment statistics. In 1913 the Commonwealth Bureau of Census and Statistics (Knibbs 1913; 18) published the results of an inquiry that it conducted into trade union unemployment for ten specific years over the period 1891 to 1912. The inquiry took the form of asking trade union secretaries to:

state the total number of Members of your Union, and also, if available, the number unemployed at the end of each year specified (not during the year). If exact figures not available specify approximate numbers of members and number unemployed (Forster 1965; 427).

Subsequently, from February 1913, Australian trade unions were required to provide the Commonwealth Statistician with estimates of the level of unemployment at the end of February, May, August and November.

The trade union returns provide an uninterrupted quarterly series of unemployment statistics from 1913 to 1942. Moreover, the returns were based on a very large sample of Australian workers (Forster 1965; 430–431). Over this period the number of unions reporting to the Commonwealth Statistician increased, such that by 1942 over half of all unionists and nearly one quarter of all workers were covered by the returns. Indeed, Galenson and Zellner (1957; 482) argued that the estimates of unemployment that were obtained from Australian trade union returns were some of the most accurate unemployment figures obtained from this administrative source in the world because of the large size of the sample, the breadth of the industries covered and the length of the series.

Garside (1980) argued that the catalyst for governments to systematically collect unemployment figures is usually the development of a welfare system. This was the case in the UK in the early twentieth century, but it was not the case for Australia. The stimulus for the Commonwealth Government to systematically collect and disseminate unemployment data was the adoption of full employment as a goal of macroeconomic policy towards the end of World War II. Moves to establish a post-war New Order in Australia culminated on 30 May 1945 with the tabling in Federal Parliament of the White Paper on Post-War Reconstruction (Watts 1987; 121). The central theme of post-war

reconstruction in Australia was the establishment of a peculiarly Australian version of the Keynesian style welfare state and a commitment to full employment (Watts 1987; 119). Consequently, the Commonwealth Government was required to develop a comprehensive measure of unemployment in order to ensure that its employment targets were being attained. However, it took another two years before such a measure was introduced.

From February 1947 until January 1978, the official unemployment statistics for Australia were based on data collected monthly by the Commonwealth Employment Service (Australian Bureau of Statistics 2001b). Even though the Commonwealth Employment Service was a government agency, as distinct from trade unions, it still represented an administrative source of labour force information. The Commonwealth Employment Service collected information about those people who were registered as unemployed with a Commonwealth Employment Service office and who were eligible for payment of unemployment benefits. However, as married women were usually not eligible for unemployment benefits these figures tended to underestimate the level of unemployment in Australia as many unemployed women were not included in the unemployment figures. Nevertheless, these unemployment data were far more comprehensive than the union returns they replaced.

The early-1960s marked the beginning of the transition from administrative sources to household surveys as the basis of the official measurement of unemployment in Australia. In 1960, the Commonwealth Bureau of Census and Statistics commenced its Labour Force Survey on a quarterly basis. In February 1978, the frequency of the survey was increased to monthly and it was adopted as the official source of unemployment statistics for Australia (Australian Bureau of Statistics 2001b).

The Labour Force Survey has had a number of major and minor revisions since 1978 (Australian Bureau of Statistics 2001a; 11–12). A major revision of the Labour Force Survey occurred in 1986 to reflect the methodological changes that were incorporated into Labour Statistics Convention 160. This method was developed by the International Labour Organisation in the early-1980s and adopted by the International Labour Conference in 1985, then adopted by the Australian Bureau of Statistics in 1986 and finally ratified by the Commonwealth Government in 1987 (Australian Bureau of Statistics 2001b; 4, Department of Industrial Relations 1994; 415). Since 1986, the Australian Bureau of Statistics has made 24 minor and major changes to the Labour Force Survey (Australian Bureau of Statistics 2001b; 197–200). However, these amendments tended to be technical changes to the way data are collected, classified and reported and not conceptual changes to the method by which the labour force statistics are constructed. Moreover, these changes have not fundamentally altered the survey or the data that it collects. Hence, Australia has had broadly consistent labour force data on a monthly basis since 1978. A particular strength of the labour force statistics published by the Australian Bureau of Statistics, therefore, has been that they are broadly comparable with those of other industrialised nations that are based on the same method.

It was argued above that unemployment statistics are essentially products of their time. The current suite of labour force indicators that have been developed by the Australian Bureau of Statistics are no exception. Mata Greenwood (1999; 273) argued that the labour force statistics that are derived from Labour Statistics Convention 160 successfully identify and characterise the core employment and unemployment situations that occur in labour markets that are dominated by standard employment relations. That is, full-time male

employment in the primary labour market and people aspiring to such employment. The Australian labour market was dominated by standard employment relations for most of the twentieth century, at least until the early-1980s. In the context of standard forms of employment relations, the major forms of labour underutilisation are the *cyclical unemployment* that is associated with fluctuations in the business cycle and the *frictional unemployment* that is associated with labour force entry and labour market churning. It is the variations in these two forms of labour underutilisation that are measured by the Labour Force Survey and reported as the official unemployment rate. So, it is arguable that the unemployment rate provided reasonably accurate estimates of labour underutilisation for the Australian labour market from 1978 until the early-1980s.

However, all this changed during the mid-1980s in response to the recession of the early-1980s and the election of the Hawke/Keating Federal Labor government in 1983. The interaction of economic restructuring and labour market restructuring has given rise to the emergence of two serious problems in the Australian labour market, a substantial increase in hidden unemployment associated with an increase in structural unemployment, and a substantial increase in visible underemployment, associated with the substantial growth in part-time work⁶. Both of these problems existed in the Australian labour market prior to the onset of the recession, but they were only minor problems. These two forms of labour underutilisation have grown in importance in the wake of the recovery from the recession of the early-1990s and now contribute substantially to the level of labour underutilisation in Australia. However, information about these two forms of labour underutilisation is not

⁶ Refer to Table 6.7 which shows that over the period 1989 to 2005, male part-time employment grew by 148 per cent and female part-time employment grew by 65 per cent over the same period. The corresponding figures nationally are 100 per cent and 40 per cent (Table 6.8).

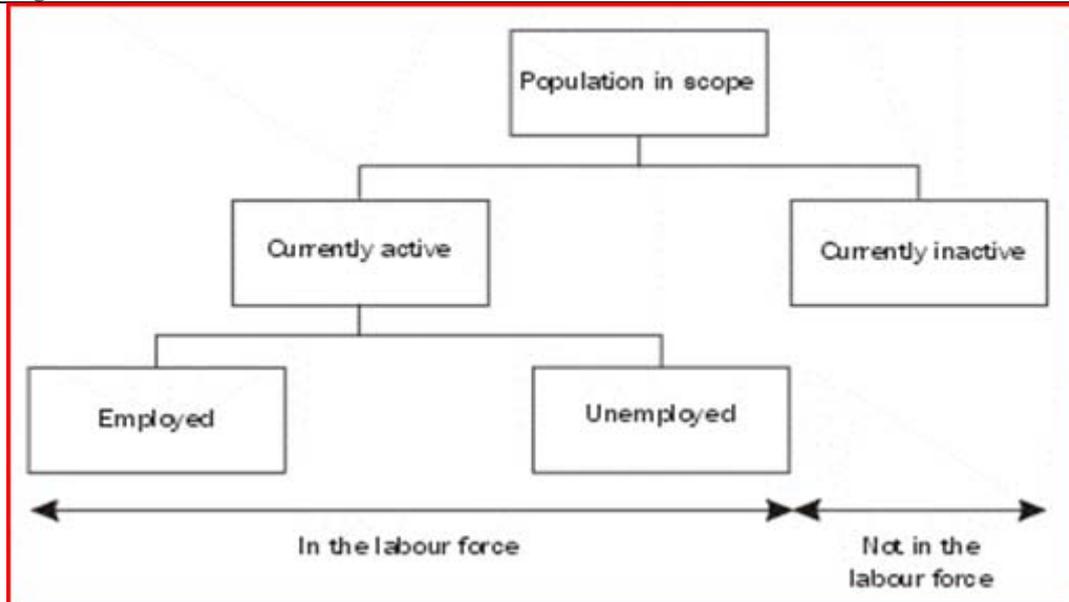
fully captured, if at all, by the Labour Force Survey and hence they are substantially underestimated by the *seasonally adjusted unemployment rate* or the *trend unemployment rate*. Herein lies the problem that is at the crux of the present study. That is, what is the best way to bring the growth in these two forms of labour underutilisation to the attention of policy makers?

The problem at the heart of this thesis is that the true level of labour underutilisation in Australia is underreported by the official unemployment rate. Figure 1.1 is a diagrammatic representation of the conceptual framework used by the Australian Bureau of Statistics to construct its labour force statistics. This conceptual framework provides a scaffold for its activities, connecting all aspects of labour force inquiry, such as assumptions, principles and rules, in order to provide a single organising schema for its activities. This framework divides the civilian population of Australia into three distinct groups:

- people who are employed
- people who are unemployed
- people who are inactive.

It is also clear that, until 2003, the Australian Bureau of Statistics conceptualised labour underutilisation in terms of numbers of people. Hence, it only produced labour market statistics that are headcount measures, for example, person rates of unemployment, or the number of people who would like to work more hours. However, such an approach ignores the intensity of unemployment experienced by individuals. That is, how many extra hours of work per week unemployed and underemployed people would like to work. The Australian Bureau of Statistics has recognised this shortcoming and in 2003 it produced its experimental volume measures of labour underutilisation (Australian Bureau of Statistics 2012d).

Figure 1.1: Australian Bureau of Statistics, Labour Force Framework



Source: Australian Bureau of Statistics 2001;16.

Central to this thesis is the premise, shared by many Australian labour market analysts, and most clearly articulated by Ross (1985) and Denniss (2001 and 2003), that the labour force conceptual framework presented in Figure 1.1 is fundamentally flawed. The labour force framework that is used by the Australian Bureau of Statistics rigidly divides people into three mutually-exclusive categories, employed, unemployed, or not in the labour force (that is, economically inactive). However, as Denniss (2001; 1) argued this approach to conceptualising the labour force is based on a framework designed in the 1960s. Such a conceptual framework leads to the construction of labour market indicators that successfully characterise ‘core’ employment and unemployment situations (Mata Greenwood 1999; 273) that area feature of standard employment relations. Hence, they reflect perspectives of work and joblessness that prevailed in the 1960s and 1970s where ‘workers in full-time regular employment in a formal sector enterprise and persons who are looking for such jobs’ (Mata Greenwood 1999; 273) dominated the labour market. Ross

(1985) argued that in this definition of standard employment relationship we should be reading the word 'male' instead of workers and people.

However, Dennis (2001; 1) for example, following on from Ross (1985), argued that such an approach is no longer valid for the Australian labour market. The main problem that has been identified by labour market analysts, and reviewed in this thesis, is that the distinctions between the different categories of people have become increasingly blurred in the wake of the recovery from the recession of the early-1990s. The recovery from the recession of the early-1990s has been accompanied by the growth of two forms of labour underutilisation, the visible underemployment due to the growth of part-time work and the hidden unemployment that has resulted from structural unemployment. However, the changes in the official unemployment rate only reflect changes in cyclical and frictional unemployment. Hence, these two forms of labour underutilisation, visible underemployment and hidden unemployment, are underestimated by the official measure of labour underutilisation, that is, the unemployment rate. Hence, the need to develop new measures of unemployment, or more correctly labour market surplus (or as it is referred to in this thesis, labour underutilisation), that will reflect the changes to the structure of the Australian labour market that have occurred since the late-1980s/early-1990s. In which case, the Labour Supply Activity Framework suggested by Wilkins (2004), Figure 1.2, is a more useful conceptualisation of the Australian labour force framework.

Figure 1.2: Labour supply activity framework

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It is included in the print copy of the thesis
held by the University of Adelaide Library.

Source: Wilkins 2004; 5

Moreover, Denniss (2001; 4) argued;

If we are to have an accurate understanding of the impact of government policy in the labour market it is important to have accurate, relevant statistics. If governments are to accurately monitor the success, or failure, of labour market reform then it is essential that they have the tools that are appropriate to the twenty-first century.

In this vein, a number of Australian labour market analysts, for example Ross (1985), Denniss (2001 and 2003), Mitchell and Carlson (2000), Mitchell (2007), Wooden (1999), and recently the Australian Bureau of Statistics (2003), have developed or called for the development of hours-based measures of labour underutilisation in order to produce more accurate estimates of the real level of unemployed labour resources in the Australian economy, that is labour underutilisation. The debate in this body of literature seems to revolve not around the need for hours-based measures of labour underutilisation, but around how best to construct such a measure. Moreover, Denniss (2001 and 2003) argued that the construction of such a measure requires the Australian Bureau of Statistics to re-conceptualise its labour force framework to recognise the blurring between the categories

and to revise some of the questions on the Labour Force Survey. This thesis returns to this point in chapter 9.

In short, this thesis is based on the proposition that in the wake of the recovery from the recession of the early-1990s the Australian labour market has become more flexible. That is, standard employment relations have lost their central position in the Australian labour market as the importance of non-standard forms of employment relations, such as part-time work, casual work, self-employment, contract work, employment services, telecommuting and other forms of non-standard employment have grown in importance. Denniss (2001; 1) observed that in 1966 over 90 per cent of jobs in Australia were characterised by standard employment relationships, but by 2001 this figure had dropped to 35 per cent. That is, over the period 1966 to 2001 non-standard forms of employment grew from less than ten per cent of all jobs to about 65 per cent. In relative terms, this is a growth of over 55 percentage points or over 550 per cent. In absolute terms this growth was much higher due to the approximate doubling of the size of the Australian labour force over that period. The 1966 Census estimated the size of the Australian labour force to be 4,038,560 people, but by 2001 this number has increased to 9,755,400 (Australian Bureau of Statistics 2012b). Therefore, the number of non-standard jobs had risen from less than 403,856 to 6,341,010.

Moreover, Denniss (2001) argued that the growth of non-standard employment relationships has been accompanied by growth in forms of labour underutilisation that are not measured by the official unemployment rate. Hence:

in an environment in which flexibility is explicitly encouraged, labour markets based on rigid, arbitrary and central demarcations of labour market outcomes are of rapidly diminishing relevance.

Therefore, there is a need for an hours-based measure of labour underutilisation. In the Australian context there is a need to develop an hours-based measure of labour underutilisation in order to take into account the labour underutilisation created by a more flexible labour market. This line of argument can be traced back to Ross (1985) and is informed by other important labour market analysts such as Dennis (2001 and 2003) Mitchell and Carlson (2001), Mitchell (2007) Wooden (1993 and 1999) and more recently the Australian Bureau of Statistics (2003). This thesis is an attempt to contribute to the debate and to this body of literature.

In 1997 the Australian Bureau of Statistics, for the first time published information about underemployed workers (Australian Bureau of Statistics 1997). This annual publication, like all of those publications that followed, reports the findings of the Underemployed Workers Survey, which is a supplement to the September Labour Force Survey (Australian Bureau of Statistics 1997; 4). In the preface to the first report the Bureau argued that:

The number of underemployed workers is an important indicator of labour market performance, and supplements other measures of labour market slack such as the number unemployed persons and discouraged job seekers (Australian Bureau of Statistics 1997; 5).

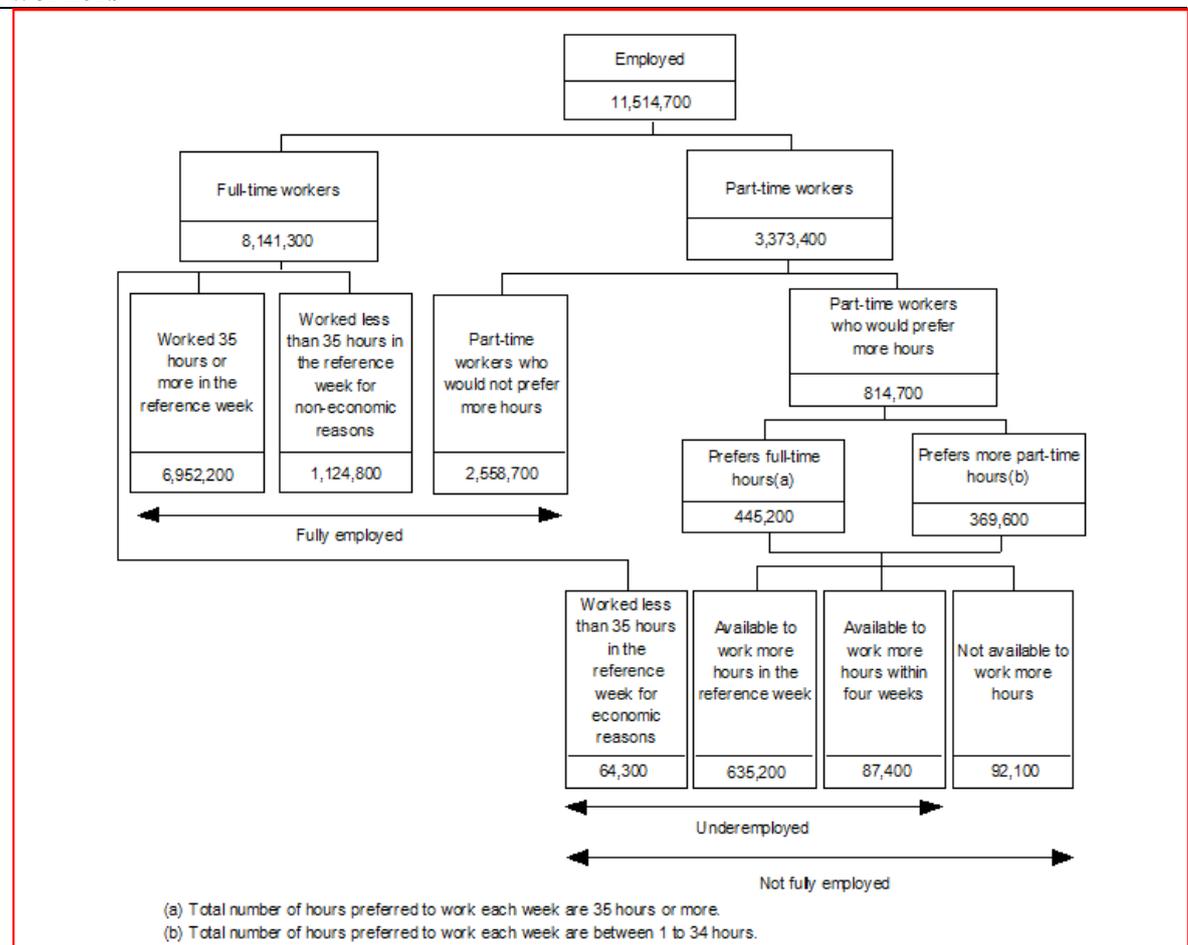
Therefore, it is a headcount measure of the number of part-time workers whose labour market aspirations about the number of hours they work, and their incomes, are not being met. Moreover, the Australian Bureau of Statistics identifies two forms of underemployment:

First is the visible underemployment, reflecting an insufficient volume of work. Second is invisible underemployment, reflecting an insufficient use of skills and experience, or low productivity (Australian Bureau of Statistics 1997; 5).

However, this report, like most work on underemployment, only provides information about visible underemployment.

This is a really exciting series of publications. Although strictly speaking they cannot be considered to produce a time series due to major revisions made to the questionnaire in 2008. Nevertheless, the focus of the survey and its results, is the number of people who are underemployed and their characteristics. The results of the survey are broken down by sex, but they are not disaggregated by state. Nor is there any attempt to quantify the intensity of underemployment experienced by the underemployed workers, even though data that could be used to do this was collected during the survey.

Figure 1.3 Australian Bureau of Statistics, conceptual framework, underemployed workers



Source: Australian Bureau of Statistics 2012; 3

This is a headcount measure that provided a wealth of information about underemployed workers. The most impressive thing about these publications is sheer scale of the number

of people who are visibly underemployed. Figure 1.3 provides a diagrammatic view of the conceptual framework that is used by the Bureau. The Australian Bureau of Statistics (2012; 3) conceptual framework for underemployment divides employed people into two mutually exhaustive and comprehensive groups:

- Workers who are considered to be fully employed, comprising:
 - employed people who worked full-time during the reference week (includes people who usually work part-time);
 - employed people who usually work full-time but worked part-time in the reference week for non-economic reasons;
 - part-time workers who would not prefer additional hours of work.
- Workers who are not fully employed, comprising:
 - part-time workers who would prefer to work more hours; and
 - full-time workers who worked part-time in the reference week for economic reasons

The conceptual framework further defines workers who are underemployed, comprising:

- part-time workers who would prefer to work more hours and were available to start work with more hours, either in the reference week or in the four weeks following the survey; and
- full-time workers who worked part-time hours in the reference week for economic reasons.

Figure 1.3 shows that in total 786,900 people were found to be underemployed in September 2011. That is, 6.8 per cent of Australia's labour market is underemployed as a result of visible underemployment, that is, the number of part-time people who would like to work more hours. How much higher would this figure be if the Australian Bureau of Statistics was able to measure the intensity of underemployment being experienced by underemployed workers, and therefore produce an hours-based measure of visible underemployment that could be added to an hours-based measure of the labour underutilisation that is associated with the current five per cent unemployment rate (Australian Bureau of Statistics 2011).

The aim of this thesis is to estimate the extent of labour underutilisation that results from visible underemployment and hidden unemployment and then add this figure to the estimates of labour underutilisation obtained from the unemployment rate in order to produce more accurate estimates of labour underutilisation for Australia.

According to the Australian Bureau of Statistics (2001b, 4–8) the development of Australian labour market statistics can be traced back to the foundation of the International Labour Organisation in 1919. Each year, the International Labour Organisation holds the International Labour Conference, which provides a forum for the examination of global labour and social issues. The main outcome of this conference, from the perspective of this study, is the International Labour Conventions and Recommendations, which provide guidance to national governments and their statistical offices with regards to policy, legislation and practice in the area of labour statistics. In the case of labour underutilisation the methods for data collection and reporting is provided by Labour Statistics Convention 160. This convention was adopted by the International Labour Organisation in 1985 and ratified by the Commonwealth Government in 1987 (Australian Bureau of Statistics 2001b; 4–6). This convention provides the methods by which the Australian Bureau of Statistics collects, constructs and disseminates labour and related statistics. As a consequence, labour market statistics produced by the Australian Bureau of Statistics are broadly consistent with those of most other countries.

1.5 Outline of the thesis

This thesis is comprised of nine chapters that are grouped into four distinct sections. The first section is the introductory section that comprises chapters 1 and 2. In addition to providing an introduction to the thesis, chapter 2 identifies a number of methodological shortcomings with the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. Chapter 2 concludes by constructing a conceptual framework that could be used to construct more useful labour market indicators that focus on measuring labour underutilisation and which are independent of economic performance *per se*. Moreover, this conceptual framework is used later in the thesis to construct and apply three new labour market indicators.

The second section of the thesis comprises chapters 3, 4 and 5. The aim of this section is to review the recent labour market indicator literature in order to ascertain whether other labour market analysts, both in Australia and overseas, have developed better measures of labour underutilisation. Chapter 3 evaluates a number of unweighted labour market indicators, while chapter 4 evaluates a number of weighted labour market indicators. Both of these chapters fail to identify any labour market indicators in the literature that provide labour market indicators that support the aim this thesis. That is, they do not provide accurate estimates of labour underutilisation. However, these two chapters do identify three labour market indicators that with a bit of modification could be used to develop an hours-based measure of labour underutilisation. Chapter 5 concludes this section of the thesis by constructing three new labour market indicators.

The third section of this thesis is the application section. This exploration starts in chapter 6 which presents a conventional view of the experience of the South Australian labour market over the period 1989 to 2005. This chapter is based on an analysis of a range of commonly used labour market indicators that are published by the Australian Bureau of Statistics. This discussion provides a very positive view of the experience of the South Australian labour market. That is, by 2005 the South Australian labour market had not only fully recovered from the recession of the early-1990s, it was performing better than at any time in a generation. Chapter 7 is based on an analysis of the three labour market indicators that are developed in chapter 5. This chapter tells a very different story about the experience of the South Australian labour market over the period 1989 to 2005. It argues that the official unemployment rate substantially underestimated the real level of labour underutilisation and hence there was no real improvement in the South Australian labour market between 1996 and 2002. Chapter 8 also evaluates the performance of the South Australian labour market, but this time by comparing the South Australian performance with the performance of the other five states. This discussion argues that not only has the level of labour underutilisation in South Australia not returned to pre-recession levels by 2005, despite a decade of economic recovery, but that the South Australian labour market has lost ground with respect to the other States.

The last chapter is the conclusion. Chapter 9 teases out and briefly discusses a small number of methodological and policy issues that are raised in the earlier chapters. It also summarises the key findings of this study, presents the conclusions and makes suggestions for future research. The thesis concludes with a call for the Australian Bureau of Statistics to continue to more completely develop its hours-based volume measures of labour underutilisation. These measures add estimates of both hidden unemployment and visible

underemployment to the cyclical unemployment and the frictional unemployment that are incorporated in the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. The complete development of these measures of labour underutilisation would fill a gap in the suite of Australian labour market statistics. Moreover, it would provide policy makers with more accurate estimates of the real level of labour underutilisation in Australia and hence provide a more sound basis of the development of public policy to address contemporary economic and labour market challenges.

2 CONTEMPORARY LABOUR FORCE INDICATORS: METHODOLOGICAL CONSIDERATIONS

2.1 Introduction

Over the past decade or so, neo-Keynesian labour market analysts in Australia, North America and Europe have developed critiques of the official labour force statistics that are derived from the International Labour Organisation, Labour Statistics Convention 160. The aim of this chapter is to draw together the main arguments presented in this body of literature into a methodological critique of the headline⁷ measures of labour underutilisation for Australia, the *trend unemployment rate* and the *seasonally adjusted unemployment rate*. This chapter discusses five key methodological shortcomings of the unemployment rate. This critique will be consolidated in section 2.7 to develop a framework, or a set of principles, that can then be used to evaluate the strengths and weaknesses of both official and unofficial measures of unemployment. These principles can also be used to construct more comprehensive measures of labour underutilisation for the Australian labour market. These principles are used in section 2.9 to evaluate the *seasonally adjusted unemployment rate* and the *volume labour force underutilisation rate* (Australian Bureau of Statistics 2003). They are also used in chapters 3 and 4 to evaluate a number of unofficial measures of unemployment that were developed in the 1990s and 2000s to provide more accurate estimates of labour underutilisation than those obtained

⁷ Australia, unlike many other countries, does not, strictly speaking, have an official unemployment rate. The *seasonally adjusted unemployment rate* is the focus of media reports about the performance of the Australian labour market and hence it is referred to as the headline measure of unemployment. Consequently, it is the *de facto* or quasi-official measure of labour underutilisation in Australia. However, the Australian Bureau of Statistics would prefer that labour market analysts used the *trend unemployment rate*.

from the unemployment rate. The discussion in chapters 3 and 4 identify three alternative measures of unemployment that with some further development could meet the needs of the present study. That development is undertaken in chapter 5, using the conceptual framework developed in section 2.7 to produce three new measures of labour underutilisation. These three measures are then used in chapters 7 and 8 to re-examine the performance of the South Australian labour market over the period 1980 to 2005.

2.2 The definition of employment, unemployment and underemployment

The first methodological shortcoming of the *seasonally adjusted unemployment rate* and the *trend unemployment rate* is that it underestimates the severity of unemployment, and hence labour underutilisation, because the definition of employment on which it is based is far too narrow (Watson and Callus 1999). The *seasonally adjusted unemployment rate* and the *trend unemployment rate* are both examples of a ‘headcount’ (Denniss 2003; 116) or a ‘person rate of unemployment’ (Paul 1991; 398). Paul (1991; 395) argued that when governments decide to measure unemployment they need to answer two important questions. The first question is who is to be defined as the unemployed? The second question is how to construct an index using the currently available labour force data? This section outlines the implications for Australian labour market analysts of using the very narrow definition of employment used by the Australian Bureau of Statistics as the basis of measuring unemployment and hence labour underutilisation.

The First United Nations growth decade of the 1960s led to some remarkable increases in national incomes in the third world. However, by the late-1960s it was becoming apparent

to many development economists that strong growth in Gross Domestic Product was often accompanied by an increase in poverty and income inequalities. That is the ‘trickledown effect’ that was supposed to accompany growth models that were premised on a high level of saving and investment, such as the Harrod-Domar model, did not occur (Pack 1977). Moreover, in many third world countries, growth was accompanied by ‘increasing evidence of the open unemployment rather than the disguised agricultural underemployment and/or unemployment’ (Park 1977; 158). The seminal study that revealed this growth in poverty and inequality was undertaken by the International Labour Organization during its mission to Kenya (International Labour Organization 1972, Park 1977; 158). Consequently, the Second United Nations development decade added employment growth to the broader growth targets (Todaro and Smith, 2012).

As a consequence of this shift in third world development policy, better definitions of employment and unemployment were required by policy makers and analysts. Paul (1991; 396–397) explored three distinct approaches to unemployment, based on the discussion by Sen (1975). The first of these approaches is the ‘income criterion’ (see for example Sen 1973; 1457, Dandekar 1981; 1241). That is, people are to be considered as unemployed, even if they are working, if their incomes are not high enough to attain ‘the nationally desirable level of consumption and expenditure’ (Dandekar and Rath 1971; 8). Such low levels of income are usually the result of the interaction of two labour market problems. That is, wages are too low and the number of hours worked are also too low.

The second approach to conceptualising unemployment in the third world is based on the ‘criterion of productivity’ (Paul 1991; 369). That is, people are considered to be unemployed if their marginal product of labour is low, usually (Martina 1966; 305, Park

1977; 789). This approach is closely related to the concepts of disused unemployment and surplus labour (Martina 1966; 305, Todaro 1994; 229, Sen 1975). This form of unemployment usually exists in agriculture in the third world. Moreover, the availability of large amounts of labour with zero, or even negative, marginal productivity is at the heart of the Lewis Model of economic development (Todaro and Smith 2010, Lewis 1955). In this model surplus labour can be withdrawn from agriculture and transferred to manufacturing with no loss of production in agriculture and a considerable increase in manufacturing production. Despite criticism of the model, it provides a useful explanation of the rapid growth in both agricultural and manufacturing production in China since the late-1970s (Todaro and Smith 2012; 115).

The third approach that was explored by Paul (1991; 397) is based on the ‘recognition criterion’ also proposed by Sen (1975; 82). That is, ‘employment gives the person the recognition of being engaged in something worth its while’ (Sen 1975; 5). However, Paul (1991) argued that the meaning is somewhat broader and that people may be considered to be unemployed according to this criterion for two reasons. First, through a lack of work, that is, people are not producing hence people are not consuming. Second, because their current employment does not meet their expectations in terms of self-esteem or making full use of their skills, education or training. This view of the recognition criterion more closely resembles the concept of invisible underemployment that is explored in some detail in sub-section 2.6.

The first three of these approaches is more relevant to describing unemployment and underemployment situations in developing nations as they are closely linked to absolute poverty, which is a characteristic of developing nations (Todaro 1994), whereas the time

criterion is more appropriate for use in advanced industrial nations. Consequently, the time criterion underpins Labour Statistics Convention 160, and hence is the basis of unemployment statistics in most developed countries, including Australia.

Central to the time criterion is the definition of employment, which is usually defined in terms of working a minimum number of hours in the reference week of a labour force survey. So, the unemployment rate is sensitive to changes in the definition of employment. The Australian Bureau of Statistics has conducted the Labour Force Survey on a monthly basis since February 1978. In Australia, the Labour Force Survey defines a person as being employed if they 'are aged over 15 and who during the reference week:

- worked for one hour or more for pay, profit or commission, or payment in kind, in a job or business or on a farm (comprising employees, employers and own account workers); or
- worked for one hour or more without pay in a family business or on a farm (that is, contributing family workers)' (Australian Bureau of Statistics 2001b; 20).

This very narrow definition of employment overestimates the number of people who are employed. For example, Nicholson (2004; 13) argued that if the definition of being employed was broadened to one day a week, rather than one hour per week, then the Australian unemployment rate in 2004 would have doubled from five per cent to ten per cent.

So far, this exploration of labour underutilisation has discussed two different measures of unemployment, *cyclical unemployment* and *frictional unemployment*. However, according to most labour economics textbooks (see for example: Borjas 2010 or McConnell, Brue and Macpherson 2010) there are four distinct types of unemployment:

- frictional unemployment occurs because workers and firms need time to locate each other and to process information about the value of the job match

- seasonal unemployment occurs when workers are laid off regularly due to annual cycles in production, spells of seasonal unemployment are usually predictable and workers are re-hired when the employment season resumes
- structural unemployment occurs when there is a poor fit between the skills and expertise of people who lose their job in declining industries and those required in expanding industries, the solution to this form of unemployment often requires workers to acquire new skills or to move to those geographic locations where the expanding industries are located, which may be a lengthy process
- cyclical unemployment or demand deficient unemployment results from deficiencies in aggregate demand that forces employers to lay off or fire workers during periods of economic slowdown or recession.

Paul (1991; 398) argued that a person rate of unemployment, such as the *seasonally adjusted unemployment rate* or the *trend unemployment rate*, ignores the intensity of unemployment, or underemployment, or labour underutilisation, that is experienced by unemployed people. Hence, labour underutilisation should be expressed not in terms of the number of unemployed people, but in terms of the amount of work that people do and the amount of labour that people are prepared to offer to the labour force. That is, unemployment should be measured as a time-rate of labour underutilisation. This time rate can be expressed in terms of the number of days per week that people work compared to the number of days they would like to work, or in terms of the number of hours per week that people work compared to how many hours they would like to work.

Moreover, a person rate of unemployment forces labour market analysts to conceptualise labour underutilisation as a dichotomy, rather than a continuum. Hence, people are perceived as being either employed or unemployed, rather than being more or less employed or more or less underemployed. The construction of this dichotomy shifts the focus of labour market analysts and policy makers. Consequently, they focus solely on the level of unemployment in a community and do not tend to ask questions about the intensity of unemployment that is being experienced by underemployed people. This is a real

concern for policy makers. The recovery from the recession of the early-1990s in Australia was accompanied by substantial economic and labour force restructuring and a rapid increase in part-time work. However, the underemployment that is associated with part-time employment is not captured by the official measures of labour underutilisation. So, the actual level of labour underutilisation in Australia is underestimated by the unemployment rate. This in turn has implications for employment and related policies.

On a related issue, not only is the narrowest definition used to identify employed people in Australia, but a narrow definition is also used to define the hidden unemployed. This narrow definition means that the number of hidden unemployed people is underestimated as information about the discouraged worker effect is not fully captured by the Labour Force Survey. Moreover, McConnell, Brue and Macpherson (2010; 541) state that ‘these discouraged workers constitute hidden unemployment’. An Australian Bureau of Statistics (2001a) information paper contains all of the questionnaires that are used in the Labour Force Survey. Questions 1 to 7 are designed to elicit demographic and survey control information. For the purpose of this discussion question 19 to 24 are most important. They are the filter questions that identify those people who are most likely to be in the labour force or not in the labour force.

Questions 22 and 23 are the key questions. Question 22 asks whether the respondent has looked for part-time work in the past four weeks, while question 23 asks whether the respondent has looked for full-time work. If the respondent answers no to either of these questions then they are deemed to not be in the labour force and no further questions are asked of the respondent. There is an absence of any probing questions to determine why people who answer no to these questions are not seeking jobs. Such respondents may well

be outside of the labour force, but they may well be discouraged workers, structurally unemployed or hidden unemployed, people who have given up looking for work because they do not have marketable job skills. These people could also be seasonally unemployed who are not looking for work as the season is inappropriate. It is clear from analysing the content of these questionnaires that movements in the unemployment rate are driven primarily by changes in cyclical and frictional unemployment. After the recession of the early-1990s, the ensuing economic restructuring meant that substantial numbers of people became discouraged about their poor prospects of ever finding an appropriate job and withdrew from the labour force to join the ranks of the hidden unemployed (Watson 2000a). If the Labour Force Survey remains in its present form then the number of discouraged workers, and hence hidden unemployment, cannot be accurately estimated. It can only be inferred from indirect observations, such as changes in the labour force participation rate.

Information relating to the discouraged worker effect is collected during the monthly Labour Force Survey and hence this information can possibly be used to construct estimates of structural unemployment and hidden unemployment. However, these forms of unemployment are not disaggregated and reported separately by the Australian Bureau of Statics in its monthly labour force publications. Hence, when using Australian Bureau of Statistics data, such as its catalogue number 6202.0, the variation in the unemployment rate can only be explained in terms of cyclical unemployment and frictional unemployment.

Sorrentino (1993; 22) argued that measuring the discouraged worker effect and hence the extent of hidden unemployment is difficult as it involves attempting to measure the desire of people to work and their perceptions of the probability of gaining appropriate work.

Both are subjective phenomena as they reflect the state of mind of respondents to labour force surveys at a particular point in time. Hence, they are not criteria that can be objectively measured and analysed statistically. Measuring the full extent of hidden unemployment is also sensitive to the wording of the questions asked during the Labour Force Survey and the degree of probing by the interviewer (Sorrentino 1993; 22). This is an important consideration as the economic restructuring associated with the recovery from the recession of the early-1990s has been accompanied by the creation of substantial structural unemployment and hence hidden unemployment. However, as discussed above, the official measures of labour underutilisation substantially underestimate the level of hidden unemployment because they underestimate the extent of the discouraged worker effect. Consequently, despite the problems associated with measuring the discouraged worker effect, it is becoming increasingly important that this form of labour underutilisation be accurately estimated.

The Australian Bureau of Statistics (2001b; 74) defines discouraged job seekers, that is, the hidden unemployed, as people:

with marginal attachment to the labour force that wanted to work and who were available to work within the next four weeks, but whose main reason for not actively seeking work was that they would not find a job.

This definition is consistent with international guidelines as the questions asked by the Labour Force Survey are consistent with the International Labour Organisation, Labour Statistics Convention 160. However, the scope of the questioning in Australia is much narrower than that which occurs in other countries (Sorrentino 1993; 22). Such a narrow definition of discouraged workers means that those discouraged workers who are willing to accept an offer of an appropriate job, but who would need more than four weeks before they were able to accept such an offer, are not defined as discouraged workers and so they

are not enumerated as hidden unemployed. Rather, they are defined as not being part of the labour force. The Labour Force Survey needs to be re-designed to provide better estimates of the discouraged worker effect and hence estimates of hidden unemployment.

This definitional problem has been addressed elsewhere. For example, labour force surveys in the European Union ask people who are part of the labour supply, but are not in the labour force, why they were not actively looking for work (Sorrentino 1993; 23). The two largest groups of people who are included in the hidden unemployed and who move readily in and out of the labour force are women and teenagers. These two groups of people move into and out of the labour force in response to changes in economic conditions. However, women who are part of the labour supply, but lie outside of the labour force, are much less likely to be enumerated as part of the hidden unemployed for two main reasons (Mata Greenwood 1999; 279). Firstly, unemployed women are much more likely to work in the informal sector and so they use informal methods of finding out about job opportunities. However, such search activities may not be considered as 'actively seeking work' by either the respondent or the interviewer during the Labour Force Survey. Secondly, women seem to have a good understanding of labour market conditions. Hence, they frequently do not 'actively seek work' even though they would take a job if one were offered to them, because they know that "work opportunities are so limited that they know there are none in practice, or because they have restricted labour mobility, or because they face discrimination or structural, social and cultural barriers in their search for work" (Mata Greenwood 1999; 279). Nevertheless, many of these women who by definition are not considered to be hidden unemployed because they are not defined as being part of the labour force even though they are part of the labour supply, do tend to respond positively to changes in the likelihood of gaining a job.

Despite the apparent difficulty of accurately measuring the discouraged worker effect, it is vitally important that the Labour Force Survey addresses these problems with identifying discouraged workers because hidden unemployment is now a major labour market problem in Australia. Therefore, the International Labour Organisation should develop new methods for measuring the discouraged worker effect so that more accurate estimates of hidden unemployment can be added to the estimates of *cyclical unemployment* and *frictional unemployment*, which are the basis of official measures of unemployment, in order to provide more comprehensive estimates of labour underutilisation. Perhaps an indirect, rather than a direct, approach to the estimation of labour underutilisation is more useful. This issue will be re-visited in chapters 8 and 9.

2.3 The labour force participation rate and hidden unemployment

The second methodological problem with the official labour force statistics is the calculation of the participation rate, which provides the denominator of the unemployment rate. Strictly speaking, the denominator of the unemployment rate is the size of the civilian population aged between 15 and 64 multiplied by the labour force participation rate. This is an important concept as it means that the unemployment rate can vary simply due to changes in the participation rate. Watson (2000a; 176) argued that during the early-1990s a fairly stable relationship between the unemployment rate and the participation rate existed. Over business cycles prior to the recession of the late-1980s, changes in the participation rate have tended to lag behind changes in the unemployment rate in a stable and predictable fashion. This relationship is illustrated in Figure 2.1. Prior to the mid-1990s,

during the expansionary phase of the business cycle, the fall in the unemployment rate was a signal to people, who were marginally attached to the labour force, that their prospects of gaining appropriate employment were improving. Consequently, people who were marginally attached to the labour force began to actively seek work and so the labour force participation rate rose. On the other hand, during the contractionary phase of the business cycle, the increase in the unemployment rate was a signal to people who were marginally attached to the labour force that their prospects of gaining appropriate employment were falling. Consequently, people who were marginally attached to the labour force stopped actively seeking work and dropped out of the labour force. Hence, the labour force participation rate fell. That is, the labour force participation rate tended to rise during the expansionary phase of the business cycle and fall during the contractionary phase, but with the participation rate lagging behind the unemployment rate. This is the discouraged worker effect at work.

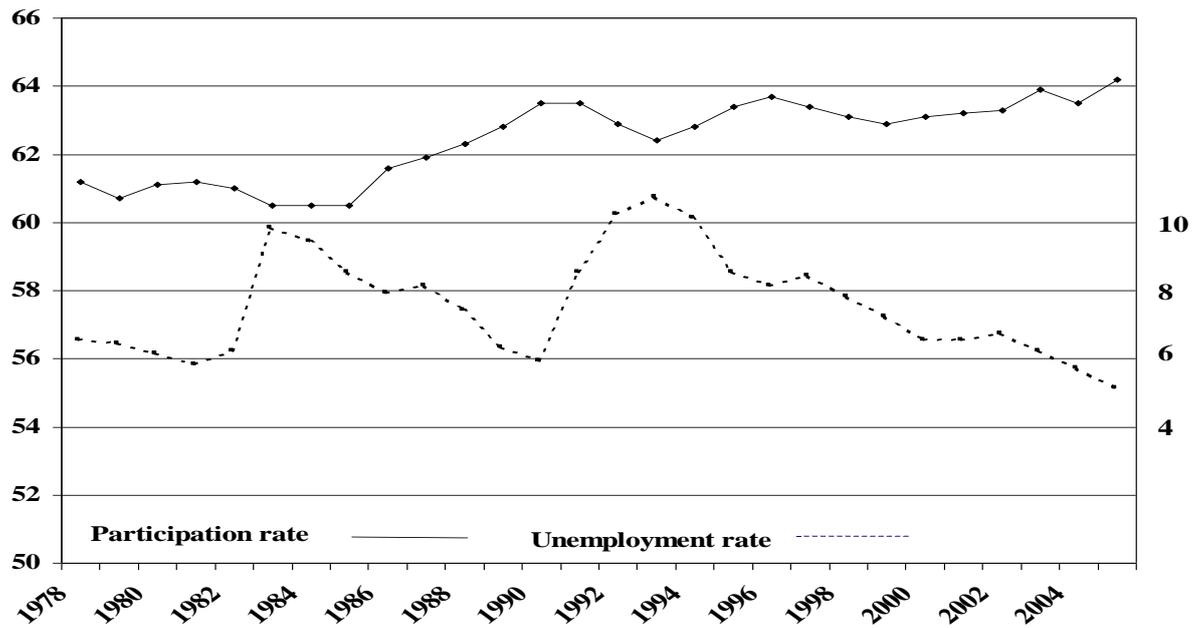
However, as Figure 2.1 shows, this relationship appears to have broken down during the mid-1990s. Watson (2000a; 176) argued that during the initial stages of the recovery from the recession of the early-1990s, the participation rate began to rise, as expected, in line with the continued fall in the unemployment rate and the commensurate improved expectations of people who had left the labour force during the recession gaining employment. However, since 1996, the participation rate has remained fairly static nationally, despite strong employment growth and continued reductions in unemployment.

McConnell, Brue and MacPherson (2009; 76) argued that the discouraged worker effect is off-set by the added worker effect. The added worker effect occurs when the breadwinner of a household loses his or her job, or if a household develops the perception that their

breadwinner is likely to lose their job. In which case, other members of the household temporarily either increase the amount of work they are prepared to do or temporarily enter the labour market in order to compensate for any real or expected loss of household income in the case of a recession. As the likelihood of a recession increases then the added worker effect gains strength. On the other hand, when the economy improves, then the added worker effect weakens.

The discouraged worker effect and the added worker effect work in opposite directions. So, what Watson and Callus (1999) have observed, as shown in Figure 2.1, is that up until the mid-1990s the discouraged worker effect dominated the added worker effect and hence there was an inverse relationship between the unemployment rate and the participation rate. However, it appears that hand in hand with the recovery from the recession of the early-1990s the added worker effect has strengthened, such that by the late-1990s it outweighed the discouraged worker effect. Consequently, there is now a direct relationship between the unemployment rate and the participation rate. This increase in the added worker effect leads to an increase in frictional unemployment, that is, new entrants, which in turn is reflected in an increase in the unemployment rate. The increased strength of the added worker effect is related to the increased precariousness of the jobs that have been created during the recovery from the recession (Campbell 1997, Standing 1997). Moreover, the changing dynamic of the labour force participation rate associated with the strengthening of the added worker effect means that the participation rate is now a leading rather than a lagging indicator of labour underutilisation in Australia.

Figure 2.1: The participation and unemployment rates, Australia 1978 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0, various issues.

This is an important methodological issue since the participation rate is essentially the denominator of the unemployment rate⁸. As such, changes in the participation rate can and do change the unemployment rate independent of any changes in the number of employed or unemployed people. So, if as Watson (2000a) argued the participation rate has developed a new dynamic that breaks from its previous long-term relationship with the unemployment rate, then changes in the participation rate could drive changes in the unemployment rate in a direction that labour market analysts might not expect.

Having explored the changes in the dynamics of the Australian labour force participation rates, it now needs to be noted that changes in the participation rate can be used to estimate changes in the level of hidden unemployment in Australia (see for example Wooden 1999,

⁸ The denominator of the unemployment rate is the civilian population aged between 15 and 65 multiplied by the labour force participation rate (see for example McConnell, Brue and MacPherson 2008, 537). Hence, changes in the participation rate will automatically lead to changes in the unemployment rate.

Mitchell and Carlson 2000, Denniss 2001 and 2003 and Australian Bureau of Statistics 2002). Beatty and Fothergill (1998, 2002 and 2003) argued that structural unemployment leads to labour market withdrawal and economic inactivity, which in turn leads to hidden unemployment. They further argue that people experiencing this form of labour market exclusion are to be considered as hidden unemployed because they ‘might reasonably expect to work in a fully employed economy’ (Beatty and Fothergill 1998; 138). That is, people may withdraw from the labour market because they know that they do not have a reasonable chance of meeting their labour market aspirations in the current economic climate (Beatty and Fothergill 2002; 820). That is:

They are realistic enough to recognise that in the current labour market they are unlikely to be able to find meaningful employment, and hence have given up trying. On the whole they do not therefore form part of the stock of workers from whom employers choose.

This argument reflects the view of Matta Greenwood (1999). Nevertheless, people who are experiencing this form of labour underutilisation would revise their expectations upwards if economic conditions were to improve.

This form of labour market exclusion, or labour underutilisation, is not insignificant in Australia. Indeed, the Productivity Commission (Lattimore, 2007) has identified this form of labour underutilisation as a serious problem for the Australian labour market. This report argued that some 2.2 million men aged between 15 and 64 have withdrawn from the labour market. The most worrying aspect of this finding is the large proportion of these men who are in the prime economic age groups of 25 to 44 years of age.

Conceptualising hidden unemployment is one thing, estimating it is another. This thesis is based on the premise that direct estimates of hidden unemployment, which is those measures of the discouraged worker effect that are obtained from the Labour Force Survey,

substantially underestimate the real level of this form of labour underutilisation in Australia. This premise is supported by all of the authors whose hours-based estimates of labour underutilisation are explored in this thesis. They all develop indirect methods to construct estimates of hidden unemployment, based on participation rate gaps. Hence, it is also argued here that an indirect method is required to estimate the true level of hidden unemployment. A commonly used method in Australia for estimating the level of hidden unemployment is an analysis of labour force participation gaps (see for example Dennis 2001 and 2003, Wooden 1999, Mitchell and Carlson 2000 and Mitchell 2007). These researchers differ with respect to method, but their message is consistent, the Labour Force Survey underestimates the extent of hidden unemployment in Australia. Better estimates of hidden unemployment are obtained from indirect measures, that is, an analysis of participation rate gaps.

2.4 The seasonal adjustment process

As discussed earlier, the most commonly used measure of labour underutilisation in Australia is the *seasonally adjusted unemployment rate*. Indeed, it is often referred to as the ‘headline measure’ as it dominates media attention and the more general discussion of employment and unemployment issues in Australia. Hence, it is the closest thing that Australia has to an official measure of unemployment and hence labour underutilisation. That is why it is referred to as a quasi-official measure. However, a methodological problem has emerged with the construction of the *seasonally adjusted unemployment rate*, in the wake of the recovery from the recession of the late-1980s/early-1990s which has limited its usefulness. Mitchell (2001) has argued that during the early-2000s the seasonal

adjustment process was lagging so far behind changes in the labour force that it was exacerbating, rather than smoothing seasonal fluctuations in the unemployment figures. There are three sources of fluctuations in the raw unemployment data. The first are the seasonal variations in employment that are largely associated with seasonal activities, such as agriculture and tourism. The second source of variation in unemployment data is irregular factors. Seasonal variations and irregularities account for about 40 per cent of the fluctuation in the raw unemployment data (Mitchell 2001). The remaining 60 per cent is random noise in the data largely as a result of the small sample size and the sampling method. The seasonal fluctuations can be accommodated by the seasonal adjustment process, while the random noise in the raw data is smoothed out by calculating a 13 month moving average to the original series in order to produce the trend series.

The seasonal adjustment process ‘is a means of removing the estimated effects of normal seasonal variation from a time series so that the effects of other influences on the times series can be recognised more clearly’ (Australian Bureau of Statistics 2009a; 28). However, the Australian Bureau of Statistics has recognised a fundamental problem with the seasonal adjustment process. It can only seasonally adjust raw data based on previous seasonal behaviour. Seasonal employment conditions are not static, they are evolving all the time. So, the seasonal adjustment process always lags behind any seasonal dynamics in the data. Furthermore, the Australian economy and its labour force underwent radical structural change as a result of the economic restructuring that occurred in Australia during the recovery from the recession of the early-1990s and the steady growth of non-standard employment relationships. For example, the proportion of the labour force employed by agriculture continues to fall, while employment in tourism continues to rise. As discussed above, the seasonal adjustment process always lags behind changes in the labour market.

However, given the dynamic nature of the Australian labour market, the seasonal adjustment process is now significantly out of step with changes in seasonal employment patterns. Hence, the seasonal adjustment process is now amplifying, rather than moderating fluctuations in the raw data.

The Australian Bureau of Statistics (2000a; 7–8) noted that the volatility of the *seasonally adjusted unemployment rate* is largely due to the presence of irregular factors in the original data. In some months, for example January 2000, fluctuations ‘in the irregular component have dominated the overall movement’ in the *seasonally adjusted unemployment rate* (Australian Bureau of Statistics 2000a; 8). Consequently, the significance of irregular factors in the movement of the *seasonally adjusted unemployment rate* means that it is difficult to interpret with any degree of confidence. Therefore, the Australian Bureau of Statistics (2000a; 8) recommends that the *trend unemployment rate* is a more appropriate headline measure of labour underutilisation than the *seasonally adjusted unemployment rate*.

During the early-2000s, there were some wild gyrations in the seasonally adjusted unemployment figures. For example, in July 2001, when the economy was growing at four per cent per annum, paradoxically the seasonally adjusted figures showed the loss of over 79,000 full-time jobs, more than for any month during the recession of the early-1990s. Then the August figures showed a rise in full-time employment of some 73,000 jobs. It is unlikely that the Australian economy shed, in a month, the number of full-time jobs that had been created annually, on average, since the recovery from the recession commenced in 1993, only to create nearly as many new jobs in the following month. Interestingly, the raw data tell an almost opposite story. In July 2001, full-time employment actually rose by

30,000 and fell by 77,000 in August. This inconsistency appears to be a perverse result of the seasonal adjustment process and the effect of irregular factors.

2.5 Visible underemployment

Ross (1985; 236) was one of the first Australian labour market analysts to identify the main weaknesses with the official unemployment rate as a comprehensive measure of labour underutilisation. He argued that focusing on the unemployment rate ignores three types of labour underutilisation, visible underemployment, invisible underemployment and hidden unemployment. He demonstrated that even in the mid-1980s these contributed substantially to the level of labour underutilisation in Australia. The first two of these forms of labour underutilisation are discussed in this section and section 2.6. The problems associated with hidden unemployment were discussed in section 2.2. Visible underemployment is created when part-time workers want to work either more part-time hours, or they want full-time work, but such work is not available. Significant growth in the proportion of part-time employment, which is achieved by the loss of full-time jobs and the creation of part-time jobs, leads to labour underutilisation that is not captured by a person rate of unemployment, such as the *seasonally adjusted unemployment rate* or the *trend unemployment rate*. As argued above, a person rate of unemployment ignores the intensity of unemployment for unemployed people. That is, a person rate of unemployment is a dichotomy, it can only count a person as employed or unemployed. It cannot take into consideration the number of days per week or hours per week that a worker is prepared to work and compare this figure with the number of days or hours actually worked in order to determine the amount of labour that is offered to the labour market, but which is not

employed, that is the level of labour underutilisation. This is especially the case when a very narrow definition of employment is used as the basis of unemployment statistics.

For example, between 2000 and 2002 about 3,000 full-time male jobs were lost in South Australia, but an almost equal number of part-time jobs, that is 2,900, were created. Hence, the official unemployment rate would show a very small change in the levels of employment and unemployment because it is a person rate of unemployment. However, the increase in labour underutilisation could be significant. Three thousand full-time jobs, where people work 35 hours or more, may have been replaced with 2,900 jobs where people were employed for as little as one hour per week. This is an extreme example, but it illustrates the extent to which the substitution of part-time jobs for full-time jobs, where the aspirations of workers for full-time jobs is not met, can lead to the substantial underutilisation of labour resources. Labour underutilisation created by this process will not be captured by either the *seasonally adjusted unemployment rate* or the *trend unemployment rate* as this type of labour underutilisation is associated with neither *cyclical unemployment* nor *frictional unemployment*. On balance no jobs were lost, even though a large amount of employment was lost and hence labour underutilisation created. As chapter 6 shows, part-time work has become the driver of employment growth since the recovery from the recession of the early-1990s commencing in 1993, in Australia generally and particularly in South Australia. Moreover, this continued growth in part-time employment contributed to the substantial growth in visible underemployment.

Paul (1991; 398) argued that unemployment data based on a person rate of unemployment will not shed any light on the extent of visible underemployment. That is, the intensity of unemployment for individual workers cannot be determined. The extent of visible

underemployment will only be revealed by a time rate of unemployment. Paul (1991; 397) defines a time rate of unemployment in terms of the number of days that a person would like to work compared to the number of days they actually work. However, even more accurate estimates of the intensity of unemployment that is experienced by underemployed people would be obtained from an hours-based unemployment rate (see for example in the Australian context: Denniss 2001, Denniss 2003, Wooden 1996 and Mitchell and Carlson 2000).

As discussed above, the Australian Bureau of Statistics (2002b; 8) has acknowledged that the substantial increase in the amount of visible underemployment in Australia can only be effectively measured by an hours-based rate of unemployment. Hence, the Australian Bureau of Statistics developed its volume measures (as discussed in chapter 1) in 2003. These measures are now available for the period 2002 to 2010, but they are still experimental and require further development (Australian Bureau of Statistics 2008). This methodological gap has been the stimulus for a number of attempts to develop an hours-based unemployment rate for Australia. A number of these hours-based unemployment rates are discussed in chapter 4.

2.6 Invisible underemployment

The second form of labour underutilisation that was identified by Ross (1985) is invisible underemployment. As discussed above, the Labour Force Survey collects some information about visible underemployment. However, the Labour Force Survey does not collect any information about invisible underemployment, which 'refers to individuals who

are working in jobs where their skills are not adequately utilised' (OECD 1995; 45). The OECD also notes that this form of labour underutilisation is difficult to measure. It is also related to the recognition criteria developed by Sen (1975) (as discussed above). Ross (1985; 237) observed that invisible underemployment is qualitatively different from visible underemployment. Nevertheless, it does represent a waste of human capital. As such, it is a form of labour underutilisation that is not captured by the *seasonally adjusted unemployment rate* or the *trend unemployment rate*.

The Australian Bureau of Statistics (2001b; 55) stated that previous international standards on underemployment defined invisible underemployment as the 'insufficient use of skills and experience or low productivity'. However, recent changes to the International Labour Organisation conventions, recommendations and guidelines have re-defined invisible underemployment such that it is now just one component of inadequate employment situations, which 'describe situations in the workplace which reduce the capacities and wellbeing of workers as compared to alternative employment situations' (Australian Bureau of Statistics, 2001b; 55). The three inadequate employment situations that have been identified by the International Labour Organisation are:

- income-related underemployment
- inadequate employment related to excessive hours
- skill-related underemployment, which is related to invisible underemployment. People who are experiencing skills-related underemployment include employed persons who, during the reference period, wanted or sought to change their current work situation in order to use their current occupations skills more fully, and were available to do so' (Australian Bureau of Statistics 2001b; 57).

This is a much broader definition of invisible underemployment than the one proposed by the OECD. Despite the problems associated with defining invisible underemployment, the Australian Bureau of Statistics (2005) has identified this as an important form of labour underutilisation. However, the Australian Bureau of Statistics does not collect any

information about skills-related underemployment either during the monthly Labour Force Survey or the quarterly Underemployed Workers Survey (Australian Bureau of Statistics 2006b). This is an important methodological issue since it relates to a misallocation of skills in the labour market and hence constrains economic growth.

This distinction is important in the South Australian labour market. In South Australia, about 40 per cent of the labour force is expected to turn 65 years of age over the period 2011 to 2026 as a result of the aging of the baby boomer generation. However, the size of the cohort that will be entering the labour force over this period is much smaller than the size of the baby boomer cohort that is leaving the labour force. This may have an adverse effect on economic growth in South Australia. Better matching of skills and jobs, that is, improved allocative efficiency in the labour market, would tend to alleviate the downside risk to the South Australian economy, but such a strategy is not included in the South Australian Strategic Plan (see for example: Spoehr and Barrett 2009, South Australian Government 2004 and 2008).

More research into invisible underemployment is required. Nevertheless, this form of labour underutilisation will not be discussed further as the focus of this thesis is the quantitative dimension, rather than qualitative dimension, of labour underutilisation in South Australia, that is, visible underemployment. Moreover, given the aim and scope of this thesis, to develop measures of labour underutilisation that better describe the patterns of labour underutilisation in South Australia over the period 1989 to 2005, this thesis needs to be based on labour force data that are currently published by the Australian Bureau of Statistics.

2.7 The unemployment rate is really a proxy measure of Gross Domestic Product

The last problem with the *seasonally adjusted unemployment rate* and the *trend unemployment rate* to be discussed here is that they are not really measures of labour underutilisation, rather they are alternative measures of Gross Domestic Product. This is a conceptual, rather than a methodological issue. A brief historical overview of the development of national accounting measures is necessary here in order to demonstrate the link between the unemployment rate and the growth of Gross Domestic Product.

Studenski (1958; 13) argued that the first attempts to develop a system for calculating national income emerged during the sixteenth century when mercantilism was at its height. Mercantilists viewed wealth solely in terms of the stock of *specie*, that is gold and silver. Consequently, ‘overseas trade was seen as the most productive industry as it could increase this stock’ (Ogle 2000; 15). However, no real concept of national income underpinned this view.

The development of the present system of national accounting can be dated back to 1776 with the publication of *An Inquiry into the Nature and Causes of the Wealth of Nations*, where Smith (1904) proposed the concept of ‘vendible commodities’, that is goods or services that are fit to be sold and which generate utility for consumers, as opposed to raw materials, intermediate goods and capital goods. Ogle (2000; 9) argued that those classical economists who had built on the pioneering work of Smith drew a clear distinction between production and consumption. However, there was little agreement as to which

vendible commodities constituted final production and hence should be included in Gross Domestic Product and which vendible commodities were intermediate goods and hence should not be included in Gross Domestic Product as their inclusion would overestimate the size of Gross Domestic Product as a result of double counting. Although national accounts were available for many countries by the end of the nineteenth century, (see for example, Coghlan 1918 or Butlin 1976 for Colonial Australia) systems of national accounting were still largely undeveloped by the turn of the twentieth century.

World War I was the first truly global war. For the first time entire economies were mobilised in order to fight a war. Consequently, the war was fought on such a large scale that governments needed better information for national planning purposes (Ogle 2000; 11). In particular, governments needed to decide how they were going to pay for the war. Yet despite the need, there were no major advances in national accounting during World War I. So, in the absence of proper national accounting frameworks World War I was largely paid for by expansionary monetary policy, the rapid expansion of government debt and inflation.

The major advances in national accounting did not transpire until the onset of World War II. Two actions by Keynes provided the framework within which a system of national accounts could be developed. The first was the development of the Aggregate Expenditure model in the mid-1930s (Keynes 1936). This model resolved the debate about which vendible commodities constituted final production and hence what to include in estimates of Gross Domestic Product. The second was the publication in 1940 of *How to Pay for the War: A Radical Plan for the Chancellor of the Exchequer* (Keynes 1940). In this pamphlet, Keynes argued that the best way for the British Government to pay for World War II was

by the introduction of a progressive income tax, which necessitated the estimation of national income in order to determine the appropriate rates of taxation. Furthermore, the influence of Keynesian economic theory did not stop at devising a system to pay for World War II, it also provided the theoretical underpinning for post-war reconstruction and macroeconomic management.

Given the vast amount of data that need to be collected and collated in order to calculate the national accounts, Gross Domestic Product is only available on a quarterly basis and with a one month lag to process the data. So, Gross Domestic Product data can be up to four months old when they are released. However, a week, let alone four months, is a long time in both economics and politics. Economic planners and politicians needed a more up to date source of economic data (Ogle 2000) and the unemployment rate filled this data need.

Denniss (2003; 117) argued that labour force statistics, especially the unemployment rate, have been used to fill the data gap created by the quarterly reporting of Gross Domestic Product in two ways. First, they are used as macroeconomic measures of labour market performance, which in turn are indicators of inflationary pressures in the economy. Secondly, they are used as proxy measures of the adequacy of aggregate demand. That is, they are used as proxy measures of Gross Domestic Product because ‘measures of labour underutilisation are sensitive to changes in economic conditions’ (Australian Bureau of Statistics 2002a; 22). This is because the demand for labour is a derived demand, as is the demand for all factors of production (McTaggart, Findlay and Parkin, 1999). So, when the economy slows, consumption falls, production falls and hence the demand for all factors of production, including labour falls (McTaggart, Findlay and Parkin, 1999). On the other

hand, when the economy expands, consumption increases, production increases and the demand for all factors of production, including labour, also increases (McTaggart, Findlay and Parkin, 1999). Hence, changes in economic activity are reflected in both the unemployment rate and levels of labour underutilisation. Moreover, because the demand for labour is a derived demand, changes in the unemployment rate reflect changes in the overall economic performance. That is, changes in the unemployment rate tend to only reflect changes in the demand for labour associated with changes in the business cycle. So, variations in the official unemployment rate tend to reflect changes in the level of cyclical unemployment or frictional unemployment (see for example: Borjas 2010; 505 and McConnell, Brue and Macpherson 2010; 553) and not labour underutilisation more broadly.

The inverse relationship between economic activity and unemployment is nicely illustrated by Mitchell and Carlson (2000; 22). They calculated correlations between Gross Domestic Product and changes in various measures of activity in Australia between 1981 and 2000. They found that the Spearman Correlation Coefficient (R^2) between the unemployment rate and Gross Domestic Product was -0.899. This is a very strong negative or inverse relationship that accounts for nearly 90 per cent of the variation in the dependent variable. Consequently, the unemployment rate is commonly used as an indicator of changing economic circumstances during the business cycle. Hence, it is often used as a proxy measure of the growth rate of Gross Domestic Product (Australian Bureau of Statistics 2002a; 22). Furthermore, the unemployment rate has the advantage that it is available on a monthly, rather than a quarterly basis, as is the case with the national account figures. Hence, key economic policy decisions that are made on a monthly basis, such as the monetary policy setting made by the Reserve Bank of Australia, are based on the

unemployment rate for those months for which current Gross Domestic Product figures are not available. However, labour market analysts require measures of the performance of the labour market that are independent of measures of the Gross Domestic Product. Moreover, they need labour market indicators that provide accurate estimates of the amount of surplus labour in the economy, that is, the true level of labour underutilisation.

2.8 Constructing labour market indicators

The aim of this section is to review the existing labour force indicator methodology literature in order to develop a set of criteria that can be used to assess the extent to which the alternative labour force indicators that have been developed over the past two decades meet the needs of the present study. That is, do they represent broad measures of labour underutilisation? These criteria should also be able to act as a conceptual framework to guide the construction of new labour force indicators. These new labour market indicators, which are primarily measures of labour underutilisation, will be applied in chapters 8 and 9 to provide a more accurate picture of the changes that occurred to the level of labour underutilisation in the South Australian labour market over the period 1989 to 2005.

As discussed briefly above, Paul (1991; 395) argued that governments should address two fundamental questions once they have decided to measure unemployment. The first is to identify the unemployed based on an appropriate definition of unemployment and the second is to develop an appropriate index of unemployment using the available labour force data. The first step in the development of any socioeconomic indicator, not just labour market indicators, is the construction of a set of criteria to be used as an analytical

framework. Gilomen (2002; 7) argued that the choice of criteria needs to be guided by two basic principles. First, the measures should address ‘politically relevant questions’. That is, labour force indicators need to relate to issues that are politically important and are the subject of policy debates. Second, measures should be ‘targeted observations of circumstances’. That is, indicators should focus on those aspects that are considered to be crucial for social development.

However, the literature relating to the criteria that should be used to construct labour market indicators is rather limited. Despite the paucity of the literature on this topic nearly 30 different criteria are mentioned in the literature that was reviewed as part of this study. Nevertheless, there is considerable overlap between the lists of criteria that have been identified. This of course is not entirely unexpected. Consequently, this section will conclude by grouping and reducing these criteria in order to produce a useable conceptual framework for the remainder of this thesis.

The obvious place to start this review is the Australian Bureau of Statistics. The Australian Bureau of Statistics (2002a; 131) argued that all Australian Bureau of Statistics headline indicators are concerned with assessing the extent of social, economic and demographic change and progress. They are not concerned with explaining the underlying causes of change in the indicators, just describing that change. The Australian Bureau of Statistics headline indicators are in a sense a one-size-fits-all approach to the preparation and dissemination of information about Australia. They are intended ‘to be easily understood by readers who may or may not be expert in either the subject or statistical measures’ (Australian Bureau of Statistics 2002a; 131). The Australian Bureau of Statistics (2002a;

131 and 22) argued that a good headline social indicator should be based on the following set of criteria:

- be relevant to the particular dimension of progress
- where possible, focus on outcomes for the dimension of progress (rather than on say, inputs or processes used to produce outcomes)
- show an unambiguous ‘good’ direction (signalling progress) and ‘bad’ direction (signalling regress), at least when the indicator is considered alone, with all other dimensions of progress kept equal
- be supported by timely data of good quality
- be available as a time series
- be sensitive to changes in the underlying phenomena captured by the dimension of progress
- be summary in nature
- preferably be capable of disaggregation by, say, geography or population group
- be intelligible and easily interpreted by the general reader
- face validity, that is labour force indicators should measure what they purport to measure and not be proxy measures of other social, economic or demographic factors.

End users of labour market data may have quite different needs as the following criteria that have been identified in the literature illustrate:

- reproductability, other groups of labour market researchers should be able to calculate the measures (Watson 2000; 180)
- each variable that is included in an index should be a meaningful measure of the performance of the labour market in its own right (Sorrentino 1993; 4)
- simplicity, it cannot be assumed that labour market analysts are experts in statistical analysis (Watson 2000; 179)
- measures should be based on data that are collected frequently, preferably monthly (Watson 2000; 179)
- they must consider the intensity and distribution of unemployment (Paul, 1991; 398)
- transparency, composite indexes should be able to be disaggregated in order to identify those components that are causing changes in the index, both in terms of value and direction (Watson 2000; 180)
- they can be ranked along a scale from high to low (Sorrentino 1993; 4), preferably using an interval rather than an ordinal scale (Watson 2000; 198).

As discussed above, the Australian Bureau of Statistics (2002a; 133) argued that first and foremost social indicators need to be relevant. However, as discussed earlier in this chapter, the *seasonally adjusted unemployment rate* and the *trend unemployment rate* have become somewhat less relevant since the late-1980s. These two labour market indicators

were developed when standard employment relations dominated the Australian labour market and hence *cyclical unemployment* and *frictional unemployment* were the main forms of labour underutilisation in the Australian labour market. However, as a result of the economic and labour market restructuring that has occurred since the late-1980s hidden unemployment and visible underemployment have emerged as significant forms of labour underutilisation. Hence, any alternative labour market indicators need to also focus on the task at hand. That is, the need to:

- include information about hidden unemployment
- include information about visible underemployment.

Gilomen (2002; 7), who researches issues relating to the interaction between the education system and the labour market in Switzerland, argued that ‘the term indicator is used to denote statistical parameters that refer to significant social circumstances and development’. He also argued that they must satisfy the following criteria (Gilomen 2002; 7–8):

- they have to be *politically oriented* and relate to those circumstances that are politically important and the subject of public debate
- there must be a limited number of *highly compressed* indicators that provide a fast overview that is meaningful to busy politicians
- there needs to be national and international *standardisation*, which is a necessary condition for comparative analysis
- they must be *comparable in terms of time* in order to track time related trends
- they must be *geographically comparable*
- they must be *comparable between social groups*, especially when the phenomenon being measured impacts differentially across social groups
- they must be *comparable between institutions*, which is particularly important where the search for best practice attaches particular importance to individual situations
- most importantly, they must be *up to date*
- not only should indicators provide information about past trends, they should be prospective, so that they can be used as the basis of forecasting.

As chapters 3 and 4 indicate, there is a sizeable and growing literature about alternative labour market indicators. However, this literature demonstrates that with the development

of low cost, high-powered personal computers and the availability of sophisticated and easy-to-use statistical software packages these indicators do not tend to consider the methodological and conceptual issues that are related to developing indicators (Vinson 1999). Instead, they seem to be data driven, data fishing exercises (Vinson 1999). As a result of this they also tend to ignore the theoretical relationships between the observed phenomena and the variables that are included in the resultant labour market indicators.

As discussed above, this review of a rather limited literature indicates that there are potentially 30 criteria that might be considered when developing socioeconomic indicators relating to labour market performance. This is too many, but fortunately there is quite a lot of overlap between these criteria, so it is possible to reduce the list to just 19 criteria. These 19 criteria can then be classified into three categories that relate to the interpretation of the index, the data from which the index is calculated and labour force criteria. The first two set of criteria are rather generic. That is, all socioeconomic indicators should meet these criteria. However, the last set of criteria relate to the particular social problem that is being investigated here, the dynamics of labour underutilisation in the South Australian and Australian labour markets. This process of classification also reduces the number of criteria that should be considered when constructing socioeconomic indicators.

These 19 criteria, along with the two guiding principles of *targeted observation* and *political relevance*, will be used as a set of filters to assess the range of alternative indicators that are discussed in the following two chapters. They will then be used as the framework within which three new socioeconomic indicators are developed in chapter 6.

Table 2.1: Criteria to be used when constructing labour force indexes and indicators

Interpretive criteria

1. **Face validity**, indexes should measure what they purport to measure.
2. **Reproductability**, other labour market analysts should be able to calculate the index using similar data.
3. **Simplicity**, labour market indexes need to be readily and easily interpreted by the general public.
4. There should be an unambiguous ‘good’ and ‘bad’ **direction**.
5. An **interval scale**.
6. **Transparency**, indexes should be readily disaggregated in order to identify those components that are causing change in the value of the index.
7. They need to be **summary** in nature.
8. They need to provide a basis for **comparative analysis**.
9. Should be available as a **time series** to identify past trends.
10. They should be **prospective**, to provide the basis of forecasting.

Data criteria

11. Indexes should be based on high **quality** up to date **data**.
12. Data should be **relevant** to current labour force debates.
13. Each variable included in an index should be a **meaningful** measure of the labour force.
14. Data should focus on **outcomes**, rather than inputs of processes.

Labour force criteria

15. Index should provide information about **cyclical unemployment**.
16. Index should provide information about **frictional unemployment**.
17. Index should provide information about **hidden unemployment**.
18. Index should provide information about **visible underemployment**.
19. Index should be **sensitive** to changes in the underlying phenomenon captured by the index.

2.9 An evaluation of the seasonally adjusted unemployment rate

As discussed earlier, the closest thing Australia has to an official measure of labour underutilisation is the headline measure of unemployment, the *seasonally adjusted unemployment rate*, which has already discussed has a number of methodological shortcomings. That discussion demonstrates that the *seasonally adjusted unemployment rate* is not capable of providing accurate estimates of labour underutilisation for Australia as it provides information primarily about two forms of labour underutilisation, *frictional unemployment* and *cyclical unemployment*. The preceding section outlines a number of criteria that will be used in the following two chapters to evaluate a number of alternative labour market indicators and then provide a conceptual framework within which to develop other labour market indicators. The *seasonally adjusted unemployment rate* is evaluated

here using these criteria, both to illustrate how these criteria can be used and to identify any further shortcoming of the *seasonally adjusted unemployment rate*. This evaluation of the *seasonally adjusted unemployment rate* also serves as a dress rehearsal for the evaluations that will be undertaken in the following two chapters.

Table 2.2: Evaluation of the seasonally adjusted unemployment rate.

Interpretive criteria	
1. Face validity	no; essentially a proxy measure of GDP
2. Reproductibility	yes
3. Simplicity	yes
4. An unambiguous ‘good’ and ‘bad’ direction	yes
5. An interval scale	yes
6. Transparency	yes
7. Summary in nature	yes
8. A basis for comparative analysis	yes
9. A time series	yes
10. Prospective	no
Data criteria	
11. High quality up to date data	yes; based on monthly Labour Force Survey, but seasonal adjustment process introduces errors
12. Relevant to current labour force debates	no; two forms of labour underutilisation not measured
13. A meaningful measure of the labour force	no; definition of labour underutilisation is too narrow
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	no
18. Information about visible underemployment	no
19. Should be sensitive to changes	yes

Table 2.2 shows that the *seasonally adjusted unemployment rate* meets 14 of the 19 criteria outlined in Table 2.1. The *seasonally adjusted unemployment rate* meets all but one of the interpretive criteria. This is hardly surprising given that as a headline measure of the economy it is intended ‘to be easily understood by readers who may or may not be expert in either the subject or statistical measures’ (Australian Bureau of Statistics 2002a; 131). These headline measures need to be accessible to a broad cross-section of the community. So, they need to be readily interpreted. However, the lack of face validity reflects the

concerns raised in sub-section 1.5. Moreover, the *seasonally adjusted unemployment rate* fails to meet four data and labour force criteria.

In particular, it fails to meet three of the data criteria. First, it is derived from the Labour Force Survey, so it is based on high quality and up to date data. However, there is a problem with the way these data are processed. As discussed above, the seasonal adjustment process now lags behind seasonal changes in the labour market and is exacerbating, rather than smoothing, seasonal variation in labour market data. Hence, the *trend unemployment rate* would be a better headline measure. Moreover, this is what the Australian Bureau of Statistics (2002a; 8) has argued. Second, the *seasonally adjusted unemployment rate* is no longer very relevant to current labour market debates. It provides accurate estimates of *cyclical unemployment* and *frictional unemployment*, which is not surprising as these two forms of labour underutilisation dominated the Australian labour market when it was developed. However, after two decades of economic and labour market restructuring in Australia, *cyclical unemployment* and *frictional unemployment* are no longer the dominant forms of labour underutilisation in Australia. Hidden unemployment and visible underemployment are becoming increasingly important forms of labour underutilisation in Australia. Hence, the *seasonally adjusted unemployment rate* substantially underestimates the extent of hidden unemployment in Australia and provides no information about visible underemployment. Third, it is becoming increasingly acknowledged that accurate estimates of labour underutilisation are to be obtained from a time rate of unemployment, in particular an hours-based measure of unemployment, rather than a person rate of unemployment, such as the *seasonally adjusted unemployment rate*.

Finally, the *seasonally adjusted unemployment rate* meets only three of the labour force criteria. As discussed above, it provides no information about visible underemployment and it substantially underestimates hidden unemployment. Moreover, these two forms of labour underutilisation are becoming increasingly important labour market problems. As a result of these shortcomings, in addition to the six discussed in the previous section of this chapter, new labour market indicators are required that provide more accurate estimates of labour underutilisation for the Australian labour market.

2.10 An evaluation of the volume measures of labour underutilisation

The previous sub-section employed the evaluative criteria developed in Table 2.1 to assess the *seasonally adjusted unemployment rate*. The purpose of that discussion was basically to assess the usefulness, or otherwise, of these criteria. In this sub-section these criteria will be used to evaluate the usefulness of the *volume measure of labour underutilisation* that has been developed by the Australian Bureau of Statistics (2003c, 2009b) to achieving the aims of this thesis. After all, if these measure are appropriate for the needs of this study, that is, to provide better estimates of the real level of labour underutilisation in the South Australian labour market over the period 1989 to 2005, then there is no need to proceed any further.

Before this evaluation is undertaken it is important to acknowledge the contribution of the development of these experimental measures of labour underutilisation to the debate about how best to measure the real level of labour underutilisation in Australia. The development of this measure, which is an hours-based measure of labour underutilisation, represents an

acknowledgement by the Australian Bureau of Statistics that the best way to measure unemployment is with an hours-based measure of labour underutilisation. Hence, the development of this measure contributes significantly to filling observed gaps in the literature on this topic. However, despite the important contribution of this measure to the, the vexed question of how best to measure labour underutilisation the following analysis will demonstrate that these experimental measures require further development. In particular, this thesis will argue that the *volume measure of labour underutilisation* is not a comprehensive measure of labour underutilisation as it does not include any estimates of hidden unemployment. Hence, this study needs to develop its own measures, but also acknowledges that the construction of the labour market indicators that is undertaken in chapter 5 is informed by the pioneering work of the Australian Bureau of Statistics on this topic.

Table 2 is divided into three sets of criteria, interpretive criteria, data criteria and labour market criteria. Given the discussion undertaken in sub-section 2.9 it should be no surprise that a suite of labour market indicators that have been developed by the Australian Bureau of Statistics would meet all of the interpretive and data criteria. Nevertheless, this measure has two shortcomings, with respect to these criteria, that limits its usefulness in later discussion in this thesis. First, even though the first attempts to develop this measure was undertaken in 2003 (Australian Bureau of Statistics 2003) this measure has been available as a time series since 2002 (Australian Bureau of Statistics 2009b). However, this measure is only available for Australia as a whole and are not available for the individual states or territories, as explained in chapter 1. The aim of this thesis is to quantify the changes in the level of labour underutilisation in the South Australian labour market over the period 1989

to 2005. So, given that this measure is only available for the last three years of the study period its use does not seem appropriate, even it was available for South Australia.

Again with respect to data criteria, this measure performs quite well. However, the fact it is only available on an annual basis limits its usefulness to labour market analysts and policy makers. Labour market analysts and policy makers need reliable, accurate and up-to-date information. So, labour market indicators could be available on a monthly basis, on a quarterly basis at the very least.

Table 2.3: Evaluation of the volume measures of labour underutilisation

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes
3. Simplicity	yes
4. An unambiguous 'good' and 'bad' direction	yes
5. An interval scale	yes
6. Transparency	yes
7. Summary in nature	yes
8. A basis for comparative analysis	yes
9. A time series	yes, but only since 2002
10. Prospective	yes
Data criteria	
11. High quality up to date data	no; based on annual not monthly data
12. Relevant to current labour force debates	yes, but with a level of frequency that constrains their usefulness
13. A meaningful measure of the labour force	yes
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	yes, but underestimated as estimates of hidden unemployment are based on a narrow definition of the discouraged worker effect
18. Information about visible underemployment	yes
19. Should be sensitive to changes	yes

However, the most important shortcoming of this measure is the omission of any estimate of hidden unemployment. The *volume measure of labour force underutilisation* is simply the sum of the volume measures of unemployment and underemployment. In other words it

does not include any estimates of hidden unemployment other than the discouraged worker effect that is a component of the official unemployment rate. Hence, the absence of hidden unemployment in these measures means that it underestimates the real extent of labour underutilisation in Australia and so remains as an inadequate measure of total labour underutilisation. In order to provide more accurate estimates of labour underutilisation it needs to incorporate an estimate of hidden unemployment that is derived from indirect methods, such as changes in the labour force participation rates.

In summary, these volume measures of labour underutilisation are an important contribution to the debate. However, due to the shortcomings explored in this section they will not be used in later chapters to analyse the performance of the South Australian labour market. However they will be re-visited in the last two chapters of this thesis in order to provide the Australian Bureau of Statistics with some suggestions as to how to modify these experimental measures so that they better meets the needs of Australian labour market analysts.

2.11 Conclusion

This chapter briefly explored five methodological problems with the *seasonally adjusted unemployment rate* and the *trend unemployment rate* that prevent them from providing accurate estimates of labour underutilisation for South Australia. The key theme of this discussion is that the official unemployment rate provides inaccurate estimates of labour underutilisation because it only provides estimates of the labour underutilisation that are created by *cyclical unemployment* and *frictional unemployment*. Hence, it ignores two

forms of labour underutilisation that have grown substantially in the wake of the recovery from the recession of the early-1990s. First, the Labour Force Survey underestimates the discouraged worker effect and so hidden unemployment is also underestimated. Second, the Labour Force Survey does not provide any information about the visible underemployment that has been created by the substantial increase in part-time employment in Australia. Hence, new measures of labour underutilisation need to be developed for Australia that add reliable estimates of the amount of hidden unemployment and visible underemployment to the *seasonally adjusted unemployment rate* and the *trend unemployment rate* in order to provide accurate estimates of the real amount of underutilised labour in the Australian economy.

This discussion argued that the *seasonally adjusted unemployment rate* and the *trend unemployment rate* are essentially products of the time. They were developed in the late-1970s and early-1980s when the labour markets of the advanced industrial nations were dominated by standard employment relations. The key forms of labour underutilisation that are associated with standard employment relations are *frictional unemployment* associated with labour force entry and labour market mobility and *cyclical unemployment* associated with business cycle fluctuations. However, the recovery from the recession of the early-1990s was associated with a substantial growth in both hidden unemployment, associated with economic restructuring and structural unemployment, and visible underemployment caused by the substantial growth of part-time work in Australia. So, the *seasonally adjusted unemployment rate* and the *trend unemployment rate* underestimate the current level of labour underutilisation. Consequently, the official labour force statistics provide an incomplete and partial picture of the contours and dynamics of labour underutilisation in the Australian labour market. Hence, the official measure of labour underutilisation needs

to be complemented by a range of alternative labour force indicators in order to provide a more complete picture of the changes that have occurred to the level of labour underutilisation in the South Australian and Australian labour markets over the period 1989 to 2005. These alternative labour market indicators need to include estimates of both hidden unemployment and visible underemployment.

This chapter concluded with the development of 19 labour force criteria that will be used in the next three chapters to develop labour market indicators that provide better estimates of labour market underutilisation for the South Australian labour market over the period 1989 to 2005. These criteria will be used in the next two chapters to assess a number of alternative labour market indicators that have been developed in the past decade or so. This discussion identifies three labour market indicators that could be appropriate for the task at hand, but which need further development. This development is discussed in chapter 5, which constructs three new measures of labour underutilisation, which are applied in the third section of this thesis.

3 ALTERNATIVE LABOUR FORCE INDICATORS: UNWEIGHTED INDEXES

3.1 Introduction

Many aspects of the socioeconomic profile of a society cannot be measured directly as they are in effect unobservable variables. However, data may be available for several observable variables that are recognised, either statistically or theoretically, as contributing to a particular dimension of the unobservable variable. Hence, a composite of these observable variables can be used to calculate an index, which then can be used as a proxy measure of the unobservable variable (Australian Bureau of Statistics 1994, 1998). Unemployment and labour underutilisation are two such variables. The indicators that are calculated by social scientists, including labour market analysts, can be divided into two mutually exclusive groups, weighted and non-weighted indexes⁹. A weighted index contains information about two or more variables, where each variable is weighted to reflect its contribution to the variation in the unobservable variable. The weights are usually calculated statistically, but they can also be determined theoretically. The weights

⁹ A weighted average or weighted mean is similar to the arithmetic average or mean. Actually the arithmetic mean is a special case of the weighted mean, where it is assumed that all data points contribute equally to the final average. Often however, different data points contribute more or less to the average or mean than others. Therefore, they need to be weighted higher or lower to reflect their importance to the overall average or mean. So, a weighted mean multiplies each data point by a weight. The weights can be determined theoretically or empirically. A well-known example of a weighted mean is the Consumer Price Index (CPI) (Fischer, Dornbush and Schmalensee 1988; 28), which is essentially a weighted mean of the prices of 107 goods and service that represent the basket of goods and services consumed by a typical metropolitan Australian household. (Australian Bureau of Statistics). For example, in the CPI new passenger motor vehicles have a very low weight reflecting the observation that very few households actually buy new cars and if they do they purchase them infrequently, hence they contribute little to overall household spending. On the other hand, staple foods and petrol have quite high weightings reflecting their frequent consumption and importance in household budgets. A weighted index is essentially the same as a weighted mean with the exception that the units of measurement are lost in the construction of an index but retained in the calculation of a mean.

reflect the proportion of the variation in the unobservable variable that is accounted for by each variable in the index. On the other hand, all the variables in an unweighted index are assumed to contribute equally to the variation in the unobservable variable. Hence, there is no need to weight them¹⁰. Moreover, these variables can be used to provide information about two distinct dimensions of the labour market. The first is the quantitative dimension, this related to the number of workers who are underemployed or the amount of labour underutilisation. The quantitative dimension is the focus of this thesis. On the other hand is the qualitative dimension of the labour market. From this perspective, researchers develop a deeper understanding of labour market participants to better understand their behaviour. However, this dimension of the labour market is not explored in this thesis.

The aim of this chapter and the next is to determine which of the alternative labour market indicators that have appeared in the recent literature have the potential to provide methods that produce better estimates of labour underutilisation than those obtained from the headline measures of labour underutilisation, that is, the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. These labour market indicators will be refined in chapter 5 and then used later in the study to re-examine trends in labour underutilisation in South Australia and Australia over the period 1989 to 2005. The decision about which labour market indicators to use will be made in three stages. The present chapter will evaluate the usefulness, or otherwise, of eleven non-weighted labour force indicators using the criteria outlined in Table 2.1. The following chapter will evaluate the usefulness of a number of weighted labour force indicators, also using the criteria in Table 2.1. Finally, chapter 5 will argue that none of the labour market indicators reviewed in chapters 3 and 4

¹⁰ The exploration of the Misery Index in sub-section 4.2.2 provides an interesting illustration of the construction of weighted and unweighted indexes.

meet the needs of the present study. However, three of them provide the basis of labour market indicators that could meet the needs of the present study with some modification, that is, to provide more accurate estimates of labour utilisation for South Australia. Hence, chapter 5 closely re-examines these three labour market indicators and suggests how they need to be improved. In so doing, three new labour market indicators are constructed. These three new measures will be used in chapters 6, 7 and 8 to re-examine the labour underutilisation trends in South Australia and Australia over the period 1989 to 2005.

3.2 Health of the Labour Force Indices

The simplest approach to overcoming the shortcomings of the *seasonally adjusted unemployment rate* and *trend unemployment rate* is to use a battery of single indicators, each of which sheds some light on individual facets of the labour market, without combining them into a single measure. Each measure is analysed separately and the separate analyses can then be integrated into a single story about the changes that are occurring to the labour force. Many such indicators can now be obtained from the Labour Force Survey and other surveys conducted by the Australian Bureau of Statistics.

Watson (2000) took this approach one step further with the development of the Health of the Labour Market Indices. The Health of the Labour Market Indices are 11 quantitative and qualitative measures of the labour market. Watson (2000) argued that directly comparing a disparate range of single indicators is difficult as they have different units of measurement, the acceptable ranges for each indicator differ and improvement in the indicators can be either positive or negative changes. So, he standardised these indicators

in order to overcome these problems and hence develop the indices. The indicators and the standardisation process are described in Table 3.1.

The picture of the Australian labour market provided by the Health of the Labour Market Indices stands in stark contrast to the picture that is presented by the unemployment statistics that is discussed in more detail in chapter 6. The official unemployment rate suggests that during the second half of the 1990s the well-being of all Australians rose as a result of strong economic growth, strong employment growth and falling unemployment, whereas the Health of the Labour Market Indices suggested the opposite. The quantity of employment in Australia has fallen as illustrated by the stagnation of the full-employment index and the worsening of the underemployment index, while long-term, that is structural, unemployment remains a serious problem. Furthermore, the deterioration in the casualisation index, the long hours of work index, and the indexes of earnings implies growing income inequality in the Australian labour market¹¹ (Watson 2000). These factors when put together paint a very different picture of the experiences of average Australians over the past decade, revealing a labour force in crisis.

The Health of the Labour Market Indices meets most of the evaluative criteria outlined in the previous chapter, except one in particular. Moreover, the failure to meet this criterion represents a significant weakness of the Labour Market Indices, which limit their general usefulness. The use of a battery of single indicators, whether standardised or not, overcomes one of the major shortcomings of the official unemployment rate. Information

¹¹ The worsening of many of the measures in the Health of the Labour Market Indices is further evidence of a decline in the importance of standard employment relations and the increased importance of non-standard employment relations.

about different facets of the labour market is collected and reported. However, the structure of the Health of the Labour Market Indices requires analysts to synthesise information relating to a broad range of indicators for themselves. Such an approach implies that the indices will be interpreted differently. That is, the Health of the Labour Market Indices does not have an unambiguous ‘good’ or ‘bad’ direction. For example, neo-Keynesian labour market analysts may view increased casualisation of the workforce as detrimental as they argue that it is the cause of increased income inequality and poverty (Saunders 2003; 4). So, from a neo-Keynesian perspective increased casualisation is a ‘bad’ thing. On the other hand, neoliberal labour market analysts may view this in a positive light as they argue it is a way of attaining greater labour force flexibility and thereby eliminating unemployment by restoring labour force equilibrium and allocative efficiency in the labour market. So, from a neoliberal perspective increased casualisation is a ‘good’ thing. Consequently, there may be no commonality of views based on the same data set. This is, just one example, but it does illustrate the limitations of indexes where the person who uses the index constructs its meaning, rather than the person who constructs the index.

A second, but not such an important problem is that the indicators are not weighted. This approach assumes that all 11 indicators are equally important measures of the health of the labour force. Consequently, it is not possible to determine whether an improvement in the health of the labour force, that is caused, for example, by a fall in the unemployment rate, is offset by a reduction in full-time employment or increased earnings differentials. On the other hand, by not weighting these indexes, Watson is not necessarily implying that the different items are equally important. In this case it is likely that the non-aggregation of these indexes into a single index reflects an acknowledgement of the debatable value of

each variable. Either way, it is not possible for policy makers to set priorities for action in response to changes in the individual components of these indices.

Table 3.1: Items making up the Health of the Labour Market Indices

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Source: Watson 2000

The development of weights is not as contentious as Watson (2000) proposes. Appropriate weights for his Health of the Labour Market Indices can be calculated using multivariate statistical techniques, such as Principal Components Analysis. For example, the Australian Bureau of Statistics (1994) uses Principal Components Analysis to calculate the weights for its Socio-Economic Indicators for Areas indexes. However, during any multivariate analysis information about the variation of each variable is lost, subsumed by the data

processing. Consequently, it is not possible to determine which variables are responsible for any observed improvement, or worsening of the index, without re-examining changes in the raw data, an act that defeats the process of developing an index.

Despite these two shortcomings of the Health of the Labour Market Indices, research conducted by Watson (2000) and Watson and Callus (1999) have identified two important concerns about the Australian labour market. First, the steady improvement in the *seasonally adjusted unemployment rate* and the *trend unemployment rate* cannot unambiguously be interpreted as an improvement in the employment situation in Australia. Second, the economic restructuring that accompanied the recovery from the recession has resulted in significant hidden unemployment, which is captured to some extent by the Health of the Labour Market Indices. Moreover, these Indices provide some information about changes in the level of visible underemployment.

The Health of the Labour Market Indices developed by Watson (2000) is a novel solution to overcoming the shortcomings of the *seasonally adjusted unemployment rate*. However, these shortcomings, in particular the inability to integrate all 11 indices into a single coherent story about the Australian labour market, means that it is not appropriate for use in later chapters of this study. Moreover, it is not strictly a measure of labour underutilisation.

3.3 The Job Quality Index

Burgess (2003; 1) observed that in 'its election manifesto of 1996 the coalition parties were committed to job generation, a reduction in the unemployment rate and the generation of "quality" jobs'. That is, the goal of employment policy was both 'more and better jobs'. The labour force statistics demonstrate that between 1996 and 2005 the Commonwealth Government has had some success with respect to their first two goals. However, it is difficult to evaluate their performance with respect to their third goal as measuring job quality is problematic. Burgess (2003; 2) argued that labour market analysts largely ignore the problem of job quality, even though this question goes right to the heart of the debate about how best to reform the Australian labour market and whether Australia should adopt a European or an American labour market model. Consequently, Burgess developed his own measure of the quality of work in Australia to evaluate the attempts of the Coalition Government to improve job quality in Australia.

Burgess (2003; 2 – 3) argued that the literature does not agree on what constitutes job quality. Nevertheless, the literature does provide at least four different conceptual frameworks that can be used to monitor job quality. First, the minimum standards approach specifies that all jobs should satisfy certain proscribed standards. Jobs that do not meet the standards are undesirable. This approach is implicit in the approach of the International Labour Office (1999 and 2001) to labour standards. Second, to identify the attributes, above the core labour standards, that a 'decent' job should possess. This is the aim of the European Union Social Charter and the International Labour Office Decent Work Deficit. Third, is to specify those components that contribute to job quality and then check these components against jobs. This is a characteristics approach to job quality and attempts to

list the characteristics or components of the job that contribute to its quality. Finally, the measurement process can be refined through the development of an index of job quality. This approach involves ‘heroic assumptions about the identification, separation, weighting, addition and measurement of the variables to be included in the index’ (Burgess 2003; 3). Nevertheless, Burgess attempted to construct such an index.

Burgess (2003; 2) used the last framework to develop a four-step process to develop his Job Quality Index. The first step was to identify the variables to be included in the index. The five variables, which are shown in Table 3.2, were chosen from a theoretical, rather than a statistical analysis, of the available labour force statistics. The second step was to calculate the weights for each variable. Burgess (2003; 5) assumed that each variable is of equal importance to job quality, so each variable is equally weighted at 20 per cent. Strictly speaking, as discussed above, as each variable has the same weight this is an unweighted index, rather than a weighted index. The third step was to standardise the variables. Like Watson (2000), the variables selected by Burgess have vastly different ranges and different accepted values. Therefore, they had to be standardised to prevent the index being swamped by variations in one or two variables. Third, the index was calculated by summing the values of the weighted standardised variables. The index values are presented in Table 3.3, which shows a 3.27 per cent fall in the Job Quality Index over the period 1996 to 2001, half of which occurred in 2001¹².

¹² This observed worsening of the Job Quality Index is also evidence of a decline in standard employment relations and the increased importance of non-standard employment relations.

Table 3.2: Component indicators of the Job Quality Index

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Source: Burgess 2003; 10.

Table 3.3: The Job Quality Index, 1996 to 2001

Source: Burgess 2003; 10.

The Job Quality Index is a useful contribution to the debate about how economic restructuring and government policy is affecting the Australian labour market. However, despite the advantages of this index, which are its ease of construction, transparency, the use of timely and accessible data and the unambiguous nature of any changes in the value of the index, the index has a number of weaknesses. Burgess (2003; 6–7) himself identified the following seven weaknesses of the index:

1. there are obvious missing elements, more variables relating to wages and training need to be incorporated into the index
2. the index only includes information about employees and therefore ignores workers who are in ambiguous employment arrangements and who are outside of forms of employment regulation and protection
3. the weighting is arbitrary and assumes that all variables are of equal importance, this is not the case for all employees
4. this is an aggregate measure, so it is not possible to conduct any cross-sectional analysis of job quality
5. the index excludes any qualitative data about what workers think constitutes decent jobs
6. the five groups of employees are not mutually exclusive, so there is some double counting
7. there is a construction problem with the relative scaling of the variables, that is, despite the standardisation process the index is dominated by two variables.

Given this comprehensive discussion of the shortcomings of this labour market indicator, it seems redundant to apply the evaluative criteria that were developed in the previous chapter at this point. Moreover, it is not an index of labour underutilisation. Consequently, this index was not considered to be useful in later chapters.

3.4 Measuring the Job-poor Labour Force

3.4.1 Introduction

Australia is not the only developed nation where the official unemployment rate seemed to underestimate the level of labour underutilisation that was created during the recession of the early-1990s. This was also seen to be a problem by a number of Canadian researchers. For example, Burke and Shields (1999) argued that behind the official story of sustained economic and employment growth, the Canadian labour market was in crisis during the 1990s. This view of the Canadian labour market was shared by other Canadian researchers, see for example Jackson *et al.* 2000. Hence, the picture of the performance of the Canadian labour market painted by the official statistics is at odds with the experiences of an increasing number of Canadians. They argue that the crisis is one of sustaining employment due to the deterioration in the quality of jobs, in terms of both employment security and income sufficiency¹³. Hence, the deterioration of the labour force, rising levels of economic marginalisation, polarisation and increased labour force vulnerability are contributing to the erosion of social cohesion in Canada. Traditional measures of the

¹³ This observed reduction in the quality of work is also seen as evidence of a decline in the centrality of standard employment relations and the growth of non-standard employment relations.

performance of the economy, such as Gross Domestic Product *per capita* and the unemployment rate provide an incomplete picture of what was happening to both well-being and employment quality. In response to these shortcomings, Burke and Shields (1999) developed three unweighted indexes that they argue provide a more complete picture of the restructuring of the Canadian labour force.

3.4.2 The Structural Exclusion Index

The first of the three indicators that were developed by Burke and Shields, the Structural Exclusion Index (Table 3.4), is not just a measure of unemployment, it is also a measure of the various forms of underemployment and marginal employment that have grown in importance to the Canadian labour market during the 1990s. Burke and Shields (1999) argued that labour force relations are much more complex than the simple employed/unemployed dichotomy suggested by official measures of unemployment. Moreover, labour force participation simply cannot also be conceptualised as a dichotomy between people who are in the labour force, and those who comprise the labour supply, but are not in the labour force. The increased numbers of hidden unemployed has blurred the boundaries between the labour market, the labour force and the labour supply. Although the hidden unemployed are not actively seeking work for a variety of reasons, they would take an appropriate job if one were offered. The ease with which the hidden unemployed, especially women and teenagers, can move into and out of the labour force is the main cause of this blurring (Mata Greenwood 1999, Elder and Johnson 1999). Consequently, labour force participation needs to be conceptualised as a continuum with full labour market participation at one extreme and full labour force exclusion at the other extreme,

rather than as a dichotomy. The Structural Exclusion Index is a measure of the number of people who belong to six mutually exclusive and, arguably, exhaustive groups of people who lie along this continuum. The index is calculated simply by summing the number of people in the following six groups and expressing the result as a percentage of the labour force. This is of course a person rate of unemployment.

Table 3.4: The Structural Exclusion Index

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Source: Burke and Shields 1999.

Table 3.5: Structural Exclusion Index, May 1998, Canada

Source: Burke and Shields, 1999; 16.

The picture of the Canadian labour force that is provided by the Structural Exclusion Index is in stark contrast to the story provided by the official Canadian labour statistics. The estimate of the Structural Exclusion Index for Canada in May 1998 was 20.3 per cent, which was nearly 2.5 times the official estimate of unemployment of 8.4 per cent (Table 3.5).

The index has a few important advantages for policy analysts, so it could be considered for later use in the present study. First, the index is readily calculated, as it is simply the sum of the numbers of people who belong to six mutually exclusive groups of people whose labour force participation has been affected by the recent restructuring of the Canadian economy. Second, each of the variables in the index is a valid measure of the performance of the labour force in its own right, which gives the index the added advantage of face validity. That is, the index appears, *prima facie*, to be measuring what it says it is measuring. Third, the small number of variables, combined with the absence of a statistical weighting process provides the index with a high degree of transparency. That is, it is easy to disaggregate the overall index value in order to determine which variables are responsible for changes in the index. Fourth, this index spotlights the key groups of people who are fully or partially excluded from the labour force, which has grown in importance as a result of significant increases in non-standard employment. Fifth, the data required to calculate the index are frequently collected and readily interpreted. Sixth, as the index is essentially a count of people, then the index produces an interval scale. Finally, it includes two key groups of people who are employed, yet their attachment to the labour market is tenuous, that is marginal temporary workers and marginal own-account self-employed. These positive features of the index mean that it can be used to develop policy that better targets the particular problems associated with different forms of labour market exclusion, not just the unemployed. Moreover, this measure produces a person rate, rather than an hours-rate, of labour underutilisation

3.4.3 The Adult Wage Polarisation Index

The second index developed by Burke and Shields (1999) is the Adult Wage Polarization Index. This index is a ‘measure of the precarious and insecure state of employment in Canada that quantifies variations and inequalities in the work experiences of the wage/salaried labour force aged 25–59’ (Burke and Shields 1999; 20). They argue that by the time workers reach 25 years of age they should be firmly established in the labour force, after an initial period of work force entry, which often includes casual and part-time work. Consequently, any change in the proportions of standard and non-standard forms of employment in this group of workers represents a change in the quality of work in Canada. The index, as shown in Table 3.6, measures the number of people in standard forms of employment¹⁴, which it is argued comprises three groups of people, those:

1. who work full-time, that is 30 hours per week
2. hold permanent jobs without a predetermined termination data
3. are tenured or have worked for their current employer for more than two years.

Non-standard or flexible employment on the other hand comprises part-time work, contract employment, limited term jobs and full-time employment that has been held for less than two years (Burke and Shields 1999; 20).

Between May 1997 and May 1998 the Adult Wage Polarization Index fell from 63.9 per cent to 62.9 per cent. Burke and Shields (1999) argue that this one percentage point rise in the number of non-standard jobs should not be interpreted as a deterioration in the Canadian labour market. The index needs to be calculated for a longer period of time to

¹⁴This indicator is explicitly a measure of standard employment relations, so its deterioration demonstrates a decline in standard employment relations and hence the increased importance of non-standard employment relations in the Canadian labour market.

draw any conclusions about trends in the labour force. However, the index does reveal some deep disparities between the earnings of people who are employed in standard and non-standard jobs, which on the other hand can be interpreted as a deterioration in the Canadian labour market. In May 1998, people in non-standard jobs earned a median wage of (Canadian) \$12.73 per hour, which is (Canadian) \$4.71 less than people in standard employment. Furthermore, the hourly wage for people in non-standard jobs does not rise with age, which is in stark contrast to people in standard jobs (Figure 3.1).

Table 3.6: Adult Wage Polarization

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Source: Burke and Shields 1999; 22.

The Adult Wage Polarization Index provides insights into the growing inequalities in the Canadian labour market. Such an index might also highlight not only the reduction in the quality of work in Australia, but growing inequalities between people in standard and non-standard employment. Moreover, this labour market indicator is not a measure of labour underutilisation. Therefore, it fails to meet the labour market criteria set out in Table 3.1 and will not be considered further in this study. Nevertheless, it does provide interesting insights into the deterioration of the Canadian labour market.

Figure 3.1: Adult Wage Polarization, age and median wage, May 1998

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Source: Burke and Shields 1999; 26.

3.4.4 The Adult Employment Vulnerability Index

The third indicator developed by Burke and Shields is the Adult Employment Vulnerability Index. Burke and Shields (1999; 29) argued that the Canadian labour market:

is far more exposed and vulnerable to raw market forces influence by globalisation, corporate restructuring and just-in-time production than at any other time since the end of the Second World War.

These processes have created a labour market that is characterised by employment insecurity, stagnant or declining incomes and a growing level of poverty. Burke and Shields (1999; 22) further argue that there are no labour force indicators available to measure these trends. The Adult Employment Vulnerability Index is an attempt to develop such an indicator. It is ‘a measure of *employment deficits* constructed from two dimensions of employment, earning *sufficiency* and job *stability*’ (Burke and Shields 1999; 22). The index has been designed to measure fluctuations in the extent of *vulnerable* and *sustained*

employment. People in *sustained* employment have no employment deficits, that is they have employment *stability* and earning *sufficiency*. The people who comprise ‘the *sustained* category are:

1. *full-time permanent workers with tenure* whose hourly wage is greater than or equal to \$10
2. the *self-employed with employees* whose normal weekly hours worked is equal to or greater than the group’s median 50 hours’ (Burke and Shields 1999; 30).

The Index has three levels of vulnerability, from lowest to highest these levels are;

Precarious, this group has one employment deficit

1. *full-time permanent workers with tenure* earning less than \$10 an hour (*sufficiency deficit*)
2. the *self-employed with employees* whose normal weekly hours worked is less than the median of 50 hours for the group (*sufficiency deficit*)
3. *full-time permanent untenured workers* earning \$10 or more an hour (*stability deficit*)
4. *full-time temporary workers* earning \$10 or more an hour (*stability deficit*)
5. own-account self-employed working equal to or greater than their 45 hours a week group median (*stability deficit*)
6. voluntary part-time (a *stability and sufficiency deficit* but mitigated by their voluntary status).

Peripheral, this group has two employment deficits

1. *involuntary part-time workers* (*stability and sufficiency deficit*)
2. *full-time temporary workers* earning less than \$10 an hour (*stability and sufficiency deficit*)
3. *full-time permanent untenured workers* earning less than \$10 an hour (*stability and sufficiency deficit*)
4. *own account self-employed* working less than their 45 hours a week group median (*stability and sufficiency deficit*).

Disposed, this group face full exclusion from the labour market

1. the *unemployed as officially defined*
2. *discouraged* workers.

Table 3.7 shows the values of the Adult Employment Vulnerability Index for Canada for May 1998. The most striking feature of this table is that less than half of the Canadian

labour force is in *sustained* employment, while 38 per cent of the labour force has two or more employment *deficits*¹⁵.

Table 3.7: Adult Employment Vulnerability Index

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Source: Burke and Shields 1999; 32

The index clearly provides some disturbing insights into the changes that are occurring in the Canadian labour force. However, its application to Australia is again restricted by data availability. The Canadian Labour Force Survey provides only limited information about self-employed people. Consequently, Burke and Shields (1999; 30) were forced to use a number of proxy variables in order to construct this indicator. These data limitations mean that this indicator does not meet three of the desirable criteria for labour market indicators;

1. *face validity*, the use of proxy variables means that the index does not really measure what it purports to measure
2. *reproductability*, it is not clear how the proxy variables were calculated, so it would be difficult for other researchers to construct a similar index
3. *transparency*, the manipulation that led to the calculation of the proxy variable makes it difficult to determine which factors are causing the values of the index to change.

That is, this labour market indicator fails to meet many of the interpretive criteria set out in Table 3.1. So, this index is not appropriate for use in the later chapters of this thesis.

¹⁵ This finding further demonstrates the increasing relative importance of non-standard employment relations in Canada.

3.5 The Real Unemployment Rate

3.5.1 Introduction

As discussed in the first two chapters, one of the more serious consequences of the restructuring of the Australian economy since 1989 is the emergence of significant amounts of structural unemployment (Bell 2002, Watson 2000, Watson and Callus 1999). Structural unemployment often translates into withdrawal of people from the labour force, due to the discouraged worker effect, as people lose hope of finding an appropriate job in their local labour market (Green 1997). Hence, a number of methods have been developed both in Australia and overseas, to estimate the level of hidden unemployment in the absence of frequent and reliable estimates of the discouraged worker effect from official labour force surveys. The resultant estimates of hidden unemployment are then simply added to the official estimates of unemployment to provide the *real unemployment rate*. The three approaches to estimating the discouraged worker effect that are examined in this section are quite different, yet they aim to develop a measure of the real level of labour underutilisation by estimating the number of hidden unemployed as a function of the number of people ‘who might reasonably be expected to work in a fully employed economy, whether or not they are active job-seekers’ (Beatty and Fothergill 1998; 138).

3.5.2 The Corrected Unemployment Rate

Brain (2000) observed that in Australia during the 1990s large numbers of long-term unemployed people were removed from unemployment benefits and placed on disability

support pensions. Over the decade from 1991 to 2000, the number of disability support pensioners in Australia nearly doubled from 384,304 to 638,406. This action can have a profound effect on the measured level of unemployment. When people are placed on a pension they are removed from the work force and consequently both the unemployment rate and the participation rate fall, without anybody gaining employment. Hence, Brain (2000) argued that the real level of unemployment in Australia, that is the *corrected unemployment rate*, is the sum of the number of unemployed people, as officially defined, plus the number of disability support pensioners.

This approach is useful as it adds estimates of hidden unemployment to the official unemployment rate. However, this approach to estimating the extent of hidden unemployment has a few shortcomings. First, it is based on the assumption that all of the growth in the number of disability pensions is the result of structural unemployment. However, this is clearly not the case as some of this growth is due to the ageing of the Australian population. The underlying trend for increasing numbers of people to be awarded a disability support pension on the basis of ill health in older age, in an ageing society, needs to be taken into account. Second, not all discouraged workers are placed on a disability support pension. There are various alternative courses of action that discouraged workers might pursue. For example, single parents with young children might move onto a sole parent pension, teenagers might extend their studies, older people may retire early and married women may simply stop looking for work and become full-time homemakers (Matta Greenwood 1999). Third, many discouraged workers do not have the option of moving onto a pension or benefit or opting for early retirement and hence they become economically inactive or enter the black economy and quietly slip into the ranks of the hidden unemployed (Beatty and Fothergill 1998; 138). These three shortcomings imply

that Brain (2000) needs to incorporate a more comprehensive range of forms of economic inactivity into the estimate of hidden unemployment than he included in the *corrected unemployment rate*. Consequently, the *corrected unemployment rate* is not appropriate for use in later chapters of the present study. Nevertheless, it does make a conceptual contribution to the debate about how best to measure labour underutilisation.

3.5.3 The Real Unemployment Rate

Beatty and Fothergill (1998) observed that despite the dismantling of the British coal industry during the 1980s and 1990s, which led to the loss of 90 per cent of jobs in the industry, unemployment rates in the coalfields of Britain did not rise appreciably. Furthermore, they observed that this paradox was not peculiar to the British coal industry. Rather, it has been a feature of economic restructuring throughout the UK, Western Europe and North America since the end of the post-war boom. They observed that the collapse of previously dominant industries in advanced industrial nations may lead to the loss of 20 or 30 per cent of the jobs in a region, but they found that it was rare for the unemployment rate to rise by more than a few percentage points.

The observed stability of unemployment rates in regions that are being adversely affected by economic restructuring, which includes South Australia, implies that powerful labour market adjustments are being undertaken in these regions. Beatty and Fothergill (1998; 116) argued that these adjustments take three forms. First, the demand for labour might increase as a result of the creation of new jobs in other industries in those regions that have been adversely affected by economic restructuring. Second, the supply of labour in these areas might fall due to out-migration as people move to more prosperous regions in search

of work. Finally, people may simply slip into the ranks of the economically inactive. The four categories of economic inactivity identified by Beatty and Fothergill (1998) are;

1. the permanently sick
2. those who opted for early retirement
3. those who have decided to undertake further education or training
4. those people who are otherwise economically inactive, which includes full-time carers, people with independent incomes and those who have disappeared into the black economy.

The observation that the incidence of economic inactivity for men has risen sharply in the coalfields of the United Kingdom in the wake of the decimation of the coal industry implies that a significant increase in hidden unemployment is the most important form of labour market adjustment occurring in regions adversely affected by economic restructuring.

The challenge for Beatty and Fothergill (1998) was to determine the real level of unemployment in the coalfields of Britain by ascertaining the extent of hidden unemployment. Their solution was conceptually simple and straightforward, just add the number of people in government employment schemes (because they are not real jobs), the 'excess' number of permanently sick people and the 'excess' number of retirees to the official number of unemployed in order to calculate the *real unemployment rate*. The difficult part was estimating the 'excess' number of permanently sick people and early retirees. They decided to use the prevailing levels of permanent sickness and retirement in those regions of the United Kingdom with the lowest figures for these two measures as their benchmarks. Hence, they argued that any levels of permanent sickness and retirement above the 3.4 per cent and 2.2 per cent, respectively, that prevailed in the prosperous South East of the United Kingdom, represented the number of people that needed to be added to the official number of unemployed in order to provide the *real unemployment rate*.

Table 3.8: Alternative measures of coalfield unemployment, April 1991

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Source: Beatty and Fothergill (1998; 137).

This approach not only identified significant hidden unemployment in the coalfields, but also for the United Kingdom in general. The *real unemployment rate* in the United Kingdom is some 40 per cent above the official figure, but it is nearly double in some coalfields (Table 3.7). Consequently, the *real unemployment rate* provides a picture of the British labour force that is at odds with the official picture. That is, the real level of labour underutilisation is about 40 per cent higher than the level suggested by the official unemployment rate.

The approach used by Beatty and Fothergill (1998) to calculate the *real unemployment rate* meets all of the interpretive and data criteria set out in Table 2.1. In particular, this measure has three main advantages. First, it attempts to measure one of the key pathologies that has emerged in the Australian labour force since the mid-1990s, that is, hidden unemployment.

Second, this is a timely indicator as it could be constructed for Australia solely from data collected during the monthly Labour Force Survey. Third, as the measure is based on a count of people the *real unemployment rate* is essentially an unweighted index that produces an interval scale. Hence, the index is readily analysed by labour market experts and lay people alike. Consequently, this method could be used in later chapters to re-examine the Australian and South Australian labour markets.

However, two important issues need to be addressed if this labour market indicator is to be used effectively in the Australian context. First, a contextually appropriate benchmark needs to be identified. Second, estimates of the labour underutilisation that results from visible underemployment need to be included into this indicator. Despite these shortcomings, this labour market indicator might meet the needs of the present study with some modification. Hence, it will be systematically evaluated for this purpose in chapter 6.

3.6 Radar charts

The European Commission has provided an interesting contribution to this debate. An alternative method of calculating a non-weighted composite index of unemployment is the radar chart approach (Mosley and Mayer 1998). Anybody who is familiar with drawing graphs and charts in a spread sheet program, such as Microsoft Excel, will be no stranger to radar charts as a method for graphing data. Radar charts have four or more axes that are integrated into a single radial figure on which data relating to a number of variables can be presented. They are particularly useful for comparing situations that have multiple performance dimensions. The benchmarked values for each dimension can be plotted on

the radar chart as a basis of comparison. Changes in the size and shape of the radar charts can be interpreted as changes to the labour force dynamics.

There are three main types of benchmarks that can be used when constructing radar charts:

1. theoretical benchmarks; are based on a review of the relevant literature,
2. best performance benchmarks; reflect the best performance of a nation with respect to a specific policy dimension, and
3. institutional benchmarks; are determined by the leadership or management of the organisation who are engaged in the benchmarking exercise, such benchmarks reflect the goals and objectives of the organisation.

Figures 3.2 and 3.3 were drawn using best performance benchmarks. Mosley and Mayer (1998) chose two sets of four indicators to measure the performance of labour forces in the European Union. The first set of indicators were all indicators of employment (Figure 3.2). The second set of indicators were all indicators of unemployment (Figure 3.3).

1. Indicators of employment
 - employment growth rate, Ireland
 - employment rate, Denmark
 - employment gender gap, Sweden
 - employment rate for people aged 50 to 64, Sweden.
2. Indicators of unemployment
 - unemployment rate, Luxembourg
 - youth employment rate, Luxembourg
 - unemployment gender gap, Japan
 - long term unemployment rate, USA.

Mosley and Mayer (1998) analysed data for 14 member states of the European Union. However, these two figures were drawn only using data for the USA, because this country had the greatest variation in the variables and hence are most illustrative of the technique. Over the period 1992 to 1997, the performance of the labour market of the (then) 14 member states of the European Union declined as a result of an increase in unemployment and a decrease in employment growth. The graphical nature of radar charts gives them a certain interpretive appeal. However, the shape of the charts depends on the placement of

the axes. In this example, there are twelve different ways of labelling the axes and each gives the radar chart a different appearance. Hence, they are open to manipulation. The solution to this problem is to calculate the areas under the lines and then calculate the average area and use this figure as an index value.

Secondly, Mosley and Mayer (1998) also encountered the same problems faced by Watson and Callus (1999) and Burgess (2003). That is, although the variables used in the radar charts had the same units of measurement, they had different ranges and different acceptable values. Hence, movement in one of its components could swamp the indicator. So, the variables had to be standardised before they could be graphed. These additional calculations mean that this approach is essentially a more convoluted approach to calculating an unweighted index. Furthermore, this standardisation of the variables means that any transparency that this indicator might have had is lost.

Figure 3.2: European Union labour force performance, 1997 and 1992, employment indicators, USA

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Source: Mosley and Mayer 1998; 21.

Figure 3.3: European Union Labour Force performance, 1997 and 1992, Unemployment Indicators, USA

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Source: Mosley and Mayer 1998; 21.

The use of such statistical techniques to overcome the problems with the graphical presentation basically means that this method is an unweighted index. Moreover, this approach does not meet four other interpretive criteria, namely face validity, reproductability, simplicity, interval scale and prospective. Consequently, this indicator will not be considered again in this thesis.

3.7 The Household, Income and Labour Dynamics in Australia (HILDA) Survey

Most, if not all, of the alternative labour market indicators that are explored in this chapter and the next are constructed from labour market data that are derived from official government statisticians. However, labour market indicators can be derived from other sources. For example Wilkins (2004, 2006a and 2006b) constructed volume measures of underemployment for Australia using data obtained from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. This is a panel-based survey of 7,682 Australian households that was conducted in 2002. From this source Wilkins constructed a measure called the ‘measures of underutilisation, unemployment and underemployment’. The results are summarised in Table 3.9.

The tables presented in chapters 6, 7 and 8, show that by 2001 the recovery from the recession of the early-1990s was all but complete, that is, the official obtained view analysing the *seasonally adjusted unemployment rate* or the *trend unemployment rate*. However, Table 3.9 shows a very different picture. The labour market indicators constructed by Wilkins show that substantial employment and labour underutilisation still existed in the Australian labour market. This volume measure shows that unemployment is

the most important component of labour underutilisation for males. On the other hand, the labour underutilisation that is associated with part-time employment is the most important component of labour underutilisation for females.

Table 3.9: Underutilisation, unemployment and underemployment among the workforce aged 15 to 64, per cent, Australia, 2001

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Source: Wilkins 2004; 17

Notes:

Column (A) is comprised of the components in columns (B) to (E).

Volume measure: Number of additional hours wanted as a proportion of total hours wanted by underutilised persons plus actual hours worked by other employed persons:

- *Volume measure 1*: Reported preferred and actual weekly hours are used for all persons with a marginal or greater attachment to the labour force.
- *Volume measure 2*: Preferred weekly hours are at most 35, and all full-time employees are assigned working time of 35 hours per week, regardless of working hours reported.
- *Volume measure 3*: Preferred weekly hours are at most 35, unless actual hours exceed 35, in which case preferred hours equal actual hours.

However, Wilkins (2004; 12) identifies the following four weaknesses of using data obtained from the HILDA survey to construct measures of labour underutilisation:

1. it will potentially include people who express a preference for more hours of work, but who are not available to work more hours
2. it excludes full-time workers who are temporarily working less than 35 hours per week for economic reasons

3. it potentially includes workers who would like to work more hours, but only at higher wage rates than those on offer
4. it excludes full-time workers who would like more hours.

From the perspective of this study, these measures have two shortcomings. First, point (2) above implies that visible underemployment is underestimated. However, that is not the main issue. Second, the main issue is that estimates of hidden unemployment cannot be derived from the HILDA material because the questions were asked during the survey relating to hidden unemployment.

In addition to the four shortcomings identified by Wilkins, one other shortcoming has been identified that rendered this measure inappropriate for use during this study. The measures of labour underutilisation that were developed by Wilkins are all constructed entirely from data derived from the HILDA survey. This is an important survey, underpinning much important social science research in Australia. However, it is not a rich source of labour market data as it asks a limited number of labour market questions. Nor is the data that it does collect suitable for the construction of an hours-based measure of labour underutilisation that is available for every Australian State and territory as a time series on either a quarterly or monthly basis. In short, it fails to meet most, if not all, of the evaluative criteria that are outlined in Table 2.1. Hence, it is not appropriate for use in this thesis. That is, the HILDA survey provides a rich source of data about Australian households, but it only provides a snapshot and not the time series data that labour market analysts and policy makers require. The Census also provides a snapshot of the performance of the Australian labour market. But the Census asks many labour market questions and hence is a rich source of labour market data, albeit on a five yearly basis.

3.8 An hours-based measure of unemployment

As discussed in chapter 2, Paul (1991) argued that there are in effect only two approaches to measuring unemployment. The first is to use a person rate of unemployment, which is the ratio of the number of unemployed people to the number of people in the labour force. The *seasonally adjusted unemployment rate* and the *trend unemployment rate* are examples of such measures. The second approach is the time rate of unemployment, which is the ratio of the total person days of unemployment to the total labour force person days. A person rate of unemployment ignores the level of intensity of unemployment that is experienced by unemployed people. Hence, a time rate of unemployment provides a more accurate picture of the extent of labour market underutilisation in Australia. A time rate of unemployment, that is, a measure of the total number of hours that a person is unemployed expressed as a ratio of the number of hours a person wishes to work, provides much more accurate estimates of the intensity of unemployment and hence better estimates of visible underemployment. Moreover, the Australian Bureau of Statistics argues that this is the most accurate way to estimate labour underutilisation, but it has yet to develop such a measure. Consequently, Mitchell and Carlson (2000; 18) developed two hours-based measures of unemployment for Australia for the past two decades. These two measures are:

1. An hours-adjusted unemployment rate (expressed in terms of a percentage ratio with hours on the numerator and denominator), being a ratio of unutilised hours of work available (unemployed and underemployed part-time workers) to total the available (fully utilised) labour force in hours (the numerator plus the full-time employed plus the part-time workers who are content with their working hours) called *CU7*
2. An hours-adjusted unemployment rate including estimates of hidden unemployment (expressed in terms of a percentage ratio with hours on the numerator and denominator) called *CU8*.

The following discussion focuses on the applicability of *CU7* to the needs of the present study as it is essentially an unweighted index. The measure *CU8* incorporates an estimate of the extent of hidden unemployment that is obtained from an econometric analysis of labour force data. Hence, *CU8* is a weighted index and so it will be discussed in more detail in the following chapter.

Table 3.10: Underutilisation and unemployment measures, Australia, 1980 to 2000

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Source: Mitchell and Carlson, 2000; 19.

A comparison between the hours-adjusted measures of labour underutilisation *CU7* and the official unemployment rate is shown in Table 3.9 and Figure 3.4. Table 3.9 shows that the time rate of unemployment is considerably greater than the official unemployment rate. This measure distinguishes between full-time and part-time employment. Hence, it includes estimates of visible underemployment that have been created as a result of part-time work in Australia during the 1990s and 2000s. Not only is the gap between *U3*, the official measure of unemployment, and *CU7* significantly large, the gap has widened considerably over the past two decades. Table 3.9 shows that in 1981 *CU7* was only 1.5

percentage points higher than the official unemployment rate (*U3*). The narrowness of the gap between the person and time rate of unemployment up to 1990 reflects the dominance of standard forms of employment in the 1980s and the relative absence of visible underemployment as a result of part-time employment.

Table 3.10 shows that by 2000 the *seasonally adjusted unemployment rate* was only 0.9 percentage points higher than the pre-recession minimum. However, the increase in the value of the hours-based rate of unemployment was much greater. The value of *CU7* grew by 3.7 percentage points. This increasing difference between the person and hours measures of unemployment is a clear indication of the increasingly large numbers of part-time and casual jobs that have been created over the past 20 years which do not meet the aspirations of workers with respect to the number of hours that they would like to work. That is, despite the strong growth in jobs that has occurred during the 1990s, insufficient employment has been created to satisfy the demand for work by workers, hence, the substantial growth in visible underemployment.

The measure *CU7* is an important methodological advance in the measurement of labour underutilisation in Australia, primarily because it is the only hours-based rate of unemployment available for Australia and it has been available since 1980 as a time series. Furthermore, this measure of labour underutilisation also captures the effects of the visible underemployment. Consequently, it shows that the Australian labour force has not fully recovered from the recession of the early 1990s (Figure 3.4). This indicator meets most of the criteria outlined in Table 2.1. However, this indicator does not provide any information about the extent of hidden unemployment, nor is it available on a monthly basis. Further, it is available only for Australia as a whole and so it does not provide estimates of labour

underutilisation for individual Australian states¹⁶. Consequently, this indicator might be appropriate for use in later chapters of the present study, *albeit* with some modification.

Figure 3.4: Underutilisation and unemployment measures, Australia, 1980 to 2000

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Source: Mitchell and Carlson, 2000; 19.

3.9 Conclusion

The aim of this chapter was to identify a number of labour force indicators that can be used to undertake a more in-depth analysis of the dynamics of labour underutilisation in the Australian labour market over the period 1989 to 2005. Ten non-weighted labour force indicators were evaluated using the framework developed in Table 2.1. This first cut

¹⁶ Since February 2005, *CU7* and *CU8* have been available quarterly for each Australian State by sex. However, CofFEE publish these data in figures and not tables, so it is difficult to undertake sensitivity analyses.

evaluation was sufficient to determine that all of the labour force indicators that were considered in this chapter are not appropriate for further use in the present study in their present form as they did not meet a sufficient number of interpretive criteria, data criteria or labour force criteria. Furthermore, none of these indicators met all of the criteria. However, two indicators, the *real unemployment rate* (Beatty and Fothergill, 1998) and the *hours-adjusted unemployment rate CU7* (Mitchell and Carlson, 2000) met most of the criteria outlined in Table 2.1. Both of these indicators have strengths and weaknesses that tend to complement each other. Hence, they will be further systematically evaluated in chapter 5 in order to determine whether they are suitable for use in later chapters of this study in their present form. If they are not suitable in their present form, then chapter 5 will discuss what modifications need to be made in order to construct labour market indicators that meet the needs of this thesis.

4 ALTERNATIVE LABOUR FORCE INDICATORS: WEIGHTED INDEXES

4.1 Introduction

The indexes that were discussed in the preceding chapter were all unweighted labour force indicators. Their ease of construction and ready interpretation has contributed to their popularity with labour market analysts. They are all based on the assumption that the variables that are included in the index are equally important components of changes to the labour market and that the index produces an interval scale. These assumptions can often be difficult to support either theoretically or empirically. However, the power and price of personal computers, combined with the availability of inexpensive and easy to use statistical software packages, is making it increasingly possible for researchers to develop weighted labour force indicators tailored to their specific needs. This chapter comprises a further three sections that examine three forms of multivariate analysis. The following section discusses econometric regression modelling, which has been used to develop labour force indicators for Australia. Section 3 examines Principal Components Analysis, while section 4 evaluates Logistic Regression. Neither of these techniques have been used to construct labour force indicators, but the potential does exist.

The aim of this chapter is to review a range of alternative labour market indicators that may provide better estimates of the extent of labour underutilisation in South Australian over the period 1989 to 2005 than those that are available from the Australian Bureau of

Statistics. If such indicators are not identified, then a review of their methods should aid in the construction of new measures of labour underutilisation.

4.2 Econometric regression

4.2.1 Introduction

In a literal sense, ‘econometrics’ simply means economic measurement (Maddala 1992; 1). However, this definition is far too broad to be of any use as all economics involves measurement of economic data to some extent. Econometrics is better conceptualised as an ‘amalgam of economic theory, mathematical economics, economics statistics and mathematical statistics’ (Gujarati 1995; 1). Economics, like many other social sciences attempts to use the scientific method to explain and predict social phenomena. Economic theories tend to be qualitative in nature, but to be of any real use as the basis of policy, economic theory needs empirical content. Unlike the ‘hard sciences’, such as physics and chemistry, economists are often unable to conduct controlled experiments in order to test their theories and to quantify the relationships between economic variables. Thomas (1993; 2) argued that fortunately, statistical techniques such as multiple regression analysis ‘goes some way to overcoming the handicap of not being able to carry out controlled experiments’ as econometrics facilitates the ‘empirical estimation of economic relationships’ (Intriligator, Bodkin and Hsiao 1996; 1). Once an econometric model has been specified, by multiple regression analysis, it can be used for both hypothesis testing and forecasting (Gujarati 1995). Increased access to powerful personal computers and easy

to use statistical software packages is contributing to the expansion of econometrics into new areas of social inquiry, such as the development of labour market indicators.

This section of this chapter will briefly review and evaluate a number of weighted labour force indicators that have been developed over the past decade or so using econometric regression analysis. An econometric model is typically expressed as an algebraic formula that includes one or more independent variables. The algebraic formula describes the relationships between all of the independent variables and the dependent variable which are under investigation. All of the econometric models discussed in this section contain more than one independent variable, hence they take the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \dots + \beta_i X_i + u$$

where Y is the dependent variable,
 β_0 is the vertical intercept,
 u is the error term,
 X_1 to X_i are the independent variables or parameters,
 β_1 to β_i the slope coefficients.

When the econometric model is fully specified the β values are also the weights assigned to each independent variable in the model. Hence, this method can be used to construct weighted labour market indicators, including measures of labour underutilisation. A number of these labour market indicators are discussed and evaluated in the remainder of this section.

4.2.2 The Misery Index

The Misery Index became a popular measure of economic welfare in the Australian media during the late-1970s because of the emergence of stagflation in the mid-1970s. Stagflation refers to the twin evils of unemployment and inflation occurring at the same time in an economy. Originally, the Misery Index was simply the sum of the inflation rate and the unemployment rate. Lower levels of the Misery Index were associated with higher levels of well-being as both inflation and unemployment are considered to be economic ‘bads’ (Layton 1992). The Misery Index is of course another example of an unweighted index and so could have been discussed in the previous chapter. However, it is discussed here as it was the stepping off point for one of the earliest applications of econometric regression to the development of labour force indicators. During the 1970s and 1980s more macroeconomic variables were added to the Misery Index, which prompted the need to develop weights for each component of the index.

Table 4.1 and Figure 4.1 show the changes in the Misery Index and its components over the period 1978 to 2005. The unemployment rate demonstrates the familiar cyclical pattern, clearly showing the effects of the last two recessions on the Australian labour market. During the early-1980s, the Misery Index appeared to behave in a cyclical fashion in concert with the business cycle and the unemployment rate. However, this relationship appears to have broken down in the early-1980s and the Misery Index has generally fallen since the mid-1980s, suggesting a general improvement in the well-being of all Australians. Figure 4.1 clearly shows that since the mid-1980s the driver of the Misery Index has been the movement in the inflation rate.

Table 4.1: Misery Index, Australia 1978 to 2005, per cent

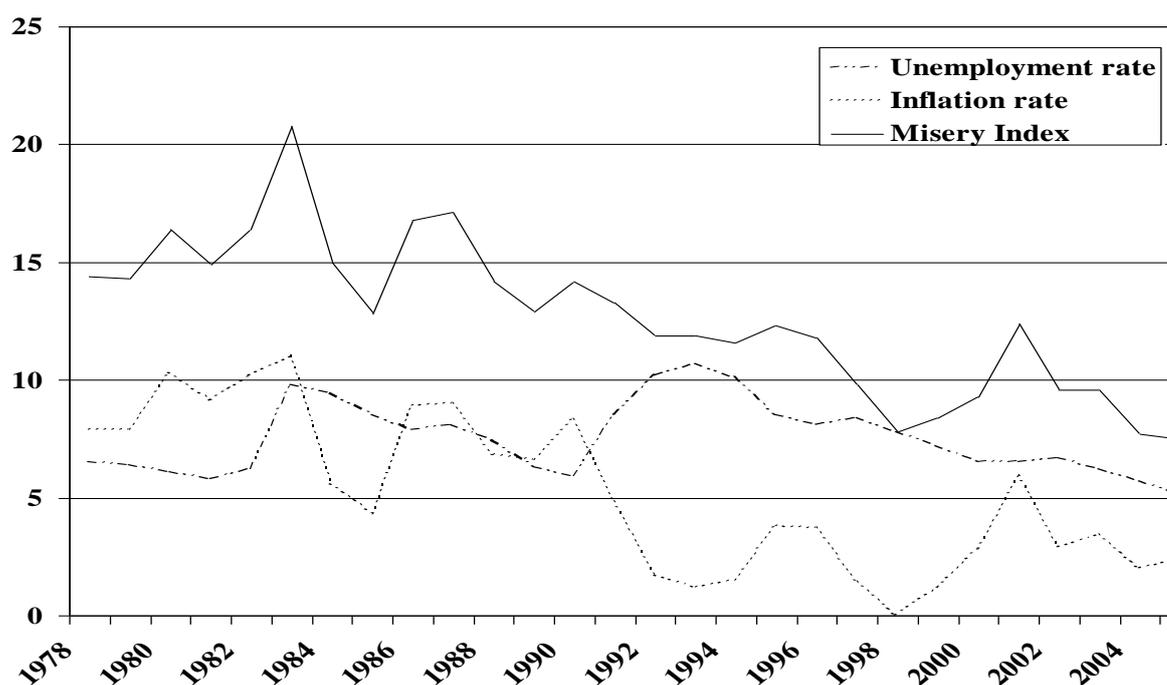
Year	Unemployment rate	Inflation rate	Misery Index
1978	6.5	7.9	14.4
1979	6.4	7.9	14.3
1980	6.1	10.3	16.4
1981	5.8	9.1	14.9
1982	6.2	10.2	16.4
1983	9.8	11.0	20.8
1984	9.4	5.6	15.0
1985	8.5	4.3	12.8
1986	7.9	8.9	16.8
1987	8.1	9.0	17.1
1988	7.4	6.8	14.2
1989	6.3	6.6	12.9
1990	5.9	8.3	14.2
1991	8.5	4.8	13.3
1992	10.2	1.7	11.9
1993	10.7	1.2	11.9
1994	10.1	1.5	11.6
1995	8.5	3.8	12.3
1995	8.1	3.7	11.8
1997	8.4	1.4	9.8
1998	7.8	0.0	7.8
1999	7.2	1.2	8.4
2000	6.5	2.8	9.3
2001	6.5	5.9	12.4
2002	6.7	2.9	9.6
2003	6.2	3.4	9.6
2004	5.7	2.0	7.7
2005	5.1	2.4	7.5

Source: Australian Bureau of Statistics cat. no. 6202.0 and cat. no. 6401.0.

Note: All data that is taken from the Australian Bureau of Statistics publications and spreadsheets and incorporated into tables and figures in this thesis is for the month of February, unless otherwise stated.

As an unweighed index, the Misery Index is based on the assumption that both components of the index are equally important, or as economists would say, ‘the communal marginal rate of substitution between inflation and unemployment is one’ (Layton 1992; 118). That is, the community would be indifferent if a one per cent fall in unemployment was achieved through a one per cent increase in the inflation rate as there would be no net loss or gain in social well-being. In which case, both variables are of equal importance, so they can simply be added together to form an unweighted indicator. Of course, this assumption, that both variables contribute equally to economic welfare of a community, may be false.

Figure 4.1: Misery Index, Australia 1978 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0 and cat. no. 6401.0.

During the 1980s more macroeconomic variables, such as the interest rate, the exchange rate, the current account deficit and real wages, were added to the Misery Index. Hence, the validity of the assumption that all the components of the index were of equal importance was increasingly challenged during the 1980s (Layton 1992). The addition of further indicators into the Misery Index necessitated the construction of weights for each variable in order to reflect their differing importance to the social well-being of Australians. Layton (1992; 121) proposed a solution to the problem of developing weights for the Misery Index by developing an econometric model of the Misery Index, which was constructed from six macroeconomic variables:

1. the inflation rate
2. the unemployment rate
3. the home loan mortgage rate of interest
4. the Australian dollar\US dollar exchange rate
5. the Current Account Deficit

6. an estimate of real wages, male average weekly earnings deflated by the Consumer Price Index.

These variables were used to estimate the popularity of the Australian Prime Minister, which was used as the proxy measure of social wellbeing. The most interesting finding of this study was that the Australian community, at least in the early-1990s, was much more concerned about the level of unemployment than it was about the inflation rate. The Misery Index is not a labour force indicator. Nevertheless, its construction demonstrates that econometric regression analysis could be used to develop weighted social indicators.

4.2.3 The Illfare Function

Paul (1992) argued that community concern about unemployment reflects the loss of welfare, or rather the increased illfare, which is experienced by unemployed people. Unemployment not only leads to the loss of income, it also leads to the loss of status, identity, human capital, self-esteem and self-confidence, which in turn places stress on relationships and can lead to social isolation, mental illness and in extreme cases suicide. Paul (1991) also argued that labour force indicators should include the social costs of unemployment as well as the extent of labour underutilisation. Paul (1992 and 2001) used econometric modelling, to develop an Illfare Function to be used as a labour force indicator.

As discussed in chapter 2, the official unemployment rate has a number of shortcomings that limit its usefulness as the basis of the Australian labour force policy. Furthermore, Paul (1992) argued that the *seasonally adjusted unemployment rate* ignores two further

aspects of the experiences of unemployed people that need to be incorporated into a labour force indicator. First, Paul (1992) argued that the official measure of the unemployment rate ignores the duration of unemployment. Paul (1992; 739) argued that ‘the longer the duration of unemployment, the greater the degree of pain felt by the unemployed’. That is, the welfare loss or illfare gain, of unemployment is related to the average duration of unemployment in a society. But what exactly is the relationship between welfare loss and the duration of a spell of unemployment? Hurd (1980) argued that the welfare loss of unemployment during a spell of unemployment is initially very low and then rises sharply after a short period of time, only to fall again. Hence, the welfare loss function of unemployment is an ‘S’ shaped curve, which is typical of many economic variables.

However, Paul (1992) argued that Hurd (1980) did not account for the loss of human capital, mental illness and social isolation that may be the result of unemployment, which he argued are factors that begin operating as soon as a spell of unemployment commences. Hence, in the view of Paul (1992), the welfare loss of unemployment rises sharply as soon as a spell of unemployment commences. Consequently, the welfare loss can be represented by a ‘monotonically increasing and convex’ Illfare Function (Paul 1992; 740). That is, the longer the mean duration of unemployment the greater the welfare loss or illfare gain. Consequently, Paul (1992) argued that a new measure of unemployment needs to be developed that takes into account the intensity of unemployment.

Second, Paul (1992) argued that the official unemployment statistics simply assume that all members of society share equally the burden of unemployment. However, labour force data demonstrates that this is not the case, which has implications for the welfare loss that is associated with any given average duration of unemployment. For example, two

communities may have the same average duration of unemployment. However, the standard deviation in one community may be much higher than the standard deviation in the second community. That is, in the second group the incidence of unemployment is being borne by a smaller group of people as a smaller number of people have experienced longer spells of unemployment. Hence, the welfare loss, or illfare gain, in the second group is higher than in the first group. Consequently, the distributional effects of unemployment also need to be incorporated into unemployment measures.

In summary, Paul (1992; 739) argued that ‘a good measure of unemployment should be sensitive not only to (a) the rate of unemployment and (b) the mean duration of unemployment, but also to (c) the disparity in the distribution of unemployment’. The Illfare Function developed by Paul (1992, 2001) is an attempt to develop such an indicator. Paul (1992) developed an Illfare Function to examine the effects of changes in the level of unemployment in the USA over the period 1976 to 1990. Not surprisingly the Illfare Function paints a very different picture of the health of the US labour market than the one provided by the official USA unemployment rate. Table 4.2 shows that unemployment gradually improved in the USA until 1979, then worsened to peak in 1982, after which it reduced continually until 1990. Hence, over the business cycle from 1982 to 1990, the unemployment rate fell from 9.8 per cent to 5.5 per cent, a 42 per cent improvement.

The Illfare Function tended to follow the unemployment rate because its key component is the unemployment rate. However, it shows that the trough of the business cycle occurred in 1983, which is slightly later than indicated by the official unemployment rate. The later timing of the trough of the recession is not an important difference as the average duration of unemployment, which is a component of the index, introduces a lag effect into the

Illfare Function. However, what is important is the change in the index values of the Illfare Function over the period 1983 to 1990. The changes in the index numbers suggest that the recovery in the US labour force during the 1980s was much stronger than demonstrated by the official unemployment rate. The index value fell from 2.392 in 1983 to 0.737 in 1989, a fall of 69 per cent.

The data that Paul (1992) used to construct the Illfare Function were derived from the monthly household survey conducted by the US Bureau of Labor Statistics. Hence, an Illfare Function could be developed for Australia as the Australian Bureau of Statistics collects comparable data during its monthly Labour Force Survey. Indeed, Paul (2001) has extended his American studies to the Australian context. However, the Illfare Function that he developed for Australia is not an aggregate measure of the welfare loss associated with unemployment for the labour force as a whole. Rather, Paul (2001) chose to develop an Illfare Function that estimates the welfare cost of unemployment for individual unemployed workers.

Table 4.2: Estimates of the level of unemployment, USA 1976 to 1990

Year	Unemployment rate per cent	Average length of unemployment weeks	Distribution of unemployment (Gini Coefficient)	Illfare Index Value
1976	7.8	15.8	2.38	1.418
1977	6.9	14.1	2.14	1.120
1978	6.1	11.8	1.96	0.839
1979	5.7	10.1	1.51	0.662
1980	7.6	11.8	1.55	1.015
1981	7.0	13.9	2.08	1.119
1982	9.8	15.6	2.07	1.732
1983	9.5	21.3	3.88	2.392
1984	7.5	18.0	2.98	1.573
1985	7.3	15.4	2.58	1.312
1986	7.0	15.1	2.44	1.228
1987	6.0	14.0	2.24	0.974
1988	5.4	13.5	2.25	0.850
1989	5.3	11.9	2.01	0.737
1990	5.3	12.0	1.92	0.766

Source: Paul 1992;742.

Table 4.3: Estimates of the welfare cost of unemployment, Australia, 1975 to 1997

Year	Unemployment rate per cent	Average length of unemployment weeks	Distribution of unemployment (Gini Coefficient)	Welfare cost per person
1975	4.6	12.7	0.5391	1.16
1976	4.7	17.5	0.5426	1.63
1977	5.7	20.9	0.5298	2.36
1978	6.2	26.2	0.5694	3.22
1979	5.9	28.4	0.5746	3.30
1980	5.9	32.0	0.5847	3.74
1981	5.6	34.9	0.6179	3.88
1982	6.7	32.6	0.6119	4.33
1983	9.9	41.4	0.5303	8.02
1984	8.5	45.5	0.5576	7.61
1985	7.9	49.5	0.5759	7.69
1986	8.0	48.6	0.6125	7.66
1987	7.8	48.3	0.5987	7.44
1988	6.8	51.3	0.6162	6.90
1989	5.7	44.5	0.6544	5.03
1990	7.0	43.7	0.6529	6.04
1991	9.5	43.0	0.5768	8.00
1992	11.0	51.2	0.5564	10.83
1993	10.9	57.1	0.5661	12.07
1994	9.2	60.2	0.5663	10.83
1995	8.1	54.0	0.5975	8.59
1996	8.5	50.0	0.6129	8.36
1997	8.4	54.9	0.6048	9.06

Source: Paul 1992;742.

Despite the difference between the two indicators developed by Paul, the data shown in Table 4.3 makes rather interesting reading and tells a story that is at odds with the official, picture of unemployment in Australia. The unemployment rate shows the usual cyclical effects of the business cycle on the Australian labour force. However, no such cyclical effects are visible in the average duration of unemployment. It might be expected that the average duration of spells of unemployment might rise during the contractionary phase of the business cycle and fall during the expansionary phase. However, this is not the case. The mean duration of unemployment trends upwards over the entire period as shown in Table 4.3. This figure did not begin to fall until the recovery from the last recession was well underway. The key point to emerge from Table 4.3 is the behaviour of the welfare cost index. This index exhibits both cyclical and trend behaviour. The index moves in a cyclical fashion in line with the business cycle. This is not surprising as the unemployment rate is a key component of the index. Furthermore, it has also consistently grown over the

period 1975 to 1997. On average the welfare loss per unemployed worker has risen 12.3 per cent per annum (Paul 2001; 159) over the period 1975 to 1997.

Returning to the information presented in Table 4.2, the statement that the Illfare Function shows a much better improvement in the US labour force is a rather bold claim that cannot go uncontested. Despite all of the shortcomings of the official unemployment rate discussed in chapters 1 and 2 and the two extra caveats identified by Paul (1991, 1992), the *seasonally adjusted unemployment rate* and the *trend unemployment rate* have one important strength, they are interval measures. That is, if the unemployment rate was plotted along a number line, then the distance between the integer values of the unemployment rate would be equally spaced. That is, the distance between zero and one is the same distance between one and two. Hence, an unemployment rate of two per cent represents exactly twice as many unemployed people as an unemployment rate of one per cent, given no change in the size of the workforce. However, indexes obtained from econometric regression are assumed to yield an interval scale, but in reality they yield an ordinal scale (Barrett 2004b). If the index values were plotted on a number line, then the distance between the integer values would not be equidistant, they would vary. So, the distance between zero and one could be bigger or smaller than the distance between one and two.

Therefore, in the specific case of the Illfare Function it is not possible to argue that an index value of two represents twice as much illfare, or welfare loss associated with a given level of unemployment, as an index value of one. All that can be concluded is that the level of illfare, or welfare loss, is greater if the index value is two rather than if it was one. Such a scale is referred to as an ordinal scale. Index values on an ordinal scale can be ranked, or

ordered, from highest to lowest, but nothing can be concluded about the absolute difference in the index values. This issue of scale is a weakness associated with the use of econometric regression analysis in the construction of social indicators.

4.2.4 An hours-based rate of hidden unemployment

As discussed in the preceding chapter, Mitchell and Carlson (2000) have developed two new, hours-based, labour force indicators. Their measure *CU7* was explored in some detail in chapter 3 as it is an unweighted labour force indicator. Their measure *CU8* is the measure *CU7* to which has been added an estimate of hidden unemployment for Australia. The estimates of hidden unemployment are obtained using an econometric model.¹⁷ The focus of this sub-section is *CU8*, in particular, the econometric method by which the hidden unemployment component is derived.

The first challenge encountered by Mitchell and Carlson (2000) when they started to construct their hours-based measure of unemployment was to determine the full employment labour force to serve as a benchmark for their estimations of hidden unemployment. They began this benchmarking exercise by developing a set of regression equations that estimated the cyclical and trend labour force participation rates for males and females in five year age groups from 15 to 64 years of age and for all males and females 65 years of age and older. Their model calculated the full employment participation rate for their 16 age-sex groups. The level of hidden unemployment is

¹⁷ This model is fully specified and discussed in more detail in section 5.4.

therefore simply a function of the differences between the full employment labour force participation rate and the lower actual labour force participation rates for each group.

Table 4.4: Underutilisation and unemployment measures, Australia, 1980 to 2000

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Source: Mitchell and Carlson, 2000; 19.

The estimates of hidden unemployment obtained by Mitchell and Carlson (2000) are shown in Table 4.4 and Figure 4.1. Figure 4.1 reveals two interesting things about the estimates of hidden unemployment obtained by Mitchell and Carlson (2000). First, the level of hidden unemployment is not substantial. This method estimates the level of hidden unemployment to be approximately one per cent of the labour force during the 1980s and the first half of the 1990s, which is much lower than the estimates obtained from the non-weighted indicators reviewed in chapter 3. Second, *CU8* shows that the level of hidden unemployment actually fell during the recovery phase from the recession of the early 1990s, such that by 2000 hidden unemployment was almost non-existent, a mere 0.1 per cent of the labour force. The estimates of the extent of hidden unemployment that are

derived from *CU7* do not accord with estimates that were obtained from other models that are examined in this chapter.

Figure 4.2: Seasonally adjusted unemployment rate and hours-adjusted unemployment, Australia, 1980 to 2000

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Source: Mitchell and Carlson, 2000; 19.

In 2007, Mitchell revisited the problem of the level of hidden unemployment in Australia as measured by *CU7* (Mitchell 2007). The official unemployment figures showed that by 2007 Australian unemployment rates had fallen to figures not seen in a generation, or at least not since February 1978 when the Labour Force Survey was adopted as the official source of labour market data in Australia. Nevertheless, Mitchell (2007) argued that the real level of unemployment, that is the real level of labour underutilisation, was much higher than the official estimates that are derived from the *seasonally adjusted unemployment rate* or the *trend unemployment rate*. Again the measure *CU7* and *CU8* show that even in 2007 substantial labour underutilisation existed in the Australian labour

market (Table 4.5). A quick inspection of Table 4.4 and 4.5 shows that the estimates of hidden unemployment that are derived from the revised method used by Mitchell (2007) are higher than those obtained using his earlier method (Mitchell and Carlson 2000). However, Mitchell does not report how the model has been re-specified to obtain these higher estimates of hidden unemployment.

Table 4.5: Estimates of the welfare cost of unemployment, Australia, 1980 to 2007, selected years

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Source: Mitchell 2007; 10.

Moreover, there is a conceptual problem with *CU8*. Chapter 1 argued that the key problem with the *seasonally adjusted unemployment rate* and the *trend unemployment rate* is that they are proxy measures of economic growth. Hence, there is a need to develop labour market indicators that break the nexus between labour underutilisation and economic growth. That is, labour market analysts need labour market indicators that are independent measures of the performance of the labour market and not *de facto* measures of economic performance. Mitchell and Carlson (2000; 22) calculated a correlation coefficient between the *seasonally adjusted unemployment rate* and Gross Domestic Product of -0.899. That is, about 80 per cent of the variation in the *seasonally adjusted unemployment rate* is due to variation in Gross Domestic Product. But on the other hand, the correlation between Gross Domestic Product and *CU8* is even higher, -0.904. This means that over 81 per cent of the variation in *CU8* is due to variation in Gross Domestic Product alone. So, this measure of

labour underutilisation does not break the nexus between labour underutilisation and Gross Domestic Product, rather it strengthens it.

4.2.5 Total Labour Underutilisation

Wooden (1996; 1) argued that the unemployment rate is not an ideal measure of labour underutilisation for Australia as it does not include all forms of underemployment and hidden unemployment that need to be added to the unemployment rate in order to develop a comprehensive measure of labour underutilisation. Wooden (1996) identified two forms of underemployment. First, visible underemployment refers to the extent to which the time that employees work varies, both across individuals and over time. In particular, if the number of hours that a person works varies and if that person wants to work more hours, then the labour power of that person is to some extent underutilised. Second, invisible underemployment is related to labour hoarding, which occurs ‘when there are increases in the input of labour services not matched by commensurate increase in output’ or when ‘there are decreases in output not matched by commensurate reductions in the input of labour services’ (Bostworth and Westaway 1987; 145). Labour hoarding is a form of hidden unemployment because even though workers may be employed they may be underemployed. Workers may be required to work on jobs that require lower levels of skills than they possess. Examples of this type of labour underutilisation were common in the British coal mining industry when miners who became too sick to work underground because of the working conditions were given light duties above ground rather than having their employment terminated. In this sense labour hoarding may also be a form of invisible underemployment. When substantial amounts of labour hoarding occurs, changes in the

level of employment have no effect on the level of production, and vice versa, then some of the labour resources employed by firms must be underemployed. This definition of invisible underemployment differs from the more generally accepted version proposed in the previous chapter. This is an unusual inclusion in a measure of labour underutilisation as these people are employed. Third, hidden unemployment refers to those people who are part of the labour supply, but are not part of the labour force. Consequently, they are officially defined as unemployed, as discussed in chapter 2.

However, as Mata Greenwood (1999) and Elder and Johnson (1999) argue, the hidden not employed possess an interesting characteristic. Their labour force participation is flexible and is contingent on the state of the economy. That is, if economic conditions improve, they optimistically reassess their probability of gaining appropriate work and enter the labour force. On the other hand, when economic conditions worsen, they pessimistically reassess their probability of gaining appropriate work and leave the labour force. The growth in the number of not employed reported by both Matta Greenwood (1999) and Elder and Johnson (1999) might help to explain the blurring of that group of people who are marginally attached to the labour force, and that group of people who are not attached to the labour force, as discussed in chapter 1.

The existence of these three forms of labour underutilisation means that both the *seasonally adjusted unemployment rate* and the *trend unemployment rate* underestimate the level of labour underutilisation in Australia. Consequently, Wooden (1996; 2–3) developed a ‘simple econometric model of the relationship between output, employment and labour force participation’ in order to provide better estimates of labour underutilisation.

Moreover, this model produced an hours-based rate of unemployment, rather than a person rate of unemployment.

The econometric model developed by Wooden (1996; 28) is comprised of three sub-equations, each of which estimates the underutilised labour produced by the three groups of underemployed workers identified above¹⁸. The first equation estimates the level of visible underemployment, which Wooden (1996; 4) defines as:

1. part-time workers (that is, usually working less than 35 hours each week) who indicate that they would prefer to work more hours
2. full-time workers who did not work full-time hours in the reference week for 'economic' reasons, (such as being stood down, working short-time or insufficient work).

This equation provided an estimate of the number of hours the visibly underemployed in total would like to have worked for the period 1980 to 1995. The second equation estimates the number of person hours of labour that is hoarded by firms. The third equation provides an estimate of the number of hidden unemployed people using changes in the national labour force participation rates. This equation takes into account the different labour force participation rates of males and females and three different age cohorts. The number of hidden unemployed is then converted into an estimate of the number of hours of labour lost to the labour market based on the average number of hours worked. Finally, the *trend unemployment rate* is converted into an hours-based unemployment rate using the average number of part-time and full-time hours worked by males and females. The number of hours of underutilised labour obtained from the three sub-equations is then added to the hours adjusted *trend unemployment rate* to obtain *total labour*

¹⁸ The complete estimation system is represented by the following two equations

$$\begin{aligned}\Delta \ln E/P &= a_{i0} + a_{i1} (\Delta \ln Q)_{t-1} + a_{i2} (\Delta \ln Q)_{t-2} + a_{i3} (\Delta \ln Q)_{t-3} \\ \Delta \ln L/P &= b_{i0} + b_{i1} \Delta \ln E/P\end{aligned}$$

underutilisation. The *trend unemployment rate* and *total labour underutilisation* are compared in Table 4.6, which clearly demonstrates that the *trend unemployment rate* substantially underestimates the level of labour underutilisation in Australia.

Table 4.6: Trend unemployment rate and total labour underutilisation, Australia, 1980 to 1995, per cent

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Source: Wooden 1996; 20.

4.2.6 Summary

The preceding discussion highlights two important strengths of using econometric regression to develop weighted labour force indicators in general and weighted indexes of labour underutilisation in particular. The first relates to the nature of the changes that are occurring to the Australian labour force. As discussed in earlier sections, these changes are multi-dimensional in that they affect many aspects of the labour market and the world of work, and moreover they are inherently unobservable. Econometric regression has the strength, in that it allows data from a large number of observable socioeconomic indicators, including labour force variables, to be incorporated into a single labour market indicator. Hence, econometric regression provides some insights into the multidimensional nature of the changes that are occurring in the Australian labour force. Moreover, as both Mitchell and Carson (2000), Mitchell (2007) and Wooden (1996) show, econometric modelling can be used to develop measures of labour underutilisation that account for the significant changes in hidden unemployment and visible underemployment that has occurred in Australia over the past two decades. Second, econometric regression makes it

possible to determine the importance of each variable that is incorporated into the model. Consequently, the weights for each component can be determined. Hence, it is possible to identify those variables that are more or less important. This is a necessary condition for the development and implementation of effective labour force policy.

This discussion shows that labour market indicators, in general, and measures of labour underutilisation in particular, can be developed using econometric regression analysis that meet most of the criteria that are outlined in Table 2.1. However, these labour market indicators have four weaknesses. First, the complexity of the calculations that generate the index means that the figures would not be readily decomposed. Hence, it would be difficult to determine which variable or variables were contributing to changes to the value of the index. That is, econometric modelling does not meet the transparency criterion. Second, econometric modelling does not produce an interval scale. Third, it could be difficult for labour market analysts who are not economists to reproduce any such indicator. Fourth, the use of econometrics would limit its appeal outside of the economics profession.

4.3 Factor Analysis: Principal Components Analysis

4.3.1 Introduction

Another multivariate analytical technique that could be used to develop weighted labour force indicators is factor analysis. The calculations that are required to undertake a factor analysis are so complex that they can only be readily performed by a computer, using appropriate software. Commercially available statistical software packages tend to use

Principal Components Analysis to perform the factor analysis. Principal Components Analysis has the major advantage over other methods of undertaking a factor analysis, in that it extracts the maximum amount of variance as each factor is calculated (Australian Bureau of Statistics 1998; 26). Factor analysis is often used in the social sciences in situations where the dependent variable, such as labour underutilisation, cannot be directly observed, but those variables that cause variation in the dependent variable can be observed and measured.

There are three important outputs of a factor analysis. The first is the first three to five factors that are extracted from the analysis as they account for the majority of the variance in the original data. Hence, data from a large number of variables is statistically reduced to a small number of factors. The second important output of a factor analysis is the factor loadings. The factor loadings, or coefficients as they are sometimes called, range from negative one to positive one and are the measure of the correlation between each observable variable for which data have been collected, and the factors constructed during the analysis. The factor loadings are also the weights for each independent variable. The third output is the factor score. A factor score is calculated by multiplying the value for every variable, for every person or area under investigation, by the relevant factor loading and then summing the results.

A search of the literature indicates that labour market analysts have yet to use Principal Components Analysis to develop labour force indicators either in Australia or anywhere overseas. However, researchers working in other areas of the social sciences, especially geography, have been using Principal Components Analysis to develop weighted socioeconomic indicators for the last 30 or 40 years. The best example of this methodology

in Australia is the five Socio -Economic Indexes for Areas that have been calculated by the Australian Bureau of Statistics (Australian Bureau of Statistics 1998). An evaluation of these indexes indicates both the strengths and weaknesses of this approach.

4.3.2 Socio-Economic Indexes for Areas

The Census asks nearly fifty questions relating to the social and economic status of Australian households. However, in the 1970s the Commonwealth Statistician drew the conclusion that social researchers tended not to be interested in analysing all of the variables that are constructed from the responses to these questions one at a time. Rather, social scientists prefer to work with a single variable that provides an overview or a summary of a number of related variables. The first measure of socioeconomic disadvantage was developed by the Australian Bureau of Statistics using data from the 1971 census. The method constructed during the 1970s has been developed, such that for the 1996 Census five indexes were constructed. The five indexes that comprise the Socio-Economic Indexes for Areas are the:

1. Urban Index of Relative Socio-Economic Advantage, comprising 19 variables
2. Rural Index of Relative Socio-Economic Advantage, comprising 15 variables;
3. Index of Relative Socio-Economic Disadvantage, comprising 13 variables;
4. Index of Economic Resources, comprising 21 variables
5. Index of Education and Occupation, comprising 18 variables.

These five indexes were first developed using data from the 1986 Census. Subsequently, they have been developed for each Census that has been conducted since 1986. The method was re-visited after the 2001 Census and now only four indexes are constructed.

The development of these indexes is a significant methodological breakthrough as they allow data from a large number of socioeconomic variables to be condensed into a small number of indicators. Nevertheless, they have a number of shortcomings. The main problem with the use of Principal Components Analysis, as with the use of econometric regression, is that it is assumed that the resultant indexes yield an interval scale, yet they only lead to the construction of an ordinal scale (Barrett 2001a).

The difference between an ordinal and an interval scale is discussed at some length in the preceding section. However, this is a good opportunity to illustrate the limitations of using an ordinal scale through the use of a simple example. For example, if a Collection District had an index value of 1,200 on the Urban Index of Relative Socio Economic Advantage it does not mean that on average households in that Collection District have twice the level of socioeconomic status or wellbeing as the average household in another Collection District that has an index score of 600. This would be the case if these indexes were fitted to an interval or cardinal scale. Similarly, the difference in socioeconomic status between two Collection Districts with index scores of 800 and 900 is not the same as the difference between Collection Districts with index values of 1,100 and 1,200 (Barrett 2001a). All that can be said is that in a Collection District with a score of 1,200, people have, on average, higher socioeconomic status than people who live in a Collection District with a score of 1,100. Second, the composition of these indexes varies between censuses as the variables that are included in the index and their weights change. Hence, they cannot be compared with other indexes calculated using data collected at earlier censuses. So, strictly speaking they cannot be used as time-series data. This weakness is often overlooked and hence they are usually treated as time series data.

Advances in personal computing have to some extent overcome the shortcomings of the Socio-Economic Indexes for Areas. Today, researchers can readily construct their own indexes using Principal Components Analysis. Vinson (1999) is a good example of the use of Principal Components Analysis to create an index that was tailor-made for the needs of a particular study. However, the study undertaken by Vinson (1999) highlighted a further significant shortcoming with the use of Principal Components Analysis. Indexes calculated using Principal Components Analysis need identical data to be available for every areal unit or group of people for which the index is to be calculated. This problem is illustrated by the decision by Vinson (1999) to include a mortality variable in his *Index of Relative Social Disadvantage*. The mortality data for New South Wales and Victoria were not strictly comparable. Consequently, Vinson was forced to develop two indexes of relative social disadvantage, which meant that regions in New South Wales could only be compared with other regions in that state and not with regions in Victoria.

4.3.3 Summary

This section demonstrates that Principal Components Analysis has a number of strengths that mean that it could be readily used to develop labour force indicators for Australia and South Australia, which could then be used in later chapters of the present study. In particular, Principal Components Analysis has the advantage that it condenses a large amount of data about a large number of socioeconomic variables into a social indicator. Hence, information about the multidimensional aspects of labour underutilisation could be included in the index. Second, Principal Components Analysis leads to the calculation of a

set of weights for all the variables in the resultant indicator. These weights could provide a useful framework for policy development.

On the other hand, the use of Principal Components Analysis has a number of weaknesses as a method to develop labour force indicators. First, Principal Components Analysis develops an ordinal scale, rather than an interval scale. Ordinal scales are difficult to interpret as the absolute value of any changes in the index is unknown. Hence, they cannot be readily used as the basis of public policy. Second, Principal Components Analysis cannot accommodate data that are not directly comparable between regions. Third, Principal Components Analysis cannot accommodate missing data. Fourth, in the same vein as econometric regression, the calculations required to develop the indicators using Principal Components Analysis are so complex that there is a loss of transparency. That is, it is difficult to readily determine which variables are causing the indicator to change. Fourth, unlike econometric regression analysis, Principal Components Analysis does not require the development of a theoretical model prior to the construction of an indicator. The relationship between the variables is an outcome of the factor analysis. Finally, the components and the weights invariably change each time the index is calculated. So, indexes constructed using Principal Components Analysis are not strictly speaking a time series.

In brief, factor analysis has essentially the same strengths and weaknesses as econometric modelling. That is, most of the criteria outlined in Table 2.1 are met. However, Factor Analysis would not lead to the construction of a measure of labour underutilisation that is based on an interval scale. The method by which the indicator is constructed would not be transparent, it would not be readily reproduced, nor could it be used as a time-series.

However, labour market indicators constructed using factor analysis would have broader appeal to labour market analysts generally as this is a widely used method of constructing indexes in the social sciences.

4.4 Logistic regression analysis: The Partial Credit Model

4.4.1 Introduction

An alternative multivariate analysis approach that could be used to develop weighted labour force indicators is to use Item Response Theory. This method is increasingly being used to solve measurement problems in education and psychology, where unobservable variables need to be accurately estimated (Barrett 2005). In its usual application in psychology and education testing, Item Response Theory models the relationship between the personal traits of the person being tested, such as intelligence, and the responses the person makes to test items or questions. Personal traits, such as intelligence, are inherently unobservable. Hence, Item Response Theory is one of a number of so-called Latent Trait Theories. Item Response Theory is premised on the existence of unidimensionality, which accounts for the co-variation among responses to a set of test or attitude scale questions.

Bejar (1983; 31) argues that:

unidimensionality does not imply performance on the items is due to a single psychological process. In fact, a variety of psychological processes are involved in the act of responding to a set of items. However, as long as they function in unison – that is the performance on each item is affected by the same processes and in the same form – unidimensionality will hold.

As discussed in chapter 3, labour underutilisation is essentially an unobservable variable that needs to be measured by proxy labour force variables. Hence, a weighted measure of labour underutilisation could be developed using Item Response Theory. Logistic Regression Analysis is essentially a form of econometric regression, but it is dealt with

here separately as it has different strengths and weaknesses to those discussed in section 4.2.

4.4.2 The Partial Credit Model

The Partial Credit Model (Masters 1982), which is an extension of the Simple Logistic Model (Rasch 1960) could be used to construct a weighted labour market indicator to measure changes in labour underutilisation. The Simple Logistic Model is only appropriate where items, or questions, are dichotomously scored, such as in true/false or multiple-choice tests (Masters 1982). Whereas the Partial Credit Model facilitates the analysis of cognitive or attitudinal questions, that have two or more levels of response, such as when an essay is marked using percentages (Masters 1982). The levels of responses have to be ordered, but they do not have to be on a specified scale. Hence, the Partial Credit Model is ideal for analysing the effects of student ability and question difficulty on the performance of students answering extended response type questions. Moreover, labour force variables, which can be expressed as percentages, could be incorporated into a weighted labour force indicator using the Partial Credit Model.

The Simple Logistic Model developed by Rasch (1960) estimates the probability of an examinee gaining a correct answer to a dichotomously scored item, or question, as an exponential function of the difference between the ability of a person and item difficulty.

The Simple Logistic Model can be expressed as:

$$\pi_{1ni} = \frac{\exp(\beta_n - \delta_i)}{1 + \exp(\beta_n - \delta_i)}$$

Where: π_{1ni} is the probability for person n of success on item i ,

β_n is the ability of person n ,
 δ_i is the difficulty of item i , and
 $\pi_{0ni} = 1 - \pi_{1ni}$ is the probability of an incorrect answer on item i (Masters 1982).

The Partial Credit Model developed by Masters (1982) is an extension of the Simple Logistic Model. The model was developed by estimating parameters for the difficulties associated with a series of performance levels within each item. Masters (1982) argues that the difficulty of the k^{th} level in an item governs the probability of responding in category k rather than in category $k - 1$. The probability of person n completing the k^{th} level is specified by Masters (1982; 158) as:

$$\pi_{xni} = \frac{\exp \sum (\beta_n - \delta_i)}{\sum \exp \sum (\beta_n - \delta_i)} \quad x = 0, 1, \dots, m,$$

where for notational convenience $\sum (\beta_n - \delta_i) = 0$ (Masters 1982).

The model estimates the probability of a person n scoring x on the mi performance level of item i as a function of the person ability on the variable being measured and the difficulties of the mi levels in item i . The observation x is a *count* of the successfully *completed* item levels, while only the difficulties of these completed levels appear in the numerator of the model. The model provides estimates of person ability β_n and level difficulty δ_i .

The logistic regression analyses that are required to apply the Partial Credit Model to measurement problems are so complex that they require the use of a computer. However, the calculations are readily performed using a desktop or notebook computer and commercially available software, such as ConQuest (Wu, Adams and Wilson 1998) or RUMM (Sheridan, Andrich and Luo 1997). The Logistic Regression computations are so complex that they need not be discussed here. Rather, it is more appropriate to summarise the process conceptually. The first step that the software would perform in order to develop a labour force indicator is to test for unidimensionality using either Principal Components

Analysis or Confirmatory Factor Analysis. The second step is to conduct the item analysis, which identifies those variables that are relevant to the index being constructed and those that are relevant, but which do not add any additional information. Those items or variables that do not add anything to the indicator are deleted from the Logistic Regression Analysis at this stage. The third step is to calculate the index values for each region using the relevant labour force data.

It is not possible to provide an example of a labour market indicator, let alone a measure of labour underutilisation constructed using the Partial Credit Model as no such example exists. However, Australian families are becoming familiar with the outputs of the Partial Credit Model, especially those with primary school aged children. The Partial Credit Model is used to analyse the results of the NAPLAN numeracy and literacy tests that all Australian students currently sit in years three, five and seven. The Partial Credit Model allows students who sit different tests over the course of their primary school education to be given a score and hence be fitted to a common interval scale.

4.4.2 Strength and weaknesses of the Partial Credit Model

The main advantage of the Partial Credit Model, in contrast to econometric modelling or factor analysis, is that it develops an interval scale, not an ordinal scale. Hence, direct comparisons can be made between different labour forces, and change over time can be measured. Second, the Partial Credit Model does not need data for every variable to be included in the index. A labour force index developed using the Partial Credit Model would need to include data for about 20 variables for each geographic region in Australia,

for example collection districts, post code areas, local government areas, states and for Australia as a whole. However, data for all variables do not have to be available for every areal unit. This is a particularly useful feature if international comparisons were to be made and where the labour force data are not identical for each country or state. The Partial Credit Model can estimate index scores even when data for as few as 20 per cent of the variables are common between the subjects, be they people or areas, for which the index is being calculated. Consequently, The Partial Credit Model can estimate index values for each area if the variables differ or where there are missing data. However, very large samples with more than 100 observations for each variable are required to accurately estimate the parameters of the Partial Credit Model and to calculate the index values.

So, if the Partial Credit model was to be used to develop labour force indicators for Australia, or elsewhere, they would have to be calculated from a large number of small areal units. The only source of labour force data that provides information relating to at least twenty socioeconomic variables, and which is available for at least 100 areal units in Australia, is the Census. The Australian Census is conducted every five years. All other comparable nations to Australia conduct their Censuses every ten years. This means that a labour force indicator developed using the Partial Credit Model could only be undertaken every five years. Timeliness is an important criterion for labour market indicators and five or ten years can hardly be considered to be timely. Moreover, these labour market indicators would be out of date by the time they are calculated as it takes up to 18 months for Census data to be published. Finally, given the complexity of the modelling process, the resultant index would be neither transparent nor readily reproduced.

4.5 Conclusion

This chapter reviewed a number of weighted labour market indicators, or methods that could be used to construct weighted labour market indicators. This discussion did not identify any labour market indicators that were perfectly suited to the needs of the present study because weighted indexes tend not to be transparent or readily reproducible. Moreover, with the exception of the Logistic Regression, the resultant index is not an interval scale, rather, the indexes produce ordinal scales that are simply assumed to be interval scales. However, the discussion relating to econometric modelling did identify one measure of labour underutilisation that had the potential to be used to re-examine the experience of the Australian and South Australian labour market, the *hours-adjusted unemployment rate CU8* (Mitchell and Carlson 2000). However, the use of econometric regression to develop estimates of hidden unemployment needs to be re-visited.

In conclusion, the previous two chapters identified three labour market indicators that could potentially meet the needs of the present study. These are:

1. the real unemployment rate (Beatty and Fothergill 1998)
2. the hours-adjusted unemployment rate *CU7* (Mitchell and Carlson 2000)
3. the hours-adjusted unemployment rate *CU8* (Mitchell and Carlson, 2000).

In effect, however this is a list of only two labour market indicators as the construction of *CU7* is an intermediate step in the construction of *CU8*. As discussed, all of the measures of labour underutilisation listed above do not meet all of the criteria outlined in Table 2.3. However, if these shortcomings can be overcome, then as a suite of labour market indicators, they would be ideal for use in later chapters of the present study. These three measures of labour underutilisation will be systematically evaluated in the next chapter

using the criteria set out in Table 2.1 to identify their strengths and weaknesses. Moreover, this re-evaluation will generate suggestions about how these three indexes can be modified in order to meet the needs of this thesis. That is, to measure trends in the level of labour underutilisation in South Australia over the period 1989 to 2005.

Moreover, this section of the thesis, that is chapters 3 and 4, have argued that when the basis of labour force statistics is the broadest possible definition of employment, then the resultant definition of unemployment and hence labour underutilisation is the narrowest possible. Hence, any broadening to the definitions of unemployment of labour underutilisation will by definition increase the measured level of labour underutilisation. This is especially the case in Australia where the Australian Bureau of Statistics uses the broadest possible definition of employment, that is, worked for one hour in the reference week', which in turn constructs the narrowest possible definition of labour underutilisation as the basis for the trend unemployment rate and the seasonally adjusted unemployment rate.

5 THREE NEW LABOUR MARKET INDICATORS

5.1. Introduction

Chapters 1 and 2 presented a critique of the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. Those chapters concluded that the official measures of labour underutilisation in Australia had a number of shortcomings. Consequently, they provide a partial and incomplete picture of the contours and dynamics of labour underutilisation in Australia. In particular, chapter 2 argued that the *seasonally adjusted unemployment rate* and the *trend unemployment rate* provide little information about the two key labour force pathologies, hidden unemployment and visible underemployment, that emerged as significant labour market problems in Australia during the 1990s as a consequence of the economic restructuring and the labour force restructuring that accompanied the recovery from the recession of the early-1990s. Hence, chapter 2 concluded with the observation that the *seasonally adjusted unemployment rate* and the *trend unemployment rate* to be complemented by other labour market indicators that captured the labour market effects of increased hidden unemployed and increased visible underemployment. The discussion in chapters 3 and 4 reinforced this argument.

This chapter concludes the discussion in which the analytical framework that will be used in the remainder of this thesis will be developed. The discussion undertaken in chapters 3 and 4 reviewed a range of alternative labour market indicators that have appeared in the literature during the past two decades in order to identify labour market indicators that have the potential to provide more accurate estimates of labour underutilisation. These

indicators will be applied in chapters 7 and 8 in order to provide a more accurate picture of the experience of the South Australian labour market over the period 1989 to 2005. That review identified three labour market indicators that may meet the needs of the present thesis, which is to develop more accurate estimates of the real level of labour underutilisation in the Australian Labour market. The measure called *real unemployment*, developed by Beatty and Fothergill (1998), adds an estimate of hidden unemployment to the official UK unemployment rate. However, this indicator did not include a measure of visible underemployment, which limits its usefulness in the present context. Moreover, the method used to calculate *real unemployment* may underestimate the extent of hidden unemployment due to concerns about which benchmark is most appropriate in the Australian context. The *hours-adjusted unemployment rate CU7*, developed by Mitchell and Carlson (2000) is an Australian labour market indicator that adds an estimate of visible underemployment to the *trend unemployment rate*. However, it does not address the issue of increased hidden unemployment, which again also limits the usefulness of this measure in the present context. Consequently, Mitchell and Carlson (2000) developed their other *hours-adjusted unemployment rate CU8*, which includes estimates of both hidden unemployment and visible underemployment.

All three of these indicators have some appeal in that they add estimates of hidden unemployment or visible underemployment or both to the official unemployment rate and thereby provide better estimates of labour underutilisation. However, they all exhibit a number of weaknesses that limit their utility. Nevertheless, these weaknesses can be overcome by further development and hence these three measures can provide the basis of three new labour market indicators that can be used to re-examine the South Australian and Australian labour markets over the period 1989 to 2005. Hence, the aim of this chapter is

to review these three labour market indicators in more depth in order to address the observed shortcomings and thereby develop three new labour market indicators. These three measures are then used in chapter 7 to tell a more informed story of the dynamics of labour underutilisation in the South Australian labour market over the period 1989 to 2005. They are then used again in chapter 8 to re-examine trends in labour underutilisation in the labour markets of the other states.

This chapter has three further sections. Section 2 re-examines *real unemployment* developed by Beatty and Fothergill (1998) and develops a new labour market indicator called the *real unemployment rate* which adds estimates of hidden unemployment to the trend unemployment rate. Section 3 re-examines the *hours-adjusted unemployment rate CU7*, developed by Mitchell and Carlson (2000) and develops a more easily calculated, hours-based, measure of labour underutilisation called the *hours unemployment rate*, which adds an estimate of visible underemployment to the *trend unemployment rate*. Section 4 re-examines the *hours-adjusted unemployment rate CU8*, which was also developed by Mitchell and Carlson (2000), and develops a more easily calculated hours-based measure of labour underutilisation called the *comprehensive unemployment rate*, which adds estimates of both hidden unemployment and visible underemployment to the *trend unemployment rate*. The *trend unemployment rate* is used as the basis of these three measures of labour underutilisation as it has slightly fewer weaknesses than the *seasonally adjusted unemployment rate* and the Australian Bureau of Statistics recommends its use as the headline measure of labour underutilisation in Australia.

5.2 The Real Unemployment Rate

5.2.1 Real unemployment

As discussed in chapter 3, the challenge for Beatty and Fothergill (1998) was to determine the actual level of unemployment in the coalfields of Britain in the wake of the closure of the British coal mining industry in the 1980s. This required the development of more accurate estimates of the level of hidden unemployment in these regions. The measure that they developed is a count of those people ‘who might reasonably be expected to work in a fully employed economy’ (Beatty and Fothergill 1998; 138), regardless of whether or not they are actively seeking work. Their method is based on the premise that, the vast majority of the structural unemployment that is created in regions that are being adversely affected by economic restructuring is transformed into hidden unemployment as those people who are made redundant eventually move onto a government provided benefit or pension or take self-funded early retirement or become otherwise economically inactive.

Their method adds estimates of the ‘excess’ number of permanently sick people and early retirees in a particular region, as measured with respect to appropriate benchmarks, to the official unemployment rate. But, not everybody that becomes one of the hidden unemployed moves onto a pension or benefit. As Beatty and Fothergill (1998) themselves argue, structurally unemployed people may also re-enter education, move into the black economy or otherwise become economically inactive. So, their measure only captures information about two of the four groups of people who they argue comprise the hidden unemployed. Furthermore, as also argued in chapter 3, the method used by Beatty and Fothergill (1998) may be too contextually specific to be applied to the present thesis as the

benchmarks used for estimating hidden unemployment are very closely linked to the British social security system.

Table 5.1: Evaluation of real unemployment

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes
3. Simplicity	yes
4. An unambiguous 'good' and bad' direction	yes
5. An interval scale	yes
6. Transparency	yes
7. Summary in nature	yes
8. A basis for comparative analysis	yes
9. A time series	yes
10. Prospective	no
Data criteria	
11. High quality up to date data	yes; based solely on monthly Labour Force Survey
12. Relevant to current labour force debates	yes
13. A meaningful measure of the labour force	no; definition of hidden unemployed is too narrow
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	yes
18. Information about visible underemployment	no
19. Should be sensitive to changes	yes

Table 5.1 shows that *real unemployment* meets most of the criteria that were identified in Table 2.1 as being important when developing labour force indicators. This measure has a number of strengths that makes its use appealing as the source of better estimates of labour underutilisation for Australia. In particular, this measure has face validity, is easily reproduced and is simply interpreted. It is also derived from monthly data collected during the Labour Force Survey. However, the key shortcoming of this indicator is that it does not include any estimate of the amount of visible underemployment that has been created in Australia as a result of the substantial growth in part-time employment. Furthermore, its estimate of hidden unemployment is not comprehensive. That is, *real unemployment* does not capture information about all of the pathways that structurally unemployed people can take into hidden unemployment. This shortcoming can be readily addressed. The only

development that is required to make this labour market indicator appropriate for the present thesis is the choice of a more appropriate benchmark.

5.2.2. The real unemployment rate: The method

As discussed in the previous section, estimating the number of ‘people who might expect to work in a fully employed economy’ (Beatty and Fothergill 1997; 138) becomes a question about which is the best benchmark to use. The last time the South Australian labour market can be considered to have been fully employed was during the boom of the late-1980s. Subsequent to the boom, the most interesting features of the South Australian labour market is the constant decline in the labour force participation rate (Figure 5.1). No matter which pathway a structurally unemployed person takes into hidden unemployment, that is onto a pension or benefit, into retirement funded either by a government or private pension, (re)-entry into education or some form of economic inactivity, the labour force participation rate must fall. Hence, changes to the labour force participation rate, that is the participation gap between the present labour force participation rate and the labour force participation rate that prevailed at the peak of the last business cycle, can provide the basis of a method to estimate the number of hidden unemployed. This is the basis of the approaches used by Wooden (1996), Denniss (2002 and 2003) Mitchell and Carlson (2000) and Mitchell (2007).

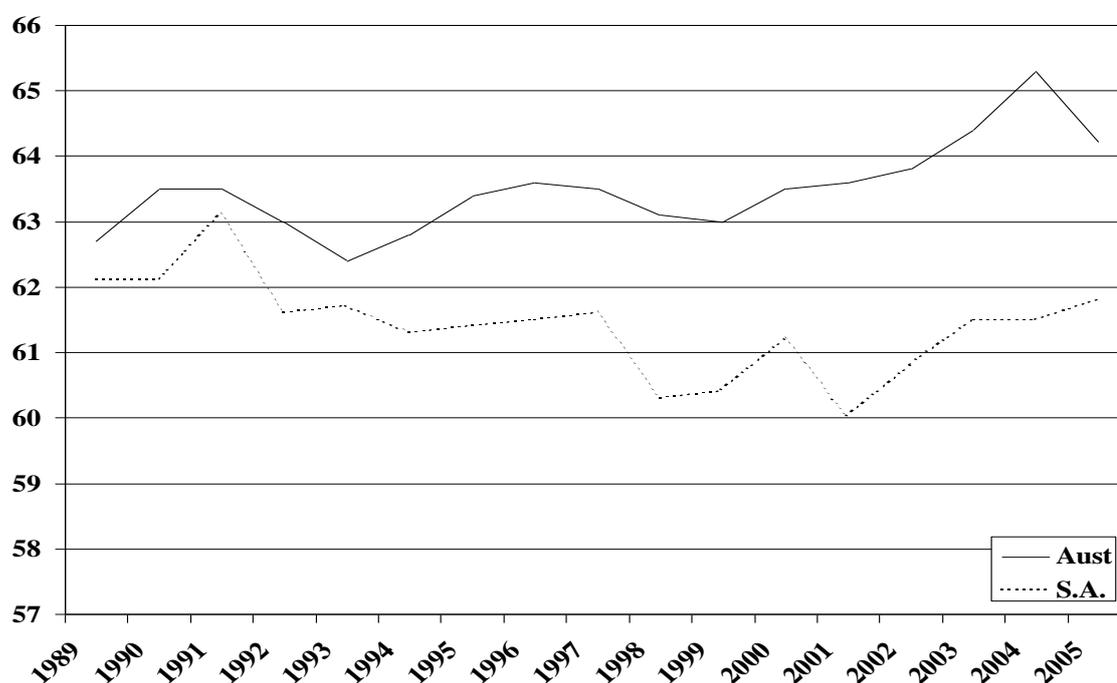
Figure 5.2 shows that both the South Australian and Australian male labour force participation rates have been falling constantly since the end of the boom of the late-1980s. Indeed, the Productivity Commission (Lattimore 2007) estimated that 2.2 million

Australian males have withdrawn from the labour market since the economic boom of the late-1980s.¹⁹ However, the rate of decline in South Australia is substantially higher than the national rate. In 1991, which corresponded to the peak of the last business cycle, the South Australian male labour force participation rate of 75.0 per cent was almost exactly equal to the corresponding national figure of 75.7 per cent. However, since 1991 the male labour force participation rate in all Australian states has steadily declined. Consequently, a participation gap between the current male participation rate and the level that existed at the end of the boom of the late-1980s has emerged, both in South Australian and for Australia as a whole. Furthermore, these participation gaps have grown steadily over the past decade. Hence, this labour force participation rate gap can be used as the basis of estimating the level of male hidden unemployment, which can then be added to the *trend unemployment rate* to obtain the male *real unemployment rate*.

On the other hand, as shown in Figure 5.3, the female labour force participation rate in Australia has grown constantly since the boom of the late-1980s. By the end of the 1980s the female labour force participation rate for South Australia of 50.2 per cent was roughly equal to the national figure of 50.6 per cent. However, since the early-1990s the national female labour force participation rate has grown at about double the South Australian rate, such that a significant participation gap has opened up. Hence, this labour force participation gap could be used as the basis for calculating estimates of female hidden unemployment, which are then added to the *trend unemployment rate* to obtain the female *real unemployment rate*.

¹⁹ The dramatic reduction in reduction in male participation rates found by Lattimore need to be balanced with respect to the activities that men who have withdrawn from the labour force perform, such as caring for children, caring for ageing parents or studying. Such actions contribute to society as a whole.

Figure 5.1: Labour force participation rate, South Australia and Australia, persons, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

Table 5.2: Labour force participation rate, Australia, persons, 1989 to 2005, per cent

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	61.2	63.6	63.2	62.2	65.6	60.2
1990	61.8	64.7	64.1	62.4	65.8	61.9
1991	62.3	64.1	63.3	63.1	65.3	61.8
1992	62.0	63.0	63.8	61.5	64.8	60.2
1993	60.9	61.7	63.4	61.8	63.7	59.4
1994	61.7	62.4	63.6	61.0	65.6	60.9
1995	62.0	63.2	64.9	61.9	66.5	59.8
1996	62.6	63.6	64.6	61.5	66.3	61.2
1997	62.2	63.5	64.7	61.6	66.4	59.2
1998	61.5	63.0	65.4	60.3	65.9	59.4
1999	61.6	62.7	64.5	60.3	65.8	58.3
2000	62.0	62.4	64.5	61.2	66.4	58.6
2001	61.9	63.7	64.3	60.1	66.5	59.1
2002	62.2	63.1	65.2	60.8	66.1	58.3
2003	63.0	63.6	65.4	61.5	66.2	58.7
2004	62.6	63.3	64.9	61.4	65.4	59.0
2005	62.6	64.4	65.7	61.9	66.9	59.5

Source: Australian Bureau of Statistics cat. no. 6202.0.

The national labour force participation rate is in effect the weighted average of all of the corresponding state figures²⁰. Like all averages it masks the variation in the distribution of the underlying variable. An inspection of Tables 5.2, 5.3 and 5.4 show the marked variation in the labour force participation rates for the six Australian states. Of particular interest is the female labour force participation rate for Western Australia shown in Table 5.4. With the exception of just three years (1991, 2003 and 2005) the Western Australian female labour force participation rate has been the highest in the Commonwealth. Hence, the appropriate benchmark for the calculation of the female *real unemployment rate* is not the national labour force participation rate, but the state with the current highest female labour force participation rate.

Table 5.3: Labour force participation rate, Australia, males, 1989 to 2005, per cent

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	73.9	75.7	76.6	74.6	78.2	74.6
1990	74.3	75.9	76.4	74.1	76.9	75.1
1991	74.6	75.1	75.1	75.0	77.4	74.4
1992	73.6	74.1	74.9	73.2	76.7	71.9
1993	72.2	72.9	75.1	72.6	74.5	71.3
1994	72.4	73.2	74.6	71.2	77.0	72.2
1995	72.7	74.3	74.9	72.1	77.4	70.9
1996	72.8	74.0	75.0	71.6	76.3	72.2
1997	72.4	73.4	73.9	70.4	76.4	69.8
1998	71.6	73.0	74.6	70.0	75.8	70.0
1999	71.4	72.7	74.0	70.2	75.1	67.8
2000	71.5	71.5	73.2	70.7	75.8	66.9
2001	70.6	73.4	72.0	68.7	75.3	68.3
2002	70.8	72.3	73.4	69.4	74.9	66.5
2003	71.1	71.2	72.5	69.4	75.0	66.8
2004	70.9	71.8	73.0	69.3	74.3	67.1
2005	70.5	72.4	73.2	69.4	75.4	66.1

Source: Australian Bureau of Statistics cat. no. 6202.0.

The labour force participation gap between the state with the highest labour force participation rate and the labour force participation rate of the state in question for a particular month provides the basis from which to calculate estimates of female hidden

²⁰ It is more usually calculated by dividing the total number of people who are employed, unemployed and actively seeking work by the size of the civilian population aged between 15 and 64.

unemployment, which are then added to the *trend unemployment rate* to obtain the female *real unemployment rate*. This method therefore assumes that there is no female hidden unemployment in the state with the highest female labour force participation rate.

Table 5.4: Labour force participation rate, Australia, females, 1989 to 2005, per cent

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	48.9	51.8	50.2	50.2	52.7	45.4
1990	49.7	53.4	52.2	50.4	54.3	49.5
1991	50.4	53.6	52.1	51.7	53.4	49.6
1992	50.7	52.5	52.5	50.5	53.1	48.4
1993	49.9	51.5	52.7	51.1	53.7	48.3
1994	51.3	52.1	53.1	51.3	54.3	49.4
1995	51.7	52.5	55.0	51.9	56.2	49.8
1996	52.8	53.7	54.7	52.1	55.6	50.6
1997	52.5	54.0	55.2	53.0	56.2	49.2
1998	51.8	53.8	55.8	51.1	55.8	49.2
1999	52.1	53.0	55.8	51.1	56.5	49.3
2000	52.9	54.0	56.4	52.1	57.3	51.2
2001	53.4	54.2	57.1	51.5	58.2	50.5
2002	53.9	54.4	56.9	52.6	57.2	49.6
2003	55.3	56.2	58.0	53.9	57.7	51.1
2004	54.6	55.0	57.2	53.7	57.2	51.5
2005	54.9	56.7	59.1	54.3	58.4	52.6

Source: Australian Bureau of Statistics cat. no. 6202.0.

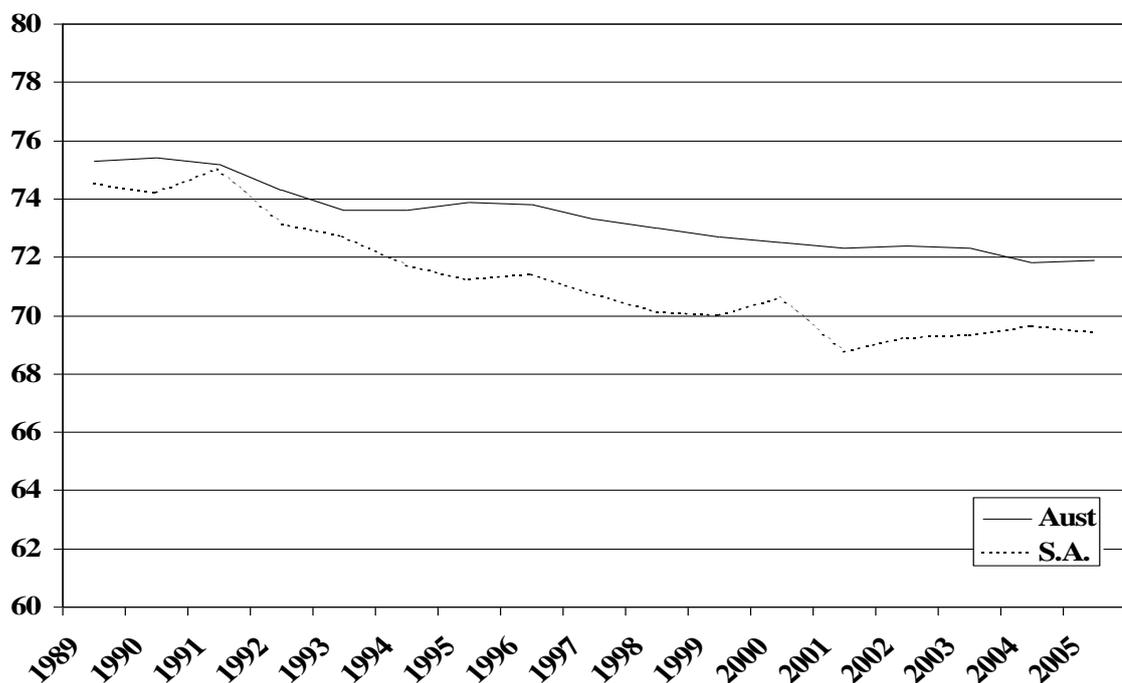
Method for males

The estimate for the level of male hidden unemployment is based on two assumptions. First, that the labour force participation rate that prevailed in 1991, at the peak of the last business cycle, represents the number of men who might reasonably be expected to work in a fully employed Australian and South Australian economy. Second, that the reduction in the male labour force participation rate from this peak reflects the choice of males to leave the labour force. Consequently, the reduction in the labour force participation rate, and hence the increase in the labour force participation rate gap between the current male labour force participation rate and the labour force participation rate that prevailed at the peak of the boom of the late-1980s, reflects the number of males who have given up

looking for work and have slipped into the ranks of the hidden unemployed.²¹ The calculation of the male *real unemployment rate* involves the following five steps:

1. The labour force participation rate that existed at the peak of the previous business cycle (for example, 75.0 per cent for South Australia in February 1991) is used as the benchmark for this calculation. These figures are multiplied by the male civilian population aged 15 to 64 to obtain the current male labour force if the male labour force participation rates of the early-1990s still prevailed, this is called the *adjusted male labour force*.
2. The *adjusted male labour force* obtained in step 1 is then used as the denominator for the male *real unemployment rate*.
3. The difference between the *adjusted male labour force* obtained in step 1 and the actual male labour force obtained from the trend labour force statistics provides the estimate of male hidden unemployment.
4. The estimate of hidden male unemployment obtained in step 3 is then added to the official number of unemployed males, derived from the trend labour force statistics, to obtain the numerator of the *real unemployment rate* equation.
5. The numerator obtained in step 4 is divided by the denominator obtained in step 2, then multiplied by 100 to obtain the *male real unemployment rate*.

Figure 5.2: Labour force participation rate, South Australia and Australia, males, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

²¹ Unlike some of the indicators that have been reviewed in this thesis, this method does not use age-specific labour force participation rates as they are not readily available from the Australian Bureau of Statistics.

Method for females

The estimate for the level of female hidden unemployment is based on the assumption that the female labour force participation rate that currently prevails in the state with the highest female labour force participation rate represents the number of women who might reasonably be expected to work in a fully employed Australian labour market. For example, the slower rate of increase in the South Australian female labour force participation rate since 1990/91, compared to the state with the highest labour force participation rate, which is usually Western Australia, and hence the increase in the labour force participation gap, reflects the number of females who have either given up looking for work or have not sought work and so have slipped into the ranks of the hidden unemployed. The calculation of the female *real unemployment rate* involves the following six steps:

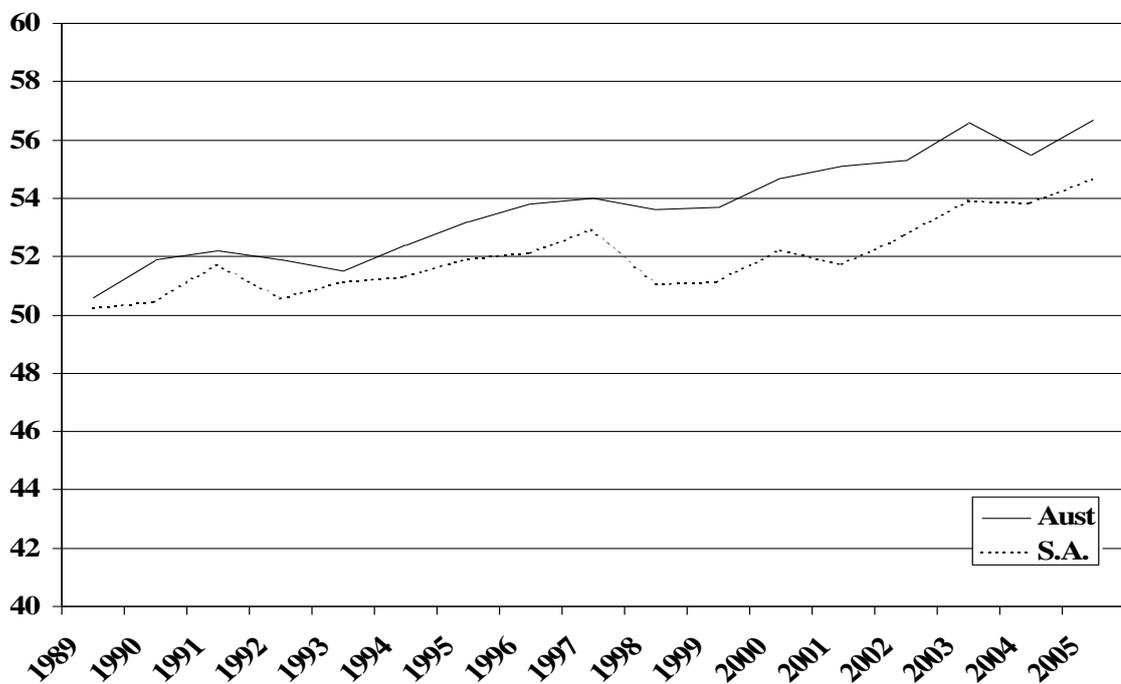
6. The current female labour force participation rate in the state with the highest female labour force participation rate is used as the bench mark for this calculation. This figure is then multiplied by the female civilian population aged 15 to 64 to obtain an estimate of how large the female labour force would be if this higher female labour force participation rate prevailed. This is called the adjusted female labour force.
7. The *adjusted female labour force* obtained in step 6 is then used as the denominator for the female *real unemployment rate* equation.
8. The difference between the *adjusted female labour force* obtained in step 6 and the actual female labour force obtained from the trend labour force statistics provides the estimate of female hidden unemployment in the state that is being examined.
9. The estimate of hidden female unemployment obtained in step 8 is then added to the official number of unemployed females, derived from the trend labour force statistics, to obtain the numerator of the *real unemployment rate* equation.
10. The numerator obtained in step 9 is divided by the denominator obtained in step 7, and then multiplied by 100 to obtain the *female real unemployment rate*.
11. This method implicitly assumes that there is no hidden female unemployment in the state with the highest female labour force participation rate in that month for which it is used as the benchmark figure.

Method for persons

The estimate of the *real unemployment rate* for persons involves the following additional three steps:

12. Adding the numerators for males and females obtained in steps 4 and 9
13. Then dividing the figure obtained in step 12 by the sum of the denominators for males and females obtained in steps 7 and 9
14. Then multiplying the figure obtained in step 13 by 10 in order to obtain a percentage.

Figure 5.3: Labour force participation rate, South Australia and Australia, females, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

A comparison of Tables 5.1 and 5.5 shows that the method outlined above has improved the labour market indicator, *real unemployment*, developed by Beatty and Fothergill (1998). In particular, the *real unemployment rate* provides a comprehensive coverage of all of the different pathways that structurally unemployed people may take into hidden unemployment. The *real unemployment rate* also has the distinct advantage that it is easy to calculate and is derived from data that are published monthly by the Australian Bureau

of Statistics. Unfortunately, the *real unemployment rate* provides no information about the extent of visible underemployment. However, the *real unemployment rate* is a person rate of unemployment, which highlights the number of people who are jobless in Australia and provides some guide to the number of new jobs that the economy needs to create (ACOSS 2005).

Table 5.5: Evaluation of the real unemployment rate

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes
3. Simplicity	yes
4. An unambiguous ‘good’ and ‘bad’ direction	yes
5. An interval scale	yes
6. Transparency	yes
7. Summary in nature	yes
8. A basis for comparative analysis	yes
9. A time series	yes
10. Prospective	no
Data criteria	
11. High quality up to date data	yes; based solely on monthly Labour Force Survey
12. Relevant to current labour force debates	yes
13. A meaningful measure of the labour force	yes; data shortcomings addressed
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	yes
18. Information about visible underemployment	no
19. Should be sensitive to changes	yes

5.3 The hours unemployment rate

5.3.1 The hours-adjusted unemployment rate *CU7*

Mitchell and Carlson (2000) noted that there is a long-running debate in the economics literature about the limitations of unemployment rates that are measured in terms of people, that is, they are person rates of unemployment. Furthermore, they argued that person rates

of unemployment are based on a narrow conceptualisation of labour underutilisation. Hence, they tend to underestimate the incidence of some forms of labour underutilisation, such as hidden unemployment and ignore other forms, such as visible underemployment, altogether. The conventional approach to overcoming these limitations of the official unemployment rate is to calculate and publish a range of alternative unemployment measures that are based on broader definitions of unemployment. See for example the range of labour market indicators developed by Burke and Shields (1999) for Canada and the Supplementary Measures of Labour Underutilisation that have been constructed by the Australian Bureau of Statistics (2002).

The Bureau of Labor Statistics commenced the regular publication of seven alternative unemployment measures for the USA in 1977 (Sorrentino 1993). These seven measures were reduced to six in 1994 as a result of changes that were made to the US Labor Force Survey (Bregger and Haugen, 1995). These alternative measures are outlined in Table 5.6. Bregger and Haugen (1995; 24) argued that the Bureau of Labor Statistics measure *CU6*, which is based on the broadest definitions of unemployment, ‘effectively treats workers who are visibly underemployed and all persons who are marginally attached to the labour force equally with the unemployed’. Mitchell and Carlson (2000) have adapted the Bureau of Labor Statistics methods to develop six comparable alternative indicators for Australia (Table 5.7). However, data limitations mean that the measures for Australia are not exactly the same as those for the USA. Nevertheless, they provide interesting insights into the performance of the Australian labour force over the past two decades.

Mitchell and Carlson (2000) argued that broadening the definition of unemployment to include all marginal workers and underemployed part-time employees in order to derive

their measures *U-4* to *U-6*, provide a more comprehensive measure of labour underutilisation. However, they went on to argue that even though their alternative measures are based on broader definitions of unemployment they provide little, if any, information about the two key labour force problems confronting the Australian labour force today, that is, the visible labour underutilisation that arises from the growth in part-time employment and the growth in the number of discouraged workers and the hidden unemployment that has resulted from the economic and labour force restructuring that has occurred in Australia since the boom of the late-1980s. This is largely because these are broader measure person rates of unemployment and not time rates of unemployment.

Table 5.6: The Bureau of Labor Statistics alternative measures of labour underutilisation

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Source: Bregger and Haugen 1995.

Table 5.7: Alternative measures of labour underutilisation and underemployment for Australia

NOTE:
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held by the University of Adelaide Library.

Source: Mitchell and Carlson 2000; 13.

Therefore, Mitchell and Carlson (2000; 18) argued that a more precise measure of labour underutilisation for Australia could be obtained by constructing an hours-based, rather than a person rate of unemployment. The measure they developed, and which they named *CU7*, is an:

Hours-adjusted unemployment rate (expressed in terms of a percentage ratio with hours on the numerator and denominator), being a ratio of unutilised hours of work available (unemployed and underemployed part-time workers) to total the available (fully-utilised) labour force in hours (the numerator plus the full-time employed plus the part-time workers who are content with their working hours).

The formula for the hours-adjusted unemployment rate is shown in formula (1):

$$(1) \quad CU7 = \frac{PTE_{UH} + UN_{FT} + UN_{PT}}{FTE + PT_{EH} + PT_{EUH} + UN_{FT} + UN_{PT}}$$

Where UN_{FT} is the number of unemployed people who want to work full-time multiplied by the average full-time working hours, UN_{PT} is the number of unemployed people who want part-time work multiplied by the average part-time working hours, PTE_{UH} is the number of part-time workers who want to work full-time expressed in hours as explained below, PT_{EH} is the number of part-time workers who do not want to work more hours multiplied by the hours that they are presently working, FTE is total full-time workers multiplied by the average full-time working hours. The numerator and the denominator of *CU7* are expressed in hours and the resulting measure is a percentage.

Method for calculating $PTE_{UH} + PTE_H$

The Australian Bureau of Statistics divides part-time workers into two groups, those who want to work more hours and those who do not wish to work more hours. The hours worked by those part-time workers who are happy with the number of hours they are working each week is reported by dividing the hours worked into four categories, zero hours per week, 1 to 15 hours per week, 16 to 29 hours per week and 30 to 34 hours per

week. The average hours per week for each category are also published. The total part-time hours in each category then equals the number of people in each category multiplied by the relevant average. People in the zero hours per week category are treated by Mitchell and Carlson (2000) as if they were included in the 1 to 15 hours per week category. This provides some downward bias in the measure. The sum of these individual products is the total hours of part-time workers who are content with the number of hours that they are working. These part-time workers are therefore not construed as being underemployed.

Those part-time workers who want to work more hours are divided by the Australian Bureau of Statistics into two groups, those who want to work full-time and those who did not look for full-time work. The Australian Bureau of Statistics also publishes the number of people in these two groups in the hours bands discussed above. Mitchell and Carlson (2000) assume that part-time workers who want to work more hours, but did not look for full-time work, wanted to be in the next higher band than the one they were currently included in. Hence, underemployment is the number of workers in this group expressed in each hours band time the average hours of the part-time workers (who are content with the number of hours they are currently working as above) in the next higher band minus the actual hours they are currently working. The individual products are then summed. The workers in the zero hours per week category are treated as before. This provides the second component of underemployed part-time work in hours. The total underemployment of part-time workers is the sum of these two components.

Method for calculating $UN_{FT} + UN_{PT}$

The actual unemployed are divided into those who want full-time work and those who want part-time work. The underutilised hours for those people who want full-time work is

equal to the total people in this category multiplied by the average weekly full-time hours. For those people who are currently unemployed, but who want part-time work, their underutilised hours are computed by multiplying the number of unemployed people in this category by average weekly part-time hours. This gives total unemployment in hours.

Method for calculating FTE

This is simply the number of full-time workers multiplied by the average number of full-time working hours.

This measure of labour underutilisation has the distinct advantage that it adds an estimate of visible underemployment to the official unemployment rate, in this case the *seasonally adjusted unemployment rate*. However, the measure has a number of shortcomings, which are summarised in Table 5.8. First, the method is quite complex as it uses econometric regression analysis to calculate estimates of hidden unemployment. Second, and this is related to the previous point, the rather complex method means that it is not easy to separate the two components of this measure from each other. This problem can be overcome by developing a more straightforward method that does not use econometrics. Third, the data relating to the number of part-time workers employed and the number of extra hours that they would like to work are collected by the Australian Bureau of Statistics on a quarterly basis. Hence, the data on which this measure is based is of the highest quality, but it is not as timely as it could be. This problem cannot be readily addressed and highlights the problems many social science researchers encounter when they are forced to use secondary data that have been collected by a third party for a different purpose. Finally, data limitations mean that this measure was only available for Australia as a whole during the period 1989 to 2005, which is the focus of this thesis.

The fifth shortcoming of the *hours-adjusted unemployment rate CU7* is related to the third point. The data related to the number of hours that part-time workers work are not collected for the purpose of developing a measure of labour underutilisation. Hence, Mitchell and Carlson (2000) needed to make a number of assumptions about the data in order to meet their needs. Mitchell and Carlson (2000) make one important assumption about the data, that is, part-time employees who want to work extra hours are assumed to want to work the average number of hours worked by people in the next hours band. That is, they implicitly assume that part-time workers who want to work more part-time hours only want to work a few extra hours per week. However, this assumption does not appear to be based on any theoretical conceptualisation of the labour market hopes and aspirations of part-time workers.

The neo-Keynesian view of unemployment, that unemployment is the result of labour market exclusion and not choices about work/leisure preferences, argues that people have strong preferences for full-time work. Hence, the majority of part-time workers who want to work more hours actually want to work on a full-time basis. This view is supported by evidence from the United Kingdom (for example: MacKay 1998) and Australia (for example: Borland, Gregory and Sheehan 2001). Furthermore, Mata Greenwood (1999) and Beatty and Fothergill (2003) for example, argue that local labour markets interact with the expectations of people and thereby actually influence the expressed preferences for full-time or part-time work. Mata Greenwood (1999) and Beatty and Fothergill (2003a) argued that unemployed people are very well informed about the demand conditions of their local labour market. Consequently, if the demand for labour from local employers is predominately for part-time work, then the probability of gaining full-time work will be

low or even zero. Hence, job seekers are likely to adjust their labour market expectations so that they more realistically reflect current labour market conditions. As a result, people who have a strong preference for full-time work revise their expressed expectations and develop a preference for part-time rather than full-time work reflecting current labour market demand conditions. Nevertheless, they would accept a full-time job if one was offered as this is their real labour force preference.

Table 5.8: Evaluation of the hours-adjusted unemployment rate CU7

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes; but with some difficulty due to the complicated method and because the data need to be obtained from ABS data cubes.
3. Simplicity	yes; but some knowledge of data cubes is required.
4. An unambiguous ‘good’ and ‘bad’ direction	yes
5. An interval scale	yes
6. Transparency	yes; with some difficulty due to method
7. Summary in nature	yes; but can only be calculated for Australia as a whole and not for individual states.
8. A basis for comparative analysis	no; only available for Australia as a whole.
9. A time series	yes
10. Prospective	no
Data criteria	
11. High quality up to date data	no; based on quarterly not monthly data,
12. Relevant to current labour force debates	yes, but does not include hidden unemployment.
13. A meaningful measure of the labour force	yes; but some concerns about underlying assumptions
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	no
18. Information about visible underemployment	yes
19. Should be sensitive to changes	yes

As part of the monthly Labour Force Survey the Australian Bureau of Statistics does not collect data about how many hours people would actually like to work. So, in order to construct an hours-based rate of unemployment to capture the labour market effect of increased visible underemployment, assumptions need to be made about how many extra

hours part-time workers want to work. The two arguments presented here suggest that the assumptions underlying the *hours-adjusted unemployment rate CU7* (Mitchell and Carlson 2000) tend to underestimate the number of hours that part-time workers would like to work. Hence, it underestimates both the size of the labour force, as measured in hours, and the extent of visible underemployment. Consequently, an hours-based rate of unemployment needs to be based on more appropriate assumptions.

Wooden (1996; 33) solves this problem quite neatly. He ‘assumed that an unemployed person seeking full-time work would, if employed, work the same hours as the average full-time worker, while an unemployed part-time person seeking part-time work would, if employed, work the same hours as the average part-time worker’. This assumption can be simplified a little for the purpose of constructing a measure of labour underutilisation, to assume that in the absence of any information about the preference for full-time or part-time work, that unemployed people want to work the average number of hours in Australia. Moreover, the average number of hours worked by males is substantially higher than the average number of hours worked by females in Australia. This assumption is particularly helpful in estimating the number of hours of work that could potentially be offered to the labour market by the hidden unemployed, who we have no information about regarding the preference for full-time or part-time work, because they are excluded from the Labour Force Survey.

This assumption can then be applied to the visible underemployed, that is those part-time workers who want to work more hours. Hence, it is assumed that the visible underemployed want to work the average number of hours worked in Australia, regardless of whether they express a preference for full-time work or more part-time hours. This

assumption captures the unconstrained work time aspirations of both the hidden unemployed and visible underemployed workers. Consequently, the assumption that the hidden unemployed and visible underemployed want to work the number of hours worked on average in Australia provides the basis of the *hours unemployment rate* that is outlined below.

5.3.2 The hours unemployment rate: The method

The *hours unemployment rate* is an hours-based unemployment rate that estimates the extent of labour underutilisation from the perspective of the number of hours that the labour force is prepared to work, rather than the number of people in the labour force. This labour force indicator firstly converts the trend unemployment rate into an hours-based rather than a person rate of unemployment and then adds an estimate of visible underemployment to the *trend unemployment rate*. As discussed above, it is based on the assumption that all part-time workers who are looking for extra hours are implicitly expressing a preference to work the average number of hours worked by males and females in Australia. This measure adds an estimate of the number of extra hours that part-time workers who are looking for extra work would like to work, to an estimate of the number of hours that could be worked by the people who are counted as unemployed by the *trend unemployment rate*. The method for constructing the *hours unemployment rate* is set out below.

Method for males

1. The number of males in the labour force, derived from the trend labour force statistics, is multiplied by the average number of hours worked by males to obtain the denominator of the equation.
2. The number of unemployed males is multiplied by the average number of hours worked by males to obtain an estimate of the number of labour hours unemployed.
3. The extent of visible underemployment is obtained by summing the number of part-time male workers who would like to work more hours and then multiplying this figure by the number of average hours worked by males and then subtracting an estimate of the number of hours actually worked.
4. The figures obtained in steps 2 and 3 are summed to obtain the numerator of the equation.
5. The numerator obtained in step 4 is divided by the denominator obtained in step 1, and then multiplied by 100 to obtain the *hours unemployment rate*.

Method for females

6. The number of females in the labour force, derived from the trend labour force statistics, is multiplied by the average number of hours worked by females to obtain the denominator of the equation.
7. The number of unemployed females is multiplied by the average number of hours worked by females to obtain an estimate of the number of labour hours unemployed.
8. The extent of visible underemployment is obtained by summing the number of part-time female workers who would like to work more hours and then multiplying this figure by the number of average hours worked by females and then subtracting an estimate of the number of hours actually worked.
9. The figures obtained in steps 7 and 8 are summed to obtain the numerator of the equation.
10. The numerator obtained in step 9 is divided by the denominator obtained in step 6, and then multiplied by 100 to obtain the *hours unemployment rate*.

Method for persons

11. The numerators for males and females calculated in steps 4 and 9 are summed.
12. The denominators for males and females calculated in steps 1 and 6 are summed.
13. The figure calculated in step 11 is divided by the figures calculated in step 12.

Tables 5.8 and 5.9 show that the method outlined above has improved the *hours-adjusted unemployment rate CU7*. In particular, the *hours unemployment rate* is more easily calculated and uses data with which most, if not all, Australian labour market analysts are familiar. Secondly, the new measure that was developed and explained in the preceding

sub-section is based on more theoretically supported assumptions about the size of the labour force in terms of hours and the extent of visible underemployment. Third, this new measure can be calculated for each state, unlike *CU7*, which until 2005 was only calculated for Australia as a whole. The *hours unemployment rate* is an improvement of the *hours-adjusted unemployment rate* and hence provides a better picture of visible underemployment. However, the *hours unemployment rate* does not provide any information about the level of hidden unemployment, nor is it available on a monthly basis. This caveat underscores the limitations that labour market analysts have using available data to construct their indicators.

Table 5.9: Evaluation of the hours unemployment rate

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes
3. Simplicity	yes; but some knowledge of data cubes is required.
4. An unambiguous 'good' and 'bad' direction	yes
5. An interval scale	yes
6. Transparency	yes
7. Summary in nature	yes
8. A basis for comparative analysis	yes; measures is available for all states.
9. A time series	yes
10. Prospective	no
Data criteria	
11. High quality up to date data	no; based on quarterly not monthly data.
12. Relevant to current labour force debates	yes; but does not include hidden unemployment.
13. A meaningful measure of the labour force	yes
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	no
18. Information about visible underemployment	yes
19. Should be sensitive to changes	yes

5.4 The comprehensive unemployment rate

5.4.1. The hours-adjusted unemployment rate *CU8*

Mitchell and Carlson (2000) argued that their *hours-adjusted unemployment rate CU7* had some limited applicability as it did not account for hidden unemployment. Consequently, they incorporated a previously developed method of estimating hidden unemployment into their *CU7* measure to obtain *CU8*. The formula for the hours-adjusted unemployment rate *CU8* is the same as the formula (1) for the *hours-adjusted unemployment rate CU7*, but with estimates of hidden full-time and part-time hidden unemployment added to the numerator and denominator as shown in formula (2):

$$(2) \quad CU7 = \frac{PTE_{UH} + UN_{FT} + UN_{PT} + HU_{FT} + HU_{PT}}{FTE + PT_{EH} + PT_{EUH} + UN_{FT} + UN_{PT} + HU_{FT} + HU_{PT}}$$

Where the additional terms are HU_{FT} , which is the estimate of the number of discouraged workers who want to work full-time multiplied by the average full-time working hours, and HU_{PT} , which is the estimated number of discouraged workers who want to work part-time multiplied by the average part-time working hours. Mitchell and Carlson (2000) then used the proportions that apply to the official unemployed to allocate the estimated hidden unemployment between the two categories.

The method used to calculate $HU_{FT} + HU_{PT}$ is set out in Mitchell (2000b). The approach that they used was first developed by Perry (1971). Mitchell and Carlson (2000; 4–5) began with a set of age-sex regression that estimate labour force participation rates on both cyclical and trend factors. It is argued that these regression models provide adequate representation of the movements in terms of secular filters and cyclical filters, rather than

presenting structural explanations for the complex behaviour. The econometric model of labour force participation used by Mitchell and Carlson (2000; 4) is specified in formula (3):

$$(3) \quad (LFPR_i)_t = \alpha + \beta NPOP_t + \phi T + \sum_{j=1}^3 \delta_j S_{jt} + \varepsilon_{it}$$

Where $LFPR_i = (L_i/POP_i)$ and is the labour force participation rate of the i^{th} age-gender group defined as the labour force divided by the total civilian population for that particular group; $NPOP$ is the non-farm total employment divided by the civilian population aged between 15 and 64, T is a linear time trend, S are seasonal dummy variables and ε_i is a stochastic error term. The trend term was included to add precision to the cyclical coefficient on the $NPOP$ variable.

The β coefficient measures the degree of cyclical sensitivity of the labour force participation rate. The participation gap, being the extra labour force participation that would be forthcoming if the economy was at the full employment level of $NPOP$, was calculated by multiplying the β coefficient by the deviation from this full employment $NPOP$ in each period. The participation gaps are calculated using formula (4):

$$(4) \quad PRGAP_i = \beta(NPOP^{FN} - NPOP_i)$$

Where $PRGAP_i$ is the participation gap for the i^{th} age-gender groups, $NPOP^{FN}$ is the employment-population ratio at full employment, assuming some arbitrary benchmark unemployment rate as full employment, and $NPOP_i$ is the current employment population ratio.

PRGAP therefore measures the incremental variation in the relevant participation rate, which would occur if the economy moved from its current level of activity to the defined full employment level of activity.

The process of deriving potential labour forces for each demographic group begins with a set of regression estimates (as set out in Mitchell 2000; 7, Tables 7.3 and 7.3). The participation gap for each group is derived by multiplying β times the difference between the full-employment employment population ratio and the actual value of the employment population ratio. The employment population ratio is calculated using formula (5):

$$(5) \quad N^* = \frac{(1-x)(L-\beta N)}{1-\beta(1-x)}$$

Where N^* is the full-employment level of employment at an unemployment rate equal to x , L is the actual labour force, N is the actual level of employment, and β measures the cyclical sensitivity to the labour force, as stated previously. The full employment employment-population ratio is then calculated using N^* and the actual cyclical population. The estimation of β was based in a regression similar to Equation (3) except the aggregate labour force was used as the dependent variable.

Once the employment gap is calculated, participation gaps for each age-gender group are calculated using Equation (5). The hidden unemployment for each age-gender group was then calculated as the participation gap multiplied by the civilian population.

Mitchell and Carlson (2000; 6) argued that this method is better than the trend simulation method, especially when participation rates exhibit trend increases that are unlike previous periods. In that case, trend simulation would seriously underestimate or overestimate the

potential labour force. Using a method that is more sourced in terms of the actual data variations, the participation gap approach is better able to accommodate the strong trend variations in labour force participation rates over time.

The addition of an estimate of hidden unemployment to the *hours-adjusted unemployment rate CU7* to obtain the measure *CU8* solves one of the key labour market problems that has been identified by Australian labour market analysts. That is, it leads to the development of an hours-based measure of labour underutilisation that includes estimates of both visible underemployment and hidden unemployment. The strengths and weakness of *CU8* are summarised in Table 5.10. The inclusion of an estimate of hidden unemployment to the *hours-adjusted unemployment rate CU7* provides a more useful labour market. However, the addition of these particular estimates of hidden unemployment to *CU7* adds two further problems to the measure.

Table 5.10: Evaluation of the hours-adjusted unemployment measure CU8

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes; but with some difficulty
3. Simplicity	yes
4. An unambiguous ‘good’ and ‘bad’ direction	yes
5. An interval scale	no; due to the method used to calculate hidden unemployment
6. Transparency	no; due to econometric regression method
7. Summary in nature	yes
8. A basis for comparative analysis	no; an ordinal scale not an interval scale
9. A time series	yes
10. Prospective	yes
Data criteria	
11. High quality up to date data	no; based on quarterly not monthly data
12. Relevant to current labour force debates	yes
13. A meaningful measure of the labour force	yes but some concerns about underlying assumptions
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	yes
18. Information about visible underemployment	yes
19. Should be sensitive to changes	yes

First, the *hours-adjusted unemployment rate CU7* is an interval scale. This is because *CU7* is derived by performing arithmetic operations on a set of variables that fit an interval scale. Therefore, the calculations that lead to the development of *CU7* must also be an interval scale. However, the estimates for hidden unemployment that are included in *CU8* are derived from econometric regression analysis. As discussed above, scales obtained from econometric regression analysis and factor analysis are only assumed to be interval scales, whereas in fact, they develop ordinal scales. Consequently, *CU8* is an ordinal scale and not an interval scale. This has serious implications for comparative analysis and policy analysis (Barrett 2001a).

Second, the use of econometric regression analysis to generate estimates of hidden unemployment creates an additional concern. Econometric regression analysis is not well understood by people who are not economists. Hence, this limits the appeal of this measure to those labour market analysts who are also economists. Third, the use of econometric regression analysis to calculate the estimates of hidden unemployment reduces the reproductability and transparency of the measure.

5.4.2 The comprehensive unemployment rate: The method

The preceding discussion highlights the need for an hours-based measure of labour underutilisation that incorporates estimates of both hidden unemployment and visible underemployment. Such a measure needs to be calculated using skills and data that it can reasonably be assumed are possessed by the majority of labour market analysts.

Furthermore, the method must lead to an interval scale and not an ordinal scale that is simply assumed to be an interval scale. It is argued here that integrating the *real unemployment rate* that was developed in sub-section 5.2.2 and the *hours unemployment rate* that was developed in sub-section 5.3.3 to obtain the *comprehensive unemployment rate* will overcome the three problems with the *hours-adjusted unemployment rate CU8* that are discussed above. The *comprehensive unemployment rate* adds to the *trend unemployment rate* estimates of the level of hidden unemployment that are obtained from the *real unemployment rate*, and visible underemployment that are obtained from the *hours unemployment rate*. The estimates of labour underutilisation that are obtained from the *trend unemployment rate* and the *real unemployment rate* are firstly converted to hours. Hence, the *comprehensive unemployment rate* is also an hours-based rate of unemployment. The method is:

Method for males

1. The numerator for this measure is obtained by summing three separate components:
 - an hours-based rate of unemployment is obtained by multiplying the male *trend unemployment rate* by the average number of hours worked by males
 - an hours-based rate of male hidden unemployment is obtained by multiplying the number of hidden unemployed males by the average number of hours worked by males, which is obtained from the calculation of the *real unemployment rate*
 - the hours-based estimate for male visible underemployment, which is obtained from the calculation of the *hours unemployment rate*.
2. The denominator for this measure is obtained by multiplying the denominator obtained for the *male real unemployment rate* obtained in step 1 by the average number of hours worked for males.
3. The *male comprehensive unemployment rate* is then obtained by dividing the numerator obtained in step 1 with the denominator obtained in step 2 and then multiplying by 100 to obtain a percentage.

Method for females

4. The numerator for this measure is obtained by summing three separate components:

- an hours-based rate of unemployment is obtained by multiplying the female trend unemployment rate by the average number of hours worked by females
 - an hours-based rate of female hidden unemployment is obtained by multiplying the number of hidden unemployed females by the average number of hours worked by males, which is obtained from the calculation of the real unemployment rate
 - the hours-based estimate for female visible underemployment, which is obtained from the calculation of the *hours unemployment rate*.
5. The denominator for this measure is obtained by multiplying the denominator obtained for the female *real unemployment rate* by the average number of hours worked for females.
 6. The female *comprehensive unemployment rate* is then obtained by dividing the numerator obtained in step 4 with the denominator obtained in step 5 and then multiplying by 100 to obtain a percentage.

Method for persons

7. The numerator is obtained by adding the values obtained in steps 1 and 4 above.
8. The denominator is obtained by adding the values obtained in steps 2 and 5 above.
9. The person *comprehensive unemployment rate* is then obtained by dividing the numerator obtained in step 7 with the denominator obtained in step 8 and then multiplying by 100 to obtain a percentage.

The choice of the benchmark years for these measures may appear to be arbitrary, but they are not. The decision is based on a consideration of Australian Bureau of Statistics data. In a sense these measures are index numbers that need a base year, but which base year should be chosen? The base year cannot be before 1978, when the Labour Force Survey became the official source of labour force statistics. As part of this process, the Labour Force Survey not only became a monthly, rather than a quarterly, survey, it underwent a major revision. Consequently, there is a discontinuity in the labour force data, so they cannot be used as the basis of time series data. Moreover, the base year could not be between 1978 and 1985 because the Labour Force Survey again underwent a major revision in 1986 when Labour Force Convention 160 was adopted by the Commonwealth Government. So, the base years have to be after 1986. In addition to the need for time series data the choice of the base year needs to reflect a time when the Australian economy

might reasonably be considered to be fully employed (Beatty and Fothergill 1998; 138). This would suggest that the base year reflect the boom of the late-1980s, that is 1989 or 1990. Moreover, the aim of this thesis is explore the pattern of labour underutilisation in South Australia over the period 1989 to 2005. Using this method to calculate hidden unemployment prior to 1989 may lead to negative values for hidden unemployment. However, this is not considered problematic as these labour market indicators are not intended to be used prior to 1989.

A comparison between Table 5.10 and 5.11 shows that the method outlined above has improved the *hours-adjusted unemployment rate CU8*, developed by Mitchell and Carlson (2000) in a number of ways. First, the issues discussed in section 5.3.3 regarding the *hours-adjusted unemployment rate CU7* are equally valid for the *hours-adjusted unemployment rate CU8*. In particular, the process by which Mitchell and Carlson (2000) convert a person rate of unemployment into an hours-based rate of unemployment in order to account for the growth in visible underemployment.

Second, the method by which the *comprehensive unemployment rate* estimates the level of hidden unemployment is an improvement over the method used by Mitchell and Carlson (2000). The *comprehensive unemployment rate* adds estimates of hidden unemployment obtained from the *real unemployment rate* expressed as hours, rather than people, to the *hours unemployment rate*, which is a simple arithmetic method, whereas *CU8* estimates hidden unemployment by developing an econometric model. Consequently, the *comprehensive unemployment rate* is more easily reproduced, uses a simpler method that can be used by a broader range of labour market analysts, and more importantly it generates an interval scale.

Table 5.11: Evaluation of the comprehensive unemployment rate

Interpretive criteria	
1. Face validity	yes
2. Reproductability	yes
3. Simplicity	yes; but some knowledge of data cubes is required.
4. An unambiguous 'good' and 'bad' direction	yes
5. An interval scale	yes
6. Transparency	yes
7. Summary in nature	yes
8. A basis for comparative analysis	yes
9. A time series	yes
10. Prospective	no
Data criteria	
11. High quality up to date data	no; based on quarterly not monthly data
12. Relevant to current labour force debates	yes
13. A meaningful measure of the labour force	yes
14. Focus on outcomes	yes
Labour force criteria	
15. Information about cyclical unemployment	yes
16. Information about frictional unemployment	yes
17. Information about hidden unemployment	yes
18. Information about visible underemployment	yes
19. Should be sensitive to changes	yes

5.5 Conclusion

The aim of this chapter was to decide which alternative labour market indicators could be used to provide a more accurate picture of the contours and dynamics of labour underutilisation in the South Australian and Australian labour markets between 1989 and 2005. These labour market indicators are to be used in chapters 7 and 8 to re-examine the South Australian and Australian labour markets over the period 1989 to 2005. This chapter revisited the discussions conducted in chapters 3 and 4 and identified three labour market indicators that could be used for this purpose. These three indicators were chosen because they met many of the data, interpretive and labour market criteria that chapter 2 argued were required of good labour market indicators.

However, Tables 5.1, 5.8 and 5.10 show that these three indicators had some serious shortcomings. Moreover, as Tables 5.5, 5.9 and 5.11 show, these shortcomings were readily addressed leading to the development of three labour market indicators, the *real unemployment rate*, the *hours unemployment rate* and the *comprehensive unemployment rate*. These three labour market indicators are all measures of labour underutilisation. Unfortunately, as Tables 5.5 and 5.8 show the *real unemployment rate* and the *hours unemployment rate* do not exactly meet the needs of this thesis as they add estimates of either hidden unemployment or visible underemployment, but not both, to the *trend unemployment rate*. These two indicators can however, be integrated into a single measure to yield the *comprehensive unemployment rate*. Table 5.11 shows that the *comprehensive unemployment rate* meets nearly all of the needs of this thesis. Its only shortcoming is that it is not available on a monthly basis because data relating to the number of hours worked by part-time workers is only available from the Australian Bureau of Statistics on a quarterly basis. Nevertheless, this labour market indicator will be used to re-examine what has been happening to labour underutilisation in South Australia and Australia between 1989 and 2005 in chapters 7 and 8.

6 LABOUR FORCE TRENDS ONE: THE OFFICIAL STORY OF THE SOUTH AUSTRALIAN LABOUR FORCE 1989 TO 2005

6.1 Introduction

6.1.1 Introduction

The previous three chapters comprised the methods section of this study. Chapters 3 and 4 reviewed a number of alternative labour market indicators that could be used as the basis of a more informed examination of the dynamics of labour underutilisation in the South Australian labour market. Most of these labour market indicators were considered to be inappropriate for the task at hand as they were not really measures of labour underutilisation. Yet, three of them showed some potential. Hence, a more detailed and systematic evaluation of those three labour market indicators, using the evaluative framework developed in Table 2.1 showed that these three measures could be modified to meet the needs of this study. Chapter 5 concluded the methods section by developing three new labour market indicators, the *real unemployment rate*, the *hours unemployment rate* and the *comprehensive unemployment rate*.

This chapter and the following two chapters comprise the Application Section of this study. The aim of this section is to present a more accurate picture of the trends in labour underutilisation in South Australia and Australia over the period 1989 to 2005 by using the labour market indicators that were developed in chapter 5. The primary focus of this study is to understand better the experience of the South Australian labour market between 1989

and 2005, especially with respect to changes in the level of labour underutilisation. So, the first task is to present briefly the ‘conventional wisdom’ of the South Australian labour market using a range of labour force indicators that are published by the Australian Bureau of Statistics, and which are often commented on by labour market analysts and policy makers. Hence, this chapter is the comparator for the discussion to be undertaken in chapters 7 and 8. Chapter 7 re-examines the patterns of labour underutilisation in South Australia using the three labour market indicators that were constructed in chapter 5. These three labour market indicators are then used again in chapter 8 to re-examine the labour markets of the other five Australian States. The discussions undertaken in chapters 7 and 8 tell stories about the South Australian and Australian labour markets that stand in stark contrast to the ‘conventional wisdom’ that is presented in this chapter.

6.1.3 Aims of this chapter

The aim of this chapter is to present the official story of the South Australian labour market over the period 1989 to 2005 using official labour force statistics. This story is told in three steps. The second section of this chapter examines changes in the level of labour underutilisation in South Australia by examining changes in one of the headline measures of labour underutilisation, the *trend unemployment rate*, which is the measure that is preferred by the Australian Bureau of Statistics. This discussion presents the ‘conventional wisdom’ that the South Australian labour market had fully recovered from the recession of the early-1990s by 2005. Section 3 tests the veracity of this conclusion by analysing a small number of other labour force indicators in order to evaluate the performance of the South Australian labour market from a number of slightly different labour market

perspectives. That section largely supports the ‘conventional wisdom’. Section 4 takes a brief look at employment growth in South Australia and Australia in order to evaluate the performance of the South Australian labour market from yet another perspective. That section argues that claims that the South Australian labour market was performing as well in 2005 as it was on the eve of the recession need to be treated with some caution.

6.2 Unemployment in Australia and South Australia

6.2.1 Unemployment in South Australia

The official story of the South Australian labour market over the period 1989 to 2005, as told by the *trend unemployment rate*, shows that it deteriorated very rapidly during the contractionary phase of the recession of the early-1990s, only to recover fully during the late-1990s. On the eve of the recession, in 1991, the South Australian labour market was not performing as well as the national labour market, with an unemployment rate of 6.7 per cent compared to the national figure of 5.9 per cent (Figure 6.1 and Table 6.1). The Australian economy slipped into recession over the period 1989 to 1991 as a result of a twin shock to the economy. Domestic interest rates were increased in order to reduce spending and hold down demand-pull inflation, just as the global economy slipped into recession. Nationally, the trough of the recession was attained in September 1992, when the *trend unemployment rate* peaked at 10.7 per cent. This level persisted for six months, from September 1992 to February 1993, after which the *trend unemployment rate* began to fall.

Even though the South Australian economy followed the national economy into recession the trough was attained sooner. The recession was deeper in South Australia, with a *trend unemployment rate* of 11.4 per cent during the two months of May and June 1992. So, by early-2005, after more than a decade of employment growth, the South Australian *trend unemployment rate* had fallen to 5.3 per cent, which was slightly worse than the national figure of 5.1 per cent, but a substantial improvement in the *trend unemployment rate* that existed prior to the on-set of recession, of 6.7 per cent (Table 6.10). So, the ‘conventional wisdom’ was that the South Australian labour market had not only fully recovered from the recession of the early-1990s, but it was performing better in 2005 than it was during the peak of the boom of the late-1980s. Indeed, the *trend unemployment rate* in 2005 was the lowest on record. That is, since the Labour Force Survey was adopted as the official source of labour force statistics in February 1978. South Australia also improved its position with respect to the national labour market.

Table 6.1: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005

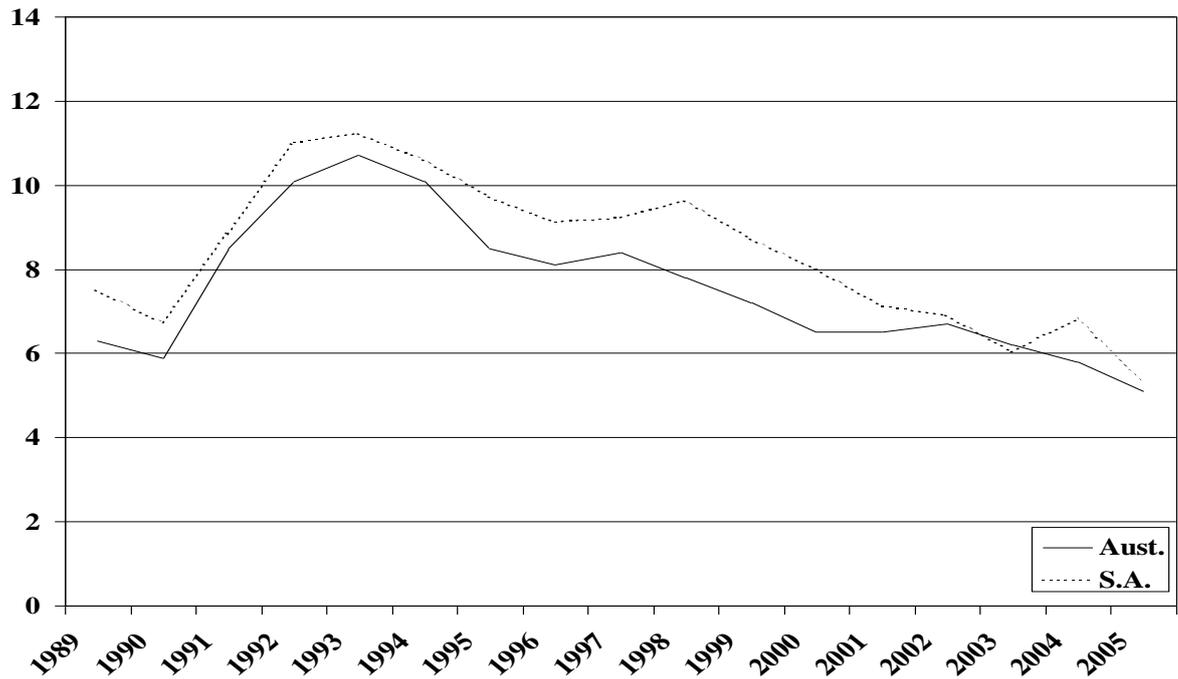
Year	Australia			South Australia		
	Males	Females	Total	Males	Females	Total
1989	6.0	6.9	6.3	7.7	7.2	7.5
1990	5.6	6.3	5.9	6.7	6.8	6.7
1991	8.7	8.1	8.5	9.2	8.3	8.8
1992	10.7	9.4	10.1	12.1	9.4	11.0
1993	11.5	9.6	10.7	12.3	9.7	11.2
1994	10.6	9.4	10.1	11.4	9.5	10.6
1995	8.7	8.2	8.5	10.5	8.6	9.7
1996	8.5	7.6	8.1	10.0	7.9	9.1
1997	8.6	8.1	8.4	9.9	8.3	9.2
1998	8.0	7.6	7.8	10.0	9.1	9.6
1999	7.4	7.0	7.2	9.4	7.9	8.7
2000	6.6	6.4	6.5	8.3	7.6	8.0
2001	6.8	6.1	6.5	8.1	5.9	7.1
2002	6.9	6.5	6.7	7.5	6.1	6.9
2003	6.3	6.1	6.2	6.6	5.3	6.0
2004	5.5	6.1	5.8	6.7	6.9	6.8
2005	4.9	5.4	5.1	5.6	4.9	5.3

Source: Australian Bureau of Statistics cat. no. 6202.0.

Despite the overall good performance of the South Australian labour market, as shown by the *trend unemployment rate*, there are distinct labour force differences between the experiences of males and females in South Australia that need to be investigated. Figures 6.2 and 6.3 show that the labour market experiences of males and females in South Australia differed markedly from the national experiences during the last business cycle. Figure 6.2 shows that the South Australian and national male labour market reacted to the labour market contraction in similar ways. However, it is the experience after the peak in the *trend unemployment rate* was attained that sets the male South Australian labour market apart from the Australian labour market as a whole. Nationally, the male labour market experienced a strong rebound, that is, a ‘dead cat effect’, once the *trend unemployment rate* had peaked. However, the South Australian *trend unemployment rate* did not rebound. Despite the quite different paths to recovery, both the national and South Australian male *trend unemployment rates* attained their pre-recession level in 2003. Since 2003, the national and South Australian male unemployment rate has continued to fall.

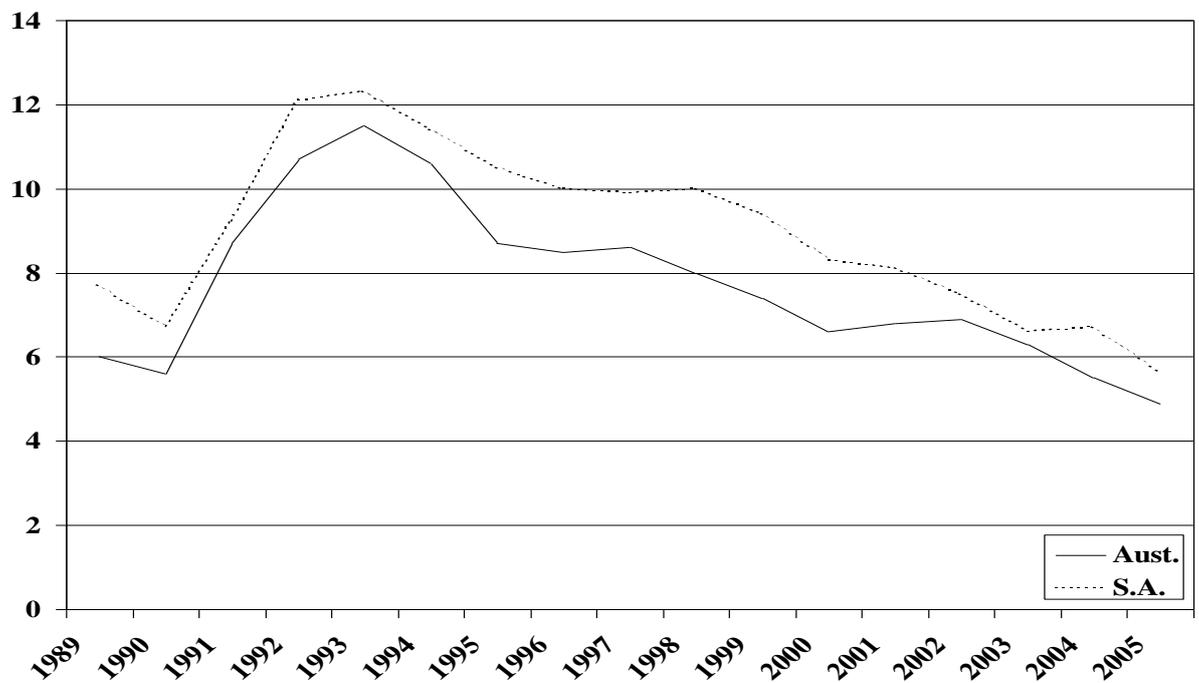
On the other hand, the female *trend unemployment rate* rose and fell in line with the national experience during the first half of the 1990s. Indeed, the two curves in Figure 6.3 are almost identical for the first half of the 1990s. Then paradoxically, in 1997, when the recovery was well underway, with the national female *trend unemployment rate* falling steadily, the South Australian female *trend unemployment rate* stagnated, but then from 1999 the South Australian female *trend unemployment rate* fell more quickly than the national rate. So, by 2005 the South Australian and Australia female *trend unemployment rate* had fallen below the pre-recession level.

Figure 6.1: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005, Persons



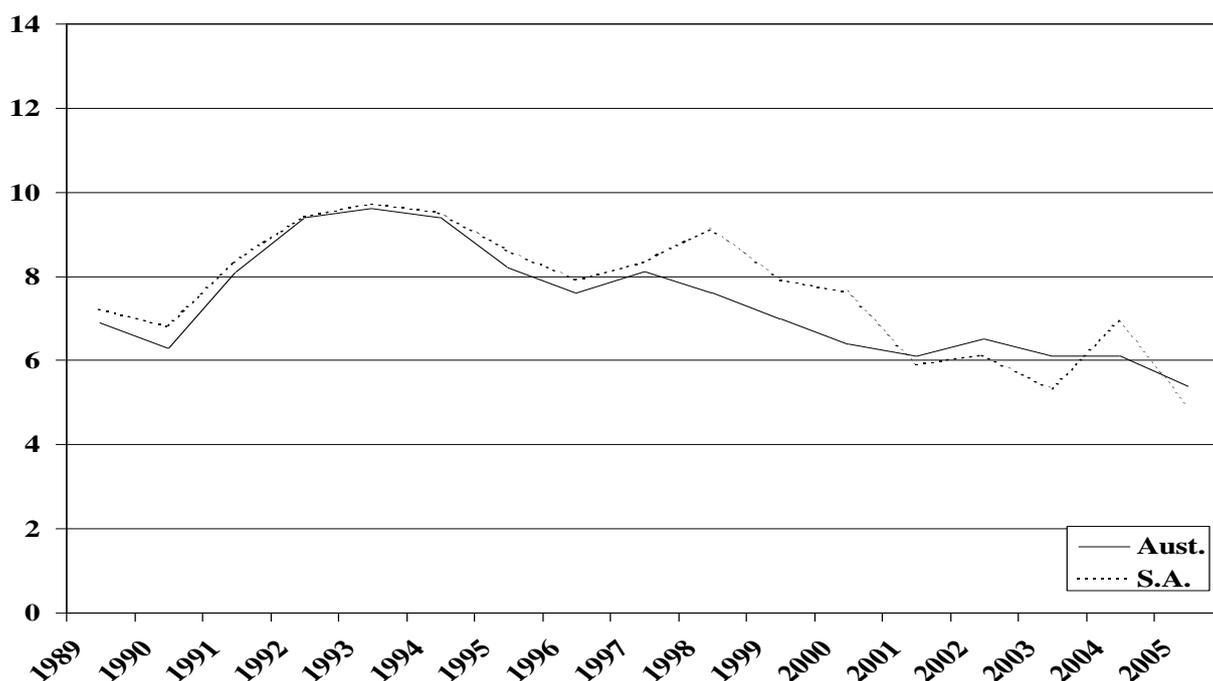
Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 6.2: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005, males



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 6.3: Trend unemployment rate, Australia and South Australia, per cent, 1989 to 2005, females



Source: Australian Bureau of Statistics cat. no. 6202.0.

6.2.3 South Australia compared to the other states

Figure 6.4 and Table 6.2 compare South Australia with the other states. The most striking feature of Figure 6.4 is the relatively poor performance of the South Australian labour market. As discussed above, South Australia followed the national economy into recession in 1991. The South Australian *trend unemployment rate* during the first two years of the recession was slightly lower than the Victorian figure, which was the highest of the mainland states. Furthermore, the labour markets of all the mainland states, including Victoria, recovered from the recession much more quickly than South Australia. Hence, the *trend unemployment rate* for South Australia was consistently higher than all the other mainland states during the 1990s. However, during the early-2000s the recovery in the Queensland labour market stagnated. So, Queensland had the highest *trend unemployment*

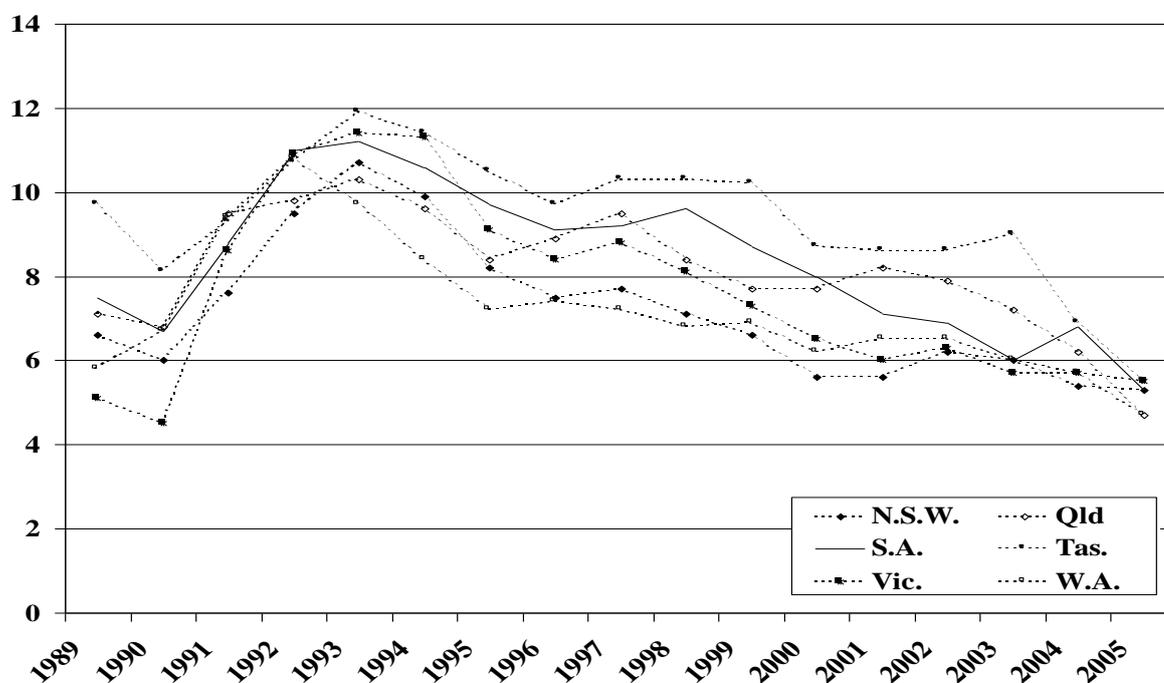
rate during the early-2000s, but then Queensland recovered quickly in 2003 and 2004. Such that by early-2005, South Australia had the highest *trend unemployment rate* on the mainland.

Table 6.2: Trend unemployment rate, Australia by State, 1989 to 2005, per cent

Year	New South Wales	Queensland	South Australia	Tasmania	Victoria	Western Australia
1989	6.6	7.1	7.5	9.7	5.1	5.8
1990	6.0	6.8	6.7	8.1	4.5	6.7
1991	7.6	9.5	8.8	9.3	8.6	9.4
1992	9.5	9.8	11.0	10.7	10.9	10.8
1993	10.7	10.3	11.2	11.9	11.4	9.7
1994	9.9	9.6	10.6	11.4	11.3	8.4
1995	8.2	8.4	9.7	10.5	9.1	7.2
1996	7.5	8.9	9.1	9.7	8.4	7.4
1997	7.7	9.5	9.2	10.3	8.8	7.2
1998	7.1	8.4	9.6	10.3	8.1	6.8
1999	6.6	7.7	8.7	10.2	7.3	6.9
2000	5.6	7.7	8.0	8.7	6.5	6.2
2001	5.6	8.2	7.1	8.6	6.0	6.5
2002	6.2	7.9	6.9	8.6	6.3	6.5
2003	6.0	7.2	6.0	9.0	5.7	6.0
2004	5.4	6.2	6.8	6.9	5.7	5.6
2005	5.3	4.7	5.3	5.5	5.5	4.7

Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 6.4: Trend unemployment rate, Australia by State, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0

6.3 Other labour market indicators

6.3.1 Introduction

The preceding sub-section presented the ‘convention wisdom’ of the South Australian labour market since 1989. This good news story is familiar to anybody who has kept up with Australian labour market events over the past two decades. The headline measures of labour underutilisation for Australia over the period since 1993 has been characterised by a continuous, if somewhat slow and at times halting, recovery from the recession. However, the Australian Bureau of Statistics publishes a number of other labour market indicators. Many of these are derived from information collected during the monthly Labour Force Survey, while others are derived from data collected from other sources and surveys. The aim of this section is to look at the experience of the South Australian labour market from a few different perspectives, using other labour force statistics, in order to verify the story told in the previous section. This analysis provides a more qualified picture of the South Australian experience of the last business cycle.

Unemployment tends to be treated as a stock concept. That is, labour market analysts tend to focus on the number, or stock, of unemployed people. However, unemployment is also a flow concept. The stock of unemployed people is constantly churning as people move into and out of employment and unemployment. The next two sub-sections take this approach. Another perspective of the performance of the labour market is to ask questions about how well it helps individuals and families provision themselves. Consequently, the fourth sub-section analyses changes in weekly earnings.

6.3.2 Long-term unemployment

As discussed in chapter 4, recessions tended to be characterised by both an increase in cyclical unemployment and an increase in the duration of spells of unemployment (Paul 1992). Information about the duration of spells of unemployment is also collected during the Labour Force Survey. Changes to the duration of spells of unemployment are useful indicators of labour market performance and trends in labour underutilisation. However, they tend not to be used to any great extent by labour market analysts as they are lagging indicators of labour market performance and policy makers are looking for leading indicators of labour market performance. The recession of the early-1990s not only led to a substantial increase in cyclical unemployment as measured by the *trend unemployment rate* (see Tables 6.1 and 6.2), it also substantially changed the nature of unemployment in both Australia and South Australia in terms of the proportion of long-term unemployed and the duration of spells of unemployment. The changes in these two labour force dynamics are discussed in the following two sub-sections. This sub-section analyses changes to the proportion of long-term unemployed people, while the next sub-section looks at the average duration of spells of unemployment since 1989.

Table 6.3 presents data relating to long-term unemployment for Australia between 1989 and 2005. Long-term unemployment is defined as the percentage of unemployed people who have been unemployed for 52 weeks or more. For Australia as a whole, the increase in the proportion of long-term unemployed people as a result of the labour market contraction of the early-1990s is clearly visible in Table 6.3 and Figures 6.5, 6.6 and 6.7. Nationally, long-term unemployment tends to follow changes in the *trend unemployment rate*, but with a lag of about a year. This is not surprising as changes in long-term unemployment are

strongly influenced by the number of people who are unemployed for more than two years. Long-term unemployment peaked in 1994, about 12 months after the peak of the *trend unemployment rate*, and then fell during the latter half of the 1990s and early-2000s in concert with the falls in the *trend unemployment rate*. As a result of the constant decline in the *trend unemployment rate* by 2004, national long-term unemployment returned to the level that prevailed prior to the onset of recession.

Table 6.3: Long-term unemployed as a percentage of total unemployment, Australia and South Australia, per cent, 1989 to 2005

Year	Australia			South Australia		
	Males	Females	Total	Males	Females	Total
1989	24.0	20.3	22.3	28.2	22.0	25.5
1990	22.8	21.3	22.1	21.1	25.1	23.1
1991	32.4	25.2	29.3	34.3	26.4	31.2
1992	32.4	25.2	29.5	31.6	26.4	29.8
1993	27.7	25.7	26.9	25.3	28.4	26.6
1994	28.7	23.3	26.5	29.4	28.1	28.8
1995	25.8	24.0	25.0	29.6	31.3	30.2
1996	28.7	24.4	26.9	24.7	26.7	25.3
1997	28.4	24.0	26.5	30.1	18.3	25.4
1998	25.6	26.3	25.9	23.3	30.2	26.2
1999	23.9	20.3	22.4	22.3	22.8	22.5
2000	24.4	21.8	23.2	21.6	19.5	20.6
2001	26.7	21.5	24.4	25.5	25.9	25.5
2002	24.8	24.3	24.6	29.7	23.3	27.1
2003	25.1	22.6	24.0	24.1	20.5	22.8
2004	24.7	21.5	23.2	23.4	20.0	22.0
2005	23.4	18.4	20.9	27.2	16.9	22.9

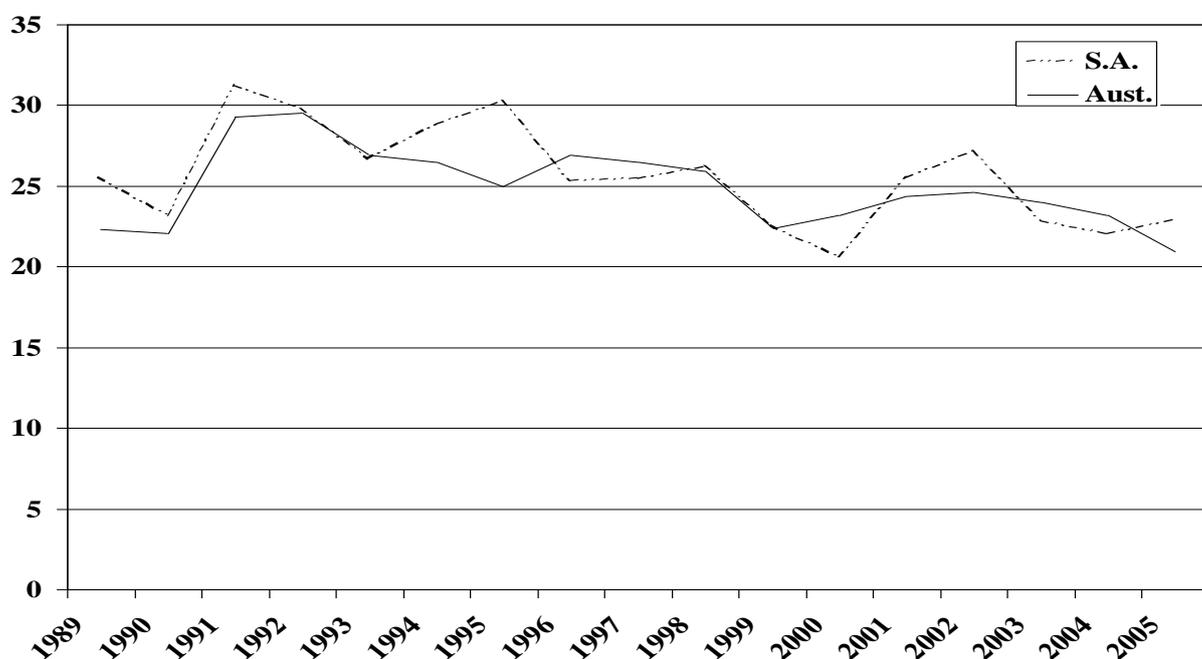
Source: Australian Bureau of Statistics cat. no. 6105.0.

Note: This information is taken directly from Australian Bureau of Statistics cat. no. 6105.0, with only the format being changed.

However, the change in long-term unemployment for South Australia was more positive than the national experience. As was the case nationally, in South Australia long-term unemployment rose early in the 1990s, peaking about a year after the peak in the *trend unemployment rate*, and then fell steadily in line with falls in the *trend unemployment rate*. Long-term unemployment for South Australia was about one percentage point higher than the corresponding national figure prior to the onset of recession in 1990, 23.1 per cent compared to 22.1 per cent. However, by the time the peak in long-term unemployment for

South Australia was attained in 1992 this gap had all but disappeared. However, unlike the case with long-term unemployment nationally, which tended to fall as soon as the peak was attained in 1992, in South Australian long-term unemployment did not begin to fall consistently until 1995. The pre-recession level was attained in 2003 after which it continued to fall. By 2005, long-term unemployment in South Australia was two percentage points higher than the corresponding national figure.

Figure 6.5: Long-term unemployed as a percentage of total unemployment, Australia and South Australia, persons, per cent, 1989 to 2005



Source: Australian Bureau of Statistics cat. no. 6105.0.

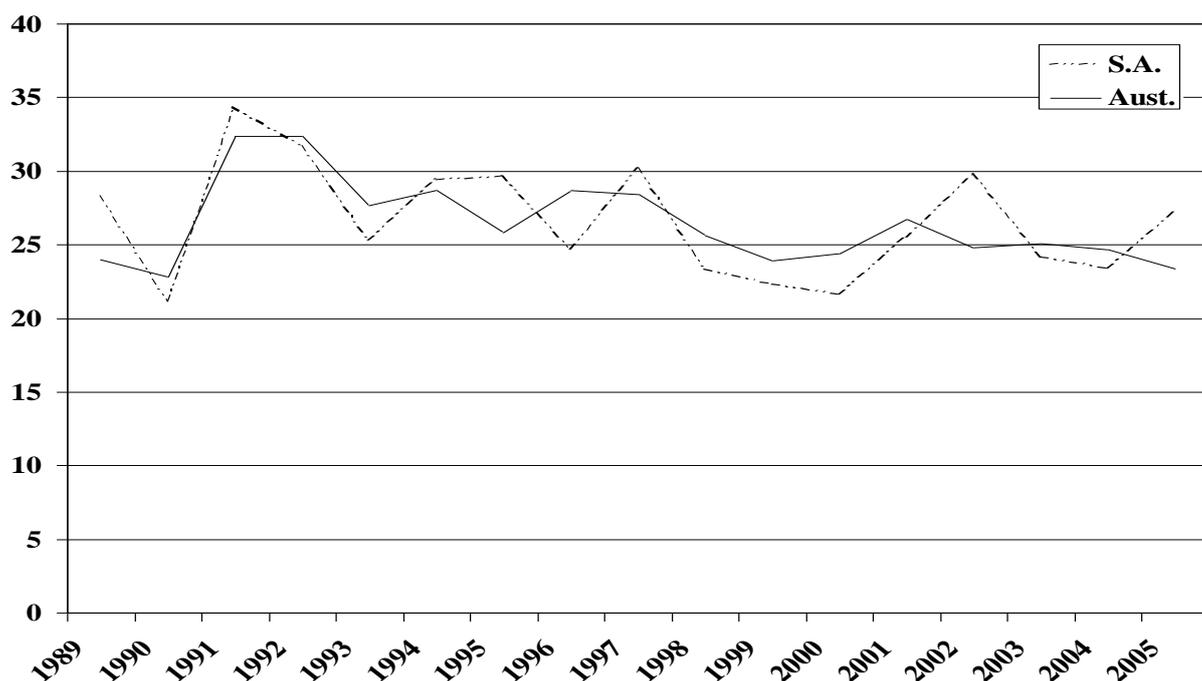
Like most of the measures of labour market performance that are discussed in this study, there are stark differences between the experiences of males and females. Nationally and in South Australia, male long-term unemployment (Figure 6.6) followed the changes shown in Figure 6.5 for all persons, *albeit* with a lag of a year or so. However, since 2004 the South Australian male long-term unemployment tended to worsen, while the national

figure continued to improve. Nationally, female long-term unemployment also looks very similar to the cyclical trends for males and all persons (Figure 6.7). This labour market indicator rose substantially during the contractionary phase of the recession, to peak in 1994, and then fell during the next ten years in line with falls in the *trend unemployment rate*. Consequently, nationally female long-term unemployment was slightly higher than the level that prevailed prior to the onset of recession.

On the other hand, the South Australian female *long-term unemployment rate* also demonstrates the cyclical variation exhibited by the *trend unemployment rate*. However, the fluctuations are much more pronounced. In particular, the surge in unemployment that occurred in the late-1990s is associated with a peak in the *long-term unemployment rate* that is higher than the trough of the recession in 1993. However, by 2005, as a result of strong falls in the *trend unemployment rate*, the South Australian female *long-term unemployment rate* was lower than the level that prevailed prior to the onset of recession and lower than the corresponding national figures.

In summary, an analysis of the *long-term unemployment rate* shows that the impact on the South Australian labour market of the last recession was much more severe and longer lasting than was the case nationally. Nevertheless, this labour market indicator shows that the South Australian labour market had almost fully recovered from the recession by 2005. However, the improvement in the South Australian labour market is largely due to the general improvements in the female labour market outweighing the overall deterioration in the male labour market.

Figure 6.6: Long-term unemployed as a percentage of total unemployment, Australia and South Australia, males, per cent, 1989 to 2005



Source: Australian Bureau of Statistics cat. no. 6105.0.

6.3.3 Average duration of unemployment

Another way of looking at the flow of people into and out of unemployment is to consider the average duration of spells of unemployment. Figure 6.8 shows the changes in the *duration of unemployment* in Australia and South Australia over the period 1989 to 2005. These two curves show a more clearly cyclical pattern than is shown in Figures 6.1 and 6.5. However, the *average duration of unemployment* in South Australia has remained consistently higher than the national figures. When the recession took hold, the *average duration of unemployment*, both nationally and in South Australia, rose and fell in line with the cyclical movements of the *trend unemployment rate*, notwithstanding a lagged effect. Nationally, the *average duration of unemployment* had fallen to pre-recession levels by 2003. The *average duration of unemployment* for South Australia fell to the pre-recession

level by 2004 and continued to fall thereafter. Like the other labour market indicators discussed here, the *average duration of unemployment* also shows that the labour market experiences of males and females over the period 1989 to 2005 differed remarkably.

Figure 6.9 shows the *average duration of unemployment* for males. This figure is remarkably similar in shape to Figure 6.6, but with two important exceptions. First, the *average duration of unemployment* for males is substantially higher than the corresponding figure for persons. This observation reflects the generally shorter *average duration of unemployment* for women, as shown in Table 6.4 and Figure 6.10. Second, the cyclical variation in the *average duration of unemployment* for South Australian men is substantially more pronounced than it is either nationally for males or for all South Australians. Nevertheless, there is still a close correspondence between the South Australian and national trends, as shown in Figure 6.9. This labour market indicator shows that the Australian and South Australian figures had returned to their pre-recession levels by 2005.

Table 6.4: Average duration of unemployment, Australia and South Australia, weeks, 1989 to 2005

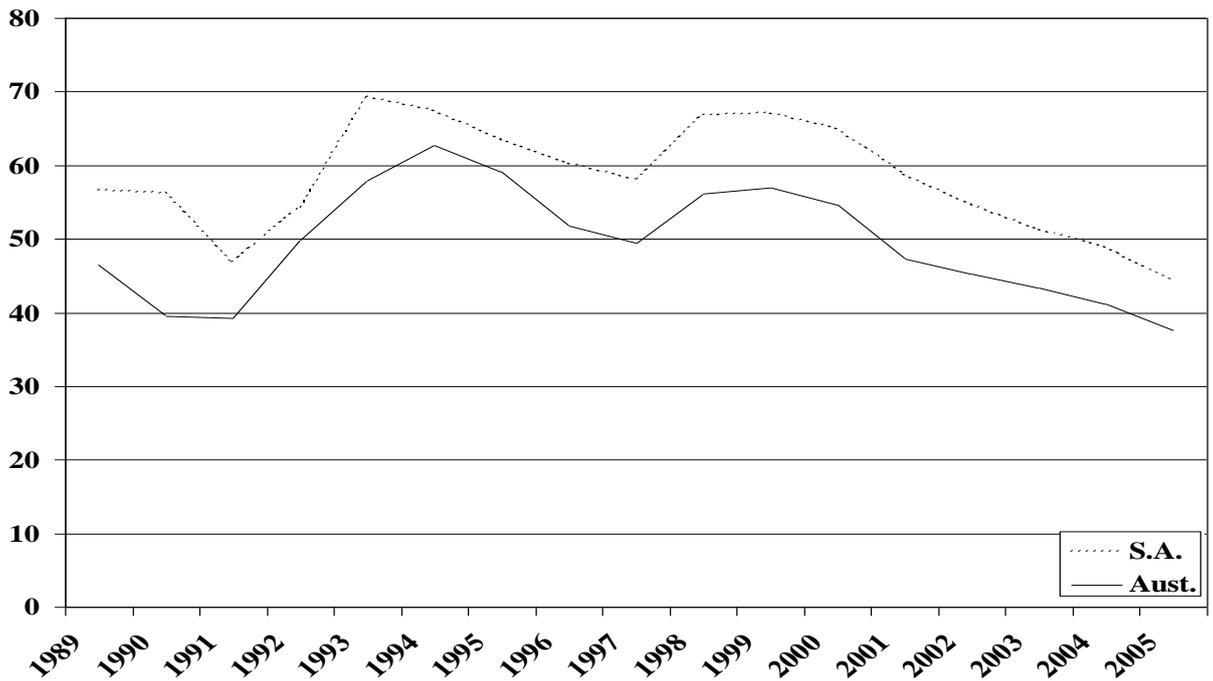
Year	Australia			South Australia		
	Males	Females	Total	Males	Females	Total
1989	60.6	32.3	46.5	76.7	35.4	56.5
1990	48.7	30.9	39.5	69.6	42.7	56.1
1991	46.2	31.5	39.3	54.7	37.6	46.9
1992	56.6	41.7	49.9	63.4	41.9	54.2
1993	67.4	46.3	57.9	84.9	51.1	69.3
1994	73.8	50.1	62.7	83.4	48.7	67.4
1995	69.1	48.6	59.2	70.9	54.3	63.5
1996	61.5	40.1	51.8	73.2	44.1	60.2
1997	56.1	42.1	49.5	67.1	48.0	58.1
1998	65.8	45.7	56.1	74.5	58.4	66.8
1999	68.3	44.8	57.0	86.4	44.7	67.1
2000	67.7	41.1	54.6	80.6	49.3	65.0
2001	55.6	38.3	47.3	71.0	43.4	58.7
2002	53.3	36.5	45.2	62.7	45.2	54.7
2003	51.8	34.6	43.3	61.2	39.4	51.2
2004	50.8	32.1	41.2	57.5	40.3	48.9
2005	44.9	30.9	37.6	55.5	31.0	44.1

Source: Australian Bureau of Statistics cat. no. 6105.0.

Nationally, the *average duration of unemployment* for females has dropped from its peak of 50.1 weeks in 1994 and attained its pre-recession minimum in 2004 and then continued to fall thereafter. The *average duration of unemployment* for South Australian females has also been falling steadily from its peak of 58.4 weeks in 1998, which is much higher than the national maximum and represents a much longer period at levels comparable with those attained during the trough. However, unlike the national experience, the decrease in this measure was not a smooth decent back to pre-recession levels. Nevertheless, the pre-recession level of this labour market indicator was attained in 2005. The national and South Australian female *average duration of unemployment* in 2005 are almost identical. Demonstrating that the South Australian female labour market had not only recovered from the recession by 2005, but had improved its position with respect to the national labour market over the course of the recovery.

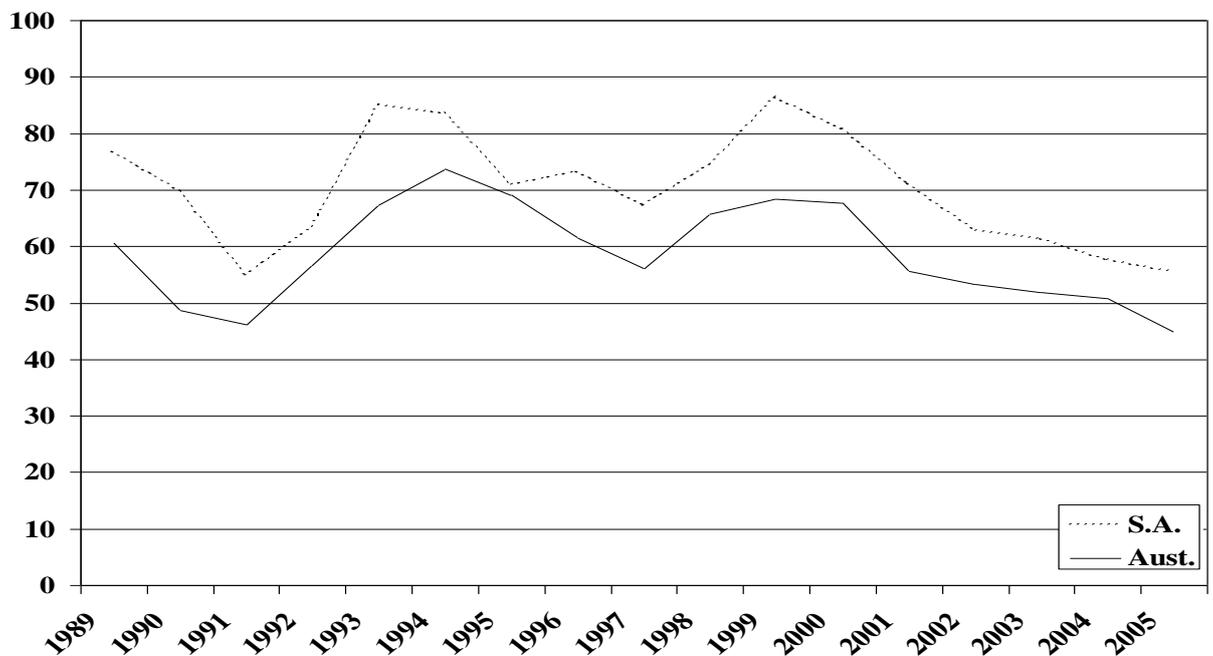
In summary, this examination of the *average duration of unemployment* also shows that the recession in South Australia was longer and deeper than was the case nationally. However, by 2005 the *average duration of unemployment* for both males and females had fallen to the level that existed during the boom of the late-1980s. It can also be concluded that, at least on the basis of this labour market indicator, that the South Australian labour market had recovered from the recession. However, the recovery was driven by the female labour market.

Figure 6.8: Average duration of unemployment, Australia and South Australia, persons, weeks, 1989 to 2005



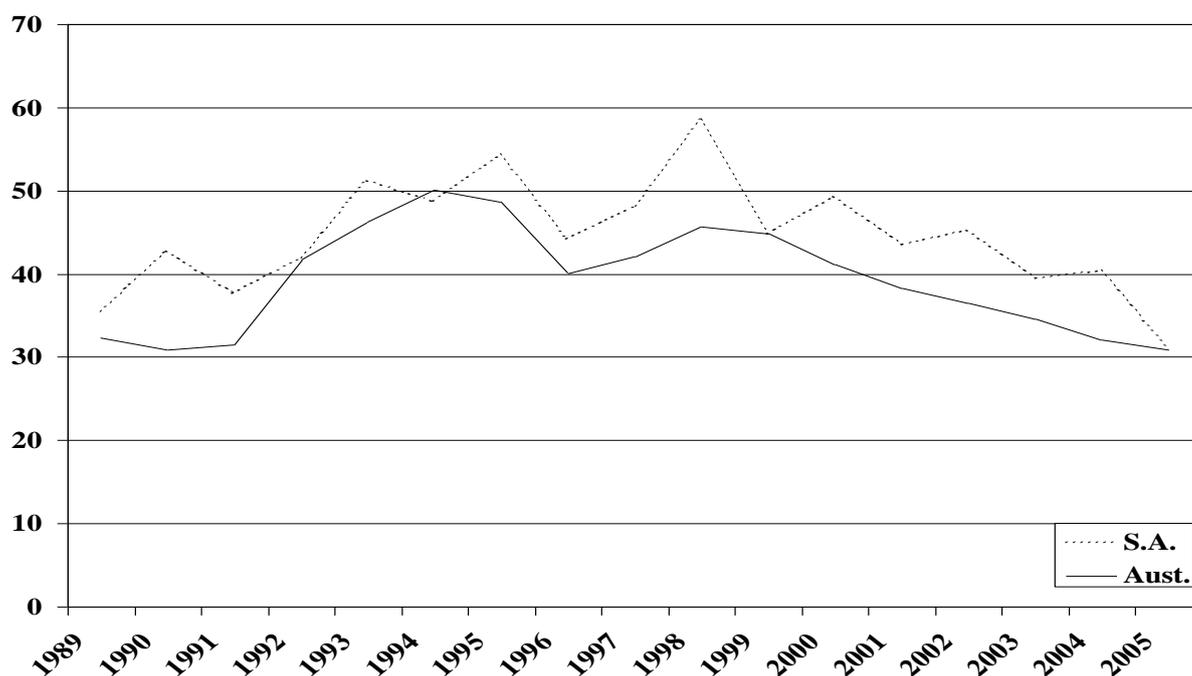
Source: Australian Bureau of Statistics cat. no. 61050.

Figure 6.9: Average duration of unemployment, Australia and South Australia, males, weeks, 1989 to 2005



Source: Australian Bureau of Statistics cat. no. 6105.0

Figure 6.10: Average duration of unemployment, Australia and South Australia, females, weeks, 1989 to 2005



Source: Australian Bureau of Statistics cat. no. 6105.0.

6.3.4 Australia and South Australia: Annual earnings

In chapter 2 it was argued that another way to measure the performance of a labour market is to use the income criterion (Paul 1991; 396). The income criterion is a useful labour market indicator as it shows changes in both the level of economic well-being and the ability of the economy to provision society, which is the approach used here. The aim of this sub-section is to investigate relative changes to incomes between South Australia and Australia since the end of the 1980s in order to ascertain if the South Australian labour market has fallen behind the national labour market. Table 6.5 shows changes in three key measures of wages for Australia, while Table 6.6 shows the same data for South Australia.

These two tables show some interesting differences. Most obviously *adult average weekly earnings* are substantially lower in South Australia than the national average. In 1989, total males earnings were six per cent lower than the national figure, while female earnings were 7.5 per cent lower. Secondly, Figures 6.11, 6.12 and 6.13 show that weekly earnings have risen constantly over the period from 1989 to 2005. However, the rate of growth in South Australia has been substantially lower than the national rate. Hence, the differentials between South Australian and Australian earnings have risen. In 2005, South Australian males earned about 14 per cent less than the national average, while females earned about 13 per cent less than the national average. The increased income differentials are related to the more rapid growth in part-time employment in South Australia which is discussed next.

Table 6.5: Adult average weekly earnings Australia, 1989 to 2005, dollars

	Full time adult ordinary time earnings			Full time adult total earnings			Total earnings		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
1989	521.3	432.3	492.3	565.7	444.9	526.3	511.0	333.4	435.2
1990	555.6	461.5	524.2	602.1	474.3	559.5	546.2	355.3	462.6
1991	592.6	496.0	559.8	636.6	508.0	593.0	577.6	380.1	489.9
1992	621.0	519.5	585.3	661.9	531.3	615.9	595.1	396.9	504.2
1993	627.7	527.5	592.1	674.3	539.7	626.4	607.3	403.8	512.8
1994	647.3	544.5	610.7	698.0	558.3	648.3	622.6	415.3	526.6
1995	677.7	567.2	637.9	734.1	581.3	679.0	648.2	427.9	545.3
1996	708.6	587.3	665.5	765.9	601.3	707.4	666.7	436.3	559.7
1997	735.4	615.6	692.1	791.1	630.0	732.8	684.3	453.8	575.8
1998	767.8	640.6	720.5	823.9	654.8	761.1	713.2	467.9	595.2
1999	791.5	666.4	745.3	847.1	680.6	785.7	726.7	479.6	607.2
2000	822.7	690.7	773.6	875.5	705.7	812.3	749.3	493.5	623.9
2001	860.9	728.3	812.5	908.7	742.5	848.0	779.7	523.7	656.4
2002	909.4	769.9	859.2	960.7	782.2	896.4	820.3	539.0	683.9
2003	957.6	808.0	903.5	1013.5	821.3	944.0	860.1	560.5	714.6
2004	990.4	847.6	945.2	1062.9	862.4	991.6	895.4	586.3	748.4
2005	1048.1	890.9	992.1	1119.6	905.8	1043.7	930.5	615.6	782.0

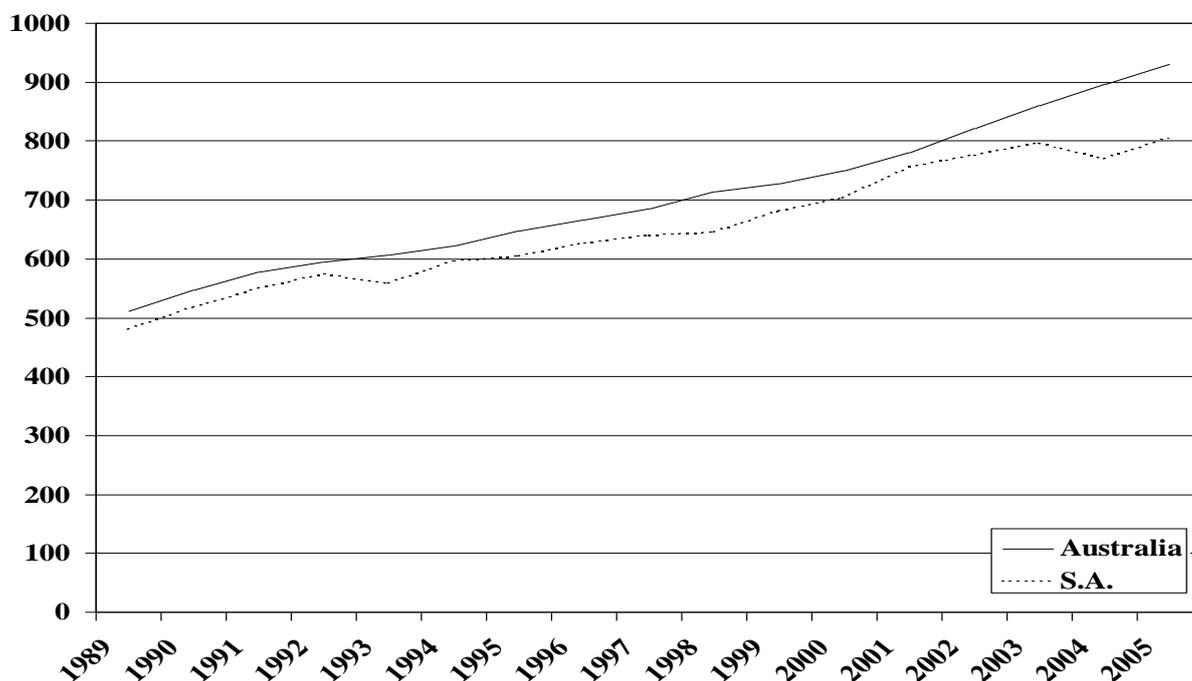
Source: Australian Bureau of Statistics Cat. No. 6302.0.

Table 6.6: Adult weekly earnings South Australia, 1989 to 2005, dollars

	Full time adult ordinary time earnings			Full time adult total earnings			Total earnings		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
1989	484.9	429.0	469.5	522.1	439.9	499.5	479.3	318.4	413.0
1990	522.0	456.5	502.9	567.6	468.0	538.6	516.4	341.4	442.2
1991	566.8	492.3	543.2	601.5	501.9	569.9	548.5	359.9	462.5
1992	594.7	525.5	573.6	631.6	540.1	601.8	572.1	394.5	490.5
1993	610.8	536.4	586.3	647.4	548.3	614.8	556.7	381.0	475.6
1994	624.6	547.7	599.6	666.9	559.8	632.1	595.2	398.7	504.1
1995	635.8	561.5	611.1	685.4	574.8	648.6	602.6	414.1	515.6
1996	658.6	553.5	625.1	708.7	566.0	663.1	625.8	402.3	523.2
1997	683.1	578.5	648.8	740.5	593.2	692.0	639.0	409.2	530.7
1998	707.5	614.0	674.1	754.1	627.9	708.9	644.6	444.4	546.3
1999	743.4	628.9	701.1	801.0	650.2	745.2	679.6	465.6	576.7
2000	761.0	644.2	717.9	817.4	664.4	760.9	701.2	460.8	579.5
2001	818.9	690.7	773.0	869.9	707.4	811.6	754.6	496.9	626.5
2002	828.8	737.7	799.0	893.1	751.1	846.7	774.9	505.1	643.8
2003	876.3	778.5	843.5	923.4	792.5	879.1	796.2	504.2	662.9
2004	896.1	816.4	869.4	940.8	829.9	903.1	769.1	516.8	648.1
2005	953.5	853.6	919.4	1005.9	869.0	958.6	803.9	538.3	680.3

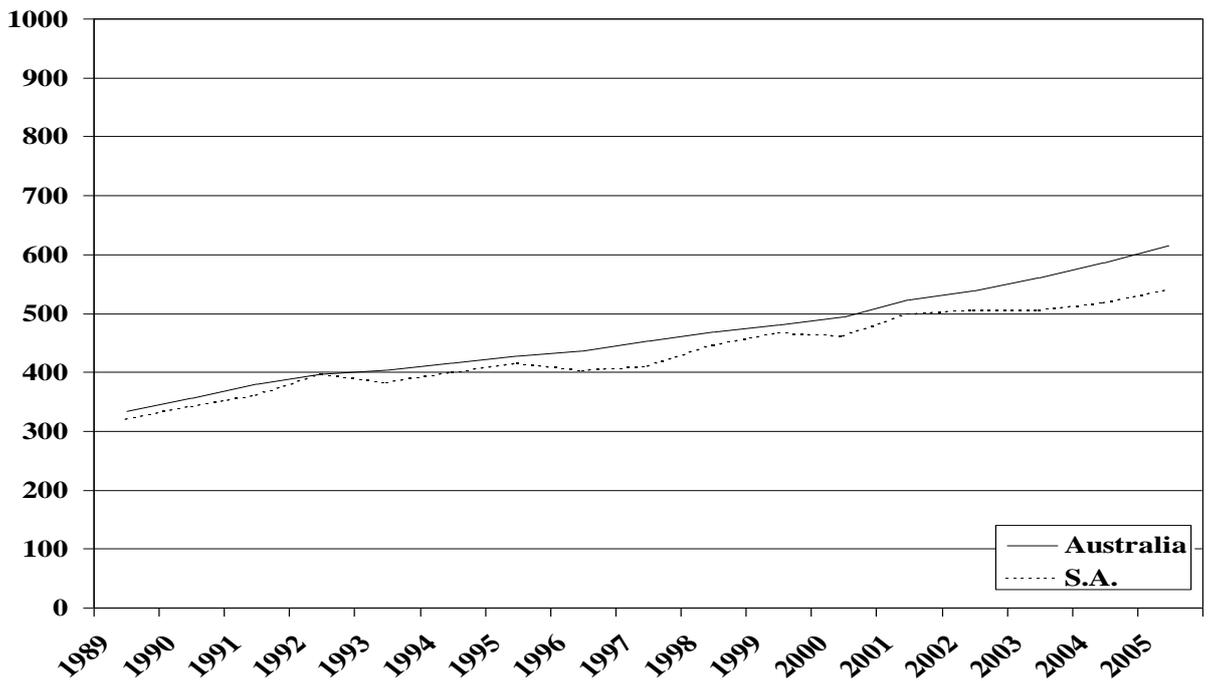
Source: Australian Bureau of Statistics Cat. No. 6302.0.

Figure 6.11: Adult weekly earnings Australia and South Australia, males, 1989 to 2005, dollars



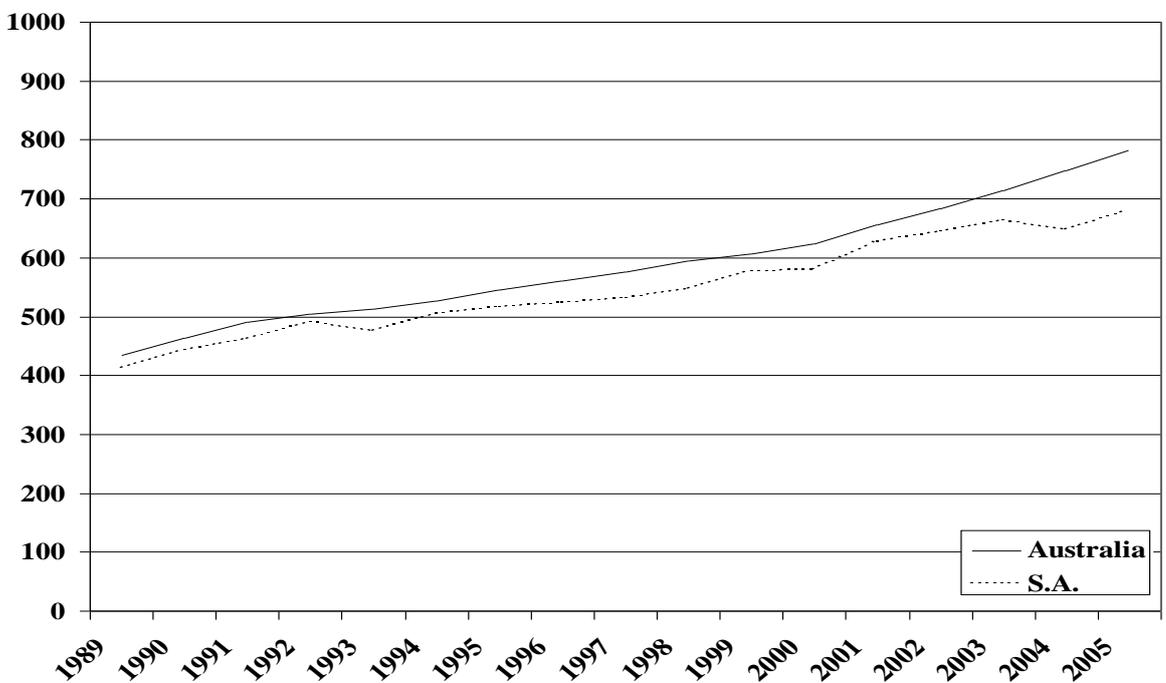
Source: Australian Bureau of Statistics Cat. No. 6302.0.

Figure 6.12: Adult weekly earnings Australia and South Australia, females, 1989 to 2005, dollars



Source: Australian Bureau of Statistics Cat. No. 6302.0.

Figure 6.13: Adult weekly earnings Australia and South Australia, persons, 1989 to 2005, dollars



Source: Australian Bureau of Statistics Cat. No. 6302.0.

6.3.5 Summary

This section traced the experience of the South Australian labour market over the period from 1989 to 2005 using three different labour market indicators, when looking at the labour market from different perspectives. The examination of the *trend unemployment rate* provided an unqualified good news story about the experience of the South Australian labour market over the last business cycle. The examination of the *long-term unemployment rate* and the *average duration of unemployment* both show that by 2005 the South Australian labour market had fully recovered from the recession of the early-1990s. Indeed, they both show that the South Australian labour market was performing better in 2005 than in 1989. This is not unexpected given that the dynamics of these two labour markets were driven by changes in the *trend unemployment rate*. However, the analysis of changes to *weekly earnings* shows that earnings in South Australia have fallen even further behind the Australian average. Consequently, it may be concluded from this perspective that the South Australian labour market deteriorated during the 1990s. Nevertheless, despite this dissenting finding, this section supports the ‘conventional wisdom’ that in general the South Australian labour market had by 2005 fully recovered from the recession of the early-1990s. In particular, this section concluded that labour underutilisation in South Australia, as measured by the *long-term unemployment rate* and the *average duration of unemployment*, had returned to pre-recession levels.

6.4. Employment growth: The South Australian experience

6.4.1 Introduction

The aim of this section is to examine patterns of employment growth and change in the South Australian labour market since 1989. Tables 6.7 and 6.8 show the employment experience as both the Australian and South Australian labour markets slipped into recession in the early-1990s and the subsequent recovery. A casual inspection of the three right-hand columns of these two tables presents a brief summary of the last business cycle. The national economy peaked in 1990 and slid into recession during 1991 with the trough of the business cycle occurring in 1993 (Table 6.7), after which it grew steadily right up to the present. Nationally, the pre-recession level of employment was re-attained during the first year of the recovery.

The experience of the South Australian labour market was broadly consistent with the national experience (Table 6.8). The South Australian economy slipped into recession in 1992, a year later than the national economy, with the trough also occurring in 1993. Employment growth during the first few years of the recovery phase was also steady. However, the rate of employment growth was substantially lower than the national rate, such that the pre-recession level of employment was not re-attained until 1997, four years after the trough. However, disaggregating the data in Table 6.1 by sex to obtain the other six columns of Tables 6.7 and 6.8 presents a very different picture of the labour market experiences of Australia and South Australia over the period 1989 to 2005.

Table 6.7: Employment growth Australia, 1989 to 2005, ('000s)

Year	Males			Females			Persons		
	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time	Total
1989	4183.2	330.1	4513.3	1877.4	1215.3	3092.6	6060.6	1545.3	7605.9
1990	4244.4	374.5	4618.9	1962.7	1286.8	3249.4	6207.1	1661.2	7868.3
1991	4124.4	395.1	4519.4	1929.3	1323.7	3253.0	6053.7	1718.8	7772.5
1992	3984.9	441.1	4426.0	1891.3	1347.4	3238.6	5876.2	1788.5	7664.6
1993	3951.2	445.4	4396.6	1903.9	1342.9	3246.9	5855.1	1788.4	7643.5
1994	4018.3	473.8	4492.1	1932.5	1407.3	3339.8	5950.8	1881.1	7832.0
1995	4144.9	516.3	4661.2	1991.4	1498.0	3489.4	6136.3	2014.3	8150.6
1996	4212.5	525.6	4738.1	2065.6	1541.3	3607.0	6278.1	2067.0	8345.1
1997	4204.3	562.1	4766.4	2064.9	1586.6	3651.6	6269.3	2148.7	8418.0
1998	4261.2	586.2	4847.4	2090.6	1607.6	3698.2	6351.8	2193.8	8545.6
1999	4291.8	631.0	4922.9	2126.5	1646.4	3772.9	6418.4	2277.4	8695.8
2000	4349.8	635.5	4985.4	2198.2	1710.6	3908.8	6548.0	2346.1	8894.2
2001	4352.5	678.7	5031.2	2266.7	1745.2	4011.9	6619.2	2423.9	9043.1
2002	4379.9	734.2	5114.0	2217.3	1857.9	4075.1	6597.1	2592.0	9189.1
2003	4447.8	771.1	5218.9	2292.7	1955.7	4248.4	6740.5	2726.8	9467.3
2004	4539.8	798.8	5338.6	2319.0	1923.2	4242.3	6858.8	2722.1	9580.9
2005	4647.3	818.7	5466.0	2422.8	2010.0	4432.8	7070.1	2828.7	9898.7
Percentage change¹	11.1	148.0	21.1	29.1	65.4	43.3	16.7	83.1	30.1
Growth rate²	0.6	5.5	1.1	1.5	3.0	2.1	0.9	3.6	1.6

Notes; 1. Percentage change is the percentage change over the period 1989 to 2005.

2. Growth rate is the average annual growth rate over the period 1989 to 2005.

Source: Australian Bureau of Statistics cat. no. 6202.0.

Table 6.8: Employment growth South Australia, 1989 to 2005, ('000s)

Year	Males			Females			Persons		
	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time	Total
1989	345.9	30.9	376.7	146.0	118.8	264.8	491.9	149.7	641.5
1990	351.9	31.2	383.1	149.4	120.5	269.9	501.3	151.7	653.0
1991	346.5	34.1	380.6	148.8	126.7	275.5	495.3	160.8	656.1
1992	323.9	39.0	362.9	144.8	123.2	268.0	468.7	162.2	630.9
1993	321.7	40.3	361.9	143.2	128.4	271.6	464.9	168.7	633.5
1994	322.9	40.1	363.0	146.0	128.9	274.8	468.9	169.0	637.8
1995	319.2	44.3	363.5	151.9	130.6	282.5	471.1	174.9	646.0
1996	322.9	44.7	367.6	149.1	137.6	286.7	472.0	182.4	654.3
1997	317.2	48.7	366.0	149.5	142.8	292.2	466.7	191.5	658.2
1998	316.8	48.5	365.3	147.3	134.0	281.3	464.2	182.5	646.7
1999	320.1	50.2	370.3	148.4	139.1	287.5	468.5	189.3	657.8
2000	325.5	55.8	381.3	152.2	144.6	296.7	477.7	200.4	678.1
2001	319.6	54.9	374.5	156.2	144.7	300.9	475.9	199.6	675.4
2002	321.9	61.5	383.4	151.7	156.2	307.9	473.7	217.7	691.3
2003	336.0	54.8	390.8	164.5	156.2	320.7	500.5	211.0	711.5
2004	332.2	63.9	396.1	151.4	165.9	317.4	483.6	229.8	713.5
2005	341.6	61.9	403.5	167.0	163.8	330.8	508.6	225.7	734.3
Percentage change¹	-1.2	100.3	7.1	14.4	37.9	24.9	3.4	50.8	14.5
Growth rate²	-0.1	4.2	0.4	0.8	1.9	1.3	0.2	2.4	0.8

Notes; 1. Percentage change is the percentage change over the period 1989 to 2005.

2. Growth rate is the average annual growth rate over the period 1989 to 2005.

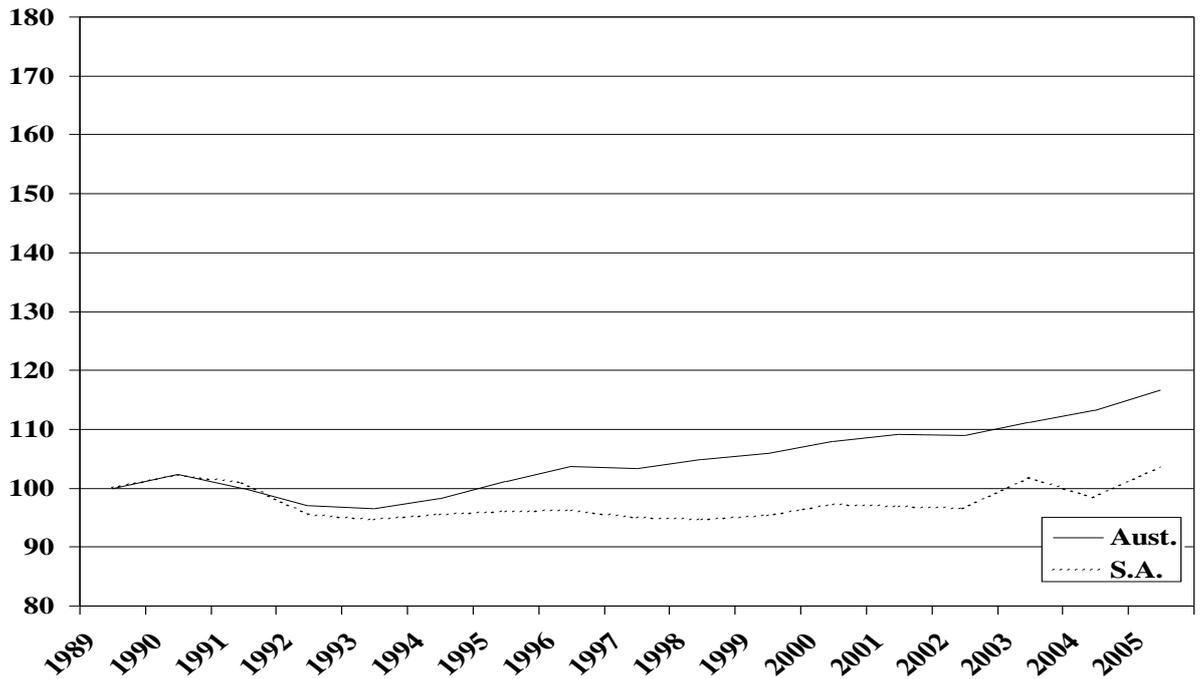
Source: Australian Bureau of Statistics cat. no. 6202.0.

6.4.2 Total employment growth

Large numbers of both full-time and part-time jobs were created in South Australia between 2001 and 2005. This surge in job growth distorted longer-term trends in the South Australian labour market. The last three columns of Tables 6.7 and 6.8 and Figures 6.14 and 6.15 highlight two important differences in total employment growth between South Australia and the national experience during the 1990s. First, the rate of total employment growth in South Australia was substantially lower than the national figure. The national rate of employment growth since 1993 was 1.6 per cent per annum, which was double the South Australian growth rate of 0.8 per cent per annum (the three right hand columns of Tables 6.7 and 6.8). The most obvious difference between these two labour markets is that the rate of growth of jobs nationally is substantially greater than in South Australia. Nationally, over two million jobs were created between 1989 and 2005. Hence, by 2005 the Australian labour market was 30 per cent larger than in 1989. On the other hand, only 92,800 new jobs were created in South Australia over the same period, an increase of only 14.1 per cent.

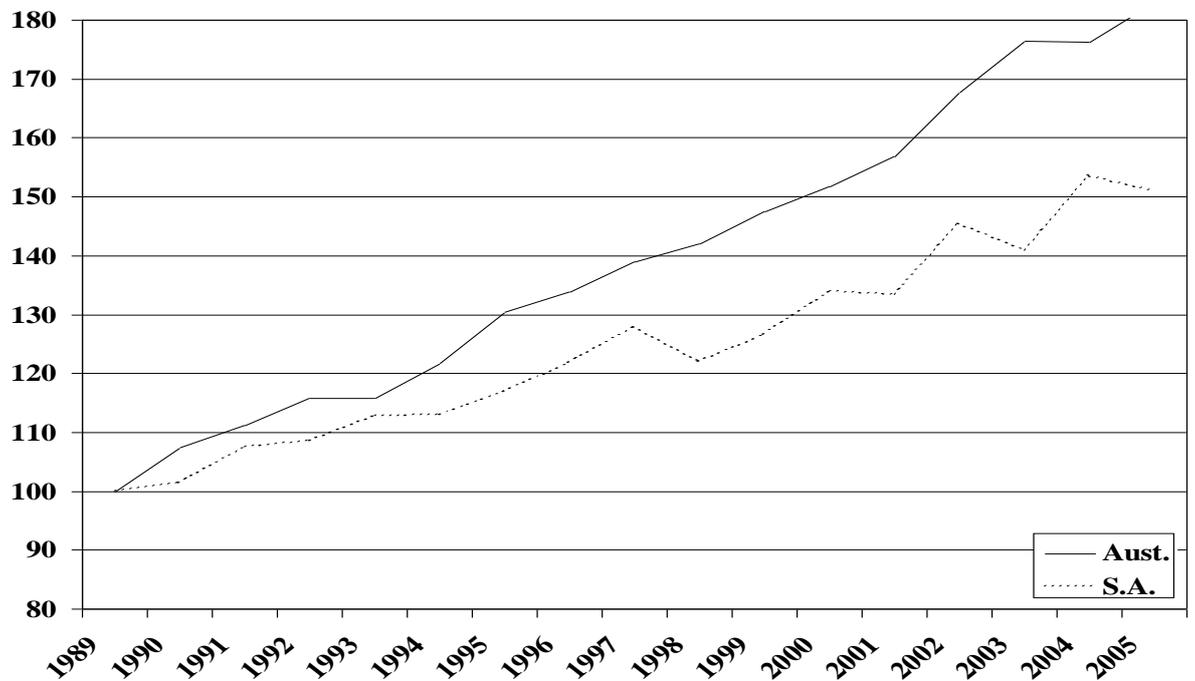
Second, the recovery was characterised by an increase in the proportion of non-standard jobs, as indicated by the growth in part-time employment. Part-time work is now the driver of employment growth in Australia. Nationally, part-time employment grew at 3.6 per cent per annum between 1989 and 2005, while full-time employment grew at only 0.9 per cent per annum. Consequently, the proportion of the national labour market that was employed on a part-time basis increased from 20.3 to 28.6 per cent over the period 1989 to 2005.

Figure 6.14: Employment growth Australia and South Australia, full-time employment, persons, 1989 to 2005, index numbers



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 6.15: Employment growth Australia and South Australia, part-time employment, persons, 1989 to 2005, index numbers



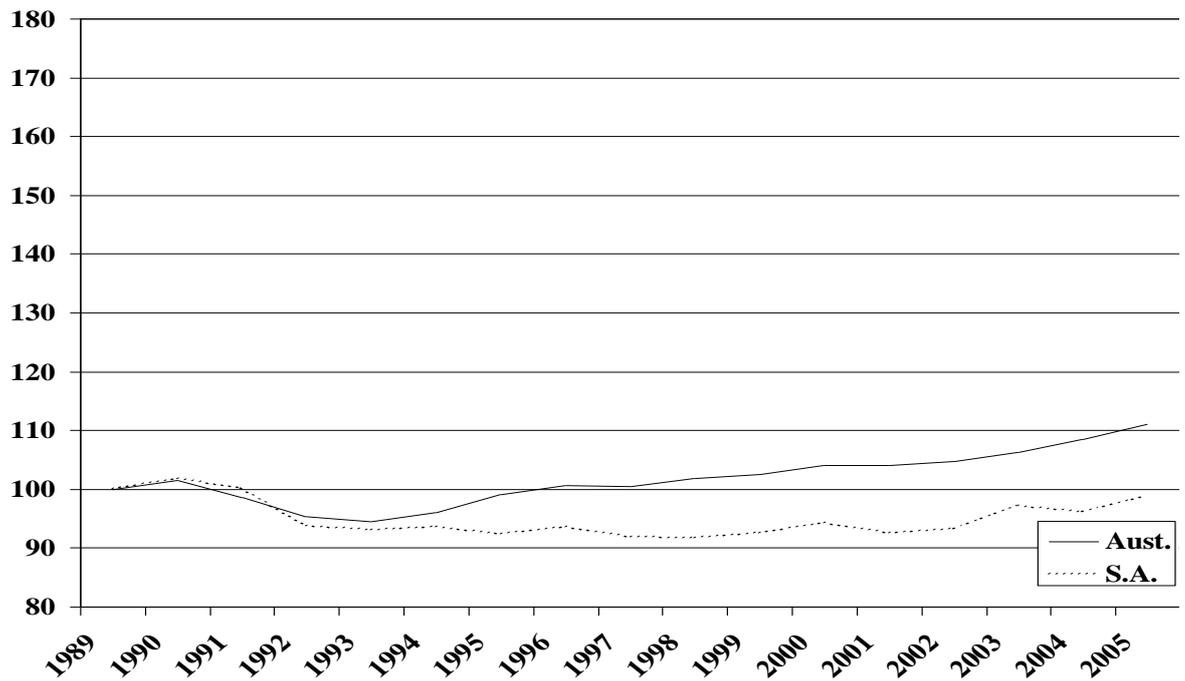
Source: Australian Bureau of Statistics cat. no. 6202.0.

Third, the trend of creating more part-time employment was much more pronounced in South Australia than was the case nationally. Notwithstanding a lower rate of part-time growth of only 2.4 per cent per annum, the growth in the proportion of part-time employment was also a consequence of a very slow increase in full-time employment growth since 1989. Consequently, part-time jobs accounted for 30.7 per cent of employment in South Australia, up from 23.3 per cent in 1989.

6.4.3 Male employment growth

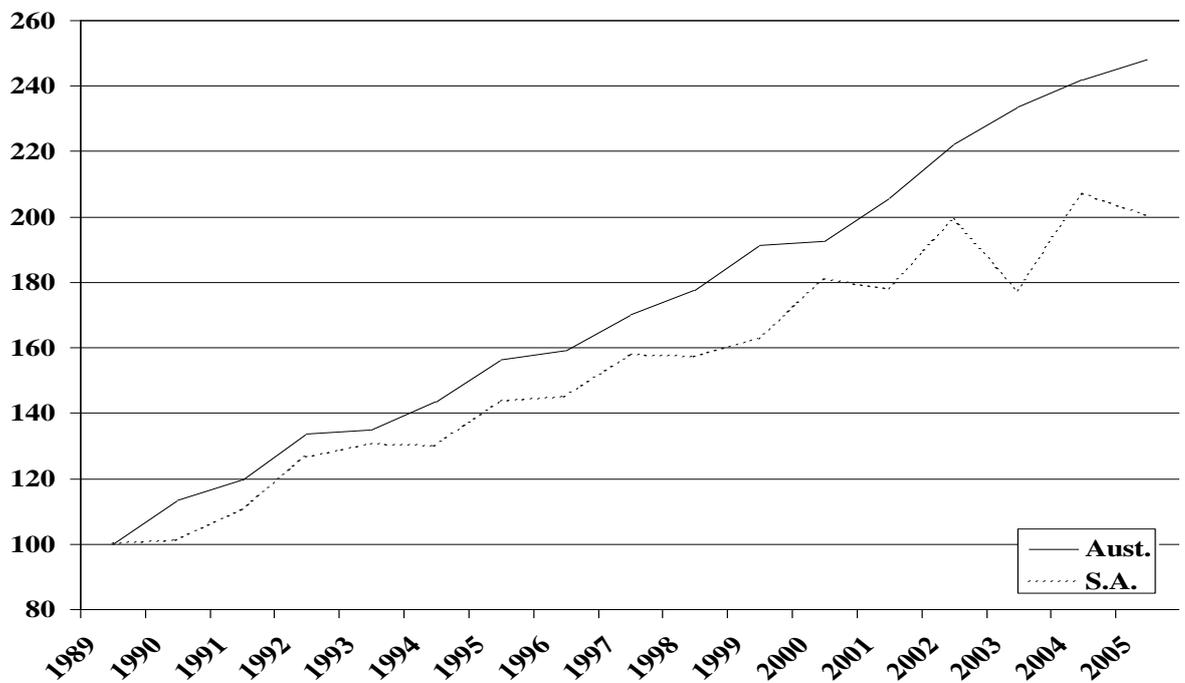
The first three columns of Tables 6.7 and 6.8, as well as Figures 6.16 and 6.17, highlight three important differences between male employment growth in Australia and South Australia since the on-set of the recession. First, nationally male employment was 21.1 per cent higher in 2005 than it was in 1989, an annual growth rate of 1.1 per cent. The corresponding figures for South Australia compare very unfavourably with the national figures. In South Australia, total male employment peaked at 383,100 in 1990, one year earlier than was the case nationally, falling to 361,900 in the trough of the recession in 1993, with a loss of 21,200 jobs during the recession. However, by 2005, total male employment in South Australia had increased to 403,500, which is only 20,400 more jobs than the pre-recession peak. However, this appearance of male employment growth during the recovery phase of the last business cycle is largely the result of the creation of large numbers of full-time and part-time jobs between 2001 and 2005. This is in stark contrast to the national experience where male jobs growth had been fairly steady since 1993.

Figure 6.16: Employment growth Australia and South Australia, full-time employment, males, 1989 to 2005, index numbers



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 6.17: Employment growth Australia and South Australia, part-time employment, males, 1989 to 2005, index numbers



Source: Australian Bureau of Statistics cat. no. 6202.0.

Second, there was hardly any net male job growth at all in South Australia over the period 1990 to 2002. Table 6.8 shows that in 2002 the number of men employed in South Australia was only 300 more than at the peak of 1990. The very modest employment growth rate of 0.4 per cent per annum, between 1989 and 2005, which is one-third of the national rate, is almost entirely due to the rapid job growth that has occurred over the period 2001 to 2005. Further, the driver of male job growth in both Australia and South Australia is part-time employment. Nationally, part-time jobs increased from 7.3 per cent of total male employment in 1989 to 15.0 per cent in 2005. The South Australian experience was *prima facie*, remarkably similar. Part-time male employment rose from 8.2 per cent in 1989 to 15.3 per cent in 2005. However, the process by which the increase in the importance of male part-time employment occurred is very different. Nationally, the increase in the proportion of male part-time employment was the result of the slow growth in full-time male employment (0.6 per cent per annum) being outstripped by the rapid growth in part-time employment (5.5 per cent per annum) between 1989 and 2005. However, in South Australia, male full-time work actually contracted by 1.2 per cent between 1989 and 2005, an annual rate of decrease of -0.1 per cent per annum. However, male part-time employment grew at the rather modest rate of 4.2 per cent per annum over the same period. The phenomenal growth rates in Figure 6.17 reflect the low base of male part-time employment in the late-1980s.

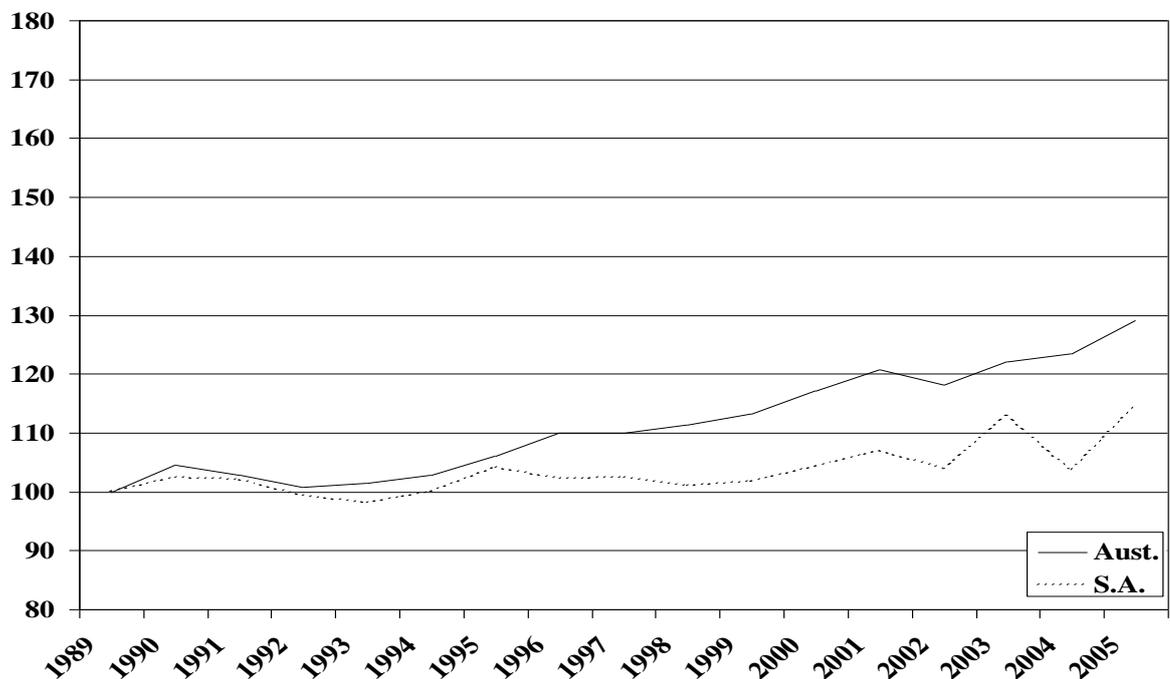
6.4.4 Female employment growth

The middle three columns of Tables 6.7 and 6.8, as well as Figures 6.18 and 6.19, highlight three important trends in female employment growth since the peak of the last business cycle in the late-1980s. First, the outstanding feature of employment growth nationally is the growth of female employment. Over the period 1989 to 2005 female employment in Australia increased by 43.3 per cent, an annualised growth rate of 2.1 per cent. Second, female full-time employment nationally demonstrated a distinct cyclical pattern during the recession. It bottomed out in 1993 and grew steadily during the recovery phase. Third, female part-time employment nationally defied all the cyclical trends. Part-time female employment did not demonstrate any cyclical variation during the recession. The number of women who were employed on a part-time basis grew constantly over the period 1989 to 2005, *albeit* the rate of growth slowed a little during the trough of the recession. Over the period for which data are presented in Table 6.7, female part-time employment grew by about 850,000, an increase of 65.4 per cent, at an annual growth rate of 3.0 per cent. Clearly, the strong performance of the Australian labour market has been driven by the growth in female, particularly part-time, employment.

The performance of the South Australian female labour market has not been as spectacular as its national counterpart, despite being the driver of employment growth in South Australia. Total female employment in South Australia also did not experience the same strong cyclical patterns as male and total employment during the recession. Female employment grew over the period 1989 to 2005. There was a loss of 7,000 jobs between 1991 and 1992, but the pre-recession level of employment was re-attained after only two years of economic recovery. Over the period 1989 to 2005, 66,000 new jobs were created

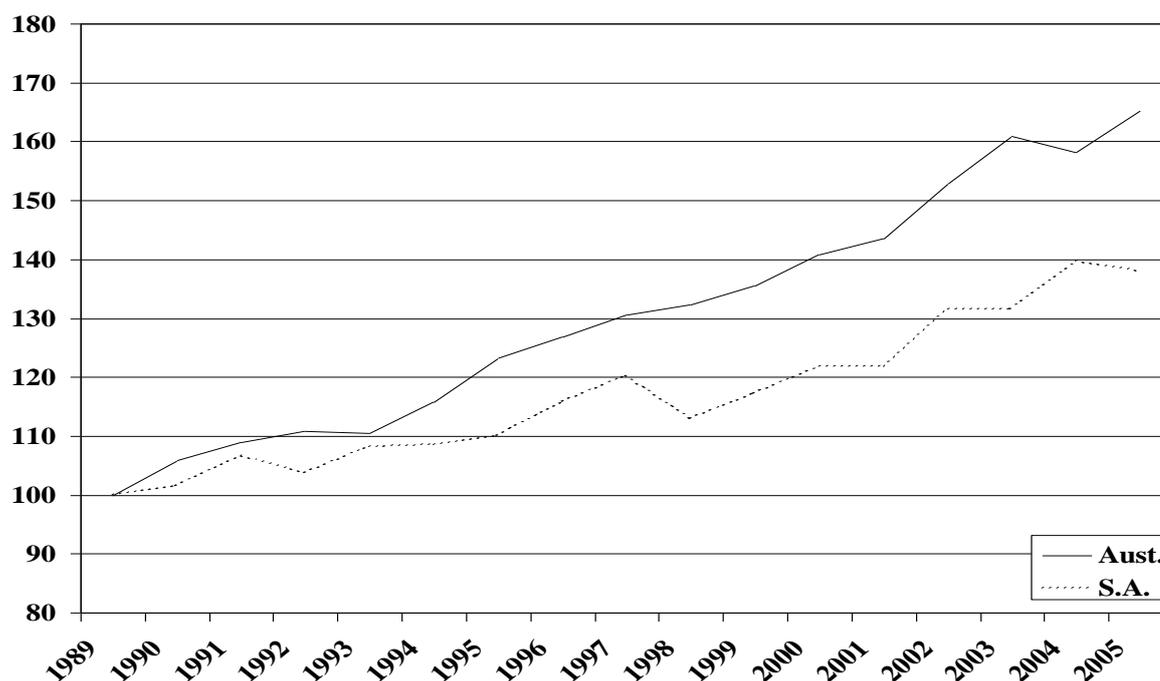
for women, an increase of 24.9 per cent at an annual growth rate of 1.3 per cent. Second, female full-time employment also demonstrated little cyclical variation during the recovery from the recession. Full-time employment growth was fairly constant until 1995, but began to decline during the strongest part of the recovery phase, only to start growing again in the late-1990s. Over the period 1989 to 2005, only 21,000 new full-time jobs for women were created, an increase of only 3.7 per cent, an annual growth rate of only 0.8 per cent. However, female full-time employment seems to have been very unstable over the period 2003 to 2005. Female full-time employment collapsed in 2003 and then 15,600 new full-time jobs, representing about ten per cent of total female full-time employment, were created in 2004. If not for this surge in employment there would have been zero net full-time female employment growth between 1995 and 2005.

Figure 6.18: Employment growth Australia and South Australia, full-time employment, Females, 1989 to 2005, index numbers



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 6.19: Employment growth Australia and South Australia, part-time employment, females, 1989 to 2005, index numbers



Source: Australian Bureau of Statistics cat. no. 6202.0.

Third, the most striking feature of Table 6.8 is the constant growth in female part-time employment. Table 6.8 shows that female part-time employment grew by 37.9 per cent, an annual growth rate of 1.9 per cent, over the period 1989 to 2005. The strong growth in female part-time employment, combined with the more modest growth in female full-time employment, means that by 2005 just under half of all female jobs in South Australia were part-time, which is considerably higher than the national average.

6.4.5. Summary

This section examined the performance of the South Australian labour market by mapping the patterns of employment growth and change between 1989 and 2005. Four key trends

were identified in this section, the contraction of male full-time employment, the rapid growth in male part-time employment, the stability of female full-time employment, and the strong growth in female part-time employment. These four trends have completely transformed the South Australian labour market over a comparatively short period of time.

At a philosophical level, given the profound changes that have taken place, it is difficult to draw any conclusions as to whether or not the South Australian labour market has recovered from the recession. Such a question implies that an assessment is being made as to whether the South Australian labour market has returned to the situation that existed prior to the recession. However, this discussion demonstrates that the South Australian labour market has been transformed to such an extent that it is not recognisable from the perspective of the late-1980s. So, in a very real sense, it is difficult to argue that the South Australian labour market has returned to the *status quo* of the late-1980s. Male full-time employment is no longer the dominant form of employment in South Australia. The dominant employment relationship in South Australia is now part-time work and female part-time work is the driver of employment growth. It may be concluded here that the quantity of work in South Australia has grown, *albeit* relatively slowly, however, the quality of that work, in terms of the number of hours worked and hence income generated, has fallen.

6.5 Conclusion

The aim of this chapter was to present the ‘conventional wisdom’ about the South Australian labour market. This was a benchmarking exercise for the re-examination of the

South Australian labour market that is undertaken in the following two chapters. Section 2 of this chapter presented the ‘conventional wisdom’ about the South Australian labour market based on an examination of the *trend unemployment rate*. It clearly demonstrated that the South Australian labour market has fully recovered from the recession we had to have. Moreover, the *trend unemployment rate* in 2005 was actually lower than the minimum attained during the boom of the late-1980s. Indeed, the *trend unemployment rate* for 2005 was the lowest on record, that is, since February 1978. Consequently, on the basis of the *trend unemployment rate* it may be concluded labour underutilisation in the South Australian labour market has not only returned to its pre-recession levels, it is substantially lower than those levels.

The present study is primarily concerned with describing the pattern of labour underutilisation in South Australia over the period 1989 to 2005. However, it was also decided to examine the South Australian labour market using a variety of other labour market indicators in order to ascertain whether trends in the *trend unemployment rate* reflected the dynamics of the South Australian labour market more broadly. Consequently, section 3 of this chapter examined changes in three other labour market indicators, *long-term unemployment*, the average duration of unemployment and adult average weekly earnings. The first two of these labour market indicators confirmed the story obtained from examining the *trend unemployment rate*. That is, by 2005 the South Australian labour market had fully recovered from the recession of the early-1990s and labour underutilisation had returned to pre-recession levels. However, trends in South Australian average earnings sounded a note of caution. South Australian incomes have fallen even further behind those of the nation as a whole. So, labour underutilisation may have

returned to pre-recession levels, but the ability of South Australian households to provision themselves as a result of their engagement with the labour market has fallen.

Section 4 provides some insights into why wages in South Australia have failed to grow as quickly as they have nationally. The recovery from the recession has transformed the Australian labour market. The recovery has been associated with strong growth in female employment and part-time employment. However, the South Australian labour market seems to have taken this trend to the extreme. Hence, female part-time work was the driver of employment growth in South Australia. These two features of the new jobs that were being created in South Australia (female and part-time) are both associated with low pay. Therefore, employment in South Australia was becoming increasingly precarious, that is, low paid and insecure (Campbell 1997; 11, Standing 1997).

Returning to the main theme of the present study, this chapter demonstrates that the levels of labour underutilisation in South Australia have not only returned to their pre-recession level, they were the lowest on record. The validity of this conclusion now needs to be tested using the three labour market indicators that were constructed in chapter 3. This re-examination of the South Australian labour market is undertaken in the application section, which comprises the next two chapters. The following chapter uses the *real unemployment rate*, the *hours unemployment rate* and the *comprehensive unemployment rate* to re-examine trends in labour underutilisation in South Australia. Chapter 8 then compares the South Australian experience with that of the other five Australian states using the same three labour market indicators.

7 LABOUR FORCE TRENDS TWO: THE REAL STORY OF THE SOUTH AUSTRALIAN LABOUR MARKET 1989 TO 2005

7.1 Introduction

Chapter 6 examined the performance of the South Australian labour market over the period 1989 to 2005 from a number of perspectives. That discussion argued that by early-2005 labour underutilisation, as measured by the *trend unemployment rate*, had returned to its pre-recession level. Indeed, it had reached record low levels. This is an appropriate opportunity to reflect on what the *trend unemployment rate* actually measures. As discussed in chapter 2, the *trend unemployment rate* is a person rate of unemployment that provides labour market analysts with information about two types of labour underutilisation, *cyclical unemployment* and *frictional unemployment*. However, as noted in chapters 2, 3 and 4 two other forms of labour underutilisation, hidden unemployment and visible underemployment, have emerged as serious labour market problems in South Australia during the 1990s. These other two forms of labour underutilisation have to be included in the headline measures of labour underutilisation if the real story of the South Australian labour market is to be told properly.

Consequently, the aim of this chapter is to re-examine the South Australian labour market over the period 1989 to 2005 using the three labour market indicators that were developed and explained in chapter 5. These three labour market indicators are all measures of labour underutilisation. So, unlike the analysis that was undertaken in the previous chapter, this chapter is confined to an examination of only one facet of the quantitative dimension of the

South Australian labour market, labour underutilisation. Nevertheless, the analysis undertaken in this chapter clearly demonstrates that, contrary to the story that is obtained from examining the *trend unemployment rate*, the level of labour underutilisation had not returned to levels that existed prior to the onset of recession. Moreover, this chapter will demonstrate that even by 2005 the level of labour underutilisation in South Australia had not changed significantly from the level that prevailed during the trough of the recession in 1993.

This chapter comprises four further sections. Section 2 is a re-examination of the level of labour underutilisation in South Australia using the *real unemployment rate*. The *real unemployment rate* is not a comprehensive measure of labour underutilisation, but the estimates of hidden unemployment that it provides are a necessary first step in the construction of such a labour market indicator. Nevertheless, the *real unemployment rate* is a useful measure of labour underutilisation in its own right as it provides evidence of the extent of hidden unemployment and the number of new jobs that need to be created in order to restore the labour market to full employment (ACOSS 2005). The third section is a re-examination of the level of labour underutilisation in South Australia using the *hours unemployment rate*. As discussed in chapter 5, the *hours unemployment rate* is also not a comprehensive measure of labour underutilisation. It is also an intermediate step in the construction of such a labour market indicator. Nevertheless, it is also a useful labour market indicator in its own right as it provides evidence of the extent of visible underemployment in a labour market. The fourth section is a re-examination of the level of labour underutilisation in South Australia using the *comprehensive unemployment rate*, which as its name implies, is a comprehensive measure of labour underutilisation. As discussed in chapter 5, it converts the *trend unemployment rate* into an hours-based rate of

unemployment to which is then added the estimates of hidden unemployment and visible underemployment that are provided by the *real unemployment rate* and the *hours unemployment rate*. The final section is the conclusion to the chapter.

7.2 Hidden unemployment: The real unemployment rate

7.2.1 Introduction

During the last recession, a substantial amount of structural unemployment was created in Australia, in addition to the usual cyclical unemployment (see for example Watson 2000a; Watson and Callus 1999; Bell 2000, Mitchell 2000a, Mitchell 2000b, Mitchell and Carlson 2000 and Mitchell 2007). Subsequently, many workers who became unemployed during the recession were unable to be re-employed in their old job or similar jobs, as these jobs had been lost to the economy. Over time, many of these people gave up any hope of ever finding appropriate employment and slipped into the ranks of the hidden unemployed. The Australian Bureau of Statistics collects some information about the discouraged worker effect, and hence the extent of hidden unemployment, during its monthly Labour Force Survey. As discussed in chapter 2 the method by which this survey is administered means that it significantly underestimates the extent of the discouraged worker effect and hence the level of hidden unemployment in Australia.

Estimates of hidden employment can be derived from changes in the participation rate for men and women over the period 1989 to 2005. This approach is based on the methods developed by, for example, Wooden 1996, Mitchell and Carlson 2000 and Mitchell 2007.

More correctly the method developed is based on an examination of changes in participation rate gaps. Since the late-1980s two clear trends have emerged in the Australian labour force participation rate. The first is the constant fall in the male rate, from its peak in the early-1990s. The second is the growth in the female rate over the same period. These trends have created two participation rate gaps. The first is the gap between the present male participation rate and the peak in the South Australian male labour force participation rate that was attained in 1991. The second is a result of the slower rate of growth of the South Australian female labour force participation rate compared with the boom states of Western Australia and Queensland. Both of these participation rate gaps represent hidden unemployment and hence the labour underutilisation that is not captured by the *trend unemployment rate*. Hence, the *real unemployment rate* is an indirect measure of unemployment (Fraser, Gionea and Fraser 2005; 335) and by implication, so too is the *comprehensive unemployment rate*.

The *real unemployment rate* was developed in chapter 5 to add better estimates of hidden unemployment to the *trend unemployment rate* for South Australia. The *real unemployment rate* is essentially a measure of ‘those people who might reasonably be expected to work in a fully employed economy’ (Beatty and Fothergill 1998; 138). The question then arises as to the best way to define a fully employed South Australian economy. As outlined in chapter 5, this question is answered in two very different ways. First, for males, a historical perspective of the labour force participation rate is taken. From this perspective the male South Australian labour market was full employed during the boom of the late-1980s and early-1990s. Hence, the February 1991 South Australian male labour force participation rate is used as the benchmark for the calculation of the male South Australian *real unemployment rate*. Secondly, for females a contemporary

geographical comparative approach is used. That is, the state with the highest female labour force participation rate is assumed to be fully employed. Hence, for any particular month, the state with the highest female labour force participation rate is used as the benchmark for the calculation of the female South Australian *real unemployment rate*. Using the two different benchmarks means that the *real unemployment rate* provides labour market analysts with information about the increased labour underutilisation that results from increases from both sources of hidden unemployment.

7.2.2 Labour force participation gaps

A feature of the South Australian labour force over the period 1989 to 2005 is the decline in the total labour force participation rate (Table 7.1 and Figure 7.1). The fall in the total participation rate is driven by a downward trend in the male participation rate (Figure 7.2), which has not been fully offset by the complementary increase in the female participation rate (Figure 7.3). However, in contrast to the South Australian experience, the Australian labour force participation rate did not fall over the period 1989 to 2005 (Figure 7.1). Indeed, it increased modestly. Nationally the male labour force participation rate also fell over the period 1989 to 2005 (Figure 7.2), but at only about half the rate of the decrease in the South Australian male labour force participation rate. Moreover, the national female labour force participation rate increased at about twice the rate of the corresponding South Australian figure (Figure 4.3). Consequently, the increase in the female labour force participation rate more than fully offset the slow decline in the male rate, such that nationally the total labour force participation rate rose.

Table 7.1 shows that at the peak of the last business cycle there was little difference between the male labour force participation rates for South Australia and Australia as a whole. However, during the 1990s the difference between these two figures became quite large. Figure 7.2 clearly shows the male labour force participation rates peaking in Australia and South Australia in 1990 and 1991 respectively and then falling continuously throughout the 1990s. Nationally, the male labour force participation rate peaked at 75.7 per cent in September 1990 and fell to 71.9 per cent by February 2005. In South Australia, the male labour force participation rate peaked at 75.0 per cent in February 1991. However, the rate of decline of the male labour force participation rate was much more rapid in South Australia, falling to 69.4 per cent in 2005. Therefore, the decline in the South Australia male participation rate, from its peak of 75.0 per cent in 1991, and hence the ever-widening gap between the present male labour force participation rate and this historical maximum, is an indication of growing male hidden unemployment in South Australia. Consequently, 75.0 per cent is used as the benchmark for the calculation of the extent of male hidden unemployment in South Australia, which is then added to the *trend unemployment rate* to obtain the male *real unemployment rate*. Like the *trend unemployment rate*, the *real unemployment rate* is also a person rate of unemployment.

In contrast to the male labour force participation rate, the female participation rate for both Australia and South Australia has been rising constantly since the late-1980s (Table 7.1). Figure 7.3 clearly shows that in 1989 there was very little difference between the national and the South Australian female labour force participation rates, but things changed during the 1990s. Nationally, the female participation rate rose from 50.6 per cent in 1989 to 57.7 per cent in 2005. In 1989 the South Australian female labour force participation rate was 50.4 per cent. However, the South Australian female labour force participation rate rose

much more slowly during the 1990s and early-2000s to reach only 54.6 per cent in 2005. Moreover, as Table 5.4 also shows, the South Australian female labour force participation rate has risen much more slowly when compared with the boom states of Queensland and Western Australia. Table 5.4 shows that the Western Australian female labour force participation rate increased from 52.7 per cent to 58.4 per cent over the same period.

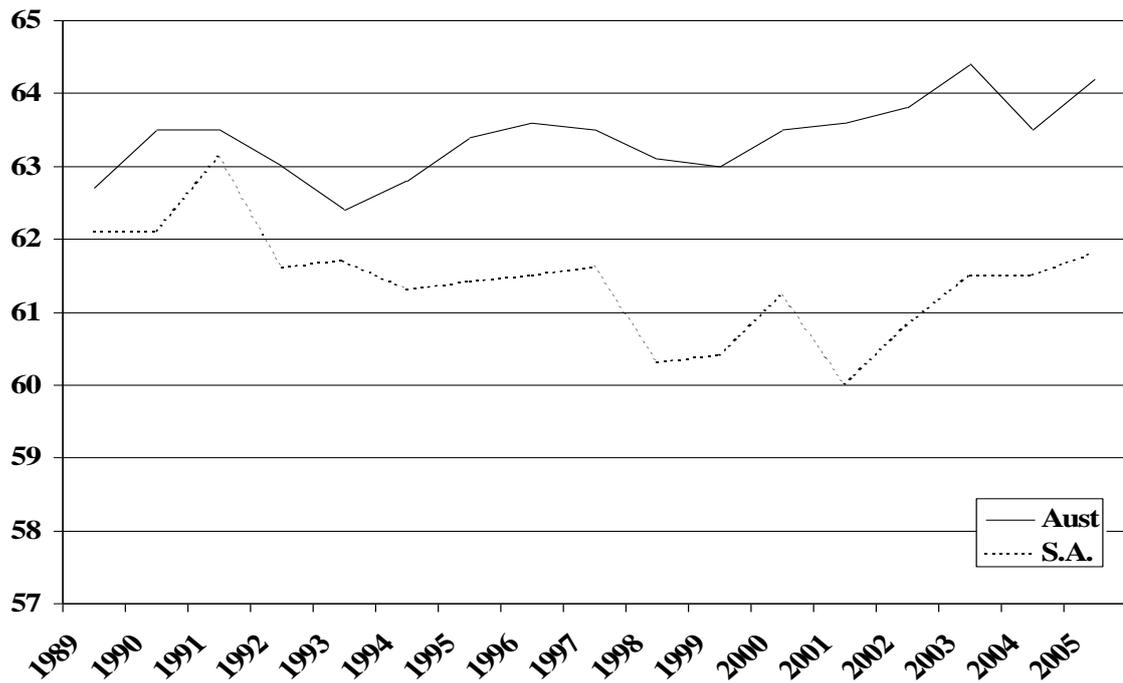
Table 7.1: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent

Year	Australia			South Australia		
	Males	Females	Total	Males	Females	Total
1989	75.3	50.6	62.7	74.5	50.2	62.1
1990	75.4	51.9	63.5	74.2	50.4	62.1
1991	75.2	52.2	63.5	75.0	51.7	63.1
1992	74.3	51.9	63.0	73.1	50.5	61.6
1993	73.6	51.5	62.4	72.7	51.1	61.7
1994	73.6	52.4	62.8	71.7	51.3	61.3
1995	73.9	53.2	63.4	71.2	51.9	61.4
1996	73.8	53.8	63.6	71.4	52.1	61.5
1997	73.3	54.0	63.5	70.7	52.9	61.6
1998	73.0	53.6	63.1	70.1	51.0	60.3
1999	72.7	53.7	63.0	70.0	51.1	60.4
2000	72.5	54.7	63.5	70.6	52.2	61.2
2001	72.3	55.1	63.6	68.7	51.7	60.0
2002	72.4	55.3	63.8	69.2	52.7	60.8
2003	72.3	56.6	64.4	69.3	53.9	61.5
2004	71.8	55.5	63.5	69.4	53.7	61.5
2005	71.9	56.7	64.2	69.4	54.6	61.8

Source: Australian Bureau of Statistics cat. no. 6202.0.

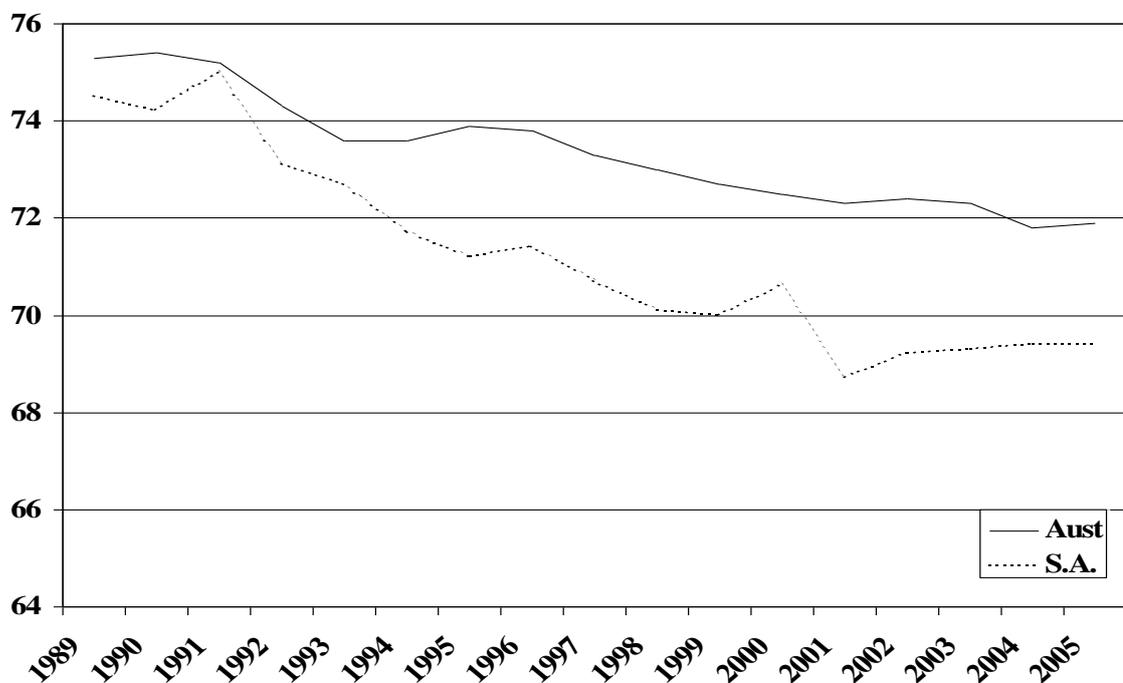
As discussed above, the labour force participation gap between the current South Australian rate and the state with the highest female labour force participation rate is also a measure of hidden unemployment. Therefore, the benchmark for the calculation of the extent of female hidden unemployment in South Australia is the state with the highest female labour force participation rate. The estimate of hidden unemployment that is obtained from the participation gap is then added to the *trend unemployment rate* to obtain the female *real unemployment rate*.

Figure 7.1: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent, persons



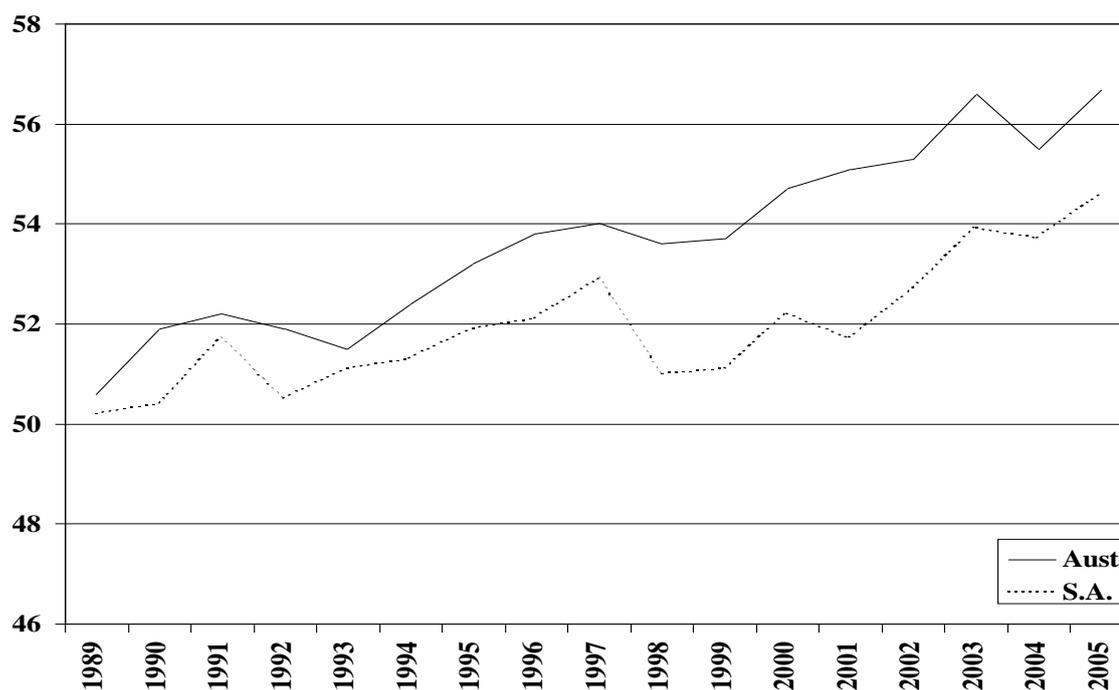
Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 7.2: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent, males



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 7.3: Labour force participation rate, Australia and South Australia, 1989 to 2005, per cent, females



Source: Australian Bureau of Statistics cat. no. 6202.0.

7.2.3 Hidden unemployment: The real unemployment rate for South Australia

In Table 7.2 and Figures 7.4, 7.5 and 7.6, the *real unemployment rate* for South Australia is compared with the *trend unemployment rate*. Prior to the onset of the last recession in South Australia, there was some hidden unemployment, as demonstrated by the vertical distance between the two lines in Figure 7.4. As the South Australian economy peaked in 1991, it prompted a number of people who were not in the labour force to begin to actively seek work. This optimistic revision of the expectations of gaining appropriate employment increased the participation rate and so reduced the level of hidden unemployment and hence the *real unemployment rate*. However, once the recession took hold large numbers of people who were marginally attached to the labour force pessimistically reconsidered

their chances of gaining appropriate employment, so they left the labour force and the participation rate fell. Consequently, the *real unemployment rate* jumped by four percentage points early in the contractionary phase of the recession and remained at that level throughout the recession. Then, paradoxically, the participation rate continued to fall, throughout the 1990s (Figure 7.1) even though the *trend unemployment rate* fell²². Hence, the *real unemployment rate* did not fall during the latter half of the 1990s. The *real unemployment rate* started to fall in the early-2000s in response to strong falls in the *trend unemployment rate* and modest increases in the labour force participation rate.

Table 7.2: Trend and real unemployment, South Australia, 1989 to 2005, per cent

Year	Trend Unemployment Rate			Real Unemployment Rate		
	Males	Females	Total	Males	Females	Total
1989	7.7	7.2	7.5	8.3	11.6	9.7
1990	6.7	6.8	6.7	7.7	13.5	10.2
1991	9.2	8.3	8.8	9.2	11.6	10.3
1992	12.1	9.4	11.0	14.4	13.9	14.1
1993	12.3	9.7	11.2	15.0	14.0	14.6
1994	11.4	9.5	10.6	15.3	14.5	14.9
1995	10.5	8.6	9.7	15.1	15.6	15.2
1996	10.0	7.9	9.1	14.3	13.7	14.1
1997	9.9	8.3	9.2	15.1	13.7	14.5
1998	10.0	9.1	9.6	16.0	16.7	16.4
1999	9.4	7.9	8.7	15.4	16.5	15.9
2000	8.3	7.6	8.0	13.6	15.9	14.7
2001	8.1	5.9	7.1	15.9	16.4	16.1
2002	7.5	6.1	6.9	14.7	13.5	14.1
2003	6.6	5.3	6.0	13.7	12.1	12.9
2004	6.6	6.3	6.5	13.4	11.9	12.8
2005	5.6	4.9	5.3	12.7	12.1	12.5

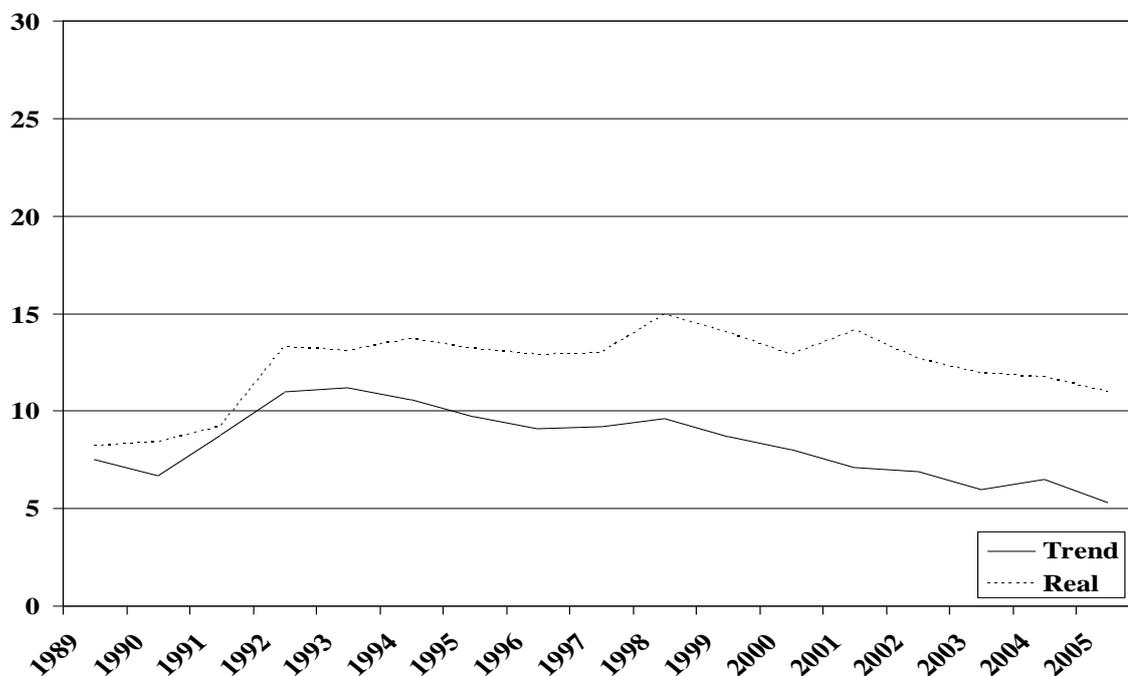
Source: Australian Bureau of Statistics cat. no. 6202.0.

The *real unemployment rate* shows that there has been little change in the level of labour underutilisation in South Australia since the trough of the recession was attained in 1995 (Table 7.2). This is in contrast to the *trend unemployment rate*, which peaked in 1993 at 11.2 per cent and fell fairly steadily to reach levels by the early-2000s that had not been

²² The decrease in the participation rate could be explained by a reduction in the added worker effect.

seen for nearly a generation. As the *trend unemployment rate* is part of the *real unemployment rate*, the stability in the *real unemployment rate* means that the reduction in cyclical unemployment was being offset by an increase in hidden unemployment. Moreover, the 2005 *person trend unemployment rate* of 5.3 per cent is the lowest rate on record since February 1978. By 2005 however, the *person real unemployment rate* had fallen to only 12.5 per cent. Not only is this figure about two and a half times the corresponding *trend unemployment rate*, it is about 30 per cent higher than the 1989 level. Hence, the *real unemployment rate* shows that even in 2005 labour underutilisation in South Australia still needed to fall by about 30 per cent before it could be argued that the South Australian labour market had fully recovered from the recession. As Figures 7.5 and 7.6 show, the experience for males and females differed markedly.

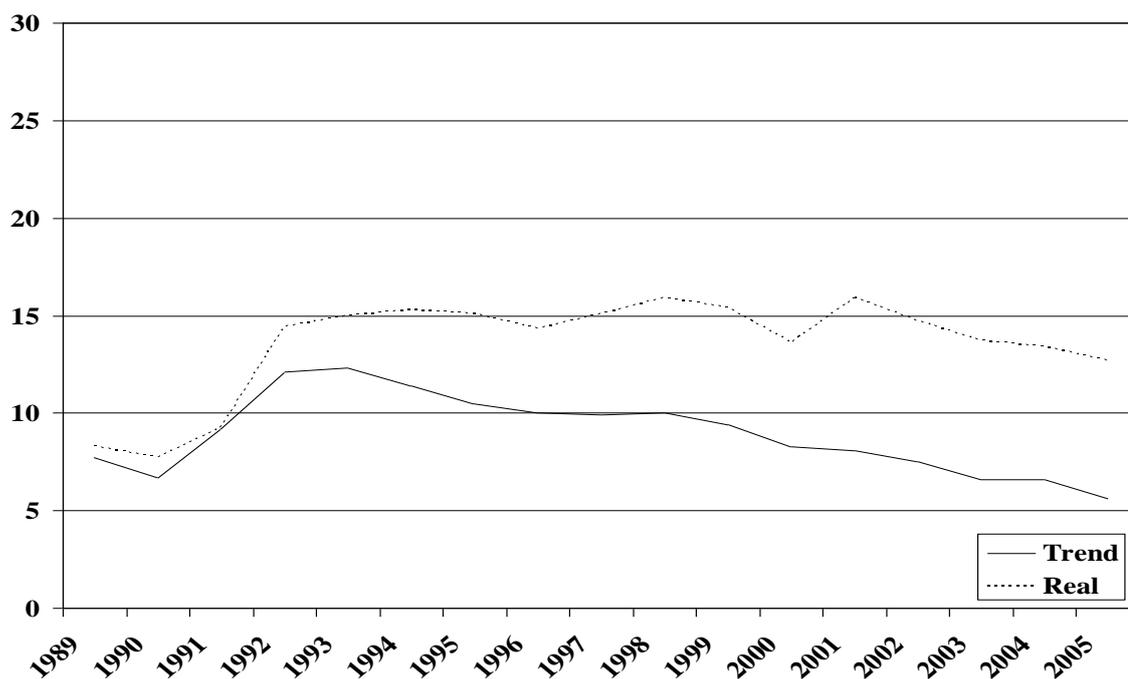
Figure 7.4: Trend and real unemployment, South Australia, 1989 to 2005, per cent, persons



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 7.5 shows the *real unemployment rate* for males in South Australia. This figure looks curiously similar to Figure 7.4. This is not surprising given that men still account for a large proportion of the South Australian labour force. So, variations in male labour underutilisation tend to swamp variations in female labour underutilisation and hence the person rates. The male *real unemployment rate* surged early in the recession and essentially plateaued for the remainder of the 1990s, despite the constant decline in the *trend unemployment rate* since 1993. Again, as was the case with the person *real unemployment rate*, the male *real unemployment rate* did not fall during the latter half of the 1990s as the reductions in the *trend unemployment rate* were more than fully off-set by falling male labour force participations rates. The male *real unemployment rate* has only shown consistent signs of improvement since 2001, largely as a result of the stabilisation of the male labour force participation rate from 2001, combined with continued falls in the *trend unemployment rate*. The male *real unemployment rate* in 2005 was 12.7 per cent, which is more than double the *trend unemployment rate* of 5.6 per cent. Moreover, the 2005 male *real unemployment rate* of 12.7 per cent is over 50 per cent higher than the 1990 minimum of 7.7 per cent. The much higher level of the *real unemployment rate* reflects the increased hidden unemployment and structural unemployment that had been created in South Australia due to the continued loss of male jobs as a result of the continued decline of manufacturing in South Australia during the 1990s (Kosturjak 2003; 18).

Figure 7.5: Trend and real unemployment, South Australia, 1989 to 2005, per cent, males



Source: Australian Bureau of Statistics cat. no. 6202.0.

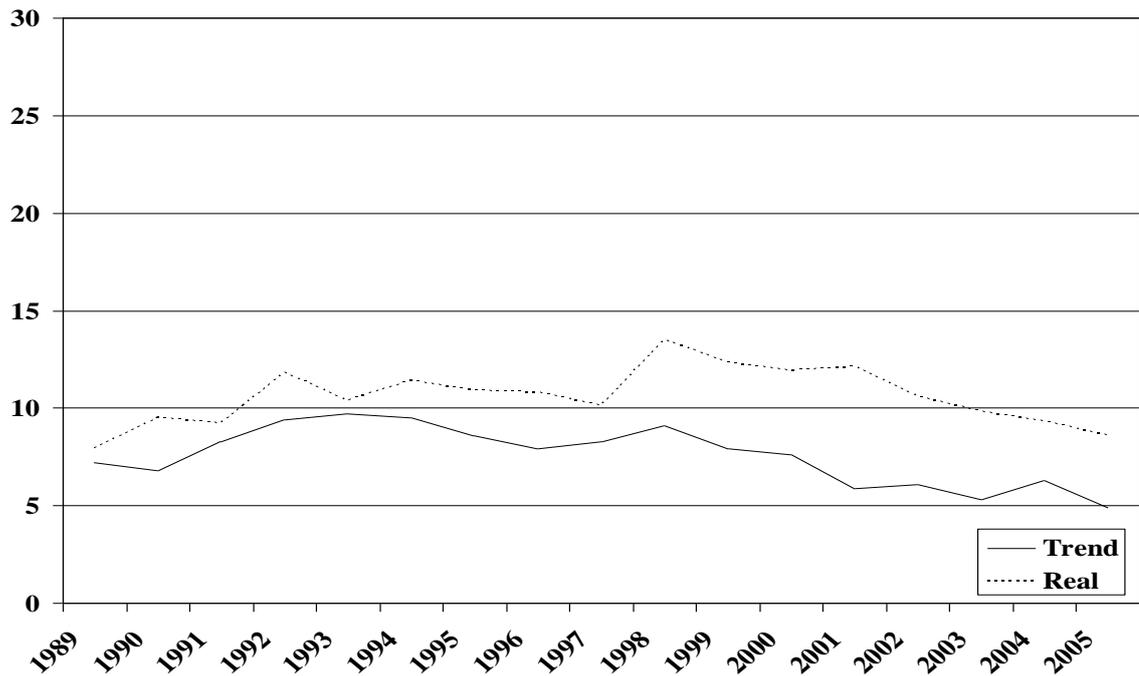
The female *real unemployment rate* for South Australia has a distinctly different pattern to its male counterpart (Figure 7.6). It did not jump as abruptly during the labour market contraction. The female *real unemployment rate* was substantially higher than the female *trend unemployment rate* during the boom of the late-1980s largely as a result of the relatively low female labour force participation rates in South Australia, as shown in Table 5.4. Moreover, the female *real unemployment rate* seemed to be demonstrating a pattern that is totally unrelated to the business cycle. That is, it continued to rise throughout the remainder of the 1990s, even though the *trend unemployment rate* was falling. Then in 1998, when the labour market expansion was well underway, the female *real unemployment rate* jumped by over two percentage points. The Asian Economic Crisis of 1997 seems to have not only been associated with a surge in female cyclical

unemployment in South Australia, as shown by the *trend unemployment rate*, but also an increase in hidden unemployment.

The female *real unemployment rate* fell between 2001 and 2005, following the strong falls in the female *trend unemployment rate*. However, the substantial reduction in the female *real unemployment rate* since 2001 seems to have little to do with the reduction in cyclical unemployment. It seems to have been driven by a substantial increase in the South Australian female labour force participation rate, from 51.5 per cent in 2001 to 54.3 per cent in 2005, while the Western Australian female labour force participation rate, which is the benchmark for the calculation of the female *real unemployment rate* for 14 of the 17 years between 1989 and 2005, was essentially stagnant, increasing by only 0.2 percentage points, from 58.2 to 58.4 per cent over the same period (Table 5.4). The closing of this participation rate gap reduced the measured level of female hidden unemployment in South Australia during the first decade of the 2000s.

The female *real unemployment rate* in 2005 was 12.1 per cent, which is nearly two and a half times the female *trend unemployment rate* of 4.9 per cent. More importantly, the 2005 female *real unemployment rate* of 12.1 per cent is only 0.5 percentage points higher than the 1991 figure of 11.6 per cent, suggesting that the level of labour underutilisation for South Australian females had almost returned to pre-recession levels by 2005. Hence, from this perspective, it may be argued that the South Australian female labour market had fully recovered from the recession. Consequently, the deterioration of the South Australian labour market shown in Table 7.2 and Figure 7.4 is largely due to an increase in male hidden unemployment.

Figure 7.6: Trend and real unemployment, South Australia, 1989 to 2005, per cent, females



Source: Australian Bureau of Statistics cat. no. 6202.0.

In summary, the *real unemployment rate* shows that by 2005 the South Australian labour market had not fully recovered from the recession of the early-1990s. Indeed, the *real unemployment rate* needed to fall by about 30 per cent for labour underutilisation to return to pre-recession levels. Moreover, this partial recovery in the South Australian labour market was largely due to the female *real unemployment rate* being driven down by substantial increases in female labour force participation. This should be no surprise as Table 7.8 clearly shows that female employment growth became the driver of employment growth in South Australia in the wake of the recession the early-1990s.

Table 6.8 also shows another interesting feature of the South Australian labour market. Part-time work, in particular female part-time work, was the real driver of employment growth in South Australia. This may drive down the *trend unemployment rate* as well as

the *real unemployment rate*, because they are both person rates of unemployment. However, the following section investigates the effect of the creation of so much part-time work on labour underutilisation in the South Australian labour market using a time, rather than a person, rate of unemployment, the *hours unemployment rate*.

7.3 Visible underemployment:

The hours unemployment rate for South Australia

The economic restructuring that led to the emergence of structural and hidden unemployment as important labour force problems during the 1990s exacerbated another set of problems for the Australian labour force. As the Australian manufacturing sector continued its decline during the 1990s, and conversely the service sector increased in importance, employers sought to increase the flexibility of their workforces in order to improve their competitiveness (Adam 2001, Burke and Shields 1999). Increased workplace flexibility has been a feature of the Australian labour market for at least three decades. However, the nature of workplace flexibility has changed in recent years. In the past, flexibility has tended to mean changes in the nature of work and employment relations that benefited employees (Adam 2001). Examples of this form of flexibility include flexi-time, job-sharing, maternity leave and the provision of work-based childcare. However, during the 1990s the term flexibility appears to have been quietly re-defined, and turned on its head, to mean changes to the nature of work that benefit employers at the expense of employees (Adam 2001). This quest for a more responsive, compliant and flexible workforce has led to a significant increase in non-standard forms of employment in Australia, especially part-time and casual work.

Indeed, part-time jobs, many of which are casual, have been the driver of employment growth in South Australia since the recovery from the recession gained momentum. This is causing significant amounts of underemployment as the aspirations of increasing numbers of workers for full-time work is being frustrated by the actions of employers who are creating part-time, rather than full-time positions (see for example: MacKay 1998; Weller and Webber 2001, Borland, Gregory and Sheehan 2001). The Australian Bureau of Statistics collects some information about part-time employees who wish to work more hours during its Underemployed Workers Survey, which is a quarterly supplement to the Labour Force Survey (Australian Bureau of Statistics 2006a; 2). This information is then used by the Australian Bureau of Statistics to calculate its estimates of the extent of visible underemployment as reported in its Underemployed Workers publications (see for example Australian Bureau of Statistics, 2006a). However, Mitchell and Carlson (2000) argued that the official labour force statistics significantly underestimate the extent of visible underemployment in Australia because they are counts of people who are underemployed and not measures of the intensity of underemployment. Hence, the need for a broader, hours-based measure of labour underutilisation.

As argued in chapter 5, the *hours unemployment rate* is based on the premise that most part-time workers who are seeking extra hours are actually expressing a preference for working the number of hours worked on average in Australia, reflecting the method of Wooden (1997). An estimate of the number of extra hours that the visible underemployed would like to work and hence the intensity of underemployment can be derived from the quarterly supplement to the Labour Force Survey and then added to the *trend unemployment rate* to obtain the *hours unemployment rate*. The estimates for the total

amount of underutilised labour and the total size of the labour force are then converted to hours to obtain an hours-based rate of unemployment, rather than a person rate of unemployment (Table 7.3).

Figure 7.7 and Table 7.3 show movements in the total *hours unemployment rate* for South Australia. Like the person *real unemployment rate*, the person *hours unemployment rate* jumped at the start of the recession by about six percentage points. However, unlike the person *real unemployment rate*, the person *hours unemployment rate* tended to fall fairly consistently from its peak of 15.4 per cent in 1993, to 9.1 per cent in 2005, in concert with the continued falls in the person *trend unemployment rate*. In 2005, the person *hours unemployment rate* for South Australia was nearly double the person *trend unemployment rate* of 5.3 per cent, but it is only 0.3 percentage points higher than the 1990 minimum. So, from this perspective it may be argued that the South Australian labour market has fully recovered from the recession of the early-1990s. Again, however, the experience of the *hours unemployment rate* is highly gendered, as shown in Table 7.3.

Figure 7.8 shows changes in the *hours unemployment rate* for males. Again, not surprisingly, this figure is very similar to Figure 7.5 due to the predominance of males in the South Australian labour force. There was a surge in male visible underemployment in the early 1990s associated with a decline in full-time male employment in South Australia and a strong growth in male part-time employment. The male *hours unemployment rate* fell steadily between 1993 and 2002, in concert with falls in the *trend unemployment rate*. This observation suggests that the re-shaping of the South Australian male labour market, where part-time work is now an important component of the male labour market, took place over a relatively short period of time, as seen in Figure 7.17. The surge in the male

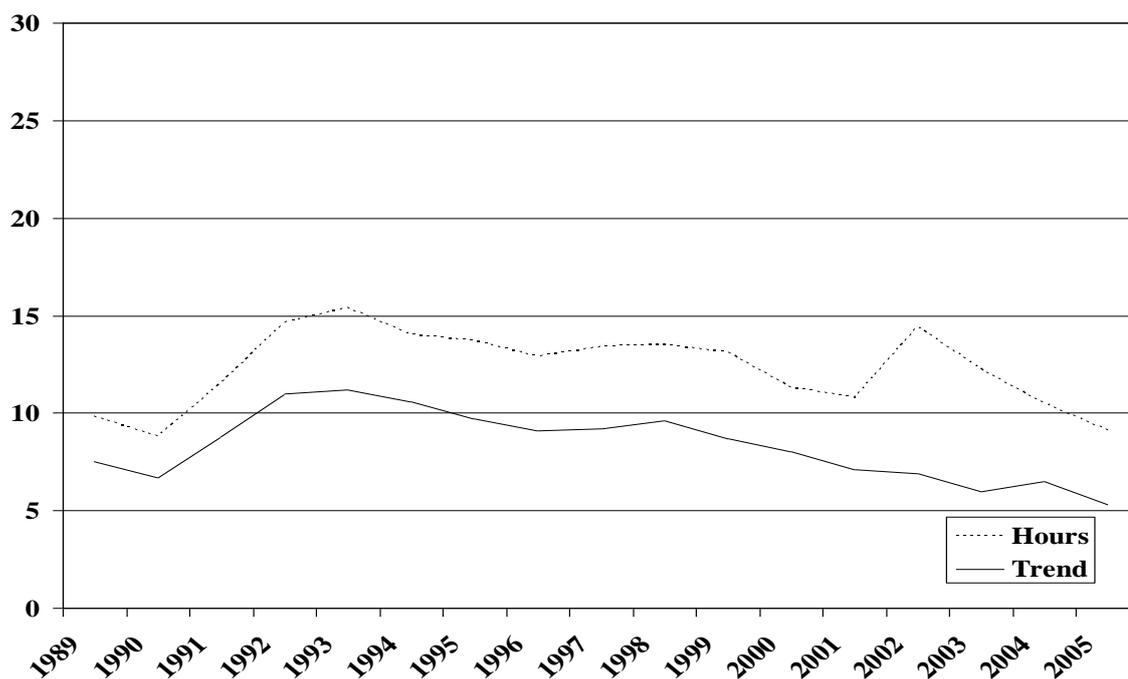
hours unemployment rate that occurred in 2002 is also seen in Table 7.8. That is, during 2001 there was a slight increase in male full-time employment, whereas male part-time employment grew by more than ten per cent. The sudden fall in the male *hours unemployment rate* is associated with the opposite process, a surge in male full-time employment associated with a ten per cent fall in male part-time employment. The continued dominance of males in the South Australian labour market therefore explains the surge in the *hours unemployment rate* that is also shown in Figure 7.7.

Table 7.3: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent

	Males		Females		Persons	
	Hours rate	Trend rate	Hours rate	Trend rate	Hours rate	Trend rate
1989	9.1	7.7	11.3	7.2	9.8	7.5
1990	8.0	6.7	10.4	6.8	8.8	6.7
1991	11.1	9.2	12.2	8.3	11.5	8.8
1992	14.5	12.1	14.8	9.4	14.6	11.0
1993	15.6	12.3	15.1	9.7	15.4	11.2
1994	13.7	11.4	14.4	9.5	14.0	10.6
1995	13.7	10.5	13.7	8.6	13.7	9.7
1996	12.7	10.0	13.3	7.9	12.9	9.1
1997	13.2	9.9	13.9	8.3	13.4	9.2
1998	13.1	10.0	14.3	9.1	13.5	9.6
1999	12.8	9.4	13.5	7.9	13.1	8.7
2000	11.0	8.3	11.9	7.6	11.3	8.0
2001	11.0	8.1	10.6	5.9	10.8	7.1
2002	15.9	7.5	11.8	6.1	14.4	6.9
2003	13.2	6.6	10.3	5.3	12.2	6.0
2004	9.5	6.6	12.2	6.3	10.5	6.5
2005	8.4	5.6	10.2	4.9	9.1	5.3

Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 7.7: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent, persons



Source: Australian Bureau of Statistics cat. no. 6202.0.

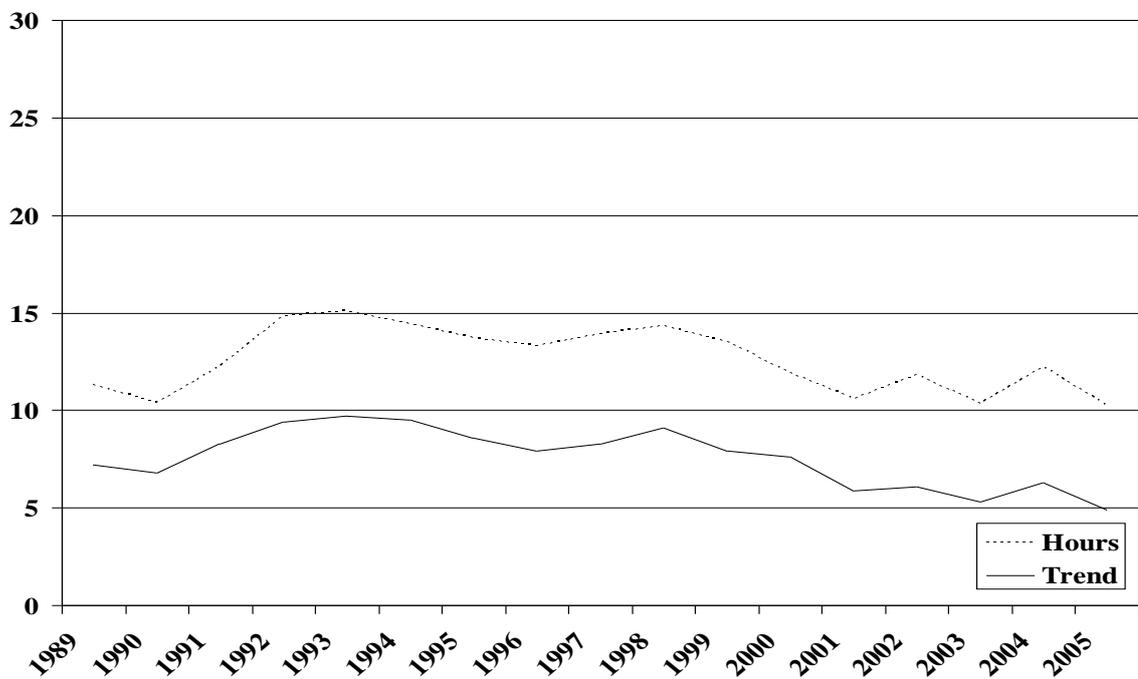
Figures 7.8 and 7.9 show that the South Australian male labour force was hit by two external shocks during the early-1990s. In the early phase of the recession, in addition to a surge in cyclical unemployment, there was an increase in both hidden unemployment as a result of economic restructuring and visible underemployment as a result of part-time work becoming the driver of employment growth in South Australia. The 2005 male *hours unemployment rate* of 8.4 per cent was 50 per cent higher than the 2005 *trend unemployment rate* of 5.6 per cent, but it was only 0.4 percentage points higher than the level attained at the peak of the boom of the late-1990s, which was 8.0 per cent in 1990. Hence, it could be argued that the male South Australian labour market had recovered from the recession by 2005.

Figure 7.8: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent, males



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 7.9: Trend and hours unemployment rate, South Australia, 1989 to 2005, per cent, females



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 7.9 shows movements in the female *hours unemployment rate* for South Australia. This figure shows few, if any, similarities with Figures 7.7 and 7.8, which suggests that the experiences of women during the 1990s were quite different to those of men. Figure 7.9 shows that visible underemployment was already a problem for the South Australian female labour force prior to the onset of recession as a result of the higher levels of part-time employment for women and the lower female labour force participation rates at the end of the 1980s. This is readily discernible by the vertical distance between the two curves in Figure 7.9. Not surprisingly the levels of visible underemployment rose in the contractionary phase of the last recession, pushing the female *hours unemployment rate* to a maximum in 1993 of 15.1 per cent. The female *hours unemployment rate* fell steadily between 1993 and 2005, such that the female *hours unemployment rate* for 2005 of 10.2 per cent was 0.2 percentage points lower than the minimum of 10.4 per cent attained in 1990. Hence, from the perspective of this labour market indicator, it can also be argued that the South Australian female labour market had not only fully recovered from the recession by 2005, but it was the driver of the recovery of the South Australian labour market as a whole.

7.4 Hidden unemployment and visible underemployment: The comprehensive unemployment rate for South Australia

The second section of this chapter argued that the level of labour underutilisation in South Australia, as measured by the *real unemployment rate*, was nearly double the *trend unemployment rate* due to the creation of substantial amounts of structural unemployment and the relatively slow growth of the female labour force participation rate during the

1990s. The preceding section argued that the level of labour underutilisation in South Australia, as measured by the *hours unemployment rate*, was also about double the *trend unemployment rate* due to the creation of large amounts of part-time work during the 1990s. However, the *real unemployment rate* and the *hours unemployment rate* do not provide a full picture of the level of labour underutilisation in South Australia as they each add only one additional form of labour underutilisation to the *trend unemployment rate*. The *real unemployment rate* and the *hours unemployment rate* can be combined to obtain the *comprehensive unemployment rate*, which adds estimates of both hidden unemployment and visible underemployment to the *trend unemployment rate*. The *comprehensive unemployment rate* is also an hours-based rate of unemployment, rather than a person rate of unemployment. This section will examine the South Australian labour market since the late-1980s using the *comprehensive unemployment rate*.

Table 7.4: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent

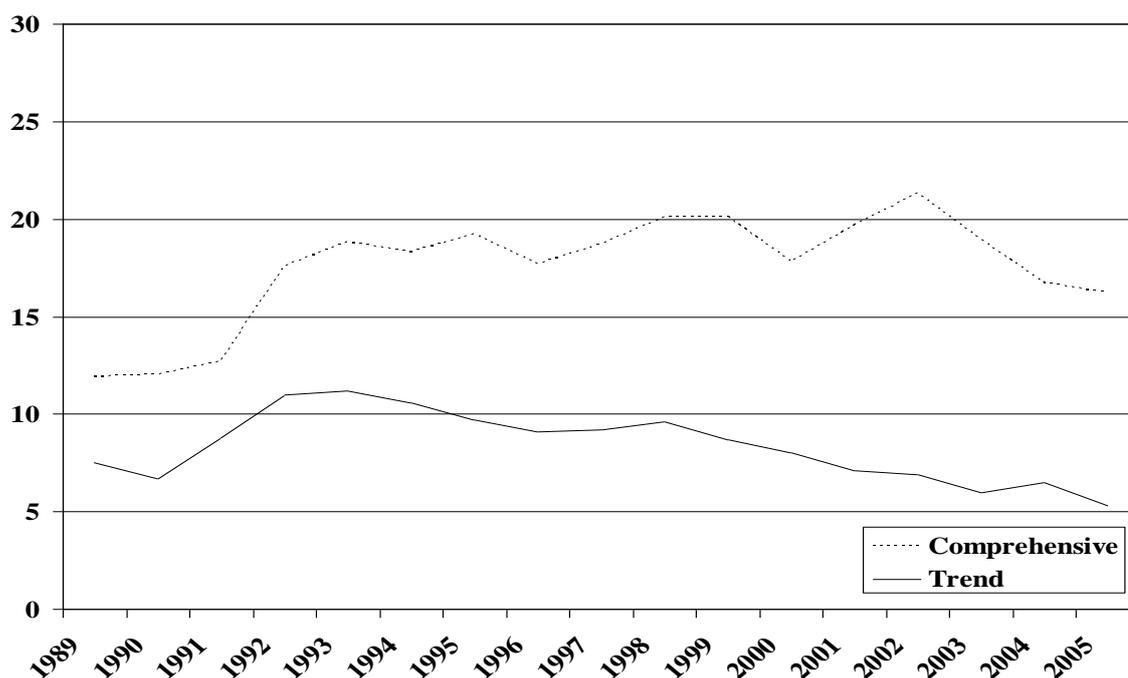
	Males		Females		Persons	
	Comprehensive	Trend	Comprehensive	Trend	Comprehensive	Trend
1989	9.7	7.7	16.2	7.2	11.9	7.5
1990	9.0	6.7	17.7	6.8	12.0	6.7
1991	11.1	9.2	15.8	8.3	12.7	8.8
1992	16.7	12.1	19.5	9.4	17.6	11.0
1993	18.2	12.3	20.0	9.7	18.8	11.2
1994	17.5	11.4	19.8	9.5	18.3	10.6
1995	18.1	10.5	21.5	8.6	19.2	9.7
1996	16.8	10.0	19.4	7.9	17.7	9.1
1997	18.2	9.9	19.8	8.3	18.7	9.2
1998	18.9	10.1	22.3	9.1	20.1	9.6
1999	18.6	9.4	22.7	7.9	20.1	8.7
2000	16.2	8.3	20.7	7.6	17.8	8.0
2001	18.6	8.1	21.6	5.9	19.7	7.1
2002	22.4	7.5	19.3	6.1	21.3	6.9
2003	19.8	6.6	17.2	5.3	18.9	6.0
2004	16.0	6.6	17.9	6.3	16.7	6.5
2005	15.3	5.6	17.7	4.9	16.2	5.3

Source: Australian Bureau of Statistics cat. no. 6202.0.

The data presented in Table 7.4 and Figure 7.10 tell a more complete story of the experience of the South Australian labour force between 1989 and 2005 that differs

markedly from the official story as told by the *trend unemployment rate*. Like the other two labour market indicators that are examined in this chapter, the *comprehensive unemployment rate* increased markedly during the first two years of the 1990s to peak in 1993. The *comprehensive unemployment rate* for persons was about 50 per cent higher than the *trend unemployment rate* prior to the onset of recession in the early-1990s as it is a broader measure of labour underutilisation. This higher figure was due to the existing high levels of hidden unemployment and visible underemployment, especially for females. The *comprehensive unemployment rate* then peaked at 18.8 per cent during the trough of the recession in 1993, compared to the peak of the *trend unemployment rate* of 11.2 per cent.

Figure 7.10: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent, persons

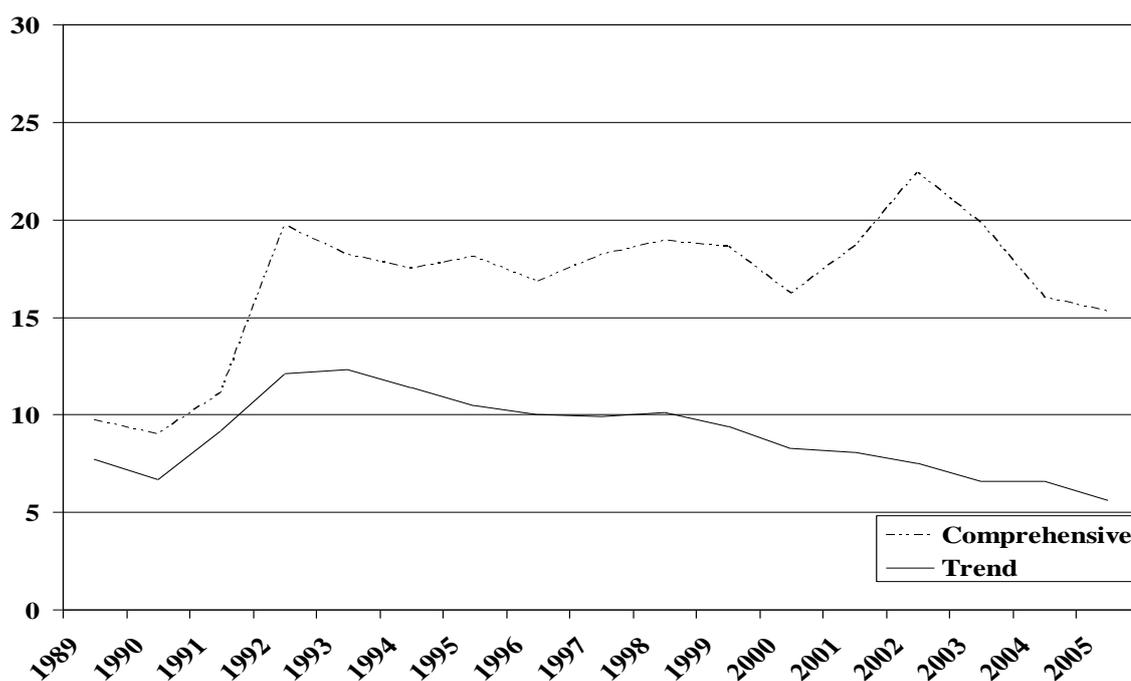


Source: Australian Bureau of Statistics cat. no. 6202.0.

As discussed above, since 1993 the *trend unemployment rate* had fallen fairly steadily, whereas, the *comprehensive unemployment rate* demonstrated no such trend. Indeed, it

rose slightly during the latter half of the 1990s to attain a maximum of 21.3 per cent in 2002. It was only between 2002 and 2005 that the person *comprehensive unemployment rate* for South Australia has shown a consistent downward trend, falling to 16.1 per cent by early-2005. The 2005 person *comprehensive unemployment rate* was more than treble the *trend unemployment rate* of 5.3 per cent and nearly double the level that existed during to the boom of the late-1990s. Clearly, on the basis of this broader measure of labour underutilisation the South Australian labour market had not recovered from the recession of the early-1990s even by 2005. Indeed, its recovery had barely even begun.

Figure 7.11: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent, males



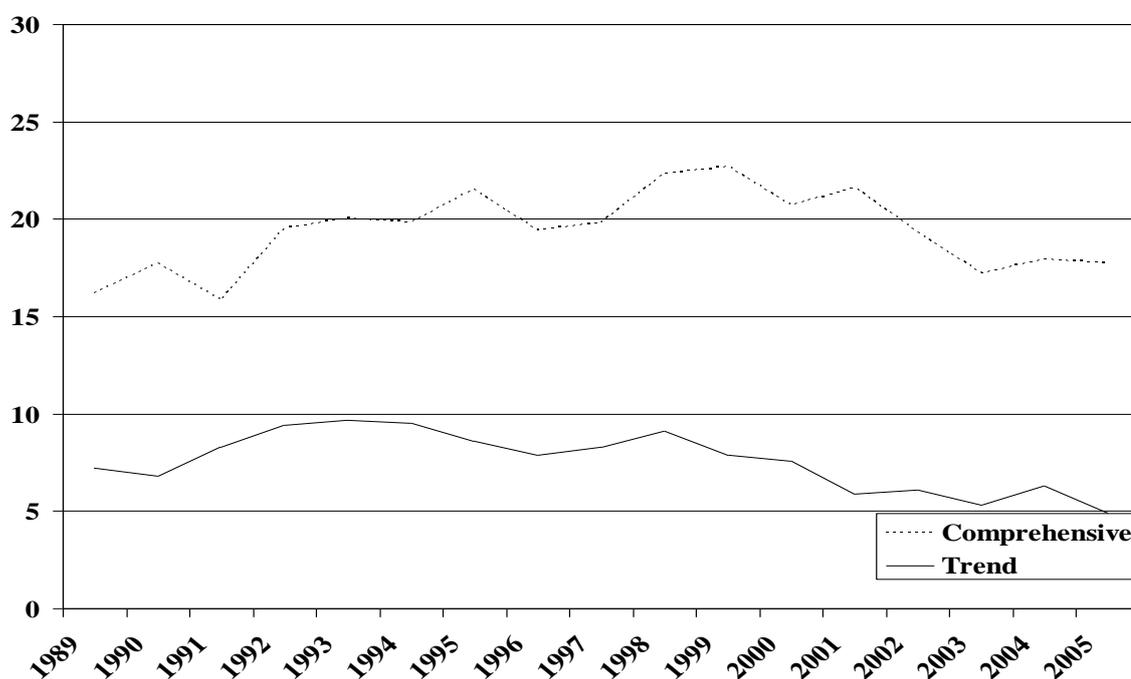
Source: Australian Bureau of Statistics cat. no. 6202.0.

Again, an examination of the South Australian labour market at the level of person masks some significant differences between males (Figure 7.11) and females (Figure 7.12). The male *comprehensive unemployment rate* looks remarkably similar to Figure 7.10 as males

still dominate the South Australian labour market. In 2005, the male *comprehensive unemployment rate* was 15.3 per cent, which was nearly treble the *trend unemployment rate* of 5.3. Moreover, the 2005 *comprehensive unemployment rate* for males of 15.3 per cent was more than 60 per cent higher than the minimum of 9.0 per cent that was attained in 1990. Consequently, the *comprehensive unemployment rate* shows that the level of labour underutilisation for South Australian males had yet to return to the levels that prevailed prior to the onset of recession. This labour market indicator suggests that the recovery from the recession of the early-1990s had only recently commenced and was far from complete.

Interestingly, Figure 7.12 looks nothing like either Figure 7.11 or Figure 7.10. Even during the boom of the late-1980s the South Australian female labour market was in a bad way, which is in stark contrast to the 'conventional wisdom'. In 1989 the *comprehensive unemployment rate* of 16.2 per cent was more than double the *trend unemployment rate* of 7.2 per cent. Moreover, since 1989 the South Australian female labour force had consistently deteriorated with no sign of improvement. In contrast with the recovery from the recession shown by the *trend unemployment rate*, Figure 7.12 shows a continual worsening of the level of female labour underutilisation right through the 1990s and into the 2000s. It was not until 2001 that the female *comprehensive unemployment rate* showed any tendency to improve. So, by early-2005 the female *comprehensive unemployment rate* had only fallen to 17.7 per cent, which was three and a half times the corresponding *trend unemployment rate* of 4.9 per cent and 1.9 percentage points higher than the minimum of 15.8 per cent attained in 1991. Clearly, on the basis of this labour market indicator, the South Australian female labour market had still not fully recovered from the recession we had to have. Moreover, by 2005 the recovery had hardly begun, let alone was complete.

Figure 7.12: Trend and comprehensive unemployment rate, South Australia, 1989 to 2005, per cent, females



Source: Australian Bureau of Statistics cat. no. 6202.0.

The real problem with the South Australian female labour market appears to be related to demand side factors. The female *comprehensive unemployment rate* was being driven on one hand by the growth in part-time employment and the increased visible unemployment that it creates. On the other hand, the *comprehensive unemployment rate* was also being driven by the very slow growth in the South Australian female labour force between 1991 and 2000, and hence the associated increase in hidden unemployment, which is in contrast to the rapid growth experienced in the Western Australian and Queensland female labour force participation rates. That is, the South Australian female labour market was being squeezed from two directions. Employers in South Australia were creating jobs for women much more slowly than elsewhere in Australia and that a higher proportion of these jobs were part-time, rather than full-time, jobs.

7.5 Conclusion

The official labour force statistics that are reviewed in chapter 6, show that the South Australian labour market has more than fully recovered from the recession of the early-1990s. However, the ‘conventional wisdom’ hides two serious labour market problems, hidden unemployment and visible underemployment, as the *trend unemployment rate* really only measures changes in cyclical unemployment and frictional unemployment. The two key features of the official labour force statistics for South Australia are the trends in the labour force participation rates and the rate of part-time job growth. The growth in structural unemployment and part-time employment that occurred during the 1990s led to the creation of significant amounts of both hidden unemployment and visible underemployment in South Australia, which was not captured by the official measure of labour underutilisation, the *trend unemployment rate*.

This chapter sought to determine the effects of economic restructuring and labour force restructuring on the level of labour underutilisation by applying the three measures of labour underutilisation that were developed in chapter 5. The *real unemployment rate* is a person rate of unemployment that adds an estimate of hidden unemployment to the *trend unemployment rate*. The *hours unemployment rate* is an hours-based rate of unemployment that adds estimates of visible underemployment to the *unemployment rate*. The *comprehensive unemployment rate* is also an hours-based rate of unemployment that adds estimates of both hidden unemployment and visible underemployment to the *trend unemployment rate*.

The official picture of the last business cycle in South Australian is well known to most Australian labour market analysts. The *trend unemployment rate* in South Australia jumped from 6.7 per cent in 1990 to 11.2 per cent in 1993, after which the *trend unemployment rate* trended downwards to reach 5.3 per cent in 2005 as those people who became cyclically unemployed during the recession found work. However, the three alternative labour force indicators that are discussed here point to a very different picture of the labour force experience of South Australia during the 1990s. Three key points emerge from the analysis based on these three indicators.

First, the *real unemployment rate* jumped from 9.7 per cent in 1989 to 14.1 per cent per cent in 1994 and then rose even higher to reach 15.3 per cent in 1995, in line with the increase in cyclical unemployment and hence the *trend unemployment rate*. However, the *real unemployment rate* did not follow the *trend unemployment rate* downwards during the 1990s. Rather, it plateaued during the 1990s and only began to fall in the early-2000s. This implies that the cyclical unemployment that was created during the contractionary phase of the recession was not subsequently re-employed during the expansionary phase. That is, a sizeable proportion of those people who became cyclically unemployed during the downturn of the recession during the early-1990s became structurally unemployed and then slipped into the ranks of the hidden unemployed during the latter part of the 1990s as the economy recovered. This finding supports the conclusions of Watson (2000a).

Moreover, the dynamics of the female labour market suggests another cause of hidden unemployment. That is, the pattern of demand for labour in the South Australian female labour market is quite different to the other states, especially Western Australia and Queensland. Hence, the *real unemployment rate* is also being driven by the slower demand

for female labour than is the case in the other states. By 2005 the *real unemployment rate* had only fallen to 12.5 per cent, which is about 30 per cent higher than the 1989 minimum.

Second, the *hours unemployment rate* also jumped during the early-1990s from 8.8 per cent in 1990 to 15.4 per cent in 1993, also in concert with the increase in the *trend unemployment rate*. However, unlike the *real unemployment rate*, the *hours unemployment rate* did fall during the 1990s, to 9.1 per cent in 2005, in concert with the fall in the *trend unemployment rate*. These trends demonstrate that part-time work, which was the driver of employment growth in South Australia during the 1990s, caused the *trend unemployment rate* to fall, but also contributed to the increase in visible underemployment in the state. However, unlike the *real unemployment rate*, the *hours unemployment rate* has almost fallen back to the pre-recession level. So, from this perspective at least, the South Australian labour market has recovered from the recession of the early-1990s.

Finally, the *comprehensive unemployment rate* also jumped during the labour market contraction, from 11.9 per cent in 1989 to 18.8 per cent in 1993. However, unlike the *real unemployment rate*, the *comprehensive unemployment rate* showed no tendency to fall during the 1990s, despite falls in the *trend unemployment rate*. The recovery in the *comprehensive unemployment rate* has only occurred since 2002. In early-2005 the *comprehensive unemployment rate* for South Australia was treble the *trend unemployment rate* and 60 per cent higher than the 1989 level. From the perspective of the *comprehensive unemployment rate*, it cannot be argued that the South Australian labour market had fully recovered from the recession. Indeed, with the *comprehensive unemployment rate* at levels comparable with the 1993 level, it must be concluded that the recovery of the South

Australian labour market from the recession of the early-1990s had barely commenced by 2005, let alone been concluded.

In conclusion, these measures of labour underutilisation suggest that the actual level of labour underutilisation in South Australia is between two and three times the figure obtained from the *trend unemployment rate*. Hence, this examination of the South Australian labour market provided no evidence to support the ‘conventional wisdom’ that the South Australian labour market had fully recovered from ‘the recession we had to have’ (Argy 2005:76). The next chapter uses these three labour market indicators to examine the labour markets of the other Australian states to determine what happened to the level of labour underutilisation in Australia generally over the period 1989 to 2005, in order to compare the performance of the South Australian labour market with that of the nation as a whole.

8 LABOUR FORCE TRENDS THREE: THE REAL STORY OF THE AUSTRALIAN LABOUR MARKET 1989 TO 2005

8.1 Introduction

8.1.1 Introduction

As discussed earlier, the ‘conventional view’ of the Australian labour market is that it had fully recovered from the ‘recession that we had to have’ (Argy 2005; 76). The previous chapter tested the veracity of this ‘conventional wisdom’ by using the three labour market indicators that were constructed in chapter 5 to examine trends in labour underutilisation in South Australia over the period 1987 to 2005. The discussion undertaken in chapter 7 provided no evidence to support the ‘conventional wisdom’. The previous chapter argued that not only is the recovery from the recession far from complete, the South Australian labour market has only recently started to recover from the recession. This chapter now extends the discussion undertaken in chapter 7 by using these three labour market indicators to examine labour underutilisation trends in all six Australian States. This discussion allows South Australian labour underutilisation trends to be compared with those of the other states.

The recession of the early-1990s affected the labour markets of the six Australian states in four quite different ways. First, was the timing of the onset of the economic recession, and the associated labour market contraction, as the boom of the late-1980s lost momentum. Western Australia was the first state to slip into recession in 1989 and the other states

followed during 1990 and 1991. Second, there was a geographical dimension to the recession as the level of unemployment and hence labour underutilisation varied considerably between the states. For example, the *trend unemployment rate* in Queensland peaked at 10.3 per cent in 1993, while in Tasmania it peaked at 11.9 per cent. Third, was the different timing of the commencement of the labour market recovery. Not surprisingly, the Western Australian labour market was the first to commence its recovery in 1992, followed by the other states during the course of 1993. Fourth, there is also a gender dimension to the labour market experiences of the states. Despite these differences, by early-2005 the *trend unemployment rate* in all six states had fallen to pre-recession levels or lower. Moreover, by 2005 *trend unemployment rates* were the lowest seen for a generation and for some states the lowest since the Labour Force Survey was adopted as the official source of unemployment statistics in February 1978. That is, the ‘conventional wisdom’ was that the Australian labour market had not only fully recovered from the recession, it was actually performing better in 2005 than during the boom of the late-1980s. The exploration undertaken in chapter 7 did not support that view.

8.1.2 Aim of this chapter

The main aim of this study is to use the three new labour market indicators in order to understand better the contours and dynamics of labour underutilisation in South Australia. That goal was essentially completed in chapter 7. That chapter presented a rather disturbing picture of the level of labour underutilisation in the South Australian labour market. This picture stands in stark contrast to the ‘conventional wisdom’. It is now the time to examine the labour markets of the other states, using these three labour market

indicators. This comparison of the South Australian labour market with those of the other states will provide a better understanding of the dynamics of labour underutilisation in the South Australian labour market over the period 1989 to 2005.

This chapter is divided into a further three sections. The second section briefly presents the ‘conventional wisdom’ of the Australian labour market on a state-by-state basis using the *trend unemployment rate*, as it is the measure of labour underutilisation that is preferred by the Australian Bureau of Statistics. The third section examines the labour markets of the six Australian states using the labour market indicators that were developed in chapter 5.²³ Sections 4, 5 and 6 examined the labour markets of the six Australian states using the *real unemployment rate*, the *hours unemployment rate* and the *comprehensive unemployment rate* respectively. The final section concludes that not only was the actual level of labour underutilisation in Australia about double the level estimated by the *trend unemployment rate*, for a number of states there had been no improvement in the level of labour underutilisation from 1993 to 2005. Again, it cannot be concluded that the South Australian labour market had recovered from the recession. Moreover, it is demonstrated that the South Australian labour market had actually lost ground with respect to the other states during the recovery from the recession.

²³ For males the benchmark for each state is the maximum labour force participation rate that was attained during the boom of the late-1980s/early-1990s, while for females the benchmark is the state with the highest labour force participation rate. This is explored in chapter 5.

8.2 The conventional wisdom about the Australian labour market

The ‘conventional wisdom’ about the Australian labour market since the end of the 1980s is presented in the following three tables and six figures. Each figure shows the male and female *trend unemployment rate* for each State. These six figures tell similar stories of the labour market experience of the last business cycle. As discussed above, there are however some minor differences, most notably with respect to when the states moved into recession, the timing of the commencement of the labour market recovery, the level of unemployment during the trough of the recession, the local effects of the Asian Economic Crisis and the 2000 Olympic Games, and gender differences. However, the experience of the Tasmanian labour market is markedly different to that of the mainland states.

Table 8.1: Trend unemployment rate, Australia, persons, 1989 to 2005, per cent

Year	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	6.6	5.1	7.1	7.5	5.8	9.7
1990	6.0	4.5	6.8	6.7	6.7	8.1
1991	7.6	8.6	9.5	8.8	9.4	9.3
1992	9.5	10.9	9.8	11.0	10.8	10.7
1993	10.7	11.4	10.3	11.2	9.6	11.9
1994	9.9	11.3	9.6	10.6	8.4	11.4
1995	8.2	9.1	8.4	9.7	7.2	10.5
1996	7.4	8.4	8.9	9.1	7.3	9.7
1997	7.7	8.8	9.5	9.2	7.2	10.3
1998	7.2	8.1	8.4	9.6	6.8	10.4
1999	6.6	7.3	7.7	8.7	6.9	10.2
2000	5.6	6.5	7.7	8.0	6.2	8.7
2001	5.6	6.0	8.2	7.1	6.5	8.6
2002	6.2	6.3	7.9	6.9	6.5	8.5
2003	6.1	5.7	7.1	6.0	6.0	9.1
2004	5.4	5.6	6.2	6.5	5.6	6.9
2005	5.3	5.5	4.5	5.3	4.7	5.6

Source: Australian Bureau of Statistics cat. no. 6202.0.

The Australian economy slipped into recession during 1989 and 1990 as a result of the boom losing momentum, the decision by the Reserve Bank of Australia to increase interest rates in order to slow inflation and the onset of a global recession, which is shown in

Tables 8.1, 8.2 and 8.3. The *trend unemployment rate* rose to between 10 and 11 per cent, for all states, during the trough of the recession in 1992 and 1993. This was a little higher for males and a little lower for females. After 1993, the *trend unemployment rate* fell to about five per cent, which is an historically low levels of unemployment for all states. For most states, the recovery from the recession was interrupted to some extent by the Asian Economic Crisis or the 2000 Olympic Games.

Table 8.2: Trend unemployment rate, Australia, males, 1989 to 2005, per cent

	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	6.4	4.6	6.5	7.7	5.3	9.0
1990	5.7	4.0	6.3	6.7	6.6	8.1
1991	7.9	8.7	9.8	9.2	9.9	9.8
1992	10.0	11.5	10.2	12.1	11.4	11.6
1993	11.6	12.2	11.1	12.3	9.7	13.4
1994	10.8	11.6	9.8	11.4	8.5	13.0
1995	8.4	9.1	8.5	10.5	7.7	11.4
1996	7.9	8.6	9.2	10.0	7.7	10.7
1997	7.9	9.0	9.8	9.9	7.1	10.8
1998	7.4	8.2	8.8	10.0	6.8	11.9
1999	6.7	7.5	7.7	9.4	7.2	11.7
2000	5.6	6.4	7.7	8.3	6.6	9.3
2001	5.9	6.1	8.3	8.1	7.0	9.9
2002	6.4	6.3	8.2	7.5	6.9	9.6
2003	6.1	5.9	6.8	6.6	6.3	10.0
2004	5.2	5.6	5.8	6.6	5.1	7.4
2005	5.0	5.4	4.1	5.6	4.2	5.7

Source: Australian Bureau of Statistics cat. no. 6202.0.

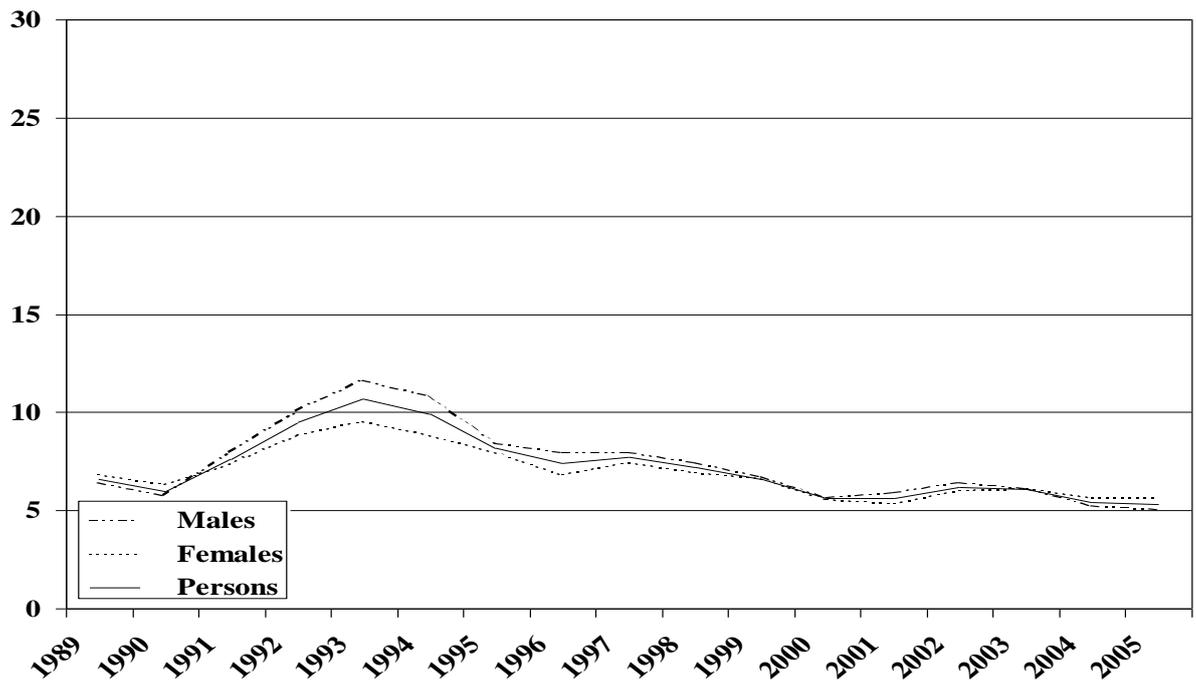
Table 8.3: Trend unemployment rate, Australia, females, 1989 to 2005, per cent

Year	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	6.8	5.9	8.0	7.2	6.6	10.7
1990	6.3	5.3	7.4	6.8	7.0	8.1
1991	7.3	8.5	9.1	8.3	8.7	8.6
1992	8.8	10.2	9.3	9.4	10.0	9.3
1993	9.5	10.2	9.2	9.7	9.6	9.8
1994	8.8	11.0	9.4	9.5	8.4	9.2
1995	7.9	9.0	8.2	8.6	6.6	9.3
1996	6.8	8.1	8.5	7.9	6.9	8.3
1997	7.4	8.5	9.0	8.3	7.3	9.6
1998	6.9	7.9	8.0	9.1	6.7	8.3
1999	6.6	7.0	7.7	7.9	6.6	8.2
2000	5.5	6.5	7.7	7.7	5.6	8.1
2001	5.3	6.0	8.0	6.0	5.8	6.9
2002	6.0	6.3	7.5	6.1	5.9	7.2
2003	6.1	5.5	7.5	5.3	5.5	8.0
2004	5.6	5.7	6.7	6.3	6.1	6.2
2005	5.6	5.5	5.0	4.9	5.3	5.6

Source: Australian Bureau of Statistics cat. no. 6202.0.

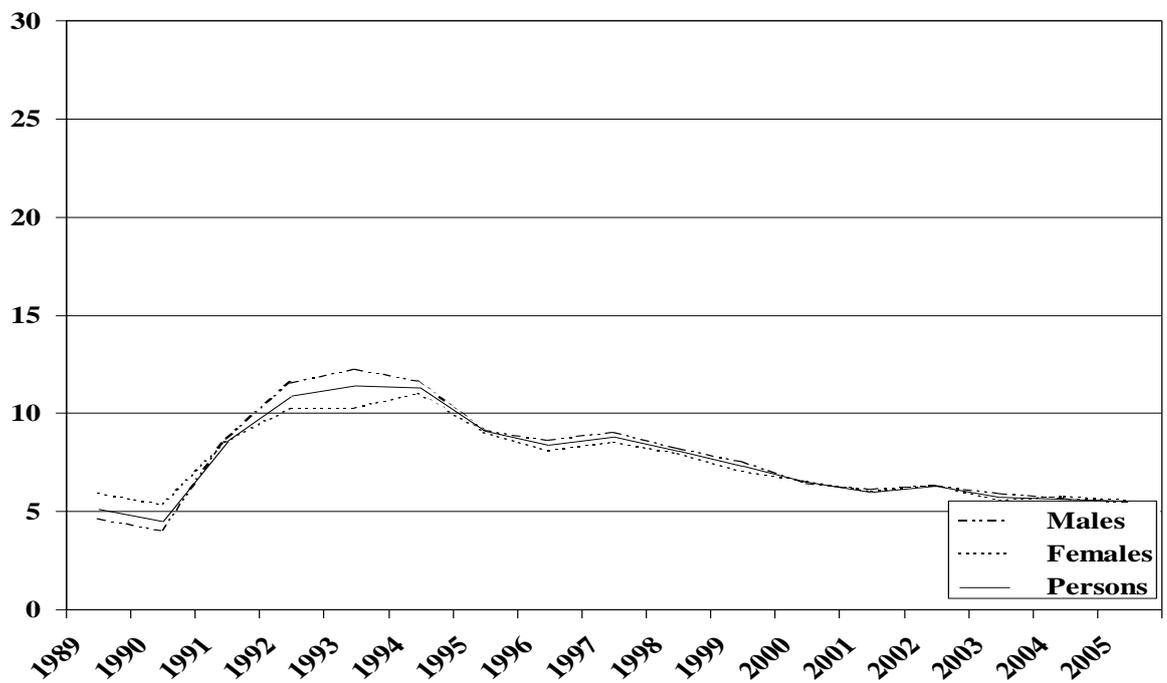
There are three clear departures from this general trend. First, Figure 8.1 shows that the New South Wales labour market was strongly affected by the 2000 Olympic Games. This figure clearly shows the labour market effects of both the pre-Olympic boom and the post-Olympic slump in Queensland. Second, Figure 8.5 shows that the Queensland labour market was much more severely affected by the Asian Economic Crisis than the other states, as indicated by the surge in both the male and female *trend unemployment rate* in 1997 and 1998. There is also some evidence of a pre-Olympic boom and post-Olympic slump, but not to the extent felt in New South Wales (Figure 8.1). Third, Figure 8.6 shows that the Tasmanian experience was quite unlike that of any other state. During the peak of the boom of the late-1980s the *trend unemployment rate* for Tasmania had fallen to about eight per cent, which is considerably higher than on the mainland. Moreover, the pattern of recovery during the 1990s does not follow the downward trend of the five mainland states, primarily as a result of the high and variable levels of male underutilisation. It was not really until 1999 that the Tasmanian labour market showed a general improvement.

Figure 8.1: Trend unemployment rate, New South Wales, 1989 to 2005, per cent



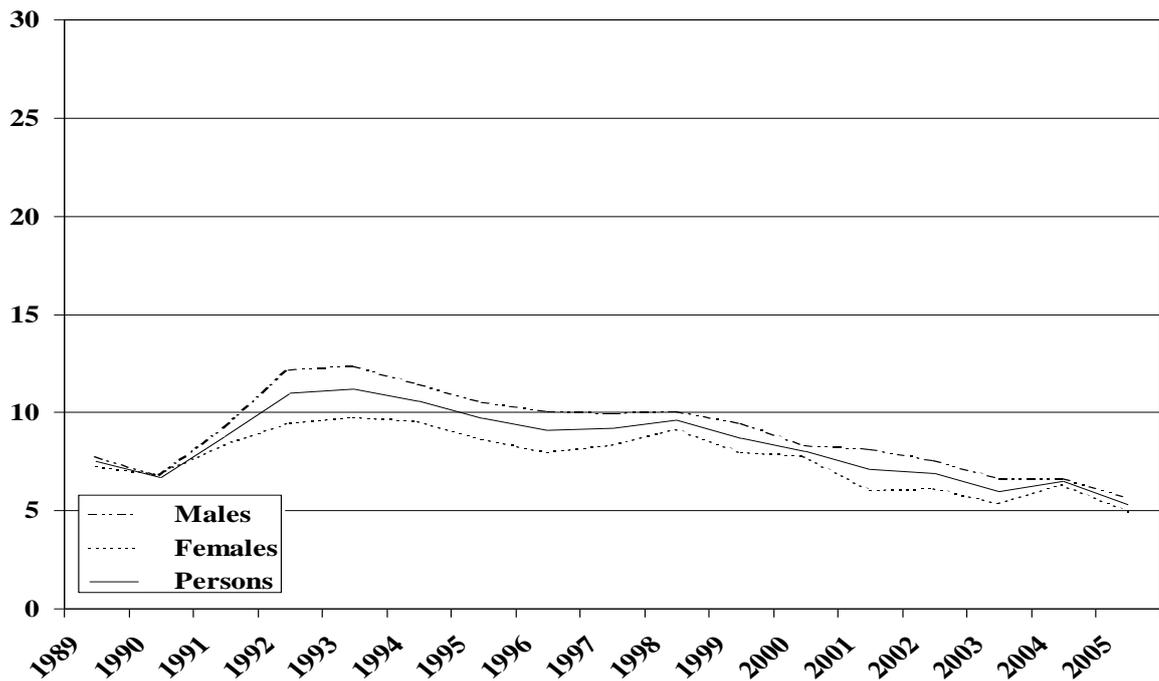
Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 8.2: Trend unemployment rate, Victoria, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

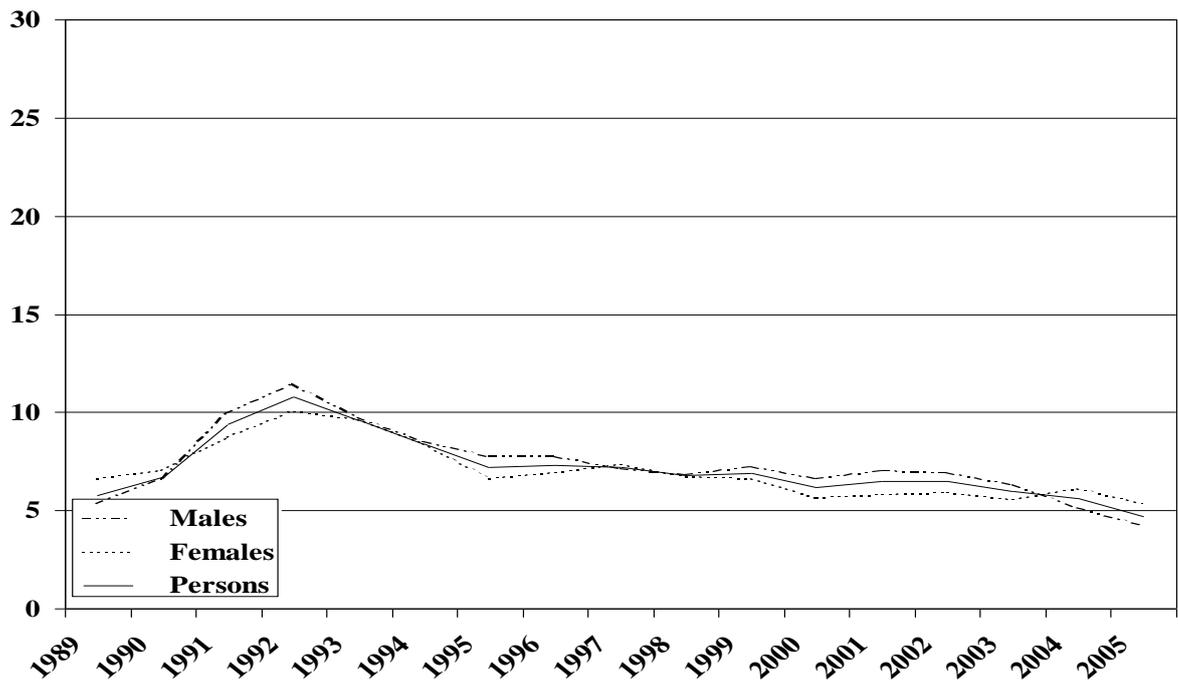
Figure 8.3: Trend unemployment rate, South Australia, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

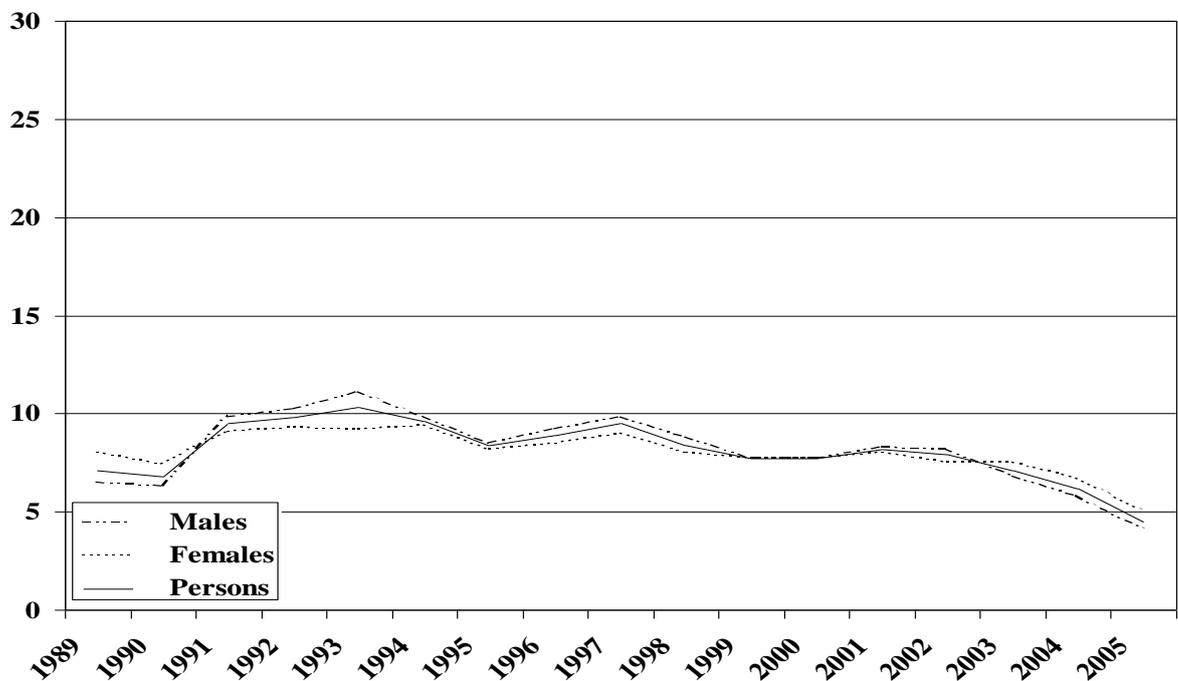
Despite the marked variation in the experience of the six Australian states during the 1990s, the experiences of the 2000s were remarkably similar. Following from the Asian Economic Crisis and the post-Olympics slump, unemployment in all states had fallen, in some cases quite dramatically. Such that by early-2005 every state had a *trend unemployment rate* of about five per cent, which is not only lower than the *trend unemployment rate* that prevailed during the boom of the late-1980s, but it was also the lowest level in more than 25 years. For some states the 2005 *trend unemployment rate* was the lowest on record, that is since February 1978.

Figure 8.4: Trend unemployment rate, Western Australia, 1989 to 2005, per cent



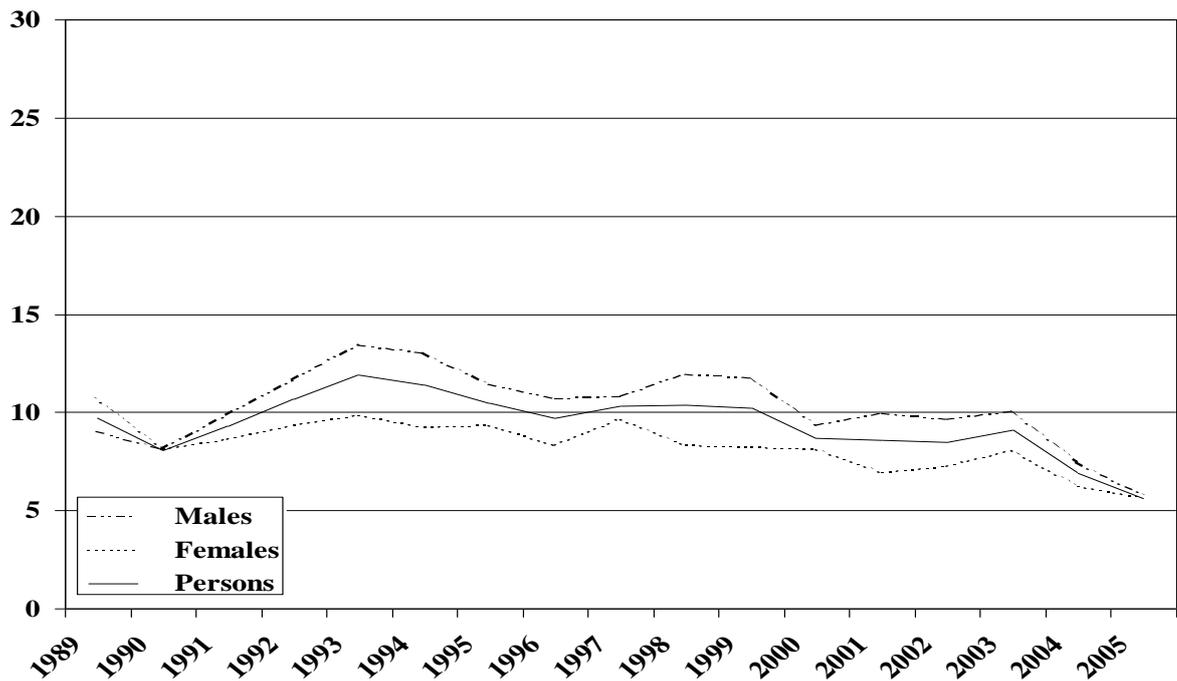
Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 8.5: Trend unemployment rate, Queensland, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

Figure 8.6: Trend unemployment rate, Tasmania, 1989 to 2005, per cent



Source: Australian Bureau of Statistics cat. no. 6202.0.

8.3 An alternative view of the Australian labour market:

The real unemployment rate

8.3.1 Introduction

This study attempts to fill an identified need in Australian labour market analysis. That is, the development and application of an hours-based rate of unemployment in order to provide better estimates of labour underutilisation for Australia (Denniss 2001, 2003, Australian Bureau of Statistics, 2002b, 2003c and 2009b). The *comprehensive unemployment rate* discussed in section 7.5 is an attempt to fill this need. As discussed in chapter 5, the first step in the construction of the *comprehensive unemployment rate* is to calculate estimates of the level of hidden unemployment by constructing the *real*

unemployment rate. The second step is to calculate estimates of the level of visible underemployment through the construction of the *hours unemployment rate*. The third step is to integrate the *real unemployment rate* and the *hours unemployment rate* to obtain the *comprehensive unemployment rate*.

However, as discussed earlier the *real unemployment rate* is not just an intermediate step in the construction of the *comprehensive unemployment rate*, it is a useful labour market indicator in its own right. It adds an estimate of the number of hidden unemployed people to the *trend unemployment rate*. It therefore provides monthly estimates of the number of jobs that need to be created in order to eliminate both cyclical and hidden unemployment in Australia. Changes in the level of the *real unemployment rate* for Australia over the period 1989 to 2005 are presented in Tables 8.4 to 8.6 and Figures 8.7 to 8.12.

Table 8.4: Real unemployment rate, Australia, persons, 1989 to 2005, per cent

Year	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	9.9	6.7	9.1	9.7	6.0	16.3
1990	9.6	5.8	8.4	10.2	7.8	12.3
1991	10.0	9.8	11.4	10.3	10.2	13.8
1992	11.9	13.1	11.4	14.1	12.1	17.3
1993	15.0	14.9	11.8	14.6	11.5	18.9
1994	13.6	14.8	11.6	14.9	9.4	17.9
1995	12.7	13.4	10.3	15.2	7.8	18.4
1996	10.8	11.7	10.3	14.1	8.7	16.4
1997	11.9	12.4	11.7	14.5	8.7	19.7
1998	12.2	11.8	9.8	16.4	8.3	19.2
1999	12.0	12.5	9.7	15.9	8.8	20.8
2000	11.0	12.5	10.4	14.7	8.0	19.2
2001	11.8	11.3	11.7	16.1	8.8	19.4
2002	11.3	11.2	10.3	14.1	8.9	20.5
2003	10.5	10.5	9.6	12.9	8.6	20.1
2004	9.9	10.5	8.8	12.8	8.2	17.4
2005	11.1	10.0	6.9	12.5	7.2	17.3

Table 8.5: Real unemployment rate, Australia, males, 1989 to 2005, per cent

Year	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	7.3	6.2	6.7	8.3	5.6	11.5
1990	6.2	5.0	6.3	7.7	8.3	9.4
1991	7.9	10.8	11.1	9.2	11.0	12.5
1992	11.2	14.3	12.1	14.4	13.5	17.2
1993	14.4	15.7	12.6	15.0	12.8	19.0
1994	13.4	15.1	11.7	15.3	10.2	18.3
1995	10.7	12.2	10.3	15.1	8.8	17.5
1996	10.2	12.1	10.5	14.3	10.0	16.4
1997	10.6	12.6	12.5	15.1	9.7	18.6
1998	11.1	12.3	11.2	16.0	9.4	19.2
1999	10.6	12.4	10.4	15.4	10.4	21.6
2000	9.6	12.8	11.4	13.6	9.8	20.3
2001	10.9	10.5	13.2	15.9	11.0	19.7
2002	11.2	11.6	12.0	14.7	11.2	21.3
2003	10.5	12.3	11.3	13.7	10.4	21.1
2004	10.0	11.5	10.4	13.4	9.6	18.9
2005	10.5	10.7	8.3	12.7	7.9	18.8

Table 8.6: Real unemployment rate, Australia, females, 1989 to 2005, per cent

Year	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania
1989	13.5	7.5	12.4	11.6	6.6	23.0
1990	14.2	6.9	11.2	13.5	7.0	16.3
1991	13.0	8.5	11.8	11.6	9.1	15.5
1992	12.9	11.3	10.5	13.9	10.0	17.4
1993	15.8	13.9	10.8	14.0	9.6	18.8
1994	13.7	14.5	11.3	14.5	8.4	17.4
1995	15.3	15.0	10.2	15.6	6.6	19.7
1996	11.6	11.3	10.1	13.7	6.9	16.5
1997	13.6	12.1	10.7	13.7	7.3	21.0
1998	13.6	11.2	8.0	16.7	6.8	19.2
1999	13.7	12.6	8.8	16.5	6.6	19.8
2000	12.8	12.0	9.2	15.9	5.6	17.9
2001	13.0	12.3	9.8	16.4	5.8	19.1
2002	11.4	10.8	7.9	13.5	5.9	19.4
2003	10.6	8.4	7.5	12.1	6.1	18.9
2004	9.9	9.3	6.7	11.9	6.3	15.5
2005	11.8	9.2	5.0	12.1	6.2	15.5

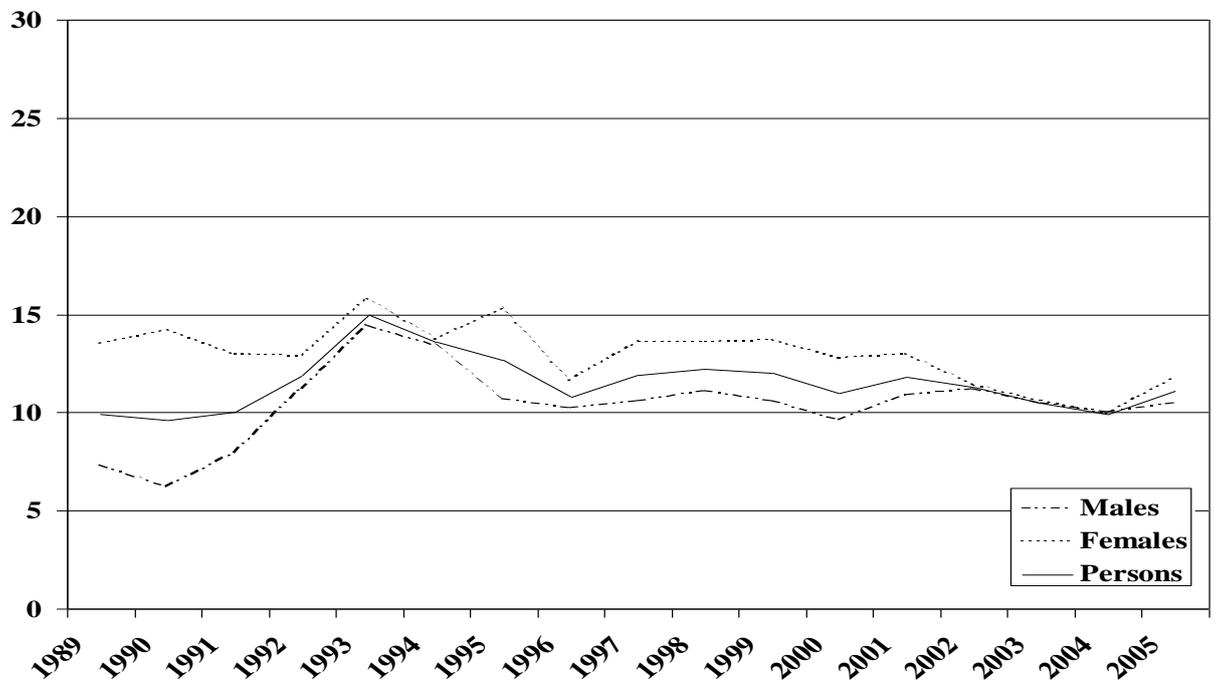
8.3.2 New South Wales

Figure 8.7 shows the *real unemployment rate* for New South Wales. This figure bears very little resemblance to Figure 8.1. The person *real unemployment rate* shows the New South Wales labour market contracting in the early-1990s, to attain a maximum *real unemployment rate* of 15.0 per cent in 1993, compared to a *trend unemployment rate* of 10.7 per cent. The labour market contraction was followed by a sharp, but partial, recovery

during 1994 and 1995 followed by a steady recovery. The recovery was interrupted to some extent by the Asian Economic Crisis and the 2000 Olympic Games.

There are three clear differences between Figures 8.1 and 8.7. First, the level of labour underutilisation attained during the trough of the recession is much higher, 15.0 per cent compared to 10.7 per cent. This is of course not surprising given that the *real unemployment rate* is a broader measure of labour underutilisation than the *trend unemployment rate*. Second, the recovery appears to have been more strongly affected by the Asian Economic Crisis than the *trend unemployment rate* suggests. However, it appears that the female labour market was affected more strongly by the Asian Economic Crisis, possibly due to the higher proportion of part-time and casual work performed by women, which made it easier and cheaper to lay women off.

Figure 8.7: Real unemployment rate, New South Wales, 1989 to 2005, per cent



Prior to the onset of recession a sizeable gender gap existed. The substantially higher female labour underutilisation was mainly the result of the relatively low female labour force participation rate in New South Wales during the boom of the late-1980s (Table 5.4). As the recession took hold, male labour underutilisation increased as the *trend unemployment rate* rose and the male labour force participation rate fell, leading to an increase in male hidden unemployment. On the other hand, female labour underutilisation rose much more slowly during the labour market contraction as the female labour force participation rate rose. As a result, this gender gap all but disappeared by the trough of the recession. However, it re-emerged during the recovery phase and did not close again until 2002. Hence, the *real unemployment rate* shows that over the period 1989 to 2002 the level of labour underutilisation for females was much greater than for males. Figure 8.7 shows that there was no gender gap over the period 2002 to 2004, but it emerged again during 2005. This observation stands in stark contrast to Figure 8.1, in which the *trend unemployment rate* also shows a gender gap emerging during the contractionary phase of the recession, which then closed again during the recovery phase. By 2005 there was only a small difference between the male and female *trend unemployment rate*.

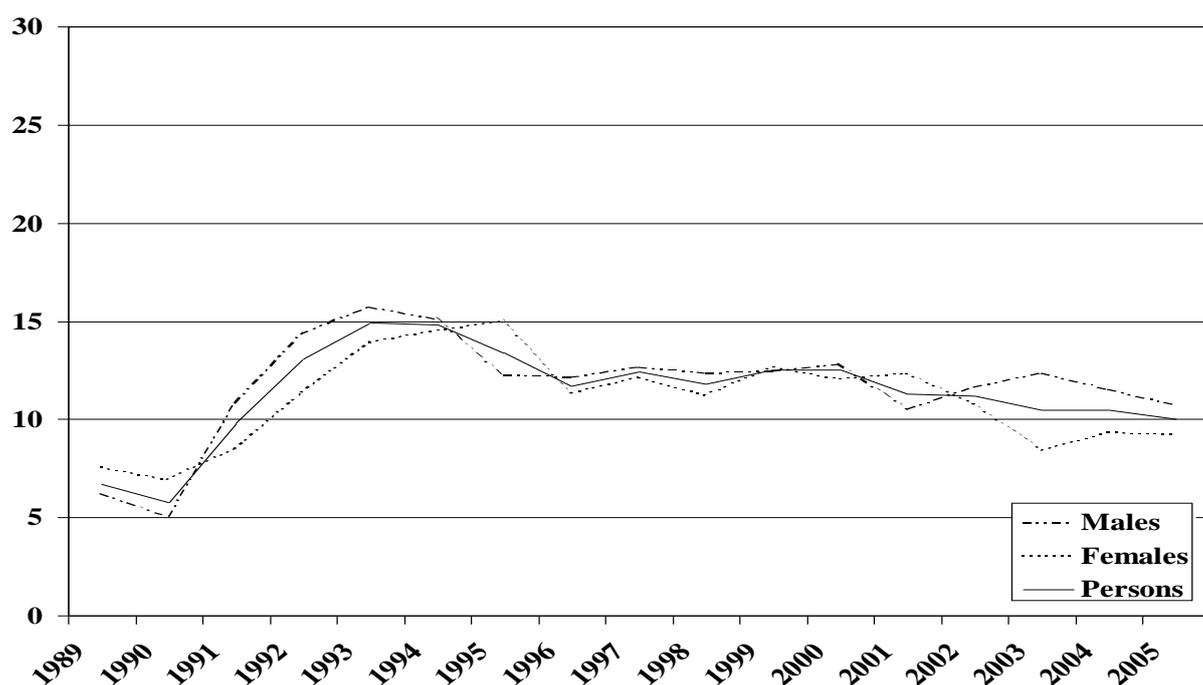
Finally, Figure 8.7 shows that the level of labour underutilisation in New South Wales had almost returned to pre-recession levels in 2004. However, since then there has been some increase in labour underutilisation. The male *real unemployment rate* in 2004 of 10.0 per cent is substantially higher than the 1990 level of 6.2 per cent (Table 8.5). On the other hand, the female *real unemployment rate* of 8.9 per cent was a vast improvement over the 1990 figure of 14.2 per cent. Hence, the recovery in the New South Wales labour market was due entirely the reduction female labour utilisation, which was driven largely by the consistent increases in the female labour force participation rate between 1989 and 2005

and hence the fall in hidden unemployment. This observation underlies the importance of female jobs as the driver of employment growth in New South Wales in the 2000s.

8.3.3 Victoria

Figure 8.8 shows changes in the *real unemployment rate* for Victoria. Unlike the case for New South Wales, there are some similarities between Figures 8.2 and 8.8. At the very least, the basic shape of the two sets of curves are similar. Figure 8.8 shows the Victorian labour market contracting in 1991 and 1992 with the peak person *real unemployment rate* of 14.9 per cent attained in 1994, compared to the peak person *trend unemployment rate* of 11.4 per cent in 1993. Second, a large gender gap did not exist in Victoria during the boom. This is due to the Victorian female labour force participation rate during the late-1980s being much higher than the corresponding New South Wales figures and only a little lower than the corresponding Western Australian figures. Indeed, Table 5.4 shows that for 1991, the Victorian female labour force participation rate was the highest in the nation and hence provided the benchmark for the calculation of the female *real unemployment rate* for that year.

Figure 8.8: Real unemployment rate, Victoria, 1989 to 2005, per cent



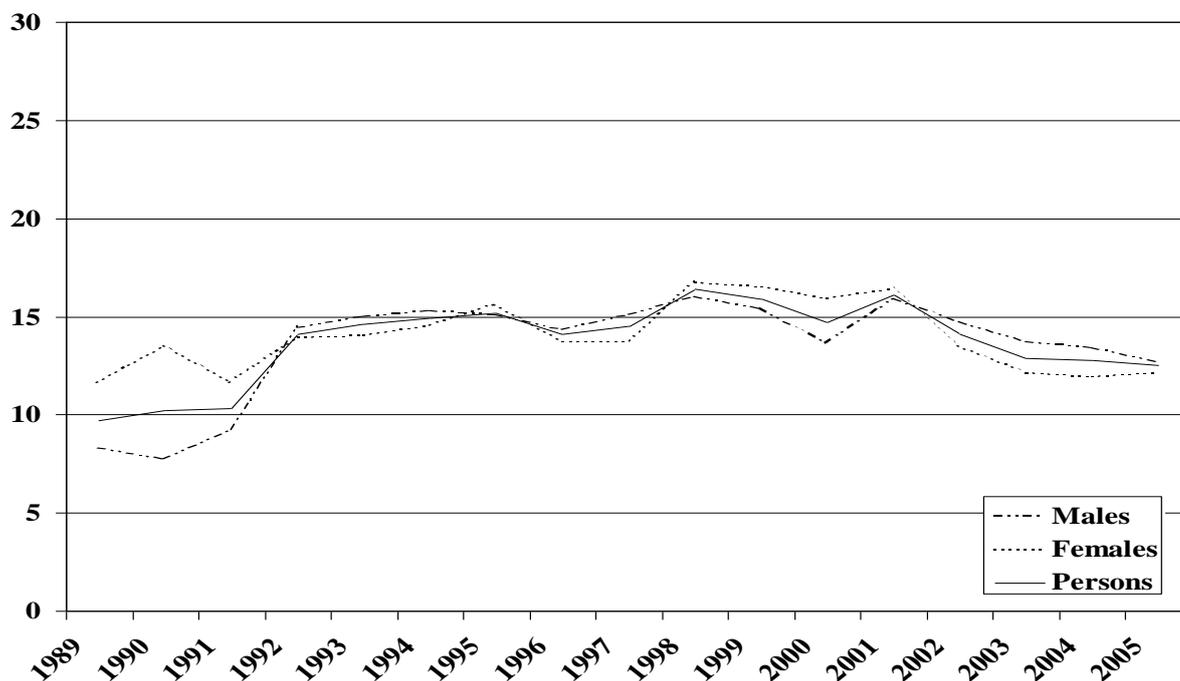
Third, a gender gap did emerge in Victoria during the contractionary phase. However, in this case female labour underutilisation was lower than the male level. This is largely driven by the female *real unemployment rate* rising more slowly than the male rate because the female labour force participation rate continued to increase between 1989 and 1993. The gender gap all but disappeared during the latter half of the 1990s, only to re-appear in 2002, but again with the male *real unemployment rate* higher than the female rate. This gender gap appears to have been caused by a substantial fall in the female *real unemployment rate*, resulting in lower female labour underutilisation, as a result of a surge in the female labour force participation rate, while the male *real unemployment rate* rose more quickly due to the creation of structural unemployment during the recession. Fourth, there was something of a ‘dead cat effect’ in the *real unemployment rate* between 1993 and 1995. However, it was only a partial rebound in the labour market as the *real unemployment rate* fell by about half the amount created between 1990 and 1993.

Finally, by 2005 the person *real unemployment rate* for Victoria had fallen from 14.9 per cent in 1993 to 10.0 per cent, which is nearly double the 1990 figure of 5.8 per cent. Clearly, the recovery of the Victorian labour market was only partial. However, in 2005 the male *real unemployment rate* was 10.7 per cent. More than double the 1990 figure of 5.0 per cent. Whereas the female *real unemployment rate* in 2005 of 8.2 per cent was about 50 per cent higher than the 1990 figure of 6.9 per cent. So, the partial nature of the Victorian labour market recovery from the recession of the early-1990s was due to the failure of both male and female labour underutilisation to return to pre-recession levels.

8.3.4 South Australia

Figure 8.9 shows changes in the *real unemployment rate* for South Australia. As was the case with Victoria, there is little correspondence between Figures 8.9 and 8.3. Figure 8.9 shows that the South Australian labour market was performing much more poorly than either the Victorian or the New South Wales labour markets prior to the onset of recession. The person *real unemployment rate* increased by more than 50 per cent between 1989 and 1994 to attain a value of 14.9 per cent, compared to the person *trend unemployment rate* of 11.2 per cent in 1993. Second, despite the consistent falls in the *trend unemployment rate* shown in Figure 8.3, the person *real unemployment rate* continued to increase during the 1990s. It was not until 2001 that a general improvement in the person *real unemployment rate* commenced as a result of the male South Australian labour market recovering from the post-Olympics slowdown. The recovery of the female labour market from the post-Olympic Games slump was driven by a surge in the female participation rate (Table 5.4).

Figure 8.9: Real unemployment rate, South Australia, 1989 to 2005, per cent



Third, Figure 8.9 shows that a distinct gender gap existed prior to the onset of recession in 1990. Again, this is largely due to the comparatively low South Australian female labour force participation rate for much of the period covered by the present study. The gender gap then closed as the labour market bottomed out in 1994. Figure 8.4 shows that the recession did not affect the female labour market as strongly as it affected the male labour market. The gender gap did not really become substantial again until 1998 as male labour underutilisation fell and female labour underutilisation stagnated in the late-1990s and early-2000s. The gender gap closed again in 2001 and subsequently re-emerged, but this time with male labour underutilisation higher than female labour underutilisation. By 2005, the gender gap had once again all but disappeared.

Finally, there had been no overall improvement in the South Australian labour market between 1991 and 2005. Indeed, the *real unemployment rate* for persons, males and females all rose between 1991 and 2000. So, the observed reduction in the *real unemployment rate* since the peak of 1993 had only occurred over the period 2001 to 2005. The person *real unemployment rate* for 2005 was 12.5 per cent, which is about 25 per cent higher than the 1989 figure of 8.7 per cent. The 2005 female *real unemployment rate* of 12.1 per cent was only 0.5 percentage points higher than the 1989 and 1991 minima of 11.6 per cent. Hence, the South Australian female labour market appears to have recovered from the recession which is largely as a result of the surge in the female labour force participation rate that was discussed above. However, the male *real unemployment rate* rose from 7.7 per cent in 1990 to 12.7 per cent in 2005, which is only a 20 per cent improvement on the 1994 maximum of 15.3 per cent. Clearly, even by 2005 the South Australian male labour market had a lot more recovering to do largely as a result of the failure of male labour underutilisation to return to the levels that prevailed in the late-1980s.

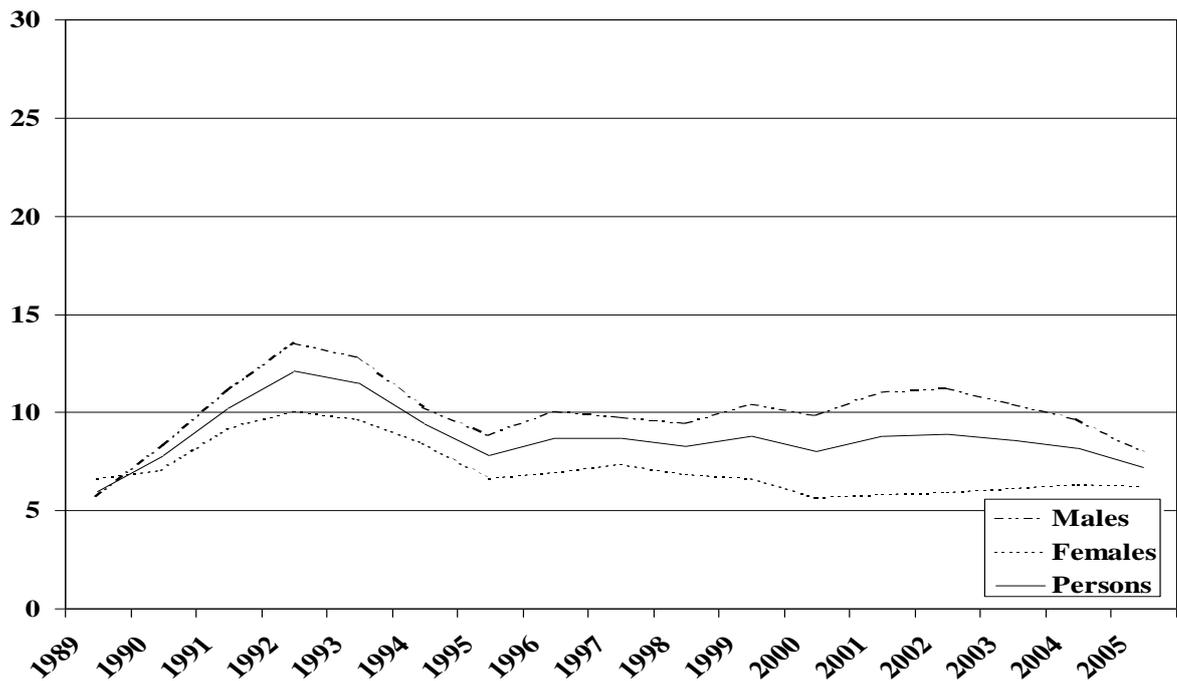
8.3.5 Western Australia

Figure 8.10 shows changes in the *real unemployment rate* for Western Australia. Again there is little resemblance between movements in the *trend unemployment rate* and the *real unemployment rate* as shown in Figures 8.4 and 8.10. Figure 8.10 shows that the Western Australian labour market contracted earlier than the other states, with the maximum person *real unemployment rate* of 13.5 per cent being attained in 1992, compared to the maximum of the person *trend unemployment rate* of 10.8. However, unlike Figure 8.4, Figure 8.10

does not show the Western Australian labour market generally improving during the 1990s. As with the case of the person *trend unemployment rate*, the person *real unemployment rate* rebounded quickly to eliminate about half of the labour underutilisation that was created during the contraction. However, very little improvement in the Western Australian labour market occurred throughout the remainder of the 1990s. Hence, it has only really been since 2002 that the Western Australian person *real unemployment rate* has been falling. By 2005 the Western Australian *real unemployment rate* had fallen to 7.2 per cent, which is only 1.2 percentage points higher than the 1989 minimum.

On the other hand, Figure 8.10 shows a highly gendered Western Australian labour market. The female *real unemployment rate* curve in Figure 8.10 is very similar to the female *trend unemployment rate* curve in Figure 8.4. This is because the Western Australian female labour force participation rate was the benchmark for the female *real unemployment rate* for 14 of the 17 years covered in Figure 8.10. So, by assumption, there was no female hidden unemployment in these 14 years. This low female *real unemployment rate* is therefore something of a statistical artefact, but the fact that the Western Australian female labour force participation rate is so high cannot be ignored. Policy makers in South Australia, for instance, could learn useful lessons from the Western Australian labour market.

Figure 8.10: Real unemployment rate, Western Australia, 1989 to 2005, per cent



A gender gap opened early in the contractionary phase with the gap between the male and the female *real unemployment rate* steadily growing to 5.3 per cent in 2002. After which the gap has tended to narrow due to a general improvement in the male *real unemployment rate*. By 2005 the male *real unemployment rate* had fallen to 7.2 per cent, which is over a third higher than the 1989 minimum of 5.6 per cent, while the female *real unemployment rate* had fallen to 6.2 per cent, which was marginally better than the 1989 minimum of 6.6 per cent. Consequently, even by 2005 male labour underutilisation still had to fall substantially for it to be argued that the Western Australian labour market had fully recovered from the recession.

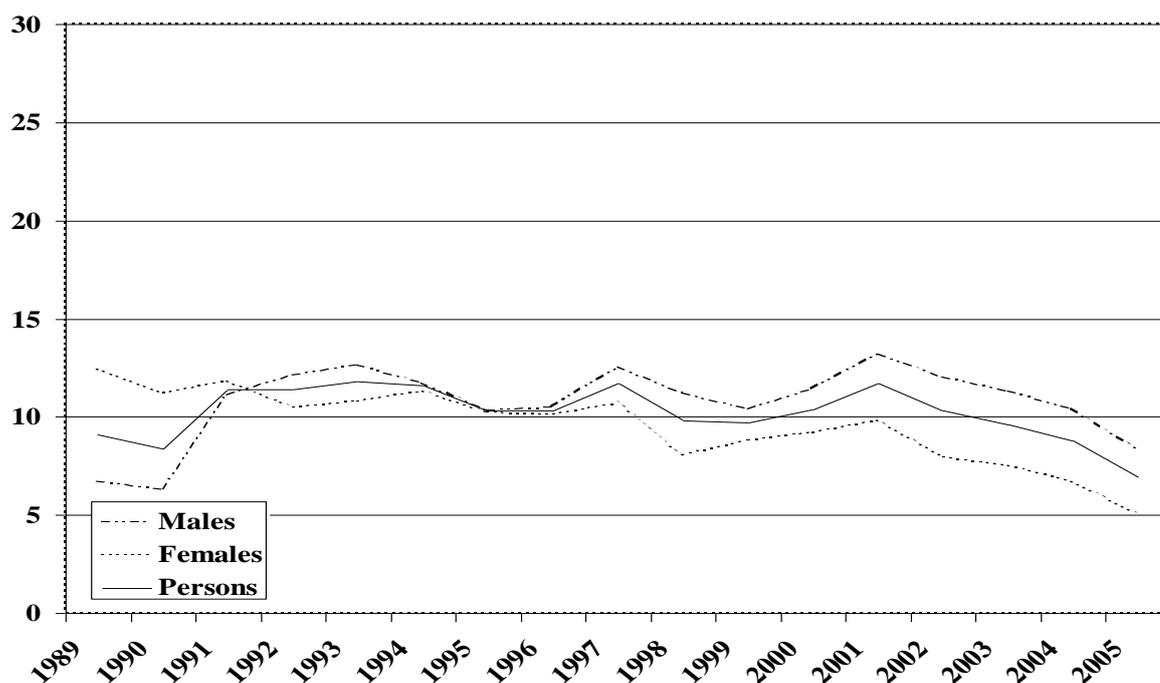
8.3.6 Queensland

Figure 8.11 shows changes in the *real unemployment rate* for Queensland. Like South Australia and Western Australia, there is little resemblance between changes in the person *real unemployment rate* and the person *trend unemployment rate*. Queensland moved into recession in 1990, but was not as adversely affected as the other states, despite the level of labour underutilisation being higher than the other states prior to the onset of recession. The person *real unemployment rate* peaked at only 11.8 per cent in 1993. However, despite the limited impact of the recession and the consistent falls in the person *trend unemployment rate* shown in Figure 8.4, the Queensland labour market showed little evidence of recovery during the 1990s. Nevertheless, as a result of marked reductions in the person *real unemployment rate* since 2001 Queensland appears to have recovered from the recession, with the person *real unemployment rate* falling to 6.9 per cent in 2005, compared to 8.4 per cent in 1990. Moreover, the female *real unemployment rate* had fallen to 5.0 per cent in 2005 compared to 11.2 per cent in 1990. However, the male *real unemployment rate* of 8.3 per cent had yet to return to its pre-recession level of 6.3 per cent.

Finally, like some of the other states that are discussed here, a gender gap existed prior to the onset of recession due to the relatively low (compared to Western Australia) female labour force participation rate. This gender gap disappeared during the contractionary phase of the recession as the female labour force participation continued to grow during the 1990s, while the male *trend unemployment rate* increased and the male labour force participation rate fell. Once closed, this gender gap remained all but absent until the recovery had gathered momentum. In 1996 it re-emerged, driven by strong increases in the

female labour force participation rate, which reduced both the female *real unemployment rate* and female labour underutilisation, while the male *real unemployment rate* was affected by both the Asian Economic Crisis and the 2000 Olympic Games.

Figure 8.11: Real unemployment rate, Queensland, 1989 to 2005, per cent



By 2005, the female *real unemployment rate* of 5.0 per cent was less than half the minimum of 11.2 per cent attained in 1990. On the other hand, the male *real unemployment rate* of 8.3 per cent was about 30 per cent higher than the pre-recession minimum of 6.3 per cent. The net effect of these two processes is that the Queensland labour market had more than fully recovered from the recession by 2005. This exploration concludes that this was the only state to have done so.

8.3.7 Tasmania

Firstly, the experience of Tasmania is quite unlike that of any other state. Figure 8.12 shows the Tasmanian labour market contracting in 1990 with the person *real unemployment rate* climbing to 18.9 per cent in 1993, which is considerably higher than any mainland state. Second, the recovery phase, such as it was, only lasted for a couple of years before the person *real unemployment rate* started to climb again in 1996. The person *real unemployment rate* did not begin to fall until 2003 as a result of strong falls in the person *trend unemployment rate* shown in Figure 8.6 and increased female labour force participation shown in Table 5.4. Third, Figure 8.12 also shows that there had been little overall improvement in the Tasmanian labour market since the trough of the recession. The person *real unemployment rate* in 2004 was 17.3 per cent, which is five percentage points higher than the 1990 figure and only one and a half percentage points lower than the maximum person *real unemployment rate* attained in 1993.

The gender gap that was visible in the late-1980s, again due to very low female labour force participation rates, was eliminated during the contractionary phase due to strong growth in the female labour force participation rate. The gender gap was all but absent during much of the remainder of the 1990s. It re-emerged again in 1998, but with higher male *real unemployment rates*.

In 2005, the male *real unemployment rate* was 18.8 per cent, which was more than double the 1990 minimum of 8.4 per cent. Whereas, the 2005 female *real unemployment rate* of 15.5 per cent was the same as the 1990 minimum. On the basis of this examination of the *real unemployment rate*, it is hard to support the ‘conventional wisdom’ that by 2005 the

Tasmanian labour market had recovered from the recession. However, it may be argued that the Tasmanian female labour market had fully recovered from the recession, largely as a result of the strong falls in labour underutilisation that occurred between 2002 and 2005.

Figure 8.12: Real unemployment rate, Tasmania, 1989 to 2005, per cent



8.3.8 Summary

The examination of the Australian labour market that was conducted in this section using the *real unemployment rate* tells a very different story to the ‘conventional wisdom’ that was presented in section 2. The *trend unemployment rate* presents a picture of convergence. Despite the different pathways into and out of recession, the six Australian state labour markets were all experiencing roughly similar levels of labour underutilisation, which were at historically low levels. On the other hand, an examination of the *real*

unemployment rate tells a story about labour market divergence. The *real unemployment rate* shows that experiences of the labour markets of mainland states as they moved into recession were quite similar. However, they took very different trajectories during the recovery phase. The *real unemployment rate* shows that by 2005 the Queensland labour market had fully recovered from the recession and that Western Australia had almost recovered. For New South Wales, Victoria and South Australia, the recovery was only partial. While for Tasmania, the recovery really had yet to begin. The *real unemployment rate* indicates that labour underutilisation in these three states had to fall by a further 40 per cent for labour underutilisation to return to pre-recession levels. Moreover, the *real unemployment rate* for South Australia in 2005 was a little higher than the levels that prevailed in New South Wales and Victoria. Indeed, Tasmania is the only state against which South Australia compares favourably. This in itself is an unfavourable comparison.

8.4 An alternative view of the Australian labour market:

The hours unemployment rate

8.4.1 Introduction

The second step in the construction of the *comprehensive unemployment rate* is the construction of the *hours unemployment rate*. The *hours unemployment rate* is not just an intermediate step in the construction of the *comprehensive unemployment rate*. It is also a useful labour market indicator in its own right. As discussed above, the *hours unemployment rate* is an hours-based rate of unemployment that converts the *trend unemployment rate* to an hours-based rate of unemployment to which is then added

estimates of visible labour underutilisation that are derived from the Labour Force Survey. The difference between the *hours unemployment rate* and the *trend unemployment rate* therefore provides estimates of the amount of labour underutilisation that has been created by the growth in part-time jobs in Australia, most of which occurred in the wake of the recovery from the recession of the early-1990s. Changes in the *hours unemployment rate* are shown in Figures 8.13 to 8.18 as well as Tables 8.7 to 8.9.

8.4.2 New South Wales

Figure 8.13 shows changes in the *hours unemployment rate* for New South Wales over the period 1989 to 2005. In contrast to Figure 8.7, Figure 8.13 looks remarkably similar to Figure 8.1, which shows variations in the *trend unemployment rate*. The general shapes of these two sets of curves are quite similar, but the level of labour underutilisation shown in Figure 8.13 is of course substantially higher than those shown in Figure 8.1. and Figure 8.17, which shows the New South Wales labour market contracting in 1990, reaching its trough in 1993, followed by a strong but partial subsequent rebound, followed by a decade of fairly steady recovery. By 2005 the person *hours unemployment rate* shows that the level of labour underutilisation in the New South Wales labour market had all but returned to pre-recession levels.

However, there are two substantial differences between Figure 8.1 and Figure 8.13. Firstly, the level of labour underutilisation shown by the person *hours unemployment rate* is substantially higher than the level shown by the person *trend unemployment rate*. This should come as no surprise given that the *hours unemployment rate* is a broader measure of

labour underutilisation than the person *trend unemployment rate*. What is surprising is that the gap between the two sets of curves is widening. For example, the gap between the person *trend unemployment rate* and the person *hours unemployment rate* for persons had increased from 1.4 percentage points in 1989 to 3.0 percentage points in 2005. Hence, by 2005 visible underemployment accounted for some 40 per cent of the labour underutilisation shown in Figure 8.13. This is a very clear indication of the amount of labour underutilisation that was created in New South Wales as a result of the growth of part-time employment. Second, the boom associated with the 2000 Olympic Games and the post-Olympic Games slump is more clearly visible in Figure 8.13. Clearly, the jobs associated with this major event were overwhelmingly part-time as well as temporary and female.

Table 8.7: Hours unemployment rate, Australia, persons, 1989 to 2005, per cent

Year	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania
1989	8.0	6.4	9.8	7.6	8.9	11.9
1990	7.5	6.0	8.8	8.6	8.8	10.0
1991	9.5	11.0	11.5	12.2	12.1	12.2
1992	12.2	14.2	14.6	14.1	12.8	13.9
1993	13.4	14.7	15.4	12.7	13.4	14.9
1994	12.7	14.8	14.0	11.3	12.8	15.1
1995	10.7	12.0	13.7	10.1	11.6	14.0
1996	10.3	11.5	12.9	10.5	11.8	13.5
1997	10.4	11.7	13.4	10.1	12.8	13.7
1998	9.6	11.0	13.5	9.8	11.7	14.5
1999	9.3	10.2	13.1	9.9	11.1	13.8
2000	8.1	9.1	11.3	9.4	11.0	12.1
2001	8.1	9.1	10.8	9.2	11.7	12.4
2002	9.6	9.8	14.4	10.3	11.8	11.3
2003	9.5	9.3	12.2	9.6	11.1	12.7
2004	8.6	8.8	10.5	9.2	9.3	10.0
2005	8.6	9.2	9.1	7.7	7.4	8.4

Figure 8.1 and 8.13 show markedly different gender dynamics. Figure 8.1 shows the recession affecting the male labour market more strongly than the female labour market. Hence, female labour underutilisation, as shown by the *trend unemployment rate*, converged during the recovery from the recession. However, Figure 8.13 shows the

opposite trend. Male and female labour underutilisation converged during the contraction with a gender gap re-emerging during the recovery, especially after 1997. By 2005, female labour underutilisation was substantially higher than male labour underutilisation, as shown by the *hours unemployment rate*, due to female part-time work becoming the driver of job growth in New South Wales.

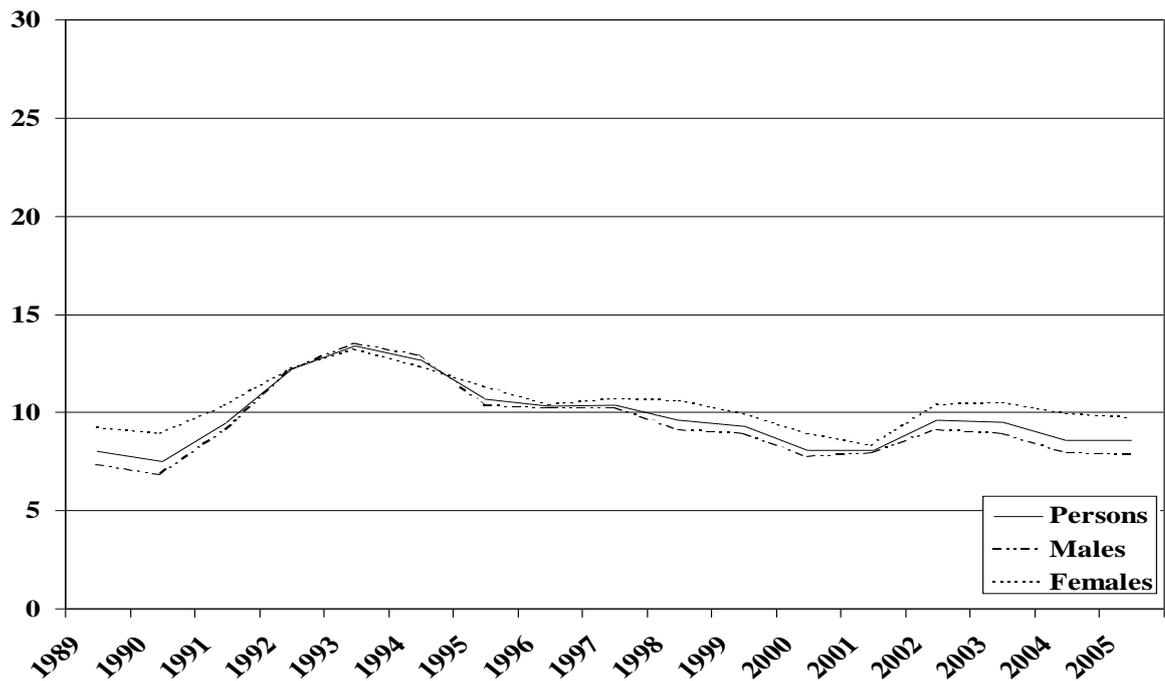
Table 8.8: Hours unemployment rate, Australia, males, 1989 to 2005, per cent

Year	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania
1989	7.3	5.3	9.1	6.3	7.6	10.7
1990	6.8	5.0	8.0	7.7	7.7	9.1
1991	9.1	10.4	11.1	11.8	11.6	11.9
1992	12.1	13.9	14.5	13.6	12.3	13.8
1993	13.5	14.4	15.6	11.7	13.5	15.5
1994	12.9	14.1	13.7	10.6	12.2	15.6
1995	10.3	11.3	13.7	9.7	10.9	14.4
1996	10.2	11.0	12.7	10.0	11.4	13.1
1997	10.2	11.2	13.2	9.6	12.2	13.3
1998	9.1	10.5	13.1	9.1	11.4	15.2
1999	8.9	9.9	12.8	9.4	10.2	14.6
2000	7.7	8.5	11.0	8.9	10.6	11.9
2001	7.9	8.7	11.0	8.9	11.1	12.8
2002	9.1	9.0	15.9	10.0	11.2	11.2
2003	8.9	8.8	13.2	9.1	10.1	11.9
2004	7.9	7.9	9.5	8.1	8.3	9.0
2005	7.9	8.5	8.4	6.4	6.5	7.4

Table 8.9: Hours unemployment rate, Australia, females, 1989 to 2005, per cent

Year	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania
1989	9.2	8.3	11.3	10.2	11.7	14.5
1990	8.9	7.7	10.4	10.2	10.9	11.9
1991	10.3	12.2	12.2	12.9	13.1	12.9
1992	12.2	14.8	14.8	15.0	13.8	14.3
1993	13.2	15.3	15.1	14.7	13.2	13.9
1994	12.3	15.9	14.4	12.6	13.9	14.2
1995	11.3	13.5	13.7	10.9	13.0	13.4
1996	10.4	12.6	13.3	11.4	12.6	14.1
1997	10.7	12.7	13.9	11.1	14.0	14.4
1998	10.6	11.8	14.3	11.0	12.3	13.1
1999	9.9	10.7	13.5	10.8	12.6	12.4
2000	8.9	10.2	11.9	10.3	11.7	12.6
2001	8.3	9.7	10.6	9.7	12.6	11.7
2002	10.4	11.1	11.8	10.9	12.7	11.4
2003	10.5	10.1	10.3	10.5	12.8	14.0
2004	9.9	10.5	12.2	11.2	10.9	11.7
2005	9.7	10.4	10.2	9.7	8.9	10.0

Figure 8.13: Hours unemployment rate, New South Wales, 1989 to 2005, per cent



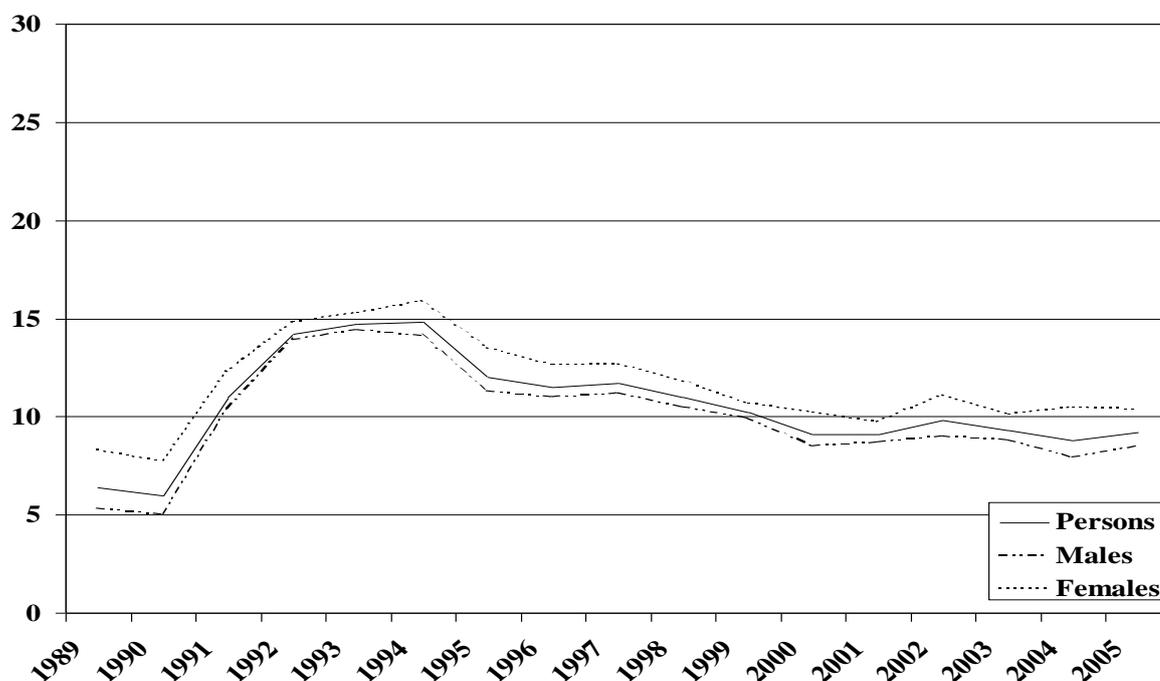
In 2005, the person *hours unemployment rate* was 8.6 per cent, which although it exhibited a substantial improvement on the 1993 peak of 13.4 per cent, it was still 1.1 percentage points higher than the 1990 minimum. Moreover, neither the male nor the female *hours unemployment rate* returned to the pre-recession level. Hence, on the basis of this labour market indicator, the labour underutilisation needed to fall by about 15 per cent before it could be argued that labour underutilisation in New South Wales had fully recovered from the recession by 2005.

8.4.3 Victoria

Figure 8.14 shows changes in the *hours unemployment rate* for Victoria. As was the case with New South Wales, there is some resemblance between the trends in the *trend*

unemployment rate (Figure 8.2) and the *hours unemployment rate* (Figure 8.14), but the resemblance is not strong. Figure 8.14 shows the Victorian labour market contracting from 1990, reaching a trough in 1994 (a year later than is the case with the *person trend unemployment rate*), a subsequent but partial rebound followed by a fairly steady recovery from 1995 onwards. In stark contrast to Figure 8.2, Figure 8.13 does not show the gender gap closing. The gender gap that existed prior to the onset of recession closed a bit, during the labour market contraction. It then returned, more or less, to its pre-recession levels once the labour market recovery commenced.

Figure 8.14: Hours Unemployment Rate, Victoria, 1989 to 2005, per cent



However, in contrast to Figure 8.8, the gender gap was caused by higher female labour underutilisation associated with part-time employment. The gap between the *person trend unemployment rate* and the *person hours unemployment rate* was only 1.3 percentage points in 1989. However, by 2005 this figure had nearly trebled to 3.7 percentage points.

That is, by 2005, visible underemployment accounted for about 40 per cent of the labour underutilisation in Victoria.

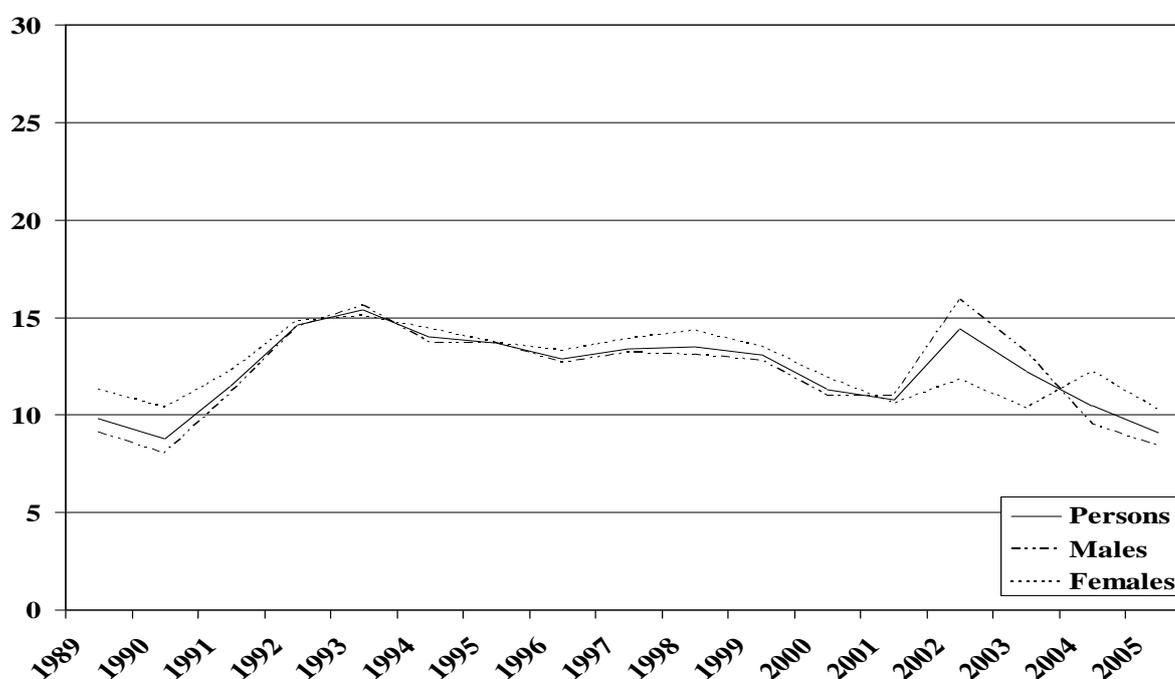
By 2005, the person *hours unemployment rate* for Victoria had fallen from its peak of 14.8 per cent in 1994 to 9.2 per cent. However, this figure was over 50 per cent higher than the pre-recession minimum of 6.0 per cent. Clearly, the Victorian labour market had not fully recovered from the recession by 2005.

8.4.4 South Australia

Figure 8.15 shows changes in the *hours unemployment rate* for South Australia over the period 1989 to 2005. This figure also stands in contrast to the *trend unemployment rate*, shown in Figure 8.3. Figure 8.3 shows the South Australian labour market contracting in 1990, but this is largely a feature of the male labour market. Once the trough was attained in 1993, the *trend unemployment rate* recovered fairly smoothly, even without a strong rebound effect between 1993 and 1995, which is a characteristic of many of the labour markets discussed in this section. On the other hand, Figure 8.15 shows that the contraction of the South Australian labour market was more severe than in New South Wales or Victoria, as the South Australian labour market was not performing comparatively well prior to the onset of recession. As with Figure 8.3, there is no ‘dead cat effect’ shown in Figure 8.15. Rather, there is a period of reasonably steady decline in labour underutilisation between 1993 and 2001.

However, after 2001 the experience of the South Australian labour market was quite unlike that of the other mainland states. In 2001, there was a surge in the male *hours unemployment rate*, which was associated with the surge in male part-time employment and the reduction in male full-time employment that is shown in Table 6.8, both of which increase male visible underemployment. The ensuing growth in male full-time employment and the reduction in male part-time employment then drove the subsequent increase in labour underutilisation.

Figure 8.15: Hours unemployment rate, South Australia, 1989 to 2005, per cent



The *trend unemployment rate*, Figure 8.3, provides a picture of essentially divergent male and female labour market experiences, with a substantial gender gap opening up during the period of labour market contraction during the early-1990s, which did not close until 2004. On the other hand, Figure 8.15 shows a picture of labour market convergence. The gender gap that existed prior to the onset of recession closed during the period of labour market

contraction and does not re-appear until 2001. The re-emergence of the gender gap was driven by the slump in male full-time employment and the growth of male part-time employment during the early-2000s.

Given the above discussion about New South Wales and Victoria it is not surprising that the gap between the *trend unemployment rate* and the *hours unemployment rate* for South Australia widened between 1989 and 2005. What is surprising is the magnitude of the divergence. The South Australian labour market was performing relatively poorly prior to the onset of recession due to the presence of substantial visible underemployment. This is shown by the gap between the person *trend unemployment rate* and person *hours unemployment rate* in 1989 of 4.2 percentage points. Moreover, this gap grew to 10.6 percentage points by 2005. That is, Figure 8.15 shows that about two-thirds of the labour underutilisation in South Australia was a result of the visible labour underutilisation that had been created by the substantial increase in part-time work, as Figure 6.8 shows. These differences can be largely explained in terms of the considerably higher proportion of the South Australian labour market, both male and female, that is employed on a part-time basis and the relatively low male and female labour force participation rates for South Australia.

Table 8.7 shows that the person *hours unemployment rate* for South Australia had fallen from its peak of 15.4 per cent in 1993 to 9.1 per cent in 2005. This is only 0.3 percentage points higher than the 1990 minimum of 8.8 per cent. Moreover, Figures 8.14 and 8.15 show that the recovery in the South Australian labour market was due to both the male and the female *hours unemployment rate* returning to their pre-recession levels.

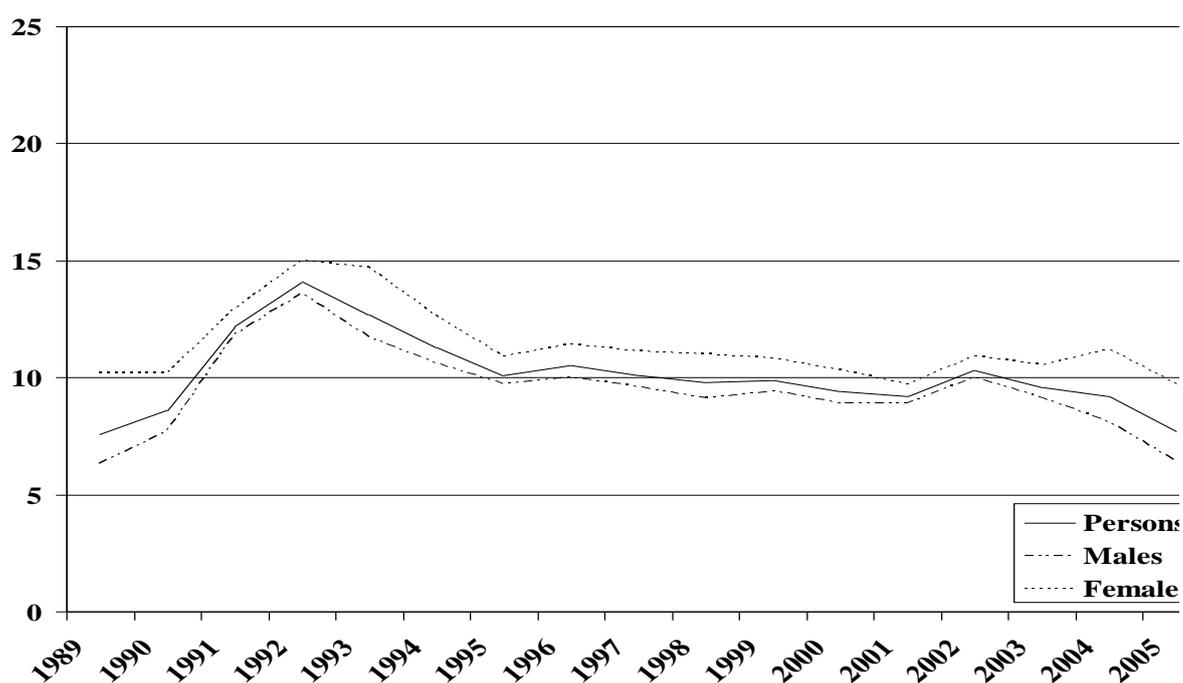
8.4.5 Western Australia

Figure 8.16 shows changes in the *hours unemployment rate* for Western Australia over the period 1989 to 2005. This figure bears some similarities with Figure 8.4, which shows trends in the *trend unemployment rate*, in as much as they share the same general shape. The Western Australian labour market starts to contract in 1989, which is earlier than the other states. Hence, the trough was attained in 1991, which was followed by a strong rebound that eliminated about half of the labour underutilisation that was created during the contraction. Then, from 1995 to 2002, the labour market essentially stagnated. It then subsequently improved strongly, such that by 2005 the pre-recession levels of labour underutilisation were attained.

The pre-recession gender gap did not close during the labour market contraction. Rather, the female *hours unemployment rate* remained about two to three percentage points higher than the male *hours unemployment rate* over the entire period from 1989 to 2005. However, in 2003 the gender gap increased to 3.3 percentage points, with no closing trend.

As with the other states, the gap between the *trend unemployment rate* and the *hours unemployment rate* widened over the period 1989 to 2005. In 1989, the gap was only 1.8 percentage points, but this increased to 3.0 percentage points in 2005. Hence, about 40 per cent of the labour underutilisation in Western Australia was due to visible underemployment. This figure is comparable to those of New South Wales and Victoria, as discussed above.

Figure 8.16: Hours unemployment rate, Western Australia, 1989 to 2005, per cent



By 2005, the person *hours unemployment rate* for Western Australia had fallen from its peak of 14.1 per cent in 1992 to 7.7 per cent. This is just 0.1 percentage points higher than the 1989 minimum. So, on the basis of the *hours unemployment rate*, as well as the *trend unemployment rate*, it may be argued that the Western Australian labour market had fully recovered from the recession. Moreover, as shown in Figure 8.16, the recovery was due to the level of both male and female labour underutilisation falling to pre-recession levels.

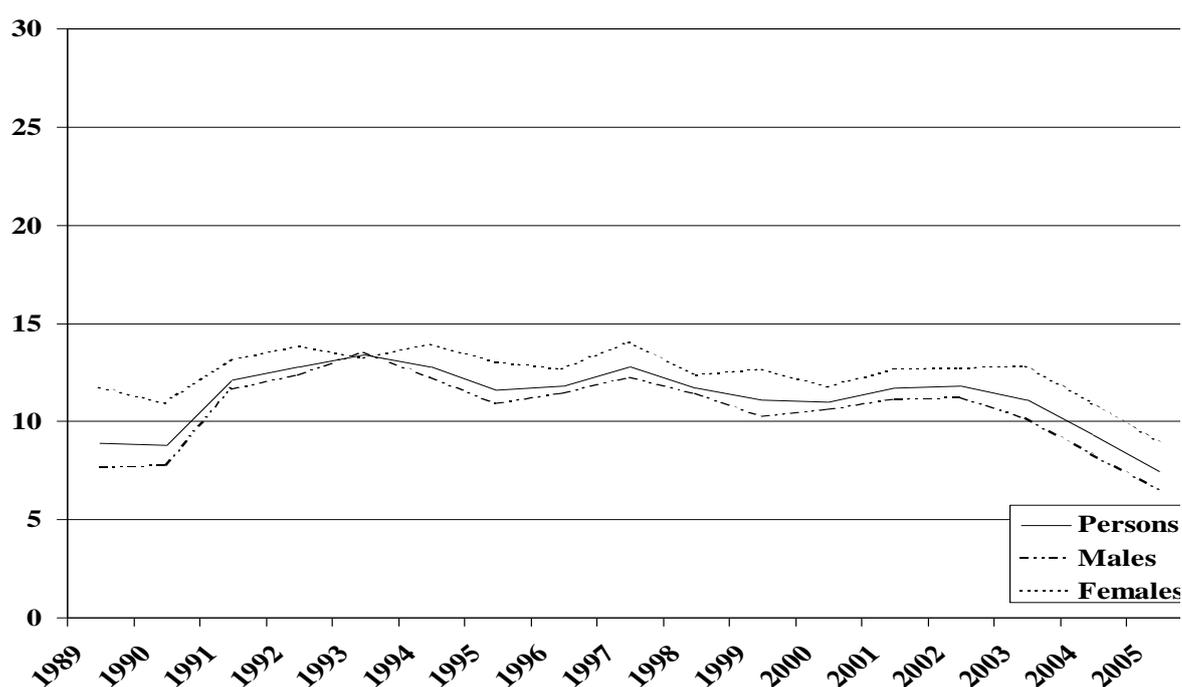
8.4.6 Queensland

Figure 8.17 shows changes in the *hours unemployment rate* for Queensland. This figure looks nothing like Figure 8.5, which shows changes in the *trend unemployment rate*. Moreover, the experience of the Queensland labour market was unlike that of any of the

other six Australian states. Figure 8.17 shows the Queensland labour market contracting in the early-1990s, largely as a result of a surge in the male *hours unemployment rate*. The female *hours unemployment rate* also increases at this time, but not to the same extent, notwithstanding the much higher female *hours unemployment rate* that existed prior to the onset of recession. The gender gap closed during the labour market contraction and was eliminated by the time the trough was attained in 1993, only to open up again during the recovery phase.

Unlike some of the other states discussed above, the subsequent rebound in the *hours unemployment rate* for Queensland was weak. It eliminated only a fraction of the labour underutilisation that was created during the labour market contraction, as opposed to about half in the case of New South Wales, Victoria, South Australia and Western Australia. The period between 1995 and 2002 was essentially a period of labour market stagnation and moreover, there was no downward trend in the level of labour underutilisation. However, from 2002, the person *hours unemployment rate* in Queensland began to fall quite strongly, following the person *trend unemployment rate*. Indeed, the fall in the person *hours unemployment rate* since 2002 was so marked that by 2005 the person *hours unemployment rate* had returned to its pre-recession levels. Hence, on the basis of this labour market indicator, Queensland had recovered from the recession, but only as a result of the expansion that occurred between 2003 and 2005.

Figure 8.17: Hours unemployment rate, Queensland, 1989 to 2005, per cent



Unlike the other states that are discussed above, the gap between the *hours unemployment rate* and the *trend unemployment rate* had narrowed slightly over the period 1989 to 2005. In 1989 the gap between the person *hours unemployment rate* and person *trend unemployment rate* was 3.1 percentage points, but by 2005 this figure had dropped to 2.7 percentage points. Despite these falls, visible underemployment still accounts for about 35 per cent of total labour underutilisation in Queensland.

8.4.7 Tasmania

Figure 8.18 shows changes in the *hours unemployment rate* for Tasmania. As with all the other states, the Tasmanian labour market contracted during the early-1990s. However, the Tasmanian labour market did not contract to the same extent as many of the mainland

states, largely due to the high *hours unemployment rate* that existed prior to the onset of recession. The *hours unemployment rate* peaked in 1994, but there is no subsequent ‘dead cat effect’. Rather, the Tasmanian labour market trended to gradually improve throughout the remainder of the 1990s, right up until 2002, after which there were three years of rapid labour market improvement, driven by the strong falls in the *trend unemployment rate*.

The gender dynamics of the Tasmanian labour market are interesting, to say the least. The female *hours unemployment rate* was substantially higher than the male *hours unemployment rate* prior to the onset of recession. The gender gap closed during the labour market contraction and then emerged again during the recovery. But unlike labour market events on the mainland, the gender gap was not the result of the female *hours unemployment rate* being consistently higher than the male *hours unemployment rate*. Rather, there was a constant chopping and changing of the relative positions of the male and female labour markets. It was not until 2002 when the gender gap closed for the final time and then re-opened, that a stable gender gap emerges that was more in keeping with those seen on the mainland. That is, the female *hours unemployment rate* was consistently two to three percentage points higher than the corresponding male *hours unemployment rate*. The emergence of this gender gap was the result of a surge in female labour underutilisation in 2002.

In Tasmania, the gap between the *trend unemployment rate* and the *hours unemployment rate* actually narrowed slightly from 2.9 percentage points in 1989 to 2.7 percentage points in 2005. Hence, visible underemployment was not such an important a component of labour underutilisation in Tasmania in 2005 as it was in the late-1980s, but it still

accounted for about 30 per cent of labour underutilisation in that state. Moreover, this was the lowest figure of any Australian state.

Figure 8.18: Hours unemployment rate, Tasmania, 1989 to 2005, per cent

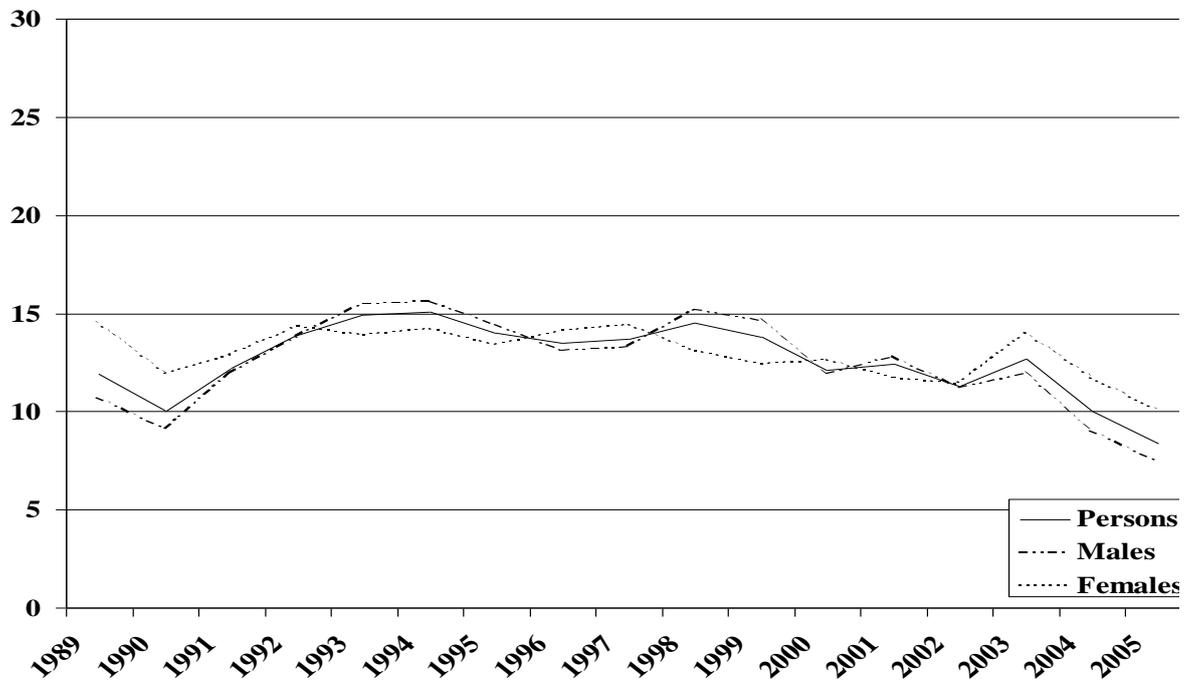


Figure 8.18 shows that levels of labour underutilisation in the Tasmanian labour market had returned to pre-recession levels. Indeed, the *hours unemployment rate* had not only fallen to below pre-recession levels, it had fallen to levels that were comparable with all of the mainland states, other than South Australia.

8.4.8 Summary

The *hours unemployment rate*, like the *trend unemployment rate* also tells a story of labour market convergence. The *hours unemployment rate* shows that the states took different

pathways through the labour market contraction and subsequent recovery. By 2005, for all the states, with the exception of Victoria, the *hours unemployment rate* had returned to levels that were comparable with pre-recession levels. However, the variation in the level of the *hours unemployment rate* was narrower than prior to the onset of recession. The South Australian *hours unemployment rate* of 9.1 per cent was the second highest in the Commonwealth and reflects the centrality of part-time work to the South Australian labour market by 2005. However, it needs to be remembered that the *hours unemployment rate* does not include estimates of hidden unemployment. So, this view of a recovering and converging labour market is only a partial story. A more realistic alternative view of the South Australian labour market is provided in the following section.

8.5 An alternative view of the Australian labour market:

The comprehensive unemployment rate

8.5.1 Introduction

As discussed in chapter 5, the *comprehensive unemployment rate* is an even broader measure of labour underutilisation than either the *real unemployment rate* or the *hours unemployment rate* as it is an hours-based measure of labour underutilisation that adds estimates of both hidden unemployment and visible underemployment to the *trend unemployment rate*. This section completes the examination of the Australian labour market by examining trends in the *comprehensive unemployment rate*.

Table 8.10: Comprehensive unemployment rate, Australia, persons, 1989 to 2005, per cent

Year	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania
1989	11.0	8.1	11.9	7.8	10.7	17.9
1990	10.7	7.2	12.0	9.8	10.2	13.8
1991	11.6	12.5	12.7	13.1	13.9	16.4
1992	14.4	16.5	17.6	15.4	14.5	20.3
1993	17.6	18.4	18.8	14.7	15.1	21.8
1994	16.3	18.4	18.3	12.4	14.8	21.4
1995	15.0	16.3	19.2	10.8	13.7	21.7
1996	13.5	15.0	17.7	12.0	13.3	20.0
1997	14.5	15.5	18.7	11.8	15.3	22.8
1998	14.5	14.9	20.1	11.5	13.4	23.0
1999	14.5	15.5	20.1	12.0	13.4	24.3
2000	13.4	15.3	17.8	11.4	14.1	22.7
2001	14.2	14.3	19.7	11.7	15.5	23.0
2002	14.6	14.7	21.3	13.0	14.4	23.1
2003	13.9	14.3	18.9	12.4	14.0	23.6
2004	13.2	13.9	16.7	12.1	12.3	20.6
2005	14.3	13.9	16.2	10.3	10.1	20.2

Table 8.11: Comprehensive unemployment rate, Australia, males, 1989 to 2005, per cent

Year	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania
1989	8.3	6.9	9.7	6.6	7.8	13.1
1990	7.2	6.0	9.0	9.5	7.7	10.3
1991	9.1	12.5	11.1	12.9	12.9	14.6
1992	13.3	16.6	16.7	15.6	14.2	19.2
1993	16.3	17.8	18.2	14.7	15.0	21.0
1994	15.5	17.5	17.5	12.3	14.1	20.7
1995	12.6	14.3	18.1	10.7	12.6	20.2
1996	12.5	14.4	16.8	12.3	12.6	18.6
1997	12.9	14.8	18.2	12.1	14.8	20.9
1998	12.8	14.6	18.9	11.7	13.8	22.3
1999	12.8	14.7	18.6	12.6	12.9	24.2
2000	11.6	14.8	16.2	12.0	14.2	22.6
2001	12.8	13.0	18.6	12.8	15.8	22.2
2002	13.8	14.1	22.4	14.2	14.9	22.7
2003	13.2	15.0	19.8	13.1	14.4	22.8
2004	12.5	13.7	16.0	12.5	12.8	20.4
2005	13.2	13.6	15.3	10.1	10.7	20.3

Table 8.12: Comprehensive Unemployment Rate, Australia, females, 1989 to 2005, per cent

Year	New South Wales	Victoria	South Australia	Western Australia	Queensland	Tasmania
1989	16.4	10.4	16.2	10.2	16.7	27.4
1990	17.4	9.7	17.7	10.2	15.2	20.6
1991	16.3	12.5	15.8	13.4	16.0	20.0
1992	16.6	16.2	19.5	15.0	15.3	22.5
1993	20.1	19.6	20.0	14.7	15.4	23.4
1994	17.6	20.0	19.8	12.6	16.3	22.7
1995	19.4	20.3	21.5	10.9	15.7	24.6
1996	15.5	16.1	19.4	11.5	14.6	22.5
1997	17.3	16.8	19.8	11.1	16.3	26.2
1998	17.7	15.5	22.3	11.0	12.7	24.4
1999	17.8	17.0	22.7	10.8	14.4	24.7
2000	16.6	16.2	20.7	10.3	13.8	22.9
2001	16.6	16.6	21.6	9.7	15.0	24.5
2002	16.1	15.9	19.3	10.9	13.6	23.8
2003	15.1	13.2	17.2	11.1	13.2	24.8
2004	14.4	14.3	17.9	11.3	11.3	21.0
2005	16.3	14.4	17.7	10.6	9.2	20.2

8.5.2 New South Wales

The contraction of the New South Wales labour market in the early-1990s is clearly visible in Figure 8.19. However, it was again primarily a feature of the male labour market. The female labour market was performing much worse than the male labour market prior to the onset of recession. Indeed, it could not really have got much worse, but it did during 1992. The contraction of the female labour market started about two years after the male labour market began to contract. The high female labour underutilisation prior to the onset of recession was largely due to the high levels of hidden unemployment (as shown in Figure 8.7) due to the low labour force participation rates of the late-1980s. These low female labour force participation rates are also reflected in the *comprehensive unemployment rate* shown in Figure 8.9.

The recovery in the person *comprehensive unemployment rate* that occurred after 1993 was largely due to substantial reductions in male labour underutilisation over the period 1993 to 1996. However, there was little, if any, subsequent reduction in the male *comprehensive unemployment rate* after 1996. Figure 8.19 shows a substantial improvement in the female *comprehensive unemployment rate* over the period 1989 to 2005. This was because the reduction in female hidden unemployment, shown in Figure 8.7, was reinforced by reduced visible underemployment (Figure 8.13) notwithstanding the increased importance of female part-time work. Male labour underutilisation fell from the trough of the early-1990s to 2005 because the falls in cyclical unemployment, hidden unemployment and visible underemployment complemented each other.

The different dynamics of the male and female labour markets means that a gender gap was a constant feature of the New South Wales labour market over the entire period 1989 to 2005. As also seen in Figure 8.7, the boom of the late-1980s is associated with a distinct gender gap, which is associated with relatively low female participation rates and hence increased hidden unemployment and an increased *real unemployment rate*. This gender gap closed during the labour market contraction as male cyclical unemployment, hidden unemployment and visible underemployment rose. However, unlike the experiences of some states with the *real unemployment rate* and the *hours unemployment rate*, the gender gap was not eliminated during the contractionary phase, but it did fall from over eight percentage points in 1989 to a little over two percentage points in early 2004. However, the gender gap tended to widen during the remainder of 2004.

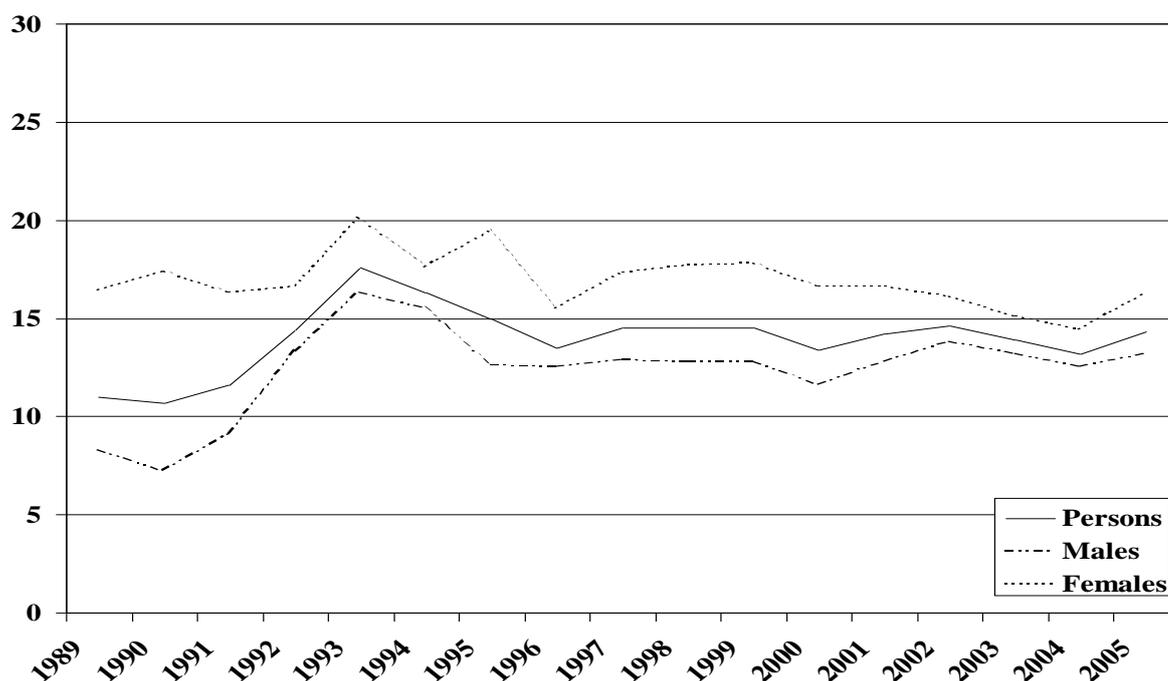
Despite strong falls in cyclical unemployment during the early-2000s (Figure 8.1). Figure 8.19 shows that overall there had been no improvement in the level of labour

underutilisation in New South Wales since the early rebound in the labour market slowed markedly in 1996. The person *comprehensive unemployment rate* was 13.2 per cent in 2004 compared to 13.5 per cent in 1996. However, the *comprehensive unemployment rate* subsequently rose to 14.3 per cent in 2005. Moreover, the 2005 person *comprehensive unemployment rate* was almost 40 per cent higher than the 1990 figure of 10.7 per cent. The 2005 female *comprehensive unemployment rate* of 16.3 per cent was lower than for any year shown in Figure 8.19, other than 1990 (also 16.3 per cent), but substantially lower than the peak of 20.1 per cent attained in 1993²⁴. Hence, the partial recovery that occurred in the New South Wales labour market was due almost entirely to the rebound in both male and female labour underutilisation that occurred between 1993 and 1996. The New South Wales labour market has not improved since 1996 as the falls in the *trend unemployment rate* have been off-set by increased hidden unemployment and visible underemployment.

Hence, the *comprehensive unemployment rate* shows that there had only been a partial recovery in the New South Wales labour market, all of which was due to the substantial reduction in labour underutilisation that occurred in a three-year period in the mid-1990s. The gender gap had not been eliminated, but it had been substantially reduced.

²⁴ The level of labour underutilisation peaking at about 20 per cent during a recession, as shown here, is not inconsistent with the results obtained for the trough of the recession in Canada (see for example Burke and Shields 1999).

Figure 8.19: Comprehensive unemployment rate, New South Wales, 1989 to 2005, per cent

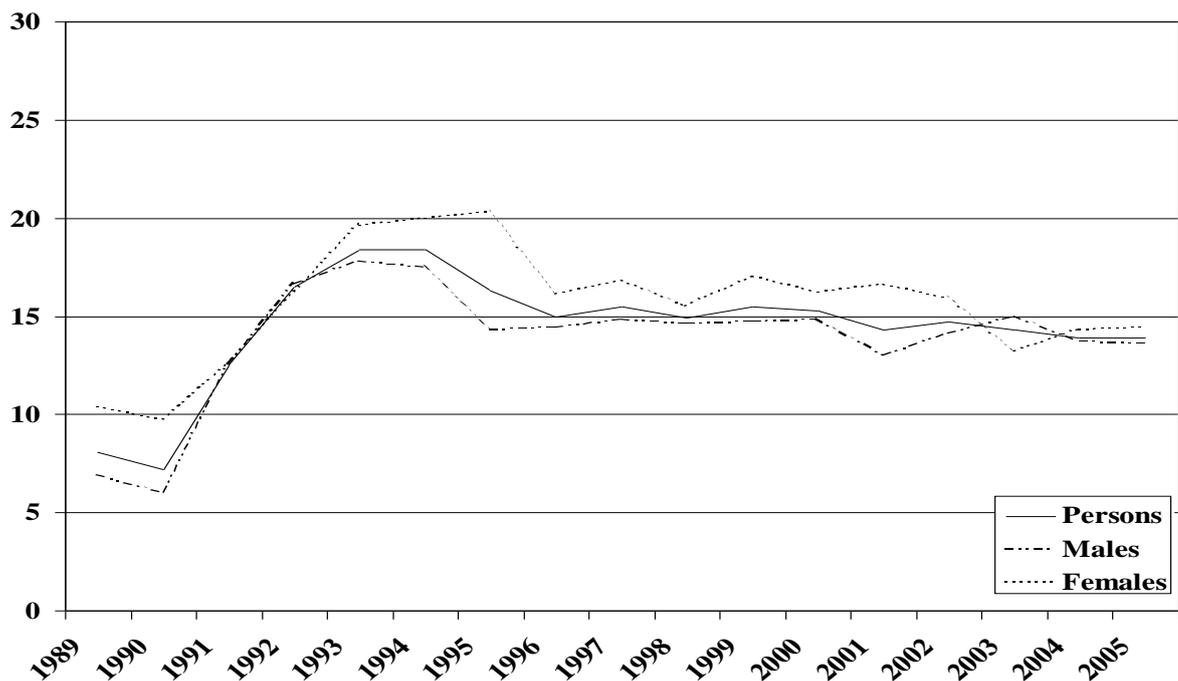


8.5.3 Victoria

The contraction of the Victorian labour market is clearly visible in Figure 8.20. The contraction affected both sides of the Victorian labour market with both male and female labour underutilisation increasing in the same year. However, the female labour market contracted for a year longer than the male labour market, leading to the emergence of a substantial gender gap by the time the trough of the recession was attained. The contraction was subsequently followed by two years of strong rebound. Not surprisingly, the female rebound lagged the male rebound by a year. Unlike the New South Wales experience, there has been some improvement in the *comprehensive unemployment rate* since 1996.

The pre-recession Victorian labour market gender gap was quite small, unlike that of New South Wales. This was largely due to the relatively low female hidden unemployment that resulted from the high female labour force participation rates in Victoria in the late-1980s. But this pre-recession gender gap was not on the scale of the New South Wales gender gap. The gender gap was eliminated in 1991 and 1992, but it emerged again during the recovery phase of the business cycle due to the lagged recovery of the female labour market. The gender gap narrowed substantially from 1995 when the female labour market rebounded. Nevertheless, it remained a feature of the Victorian labour market up to the early-2000s, but it was virtually eliminated in 2004.

Figure 8.20: Comprehensive unemployment rate, Victoria, 1989 to 2005, per cent



For Victoria, the 2005 *comprehensive unemployment rate* of 13.9 per cent was almost double the 1990 figure of 7.2 per cent. Moreover, it was only four and a half percentage points lower than the maximum *comprehensive unemployment rate* of 18.4 that was

achieved in 1993 and 1994. The male *comprehensive unemployment rate* in 2005 of 13.6 per cent was more than double the 1990 minimum of 6.0 per cent, while the 2005 female *comprehensive unemployment rate* of 14.4 per cent was about 50 per cent higher than the 1990 minimum of 8.7 per cent. Hence, Figure 8.20 suggests that there had only been a partial recovery in the Victorian labour market since the trough of the recession, most of which occurred during the period 1994 to 1995, with very little reduction in the level of labour underutilisation occurring between 1996 and 2005. Moreover, the recovery that occurred was not restricted to the male labour market as female labour underutilisation substantially reduced during the early-2000s. Figure 8.20 provides no evidence to support the ‘conventional wisdom’ that the Victorian labour market had fully recovered from the recession by 2005.

8.5.4 South Australia

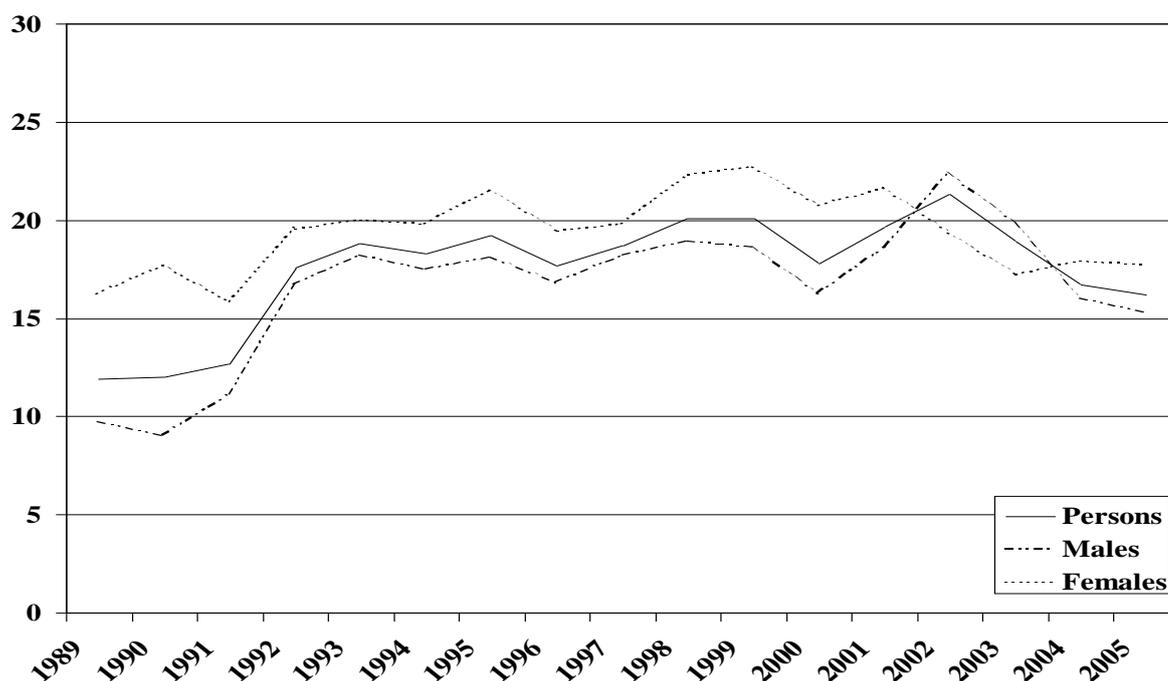
Figure 8.21 shows changes in the *comprehensive unemployment rate* for South Australia. Again the labour market contraction is clearly visible. However, as with the case of New South Wales (Figure 8.19) the contraction was largely a result of increased male labour underutilisation. The female *comprehensive unemployment rate* was already high during the boom of the late-1980s due to the existence of substantial hidden unemployment associated with relatively low female labour force participation rates. Again, it is the experience after 1993 that sets South Australia apart from the other states.

Figure 8.21 shows that there was no improvement in the South Australian labour market during the 1990s. There was no evidence of a strong rebound in the *comprehensive*

unemployment rate between 1993 and 1995, nor was there any evidence of a steady decline throughout the remainder of the 1990s. In fact, labour underutilisation in South Australia, as measured by the *comprehensive unemployment rate*, actually continued to increase during the 1990s from the 'peak' of 1993. The South Australian labour market only began improving in 2002. The reduction in labour underutilisation that occurred between 2002 and 2005 was driven by falls in both the male and female *comprehensive unemployment rate*.

A gender gap existed prior to the onset of recession. This gap was the result of the presence of substantial hidden unemployment associated with the relatively low female labour force participation rates in the late-1980s (see Table 5.4). The gender gap narrowed during the contractionary phase due to increased female labour force participation rates, which tended to offset increased cyclical unemployment and visible underemployment and increased male labour underutilisation. However, this gender gap only narrowed and was not eliminated during the labour market contraction. Indeed, a gender gap of about three percentage points became a feature of the latter part of the 1990s and the early-2000s. The gender gap was eliminated in 2001 as female labour underutilisation fell and male labour underutilisation rose. The gender gap was again eliminated in 2004 and then re-emerged in 2005 as a result of increased female labour underutilisation and reduced male labour underutilisation.

Figure 8.21: Comprehensive unemployment rate, South Australia, 1989 to 2005, per cent



Overall, the person *comprehensive unemployment rate* in 2005 of 16.2 per cent was about 40 per cent higher than the 1990 figure of 12.0 per cent. However, the recovery of the South Australian labour market was really only a feature of the four-year period 2002 to 2005 because the person *comprehensive unemployment rate* actually peaked in 2002 at 21.3 per cent. The 2005 male *comprehensive unemployment rate* of 15.3 per cent was about 65 per cent higher than the 1990 minimum of 9.0 per cent and only about 30 per cent lower than the 1995 maximum of 18.2 per cent. On the other hand, the female *comprehensive unemployment rate* in 2005 was on a par with the pre-recession levels, but that figure was so high due to the relatively low female labour force participation rates in the 1980s. The 2005 figure of 17.7 per cent was about two percentage points lower than the 1993 peak of 20.0 per cent and about 10 per cent higher than the 1991 minimum of 15.8 per cent. The *comprehensive unemployment rate* shows that overall, the recovery from the

recession in South Australia was also partial with the 2005 level of labour underutilisation being considerably higher than the corresponding pre-recession level. Moreover, this recovery was due solely to reductions in male labour underutilisation, as female labour underutilisation appears to have been rising constantly between 1989 and 2001, largely as a result of female part-time employment becoming the driver of jobs growth in South Australia. The only consistent reduction in female labour underutilisation in the period covered by Figure 8.21 is largely confined to the two years between 2001 and 2003.

The *comprehensive unemployment rate* provides no evidence to support the ‘conventional wisdom’ about the South Australian labour market. The recovery from the recession of the early-1990s was at best partial and restricted to the early-2000s. However, the gender gap that existed prior to the onset of recession does appear to have been reduced to some extent by 2005.

8.5.5 Western Australia

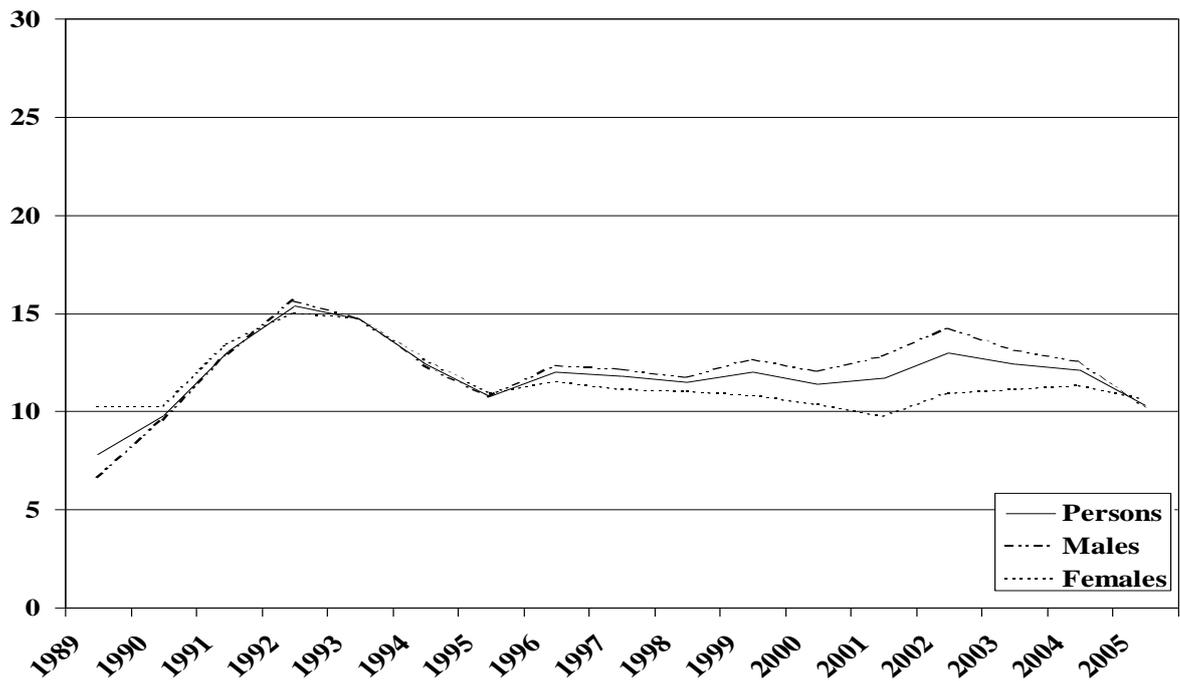
Figure 8.22 presents something of an unfamiliar story, at least with respect to the labour market trends shown by the *real unemployment rate* and the *hours unemployment rate*. Indeed, Figure 8.22 looks remarkably similar to Figure 8.4, at least for the period between 1989 and 1996. The Western Australian labour market contracted between 1989 and 1992, followed by three years of strong growth. However, this growth only partially offset the earlier contraction. However, unlike the trends in the *trend unemployment rate* that are shown in Figure 8.4, the remainder of the 1990s and the early-2000s was not characterised by continued falls in labour underutilisation. The *person comprehensive unemployment rate* actually increased between 1995 and 2002. Despite the strong falls in the

comprehensive unemployment rate that occurred between 2002 and 2005, labour underutilisation needed to fall by over one-third in order to return to pre-recession levels.

A gender gap existed prior to the onset of recession, but compared to some of the other states, for example New South Wales, this gender gap was not particularly substantial due to the relatively high female labour force participation rates that characterised the Western Australian labour market over the period 1989 to 2005, and hence the assumed low levels of female hidden unemployment. The gender gap disappeared during the labour market contraction. However, unlike many of the other states it did not subsequently re-appear during the labour market rebound. It did however, re-appear in 1995 and persisted until 2005. Unlike the other states the male *comprehensive unemployment rate* was higher than the female rate. This reflected the fact that the Western Australian female labour force participation rate provided the benchmark for the female *real unemployment rate* for 14 of the 17 years shown in Figure 8.22. Hence, by definition, female hidden unemployment was zero per cent for those 14 years.

The 2005 person *comprehensive unemployment rate* for Western Australia of 10.3 per cent was about 25 per cent higher than the 1989 figure of 7.8 per cent. The *comprehensive unemployment rate* shows that even for the Western Australian labour market, labour underutilisation had yet to return to pre-recession levels by 2005. Moreover, the 2005 male *comprehensive unemployment rate* of 10.1 per cent was 35 per cent higher than the 1989 figure. But on the other hand, by 2005 the female *comprehensive unemployment rate* had almost returned to pre-recession levels. In summary, labour underutilisation in Western Australia had returned to pre-recession levels by 2005. Hence, the labour market recovery can at best only be considered to be partial.

Figure 8.22: Comprehensive unemployment rate, Western Australia, 1989 to 2005, per cent

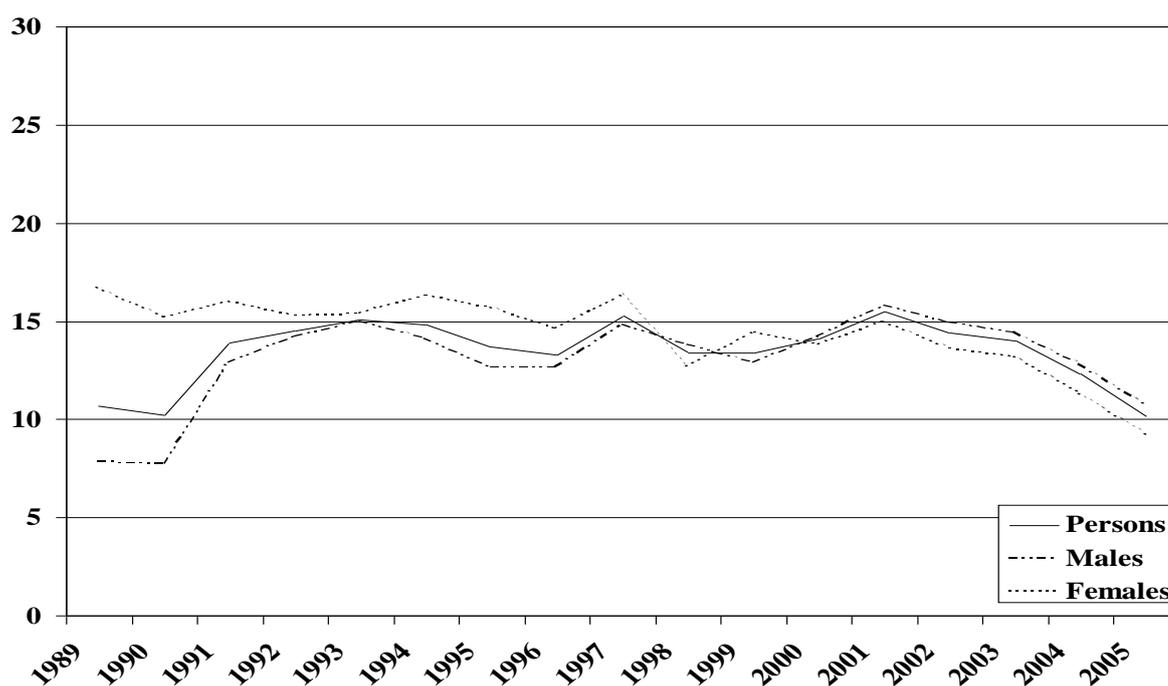


8.5.6 Queensland

The Queensland experience shown in Figure 8.23 is similar to the South Australian experience in many respects. The labour market contracted between 1990 and 1993, but there is no evidence of a subsequent ‘dead cat effect’ between 1993 and 1995. Indeed, there is only a slight reduction in the *comprehensive unemployment rate* between 1993 and 1996. Interestingly the labour market recovery was largely confined to the male *comprehensive unemployment rate*. Paradoxically, the female labour market improved between 1989 and 1993 because the increased female labour force participation rates reduced the levels of hidden unemployment, which in turn pulled down the female *comprehensive unemployment rate*. As was the case in South Australia, there was no

evidence of a decrease in the *comprehensive unemployment rate* throughout the 1990s. The modest labour market recovery that commenced in 1993 appears to have been significantly affected by the Asian Economic Crisis. Hence, it was not until 2001 that any evidence emerged of a general improvement in the Queensland labour market.

Figure 8.23: Comprehensive unemployment rate, Queensland, 1989 to 2005, per cent



The gender gap that was evident prior to the onset of recession all but disappeared during the contraction of the labour market. It then subsequently re-emerged and did not close until 1998. This was then followed by a three-year period during which the gender gap opened and closed a couple of times. Then in 2000 the gender gap switched. The male *comprehensive unemployment rate* rose faster than the female rate resulting in a 1.5 percentage point gender gap that persisted until 2005. This gender gap, was quite unlike that of any other state as male labour underutilisation was higher than female labour underutilisation.

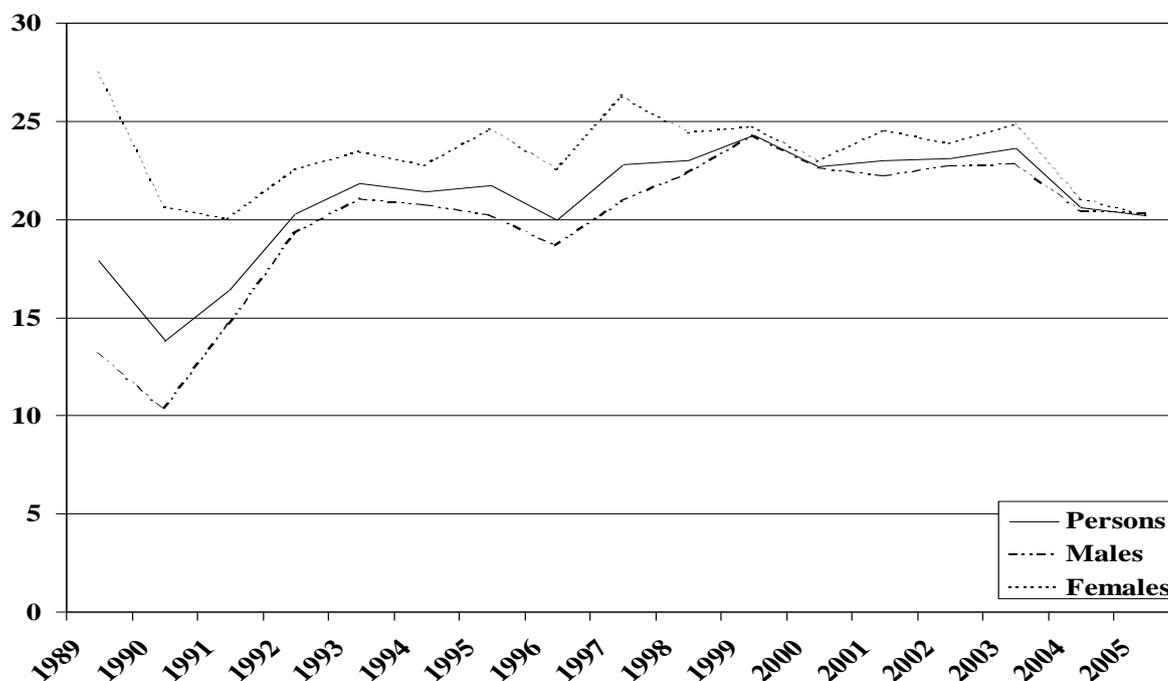
The person *comprehensive unemployment rate* for 2005 of 10.1 per cent was 0.1 percentage points lower than the 1990 minimum. However, the 2005 male *comprehensive unemployment rate* of 10.7 per cent was about 50 per cent higher than the 1990 figure of 7.7 per cent. Not surprisingly, the recovery in the Queensland labour market was driven by reductions in female labour underutilisation. The female *comprehensive unemployment rate* in 2005 of 9.2 per cent was less than two-thirds the 1990 figure of 15.2 per cent. On the basis of this evidence, it may be concluded that Queensland had fully recovered from the recession by 2005.

8.5.7 Tasmania

Figure 8.24 shows that the Tasmanian labour market was the most poorly performing labour market in the Commonwealth. Indeed, the experience of the Tasmanian labour market over the period 1989 to 2005 was quite unlike that of the mainland states. The Tasmanian labour market contracted between 1990 and 1993. However, this contraction was largely a feature of the male labour market. Female labour underutilisation was so high during the boom of the late-1980s because the female labour force participation rate was so low. There was a substantial partial recovery in the person *comprehensive unemployment rate*, but then in 1996 labour underutilisation increased again. It was not until 2003 that the Tasmanian labour market eventually began to improve. The 2005 person *comprehensive unemployment rate* of 20.2 per cent was about 50 per cent higher than the 1990 figure of 13.8 per cent. The 2005 male *comprehensive unemployment rate* of 20.3 per cent was nearly double the 1990 figure of 10.3 per cent. Hence, what little recovery had taken place in the Tasmanian labour market was the result of the substantial

reduction in female labour underutilisation. The female *comprehensive unemployment rate* fell from 27.4 per cent in 1989 to only 20.2 per cent in 2005.

Figure 8.24: Comprehensive Unemployment Rate, Tasmania, 1989 to 2005, per cent



8.5.8 Summary

The *comprehensive unemployment rate* also tells a story of labour market divergence. However, the story told in this section is a little more complicated than the story told in the previous section that explored the dynamics of the *hours unemployment rate*. Firstly, the *comprehensive unemployment rate* shows that prior to the onset of recession there was much more variability in the level of labour underutilisation across the states that is suggested by the *trend unemployment rate*. The 6.1 percentage points range in the *comprehensive unemployment rate*, that is between 7.7 per cent for Victoria and 13.8 per

cent for Tasmania, was greater than the range of most of the labour market indicators for 1990 discussed in this chapter. The range of the *trend unemployment rate* was only 1.5 percentage points the *hours unemployment rate* was 4.0 percentage points and 6.5 percentage points for the *real unemployment rate*. Secondly, the impact of the recession in each state was more varied, as demonstrated by the greater range in the maximum values of the *comprehensive unemployment rate* during the labour market troughs. Thirdly, the pattern of labour market recovery differs markedly between the states. New South Wales, Victoria, Western Australia and Queensland experienced a steady reduction in the *comprehensive unemployment rate* once the trough of the recession had been attained right up until 2005. On the other hand, the South Australian labour market essentially stagnated from 1993 to 2003. Hence, the recovery of the South Australian labour market, such as it was, occurred only in the last two years of the study period. And of course, the *comprehensive unemployment rate* shows that there had been no recovery of the Tasmanian labour market. Consequently, the level of labour underutilisation further diverged to 10.1 percentage points.

Table 8.10 shows the Australian labour market dividing into three distinct groups, the powerhouse resource rich states of Western Australia (10.3 per cent) and Queensland (10.1 per cent), the former economic powerhouse states of New South Wales (14.3 per cent) and Victoria (13.9 per cent) and the peripheral states of South Australia (16.2 per cent) and Tasmania (20.2 per cent). The *comprehensive unemployment rate* shows that not only was the South Australian labour market performing less well in 2005 compared to the late-1980s, but its relative position in the Australian labour market had worsened. If not for the substantial fall in the *comprehensive unemployment rate* that took place between 2003 and

2005, South Australia, and not Tasmania, would be the ‘basket case’ Australian labour market.

8.6 Conclusion

The aim of this chapter was to use the three labour market indicators that were developed in chapter 6 to re-examine trends in the labour markets of all six Australian states. This re-examination of the Australian labour market provided some interesting insights into the dynamics of labour underutilisation in Australia as a whole. Moreover, it allowed the performance of the South Australian labour market to be compared with that of other states. However, the focus of this chapter is the examination of the *comprehensive unemployment rate* as it provides the most complete picture of trends in labour underutilisation. The examination of the Australian labour market in section 8.4, using the *comprehensive unemployment rate*, argued that the labour markets of the six Australian states are diverging, rather than converging, which is in stark contrast to the ‘conventional wisdom’ obtained by examining the *trend unemployment rate*, which is a story of convergence and uniformity.

The *comprehensive unemployment rate* also tells a story of labour market divergence. However, the story told in this section is a little more complicated than the story told in the two earlier sections. Firstly, the *comprehensive unemployment rate* shows that prior to the onset of recession there was more variability in the level of labour underutilisation across the states. Secondly, the impact of the recession in each state was more varied, as demonstrated by the greater range in the maximum values of the *comprehensive*

unemployment rate during the labour market troughs. Thirdly, the pattern of labour market recovery differed markedly between the states. New South Wales, Victoria, Western Australia, and Queensland experienced a steady reduction in the *comprehensive unemployment rate* once the trough of the recession had been attained right up until 2005. On the other hand, the South Australian labour market essentially stagnated from 1993 to 2003. Hence, the recovery of the South Australian labour market, such as it was, occurred only in the last two years of the study period. And of course, the *comprehensive unemployment rate* shows that there had been no recovery of the Tasmanian labour market. Consequently, the level of labour underutilisation diverged even more and is now 10.1 percentage points.

In conclusion, these last two chapters have argued two things. First, the level of labour underutilisation in South Australia in 2005 was substantially higher than the level that prevailed during the boom of the late-1980s. Hence, it is difficult to support the ‘conventional wisdom’ that the South Australian labour market had fully recovered by 2005 from the recession of the early-1990s. Second, the South Australian labour market had worsened, not just over time, but with respect to the other states. The last two chapters have largely described the situation of a worsening South Australian labour market. However, a study such as this one needs to do more than simply describe a serious social problem, *albeit* from an innovative perspective, it needs to be part of the problem solving process. Third, during the trough of a recession in Australia, labour underutilisation rates of about 20 per cent should not have been unexpected, despite what the headline measures of unemployment said. This conclusion was also drawn for Canada by Burke and Shields (1999), that is, the aim of the conclusion section of the present study. Chapter 9 briefly discusses three sets of issues that have emerged from the analysis undertaken in the

previous eight chapters in order to help inform the public policy response to the problem of increased labour underutilisation in the South Australian labour market.

9 IMPLICATIONS FOR THE MEASUREMENT OF LABOUR

UNDERUTILISATION

9.1 Introduction

This thesis has sought to contribute to existing debates about how best to define and measure labour underutilisation. The aims of the thesis were conceptualised as, firstly, evaluating the existing measures of labour underutilisation, and then working towards the development of an alternative, more comprehensive measure of labour underutilisation that could be used to measure the performance of the South Australian labour market over the period 1989 to 2005. The thesis then developed a set of criteria that can be used to not only evaluate labour market indicators, but also to provide a conceptual framework within which to construct new ones. After critiquing the measures of labour underutilisation that are published as the official unemployment statistics, the thesis examined a range of options for the development of new labour market indicators that are capable of providing more comprehensive estimates of the actual level of labour underutilisation. These included a range of alternative measures that have been developed by Australian labour market analysts as well as by the Australian Bureau of Statistics itself. The thesis then developed a new set of labour market indicators, informed by these alternative measures, and applied these indicators in an analysis of the South Australian and Australian labour markets over the period 1989-2005 in order to compare the difference between the existing official measures of labour underutilisation and indicators based upon a more comprehensive definition of labour underutilisation.

9.2 Summary of the thesis

Chapter 1 argued that the current Australian labour force statistics are a product of their time. They were developed by the International Labour Organisation during the late-1970s and early-1980s, when standard forms of employment relations dominated the labour markets of advanced industrial nations. Consequently, the unemployment measures that are derived from the International Labour Organisation, Labour Force Convention 160, are particularly good at describing the forms of employment and unemployment, and hence forms of labour underutilisation, that are associated with standard employment relations, that is *cyclical unemployment* and *frictional unemployment*, but they are not very good at measuring other forms of labour underutilisation. However, the Australian labour market has changed considerably since 1986 when Labour Market Convention 160 was officially adopted by the Australian Government (Department of Industrial Relations 1994) due to the continued growth of non-standard forms of employment relationships.

Indeed, these measures of labour underutilisation became even more inappropriate after 1993, when the labour market began to recover from the recession of the early-1990s. The growth in both part-time employment and structural unemployment that accompanied the recovery led to substantial growth in both visible underemployment and hidden unemployment. Changes in the level of these two forms of labour underutilisation are not fully captured by the headline measures of labour underutilisation for Australia, the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. Hence, as shown in previous chapters, the official labour force statistics substantially underestimate the level of labour underutilisation in Australia in general and South Australia in particular.

Chapter 1 also briefly explored the *volume measure of labour underutilisation* developed by the Australian Bureau of Statistics (2003). This is a very exciting new official, *albeit* experimental, labour market indicator because it is promoted as a comprehensive hours-based measure of labour underutilisation. Even though this is an experimental labour market indicator it is based on labour market data collected by the Australian Bureau of Statistics, so it meets all of the data criteria outlined in Table 2.1. However, an evaluation of this measure revealed a number of shortcomings with respect to interpretive and labour force criteria. First, the relevant Australian Bureau of Statistics literature does not fully specify the model, so reproductability and transparency was a concern. Second, this measure is only available for Australia as a whole, which limits its use in comparative analysis. Third, it is only available annually, rather than monthly or quarterly, since 2002, so it has limitations as a time series. However, the fourth concern is possibly the most limiting. This measure is based directly on data collected during a quarterly Supplementary Labour Force Survey. So, the estimates of cyclical unemployment, frictional unemployment and visible underemployment are as good as possible. However, this measure does not include an estimate of hidden unemployment. Hence, the *volume measure of labour underutilisation* also underestimates the true extent of labour underutilisation in the Australian labour market. Consequently, these weaknesses were conceptualised as gaps in the literature that this thesis might address.

Chapter 2 presented a critique of the official measures of labour underutilisation for Australia, the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. That discussion identified six methodological problems with these two labour market indicators and it also identified a central conceptual problem. It was concluded that the *seasonally adjusted unemployment rate* and the *trend unemployment rate* are essentially

proxy measures of economic performance. That chapter also argued for the need to break the nexus between labour market performance and economic performance generally. That is, measures of labour underutilisation need to be independent of measures of economic growth.

This chapter helps to develop the conceptual framework for the thesis and as a consequence it makes an important contribution to the literature. This chapter, *inter alia*, reviews a range of social indicator literature in order to identify and classify those criteria that need to be considered when evaluating and constructing labour market indicators. This literature identified a number of characteristics that are considered to be desirable in social indicators in general and labour market indicators in particular. Due to overlap between characteristics, the number of criteria identified was reduced to 19, which in turn were grouped into three sets of criteria, interpretive, data and labour force, see Table 2.1. These criteria can be used to assess labour market indicators and can be used as a framework within which to construct new ones.

Chapter 3 reviewed a number of non-weighted labour market indicators that have been discussed in the English speaking literature while chapter 4 reviewed a number of weighted indicators. During this discussion, two labour market indicators were identified that it was felt could inform the process to construct a comprehensive measure of labour underutilisation. The *real unemployment rate* (Beatty and Fothergill 1998) was evaluated in chapter 3. This measure adds four different types of economic inactivity to the official unemployment rate. The approach used by Beatty and Fothergill (1998) to calculate the *real unemployment rate* meets all of the interpretive and data criteria set out in Table 2.1. In particular, this measure has three main advantages. First, it attempts to measure one of

the key pathologies that has emerged in the Australian labour force since the mid-1990s, that is, hidden unemployment. Second, this is a timely indicator as it could be constructed for Australia solely from data collected during the monthly Labour Force Survey. Third, as the measure is based on a count of people the *real unemployment rate* is essentially an unweighted index that produces an interval scale. It was felt that this was an appealing measure as it was easily constructed using arithmetic. This means that it especially meets the criteria of reproductability and transparency. Moreover, because it is not constructed using econometrics, that it would have appeal to labour market analysts who are not economists. On the negative side, it is essentially a person rate of unemployment that only adds hidden unemployment, and not visible underemployment, to the official unemployment rate. Notwithstanding these concerns, it was felt that the method could be modified to produce a comprehensive hours-based measure of labour underutilisation.

Chapter 4 provided an evaluation of the hours-based unemployment rate *CU8*, developed by Mitchell and Carlson (2000). This indicator uses econometrics to convert the *seasonally adjusted unemployment rate* to an hours-based unemployment to which is then added estimates of hidden unemployment and visible underemployment, which are also developed using econometrics. Chapter 4 concluded that indicators that were constructed using econometrics had four shortcomings. First, the complexity of the calculations that generates the index means that the figures would not be readily decomposed. Hence, it would be difficult to determine which variable or variables were contributing to changes to the value of the index. That is, econometric modelling does not meet the transparency criterion. Second, econometric modelling does not produce an interval scale. Third, it could be difficult for labour market analysts who are not economists to reproduce any such indicator. Fourth, the use of econometrics would limit its appeal outside of the economics

profession. In terms of the context of this study, the *hours-adjusted unemployment rate CU8* (Mitchell and Carlson 2000) had one main weakness, it was not available for individual states, only Australia as a whole. However, over the course of the 2000s the range and coverage of the CofFEE Labour Market Indicators broadened and many of the weaknesses that were identified in chapter 4 were addressed. This was especially the case in 2007 (Mitchell 2007) when the method was re-specified and the estimates for hidden unemployment were increased. The CofFEE Labour Market Indicators are probably now the most recognised and most used of any of the alternative labour market indicators for Australia. In particular, the method for constructing estimating the extent of hidden unemployment, which is based on an analysis of age-specific labour force participation rates, could inform the method that the Australian Bureau of Statistics uses to provide better estimates of hidden unemployment for its *volume measure of labour underutilisation*.

The process of constructing three new labour market indicators that was undertaken in chapter 5 was a two-step process. First, two existing alternative labour market indicators that were identified in chapter 4 as having potential, the *real unemployment* and the *hours-adjusted unemployment rate CU8*, were modified to create the *real unemployment rate* and the *hours unemployment rate*. In the second step, these two measures were then integrated to yield the *comprehensive unemployment rate*.

It is felt that the *comprehensive unemployment rate* meets all the criteria set out in Table 2.1. However, it is unlikely that this method has much appeal outside of the needs of the stakeholders of this thesis. This is mainly because the method is relatively simple, Australian Bureau of Statistics data are extracted from spreadsheets, then manipulated

arithmetically to produce the index figures. Such an approach is unlikely to find favour with labour economists as the estimates are not constructed using econometrics. However, such a method may be appealing to labour market analysts who are not economists, for example geographers. After all, the method is not dissimilar to the method developed by Beatty and Fothergill (1998) to construct the *real unemployment rate*, and their method has been used widely in Europe.

Having constructed these three new alternative indicators, a further task was to apply these measures to provide an analysis of the patterns and trends of unemployment and labour underutilisation in Australia, and South Australia in particular, over the period 1989 to 2005, in order to compare the difference between the existing official measures of labour underutilisation and indicators based upon a more comprehensive definition of labour underutilisation. This exploration was the focus of chapters 6, 7 and 8.

Chapter 6 examined the performance of the South Australian labour market over the period 1989 to 2005 using official labour market indicators published by the Australian Bureau of Statistics, including the *trend unemployment rate* and a range of other labour market indicators. That data suggested that the South Australian labour market slipped into recession in the early-1990s and reached its trough in 1993. After this there was a sustained, if not steady, improvement such that by the early-2000s the South Australian labour market appeared to have fully recovered from the recession. Indeed, the ‘conventional wisdom’ at the time suggested that the South Australian labour market was performing even better in early-2005 than at the peak of the boom of the late-1990s. Moreover, the official picture of the South Australian labour market was that it was

performing better in early-2005 than at any time since the present labour force statistics were adopted as the official source of labour force information in February 1978.

On the other hand, chapter 7 shows a very different picture of the performance of the South Australian labour market over the period covered in this thesis. In chapter 7, an alternative picture of the South Australian labour market is presented based on an examination of the three labour market indicators that were constructed in chapter 5. The *comprehensive unemployment rate* in particular shows that the official labour market indicators provide an inadequate picture of labour underutilisation in South Australia between 1989 and 2005. While the official and alternative measures provided similar estimates of the level of labour underutilisation prior to the commencement of the recession of the early-1990s, they diverged markedly after the onset of recession. During the boom of the late-1980s and the contractionary phase of the recession of the early-1990s there is no appreciable difference between the *comprehensive unemployment rate* and the *trend unemployment rate* because there was so little hidden unemployment and visible underemployment at this time. However, in stark contrast to the picture provided by the *trend unemployment rate*, the *comprehensive unemployment rate* shows that the level of labour underutilisation in South Australia actually increased during the 1990s. Moreover, it has only been since the early-2000s that the level of labour underutilisation in South Australia has started to fall. Furthermore, the *comprehensive unemployment rate* indicates that in early-2005 the actual level of labour underutilisation in South Australia was 16.2 per cent, more than treble the official level of labour underutilisation as shown by the *trend unemployment rate* (5.3 per cent).

The analysis conducted in chapter 7 was then extended to include the other five Australian states in chapter 8 in order to compare the impact of applying these alternative indicators throughout the national labour market. The data identified in chapter 8 also presented a picture of the level of labour underutilisation in Australia from the mid-1990s onwards that is quite at odds with the official statistics. The *comprehensive unemployment rate* for Western Australia and Queensland was about double the *trend unemployment rate*. For New South Wales and Victoria, the *comprehensive unemployment rate* was about two and half times the corresponding *trend unemployment rate*. While in Tasmania, the *comprehensive unemployment rate* was nearly four times the *trend unemployment rate*. The *comprehensive unemployment rate* for any Australian state has yet to return to the pre-recession level. Moreover, by 2005 the *comprehensive unemployment rate* for Tasmania had shown no improvement at all since the trough of the recession was attained in 1993, despite the *trend unemployment rate* showing that it had fully recovered from the recession. Furthermore, these alternative measures of labour underutilisation have demonstrated that the Australian labour market had split into three distinct groups, a high performance group comprised of Queensland and Western Australia, a medium performance group comprised of Victoria and New South Wales, and a low performance group that now includes South Australia as well as Tasmania. This conclusion stands in stark contrast to the picture provided by the official indicators of the Australian labour market, which shows a remarkable degree of uniformity between the six states in 2005.

9.3 Discussion of the findings

This thesis was conceptualised in the late-1990s. This was a challenging time for labour market analysis. The recovery from the recession of the early-1990s was well underway by this time. Consequently, the official economic statistics painted a positive picture of the Australian labour market, solid economic growth combined with solid employment growth, such that by 2000 the *trend unemployment rate* in most states had returned to the pre-recession level (see Table 6.2). However, as Bell (2000; 1) noted, there was a general feeling among labour market analysts that the unemployment problem in Australia was far worse than the official statistics suggested. Moreover, Bell (2000; 2) also noted that this mismatch between the official picture of labour market performance and the perception of labour market performance of labour market analysts was not just a feature of the Australian labour market, but was also a feature of many other developed countries. For example, this view was shared by Burke and Shields (1999) as well as Jackson and Robertson (2000) for Canada, Beatty and Fothergill (1998) for the United Kingdom and Mata Greenwood (1999) for the USA. These impressions that the official labour market statistics were not providing an accurate picture of the contours and dynamics of unemployment seemed to provide an impetus to those labour market analysts who were attempting to develop new, unofficial, alternative labour market indicators that described better the ‘unemployment crisis’ (Bell 2000; 2) that was emerging in many OECD countries.

The point of departure for this research was an examination of the work of Burke and Shields (1999) and Beatty and Fothergill (1998). Both of these two groups of researchers had attempted to develop new labour market indicators, for Canada and the United

Kingdom respectively. Three labour market indicators were developed by Burke and Shields (1999) (the structural exclusion index, the adult wage polarisation index and the adult employment vulnerability index). After reviewing these three indicators it was decided that data differences between Australia and Canada would mean that modifying these measures would be impractical. On the other hand, the examination of the *real unemployment rate* (Beatty and Fothergill 1998) also demonstrated that data differences limited its applicability to Australia. Nevertheless, the examination of these measures informed the conceptual framework of the thesis.

However, over the course this journey several important developments occurred in the field. The first was the development of the CoffEE labour market indicators (CLMIs). An examination of two labour market indicators developed by CoffEE, *CU7* and *CU8*, added to the conceptual framework of this thesis and helped to develop the method for the *comprehensive unemployment rate*. In the early-2000s some of the shortcomings of these measures, for example that *CU8* was not available at the state level, provided a niche in the literature that it was felt that this thesis could fill. However, the range and applicability of the CoffEE indicators broadened further during the 2000s and this niche closed to some extent. This was especially the case after the *CU8* method was revised in 2007. Nevertheless, it was decided to continue to seek to develop a new labour market indicator in order to see if the outcomes of this thesis were broadly consistent with the results obtained by the CoffEE measures. If this were so, then this would add pressure to the Australian Bureau of Statistics to develop a comprehensive hours-based measure of labour underutilisation. It was also hoped that an indicator that was not constructed using econometrics might have some appeal to labour market analysts who are not economists.

The second significant advance was the development of an hours-based measure of labour underutilisation by the Australian Bureau of Statistics. As early as the late-1990s the Australian Bureau of Statistics had identified the need for an hours-based measure of labour underutilisation, and by 2003 such a measure had been developed. This was an exciting development, something that many labour market analysts have called for. However, this measure has a few shortcomings. First, it has only been available on an annual basis, for Australia as a whole since 2002. So, it cannot be used to help explain the labour market problems that emerged during the 1990s. Second, as it stands it cannot be used to examine individual state labour markets. Finally, being available on an annual basis limits its use as a policy tool.

The strength of the Australian Bureau of Statistics *volume measure of labour underutilisation* is that, unlike the other hours-based measures of labour underutilisation explored in this thesis, they do not rely on estimates of visible hidden underemployment. They are based on actual measures of the hours part-time workers would like to work and the number of hours that they actually work. These figures are derived directly from the quarterly Supplementary Labour Force Survey. However, the main problem with the Australian Bureau of Statistics' *volume measure of labour underutilisation* is that it is based on measures of hidden unemployment that are derived from the estimates of the discouraged worker effect obtained from the monthly Labour Force Survey. Yet, as Mitchell and Carlson (2000) and Mitchell (20007), as well as the *comprehensive unemployment rate*, show the discouraged worker effect underestimates the extent of hidden unemployment. Indeed, this measure contains no estimates for hidden unemployment. Consequently, the *volume measure of labour underutilisation* understates the true level of labour underutilisation in Australia. Much of the material that was

reviewed during the preparation of this thesis argues that hidden unemployment should be estimated by indirect methods that explore changes in labour force participation rates.

So, even though events seem to have overtaken this thesis has nevertheless sought to make a contribution to the debate about how best to measure labour underutilisation in Australia by developing a set of criteria that can be used to assess the usefulness of social indicators, especially labour market indicators. Moreover, such a set of criteria can also be used as a conceptual framework within which to develop and construct new labour market indicators.

This thesis reviewed quite a lot of literature from the social indicator movement. The social indicator movement emerged in the USA in the 1960s in response to the need to measure the social progress that it was presumed would accompany the strong economic growth experienced during the post-war era (Noll 1996). On the other hand, the development of social indicators was facilitated by the quantitative revolution in the social sciences that harnessed the growth of computing to calculate the unweighted and weighted statistics that lie at the heart of all social indicators (Burton 1972: 140). Meadows (1998; 2) argued that the role of social indicators is to monitor complex social systems by reporting on the state of a social system. Moreover, Farrell and Hart (1998; 7) argued that they play four important roles. First, they are useful in identifying and defining social issues. Second, they can be used to set targets for social policies. Third, they can be used to describe the state of a social system, to detect changes in the system and to show cause and effect relationships. Finally, they can be used to compare actual results with targets and hence provide the basis for policy revision. So, from this perspective, unemployment and labour underutilisation are not just labour market or indeed economic problems, but social

problems. Hence, labour underutilisation should be measured using social indicators. That is, labour market indicators should be thought of as a sub-set of social indicators.

By linking this thesis into the social indicator movement literature it was expected that the conceptual framework of the thesis would be strengthened. In particular, it was expected that a sub-set of the social indicator literature would be identified that comprehensively explores the desirable characteristics of social indicators. However, it was soon discovered that the literature does explore the desirable characteristics of social indicators, but not in a systematic way. Rather, these discussions were found to be thinly spread throughout the literature. So, one of the first tasks that needed to be undertaken in the preparation of a comprehensive measure of labour underutilisation was to pull this material together to provide a single set of criteria that could be used to evaluate the usefulness, or otherwise, of labour market indicators. Moreover, if such a set of criteria could be constructed, then they could also be used as a framework within which to construct new labour market indicators. As a consequence of the need to undergo this process, the aim of the thesis was re-formulated to investigating and advancing the search for a methodology to more comprehensively measure labour underutilisation. The development and application of such a set of criteria might be seen as contribution towards the achievement of the aim of the thesis.

9.4 Some recommended changes for the Labour Force Survey

The supplementary measures of labour underutilisation that have been developed by the Australian Bureau of Statistics (Australian Bureau of Statistics 2002b) represent an

exciting methodological development. However, their usefulness is limited because they are still person rates of unemployment. So, they underestimate the real level of labour underutilisation. On the other hand, the *volume measure of labour underutilisation* is a time rate of labour underutilisation, which is the focus of much of the literature that was reviewed during the preparation of this thesis. However, this measure ignores hidden unemployment and therefore it underestimates the real level of labour underutilisation in Australia. So, the challenge for the Australian Bureau of Statistics is to develop accurate estimates of the number of discouraged workers in order to more accurately estimate the level of hidden unemployment.

The Australian Bureau of Statistics could develop better estimates of hidden unemployment and generate more useful labour force data by modifying the six filtering questions (questions 19 to 24) in the Labour Force Survey (Australian Bureau of Statistics 2001a; 5). Questions 19 to 21 are designed to identify those respondents who are most likely to be employed, Questions 22 and 23 are designed to identify respondents who are unemployed, while Questions, 23 and 24 are designed to identify those respondents who are not in the labour force. It is these six questions that the Australian Bureau of Statistics needs to re-work. They restrict the application of the Labour Force Survey only to those people who are aged over 15 and who have been ‘actively looking for work during the last 4 weeks’ (Australian Bureau of Statistics 2001a; Survey; 5). That is, any reasonable measure of the discouraged worker effect, and hence hidden unemployment, needs to estimate the size of the labour market as if the labour force was fully employed (Beatty and Fothergill 1998).

However, as discussed by Mata Greenwood (1999) many of the people who would be filtered out by these two questions are likely to be discouraged workers. These are workers who have given up actively looking for work as their intimate knowledge of the labour sub-market to which they belong means that they know that they have no reasonable expectation of ever finding an appropriate job, so they do not want to waste energy looking for jobs that do not exist? However, many of these people are willing to work and would accept a job if an appropriate job was offered to them and they were able to overcome the many barriers that may exist to accepting such a job offer (Alcock, Beatty, Fothergill, Macmillan and Yeandle 2003; 251). They would be willing and able to work in a fully employed economy. Consequently, these people need to be identified in the Labour Force Survey and hence included in the labour force and not filtered out. So, these filtering questions needs to be re-visited, either in terms of the actual questions themselves or the way in which they, and any other probing questions, are asked.

On the other hand, the alternative approaches that have been reviewed in this thesis have all arrived at a similar conclusion. Researchers have argued that estimates of hidden unemployment need to be derived from indirect observations of the labour market. This study demonstrates that there is no generally accepted method by which to generate good estimates of hidden unemployment. However, this study, along with all of the literature reviewed on this topic, points in one direction. Estimates of hidden unemployment can be derived from analysing changes in participation rates and the dynamics of labour force participation rate gaps. Hence, the Australian Bureau of Statistics could choose from a number of competing alternatives or devise its own method.

The Australian Bureau of Statistics regularly collects the data required to accurately calculate the level of visible underemployment in Australia. However, these data are only collected on a quarterly basis. Consequently, the monthly the Labour Force Survey should ensure that respondents clearly state both how many hours they worked during the reference period and how many hours they would have liked to work during the reference period (Denniss 2001 and 2003).

9.5 Conclusion

To conclude, chapter 1 stated that the aim of this thesis was to develop new measures of unemployment, or more precisely labour underutilisation, in order to provide a more informed basis for social, industry and employment policy. However, the aims of the thesis were re-formulated in terms of advancing the search for a comprehensive measure of labour underutilisation, rather than on producing a new single, superior measure. The rationale for this thesis has been that even after more than nearly a century of developing increasingly sophisticated labour market indicators, the Commonwealth Bureau of Census and Statistics, now the Australian Bureau of Statistics, has yet to construct a labour market indicator that comprehensively measures the level of labour underutilisation in Australia and South Australia. The present official measures of labour underutilisation for Australia, the *seasonally adjusted unemployment rate* and the *trend unemployment rate* are both person rates of unemployment that provide reasonable estimates of the level of *cyclical unemployment* and *frictional unemployment*, but they substantially underestimate the level of hidden unemployment and visible underemployment. Consequently, they have provided at best a partial and incomplete picture of the extent of labour underutilisation over the past

two decades. Hence, it can be concluded that the ‘conventional wisdom’ of historically low unemployment rates in Australia is essentially a statistical artefact that is obtained from using official labour force indicators that have reached their use-by date.

By utilising a more comprehensive measure of labour underutilisation in a case study of South Australia, this research has found that the actual level of labour underutilisation in South Australia was about treble the level shown by the *trend unemployment rate* over the period 1989 to 2005. Moreover, the level of labour underutilisation in early-2005 in South Australia was comparable with the levels that prevailed during the trough of the recession of the early-1990s, rather than the peak of the boom of the late-1980s. This finding is not inconsistent with the literature that was reviewed in the early sections of this thesis. Indeed, this body of literature has a consistent theme, as soon as labour underutilisation is measured using a time rate of unemployment, rather than a person rate, the observed level of labour underutilisation in Australia increases substantially.

This thesis contains a number of references to leading Australian labour market analysts who support the view that when labour underutilisation is defined more broadly than just the number of unemployed people (as defined narrowly by the Australian Bureau of Statistics), then the measured level of labour underutilisation will increase, see for examples the papers by Ross (1985; 244), Paul (1991, 1992 and 2001), Mitchell (2007; 10) and Mitchell and Carlson (2000; 17) Wooden (1997), Denniss (2001; 16 and 2003; 122) Campbell (2008) and the Australian Bureau of Statistics (2002b, 2003b, 2009b) throughout this thesis. These references, and many others throughout the thesis, argue that a person rate of unemployment underestimates the intensity of unemployment as it ignores the

underemployment associated with people who are willing to work longer hours than they are currently employed.

All of the leading Australian labour market analysts whose work has been explored in this thesis argue, in one way or another, that head-count measures of unemployed people (especially where being unemployed is defined as narrowly as being employed for as little as one hour per week), underestimate the real level of labour underutilisation in Australia because they ignore the intensity of unemployment experienced by unemployed people and underemployed people. They also argue that more accurate estimates of labour underutilisation would be obtained from an hours-based measure of labour underutilisation. Moreover, the use of a broader definition of labour underutilisation by definition would also be accompanied by an observed increase in the extent of labour underutilisation. The labour underutilisation associated with visible underemployment is therefore ignored by a person rate of unemployment. So, if a person rate of unemployment is converted into an hours-based measure of unemployment, and then the labour underutilisation associated with visible underemployment and hidden unemployment is added to the unemployment rate, then the measured level of labour underutilisation must increase because the definition of labour underutilisation has been broadened. This conclusion is supported by much of the literature that has been reviewed in this thesis and by the Australian Bureau of Statistics.

Moreover, as the report by Burke and Shields (1999) that is reviewed in chapter 3 argued, whenever labour market analysts broaden their definition of labour underutilisation, then the measured level of underutilisation will increase. This is because the definition of labour underutilisation now captures people who were not previously defined as unemployed or

underemployed, and now recognises previously unidentified forms of labour underutilisation. Thus a wide range of recent research confirms that, when labour market analysts calculate hours-based unemployment rates, they are by definition broadening their definition of labour underutilisation, that is, they will identify and count as unemployed people who are defined as unemployed, and then add to this figure the underemployed (at the very least), and the amount of underutilised labour that is associated with their underemployment, which would cause the measured level of labour underutilisation to increase.

Consequently, this thesis concludes with a recommendation to the Australian Bureau of Statistics to further develop its hours-based measure of labour underutilisation in order to complement the *seasonally adjusted unemployment rate* and the *trend unemployment rate*. In particular, the volume measure of labour underutilisation need to incorporate more accurate estimates of hidden unemployment and be available for individual states on a monthly basis.

9.6 Suggestions for further research

This research was conducted at a very high level of aggregation. Hence, the discussion conducted in chapters 6, 7 and 8 provides an overview of the contours and dynamics of labour underutilisation in Australia generally and in South Australia in particular. These three chapters aim to provide insights into labour market trends and focus on changes in the level of labour underutilisation. However, the highly aggregated level of analysis provides little insight into the dynamics of these changes. But the dynamics need to be

understood if the South Australian and the Commonwealth Governments are to develop effective industry, employment and social policy.

The highly aggregated level of analysis hides or masks significant variations not just between the sexes, but between age groups, industries and occupations. Consequently, a more comprehensive understanding of the dynamics of labour underutilisation in Australia will require a more finely detailed analysis of the Australian labour market. Such an analysis would need to investigate three aspects of the Australian labour market. First, to undertake a more detailed analysis of the male and female labour force participation rates by undertaking research into the participation rates for every five or ten-year age cohort from 15 to 65 years of age. Second, to undertake an even more finely detailed cohort analysis of changes in the male and female labour force for each industry sector. Third, to undertake this analysis for individual occupations. Such analyses would help labour market analysts to identify those segments of the Australian labour market in which labour underutilisation is being created. Industry surveys would then indicate why. This information would then provide the basis of an even more informed policy response to the labour underutilisation in Australia and the social problems that it creates.

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