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ABSTRACT

Data on the work force in Technical and Further Education (TAFE) institutes in Victoria, Australia, for 1993-1998 reveal a number of structural changes. First, the number of women staff increased from 46% to 53%, although men still constitute 54% of the teaching staff. As full-time staff employment dropped an average of 1.1% annually, part-time employment increased 9.9%. Overall, full-time tenured males have been replaced with part-time males and females on fixed-term or sessional contracts. The proportion of teachers on TAFE staffs has declined 3 percentage points. Changes in the TAFE work force parallel those in the economy as a whole, such as a shift in industrial structure from manufacturing toward service and information technology. Just as in the general economy, a decreasing core of full-time tenured staff is surrounded by an increasing periphery of part-time sessional/short-term employees. Factors fueling this trend include industrial restructuring, an abundant labor supply in the peripheral market, and a decline in union membership. During the period of the study, TAFE institutes were amalgamated from 32 to 19 in order to create a competitive market. The changes in the TAFE work force have implications for professional development, workplace child care, and flexible working hours. The data indicate a wide variation in the way each institute has responded to changes. (Contains 17 references.) (SK)

CEET

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Employment shifts in the TAFE workforce in Victoria, 1993-98

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June 2000

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Abstract

This paper describes changes in the TAFE workforce in Victoria for the 1993-98 period. The analyses show that the TAFE workforce has experienced a number of structural changes. First, there has been an increase in the participation of women. Females have been a majority of the workforce since 1995 and the trends suggest that feminisation of the workforce is likely to increase in the future. Second, the period saw a tremendous growth in part-time employment and a decline in mainly full-time male employment. Most part-time employment is non-tenured, as either fixed-term contract or sessional positions. The period covered in this paper is associated with some quite significant changes in the structure and operations of the VET sector in the State. They range from the amalgamation of 32 TAFE institutes into 19 to attempts at creating a competitive market for the sector in which public and private providers compete for public funds earmarked for the sector. At the same time the demand for training has shifted from the declining manufacturing industries to the service and information technology industries. The analyses of the institute-level staffing profiles suggest the institutes responded differentially to the above changes.

1 Introduction

The Technical and Further Education (TAFE) institutes in Australia employ a range of individuals in a variety of occupations, a majority of them teachers. This paper looks at the structural shifts that have occurred in the TAFE workforce in Victoria, one of the eight States and Territories that make up the Commonwealth of Australia, during the period 1993-98. Under the Federal system the State and Territory governments have statutory responsibility for the regulation and administration of education and training in their jurisdiction.

A national perspective

TAFE institutes in Australia provide most of the publicly funded post-school vocational education and training (VET) in the country. In 1998, 75 percent of the over 1.5 million students who undertook some kind of off-the-job VET did so at a TAFE institute or other publicly funded organisation such as a school (NCVER 1999a). The overwhelming number, however, were TAFE-based. In this respect the TAFE workforce represents the majority of people who work in the VET sector.

The TAFE system in Australia has a number of features that distinguish it from other non-university tertiary education systems around the world. Few other systems in the world offer the breadth of programs, and have students enrolled from such diverse backgrounds as the Australian TAFE system. Compared to other OECD countries, the proportion of mature-age and part-time students enrolled in the Australian TAFE system is relatively large (OECD 1998). For example, in 1996, Australia ranked fourth out of 19 countries in terms of the participation rate among the 17-34 year age group in non-university tertiary education, it ranked first out of 15 countries in terms of the participation rate among the 26-29 year age group. Furthermore, Australia had the highest proportion (80 percent) of students enrolled on a part-time basis.

The range of programs offered by TAFE institutes include:

- recreational non-award courses for personal interest, leisure or general enrichment;
- pre-vocational training and basic education in areas such as literacy, numeracy and adult education;
- initial VET such as apprenticeships and technician training; and
- post-initial training such as advanced certificates and associate diplomas in a variety of areas.

The TAFE workforce in Australia has been affected by a number of factors over the last decade. These factors range from globalisation and technological change to State and Federal micro-economic reform. Globalisation has resulted in the demise of traditional manufacturing industries. Victoria has been more affected by this because traditionally manufacturing formed a cornerstone of its economy. Consequently, the demand for training in some of these industries has declined. On the other hand because of the growing importance of the information technology, tourism, community services, and business and finance industries, the demand for training in these areas has increased. In summary, there has been a redistribution of demand for training across industry and discipline groups.

A number of national structural reforms in the VET sector, beginning with the release of *Skills for Australia* (Dawkins and Holding 1987), are also likely to have had an effect on the composition of the TAFE workforce. The reforms' aims have been to make the system more efficient, effective, flexible and responsive to industry needs. One of these reforms has been the creation of a national market for VET where both public and private providers would compete. Among reforms trialed at the national level to create competition and increase efficiency has been the concept of *user choice*. Under *user choice* the clients (employers) are empowered to choose the supplier of, and negotiate for the type of, training for their employees, although financing of the training still remained the responsibility of the government.

As a way of further opening the training market to competition, an increasing proportion of funding is being allocated through open tenders. Contestable funding increased from just over $20 million in 1995 to nearly $400 million in 1999 (ANTA 1997, 1999b). TAFE institutes not only bid against private providers for these tenders, but also against each other. By 1999, over 900 of the 1,600 registered training organisations were accessing contestable funds (ANTA 1999b).

At the curriculum level the reforms include the introduction of competency-based training (CBT) and training packages. CBT emphasises outcomes such as attainment and demonstration of knowledge, skills and application, as opposed to inputs such as time spent. Training packages include discrete competencies that make up a course of training for a particular industry or occupation. They are certified under a national training framework to ensure appropriate standards and quality. The packages also include procedures for registration, delivery, assessment and certification.

The introduction of the training market and flexible delivery through training packages has redefined the nature of teachers' work. According to Kell et al. (1997), these changes have simultaneously broadened the role of teachers and intensified their work.

TAFE teaching has been going through a process of deregulation since 1992. Formal traditional teaching qualifications are no longer necessary to teach in a TAFE institute. The minimum requirements now seem to be a *Level IV Certificate in workplace training and assessment*.

The changes in the industrial relations climate in the 1990s are also likely to have had an impact on the structure of the workforce. Enterprise bargaining and other workplace relations legislation has encouraged differentiation, across institutes, in award conditions. The legislation has allowed an individual to completely opt out of the collective bargaining system and instead have a personal contract of employment with the institute in which they work.

Victorian context

Victoria is Australia's second most populous State with 25 percent of the population. Its share of the total number of students enrolled nationally in vocational education programs has been above its relative population size, although it fell from 31 to 28 percent in the 1993-98 period (NCVER 1999a).

TAFE institutes in Australia are given a certain degree of autonomy to manage their own affairs, but in Victoria the decision-making is even more decentralised than in the rest of the country. However the system has gone through a considerable amount of centrally imposed restructuring in recent times. By mid-1997, 25 stand-alone institutes remained from a total of 32 in 1993. This number was further reduced to 19 multi-campus institutes by the end of 1998 following recommendations made in Ramler (1997).

During this period the Victorian Government had an agenda to create competitive markets and to transfer public activities to the private sector, among other things. Even though all other States and Territories have also been participants in a national competition policy following the Hillmer (1993) report, Victoria has been one of the more aggressive States in pursuit of this policy. The impact of these policies on a TAFE institute has been, first, reduced State government funding, and second, increased competition with private providers and other institutes for a growing proportion of the public outlays for VET.

According to published financial data for VET in Australia, Victoria's proportion of the total operating revenue for publicly funded VET has remained at around 24 percent for the 1995-98 period. However as Table 1 shows, the distribution of the proportions coming from different sources is quite different in Victoria compared to the rest of Australia. The State government contribution makes up a significantly smaller proportion of the total in Victoria than in the rest of Australia, but the contribution from fee-for-service and other sources is a much bigger proportion.

Table 1 Sources of recurrent operating revenue (percentage) for publicly funded VET in Victoria compared to rest of Australia, 1995-98

	Victoria				
	State Government	Commonwealth Government	Fee-for-service	Other sources	Total
1995	52	22	12	14	100
1996	48	22	17	13	100
1997	45	25	17	13	100
1998	49	21	17	13	100
Average 1995-98	49	22	16	13	100
	Rest of Australia				
1995	61	23	10	06	100
1996	61	24	06	09	100
1997	59	25	07	09	100
1998	62	24	06	08	100
Average 1995-98	61	24	07	08	100

Source: NCVER (1996), NCVER (1997), NCVER (1998), NCVER (1999b)

Until the change of government in late 1999, Victoria was at the forefront in allocating resources in VET through contestable means. In 1999, nearly $100 million dollars, or 19 percent of government funds for training (including for user choice program), were contestable, and there were over 950 registered private providers of training (STB (Victoria) 1999).

The TAFE institutes' delivery of student contact hours (SCH) increased by 15 percent between 1993 and 1998. On the other hand the average unit cost of delivery declined to such an extent that in Victoria the average in 1998 was $10.30 per SCH compared to the national average of $13.40 (ANTA 1999a).

The net results of changes in this period for TAFE in Victoria have been:

- lower State funding in real terms;
- increased reliance on other revenue sources, including fee-for-service; and
- increased competition with other institutes and private providers for a growing proportion of contestable State funds.

Thus the TAFE institutes in Victoria have been in rather a unique situation in the 1990s. Not only did they have to go through the process of amalgamation, but they also had to become partially entrepreneurial to raise revenue to compensate for the reduction in uncontestable funds from the State government.

Structure of this paper

The next section describes the collection of statistics on the Victorian TAFE workforce. It includes description and handling of missing values and data entry errors. Section 3 describes changes in the structure of the workforce as a whole. Patterns of employment of teachers are presented in section 4 and of non-teaching staff in the section 5. Institute-level differences in employment structure are briefly examined in section 6. A discussion of the findings is contained in section 7. Finally, the last section contains some conclusions.

2 Data

Administrative data, collected by the then Office of Training and Further Education (OTFE) between 1993 and 1998, are used for the analyses reported here. These data are unique in the sense that similar data for other States and Territories are not readily available. The collection is based on the monthly staffing returns made by individual institutes to the central office[1]. They contain aggregate number of persons employed by sex and time fraction of employment (full-time or part-time) for each institute. The data are also categorised by teaching and non-teaching functions. Both head count and equivalent full-time (EFT) data are collected.

Other data used in the analyses in this paper are those on training delivery (in SCH) by fields of study for the 1993-98 period. These were provided by OTFE, too.

[1] The OTFE ceased collecting one institute's data after May 1997 because they were considered unreliable. The institute, which became a division of a university, found it difficult to allocate the time spent by each staff member between university and TAFE activities.

3 Aggregate employment in TAFE institutes

This section presents analyses of overall workforce numbers without distinguishing between teachers and non-teachers. Table 2 shows the average monthly employment for the 1993-98 period[2]. In this period the workforce increased at an average rate of 3.2 percent per year (0.7 percent EFT), reaching a monthly average of over 13,500 persons (9,700 EFT) in 1998. Significant shifts in the employment structure become evident when the data are disaggregated by gender and hours worked.

First, there is a fundamental shift in the gender structure. Traditionally the bastion of male employment, the institutes have had a majority of females on their staff since 1995. In 1993, 46 percent of the employees were female, but by 1998 the proportion had increased to 53 percent. (In terms of EFT employment, the increase was 7 percentage points). While the average annual growth rate of male employment was only marginal (0.5 percent), female employment grew at 5.9 percent per year.

The shift in the gender structure parallels the shift in the industrial structure of employment. The relative decline in employment in the manufacturing and related industries has resulted in a relative decline in the demand for training in these areas. Employment growth has been in information technology, hospitality, tourism and business, finance and community services. There has been a shift away, then, from industries in which males were more likely to be employed towards industries in which women were at least as likely to be employed as men would be. This has translated into a more prominent role for women in the provision of training.

Table 2 Annual employment by sex, all staff (persons and EFT), 1993-98

	Persons			Equivalent full-time (EFT)		
Year	Male	Female	All	Male	Female	All
1993	6,541	5,670	12,211	5,578	4,152	9,730
1994	6,163	5,857	12,020	5,261	4,278	9,539
1995	6,305	6,577	12,882	5,208	4,612	9,819
1996	6,503	6,985	13,488	5,334	4,882	10,216
1997	6,463	7,201	13,664	5,138	4,907	10,045
1998	6,360	7,153	13,513	4,843	4,815	9,658
Average annual rate of growth, 1993-98	0.5%	5.9%	3.2%	-1.9%	3.8%	0.7%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

The monthly variation in the number of persons and EFT employed are shown in Figures 1 and 2, respectively. Employment in TAFE institutes follows a clear cyclic pattern that repeats each year. The average difference between the maximum and minimum number of persons employed in a year is over 3,400 (or nearly 25% of the average annual number). January, the summer holiday period in Australia, is also the period of lowest employment in TAFE. Peaks in employment occur around May and September. As will be shown later, the fluctuation in employment is due to a trend to

[2] Initial analyses suggested errors in the data for one relatively small institute for March, April and May in 1997. The EFT values for the above mentioned institute were missing. The problem was overcome by imputing the values from the corresponding EFT values for February 1997.

employ an increasing number of staff on casual or sessional basis and on short duration fixed-term contracts. The increasing trend in the employment of casual staff is evident in many other sectors of the economy and is not unique to this sector.

The interesting features in Figures 1 and 2 are the trend lines. If these were to continue, then in the not distant future the TAFE workforce will have a similar proportion of females workers as schools and hospitals do now.

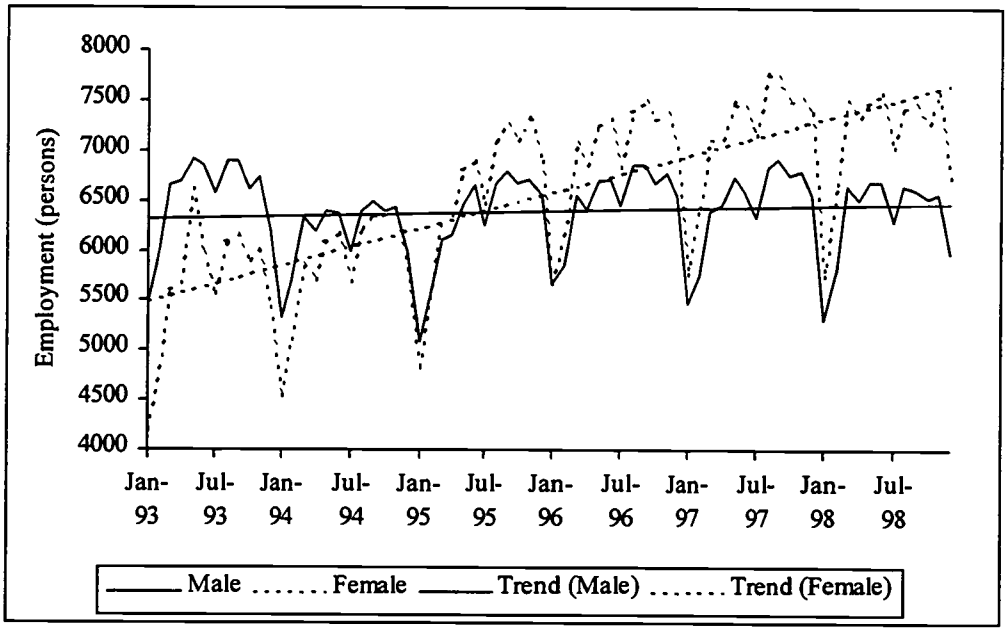

Figure 1 Monthly employment by sex, all staff (persons), 1993-98

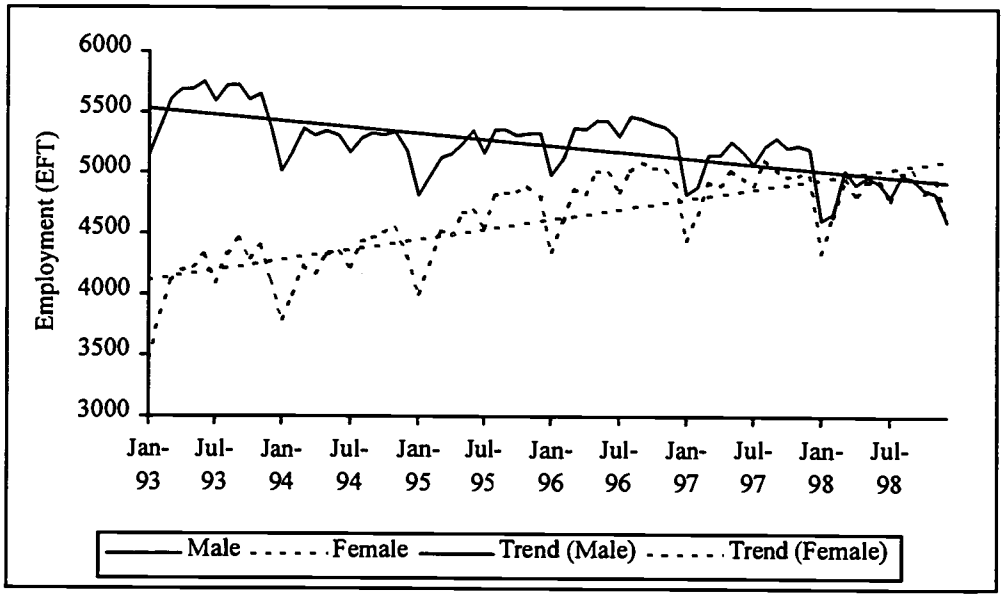

Figure 2 Monthly employment by sex, all staff (EFT), 1993-98

The second structural change to occur in the workforce has been in the redistribution of work from full to part-time, see Table 3. While full-time employment dropped at an average annual rate of 1.1 percent, part-time employment increased at a rate of 9.9

percent. The average hours worked by an employee fell from 80 percent of EFT hours in 1993 to 71 percent in 1998.

Changes in male employment patterns are particularly interesting. Male full-time employment declined at an average rate of 3.2 percent per year, but part-time employment increased at a rate of 10.6 percent, albeit from a much smaller base. In the case of females both full and part-time employment increased, but the latter increased more substantially. Overall there has been a substitution of full-time male employees with both male and female part-time ones.

The monthly variation in full and part-time employment is shown in Figures 3 and 4, respectively. Although the trend in male full-time employment is negative and that of female is positive, convergence between the two is unlikely for some time even if the current trends were to continue because the gap between the two trend lines is substantial. In contrast, although the trends in part-time employment of both males and females are positive, they are diverging and hence unlikely to converge if the trends were to continue. Not surprisingly, only part-time employment is cyclical as it includes most casual and sessional employment.

Table 3 Annual employment by sex and hours worked, all staff (persons), 1993-98

	Full-time (persons)			Part-time (persons)		
Year	Male	Female	All	Male	Female	All
1993	4,884	2,829	7,712	1,657	2,841	4,499
1994	4,702	2,868	7,570	1,461	2,989	4,451
1995	4,626	3,082	7,708	1,679	3,495	5,175
1996	4,655	3,247	7,902	1,848	3,738	5,586
1997	4,378	3,145	7,523	2,085	4,056	6,141
1998	4,036	3,065	7,101	2,324	4,088	6,412
Average annual rate of growth, 1993-98	-3.2%	2.1%	-1.1%	10.6%	9.6%	9.9%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

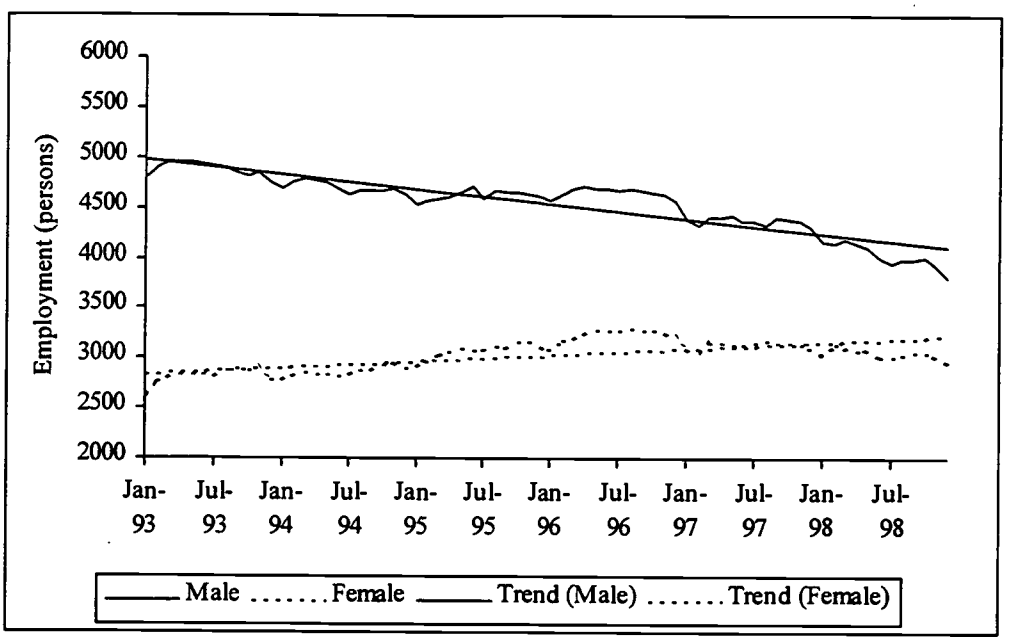

Figure 3 Monthly full-time employment by sex, all staff (persons), 1993-98

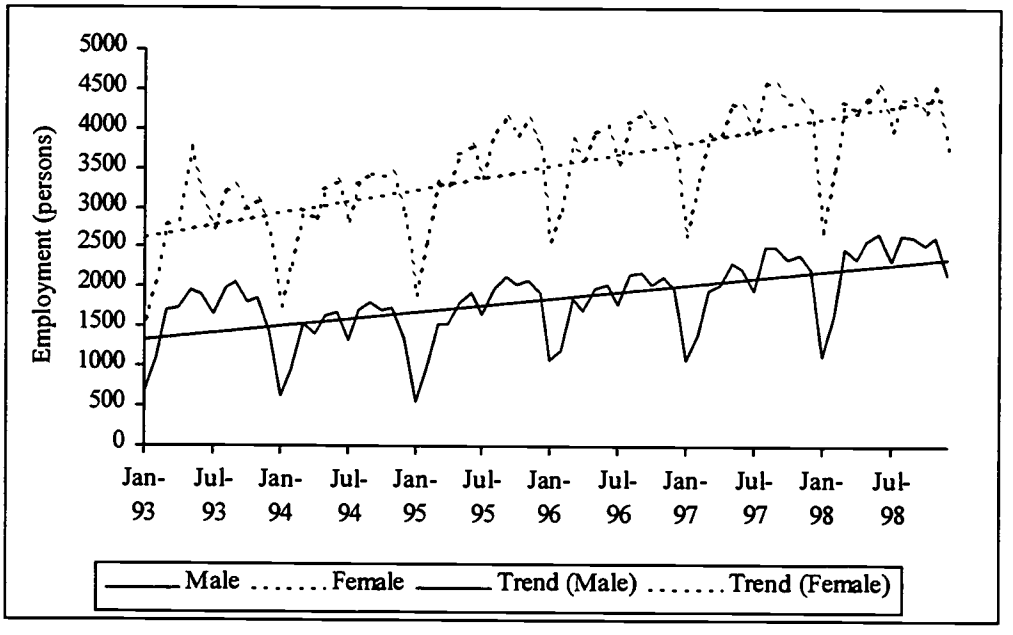

Figure 4 Monthly part-time employment by sex, all staff (persons), 1993-98

In summary the overall trends in the workforce show an increase in the relative importance of female and part-time employment. In the following sections the structural changes are analysed further by considering teaching and non-teaching staff separately.

4 Teaching staff

Teachers in TAFE institutes are categorised by the type of contract they are employed under:

- tenured or ongoing;
- fixed-term contract; or
- sessional.

They are also categorised as either full or part-time. Sessional teachers are invariably employed on a part-time basis.

In this section, first, the overall trends in the employment of teachers are presented. Next, the trends for each of the three categories of teachers are analysed to see the differences between them.

Teachers as a proportion of all employees declined by 3 percentage points during the 1993-98 period to 63 percent of the total in 1998. Table 4 shows that although overall teacher numbers increased at an average annual rate of 2.7 percent, EFT employment actually declined at a rate of 0.6 percent. The implication of the divergence in these two measures of employment is that the average hours worked by teachers is declining. In 1993 a teacher worked, on average, 76 percent of EFT hours, but in 1998 the average had dropped to 66 percent.

Males were still a majority of teachers in 1998, making up 54 percent of the total, even though the average annual growth in their numbers was negligible in the 1993-98 period compared to a growth rate of 6.3 percent for females. If the trends in male and female teacher numbers, shown in Figure 5, were to continue then females are likely to outnumber males in the next few years. Whether the profession eventually becomes, as feminised as school teaching remains to be seen (Shah 1999). Figure 5 also indicates the cyclical nature of teacher employment. The average difference between the maximum and minimum number of teachers employed in a given year is nearly 2,900.

Table 4 Annual employment by sex, all teachers (persons and EFT), 1993-98

	Persons			Equivalent full-time (EFT)		
Year	Male	Female	All	Male	Female	All
1993	4,932	3,125	8,057	4,105	2,053	6,158
1994	4,561	3,174	7,735	3,793	2,100	5,893
1995	4,618	3,544	8,162	3,685	2,214	5,899
1996	4,753	3,704	8,458	3,778	2,309	6,087
1997	4,750	3,962	8,712	3,611	2,383	5,994
1998	4,645	3,916	8,561	3,372	2,303	5,675
Average annual rate of growth, 1993-98	0.0%	6.3%	2.7%	-2.9%	3.4%	-0.6%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year.
Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

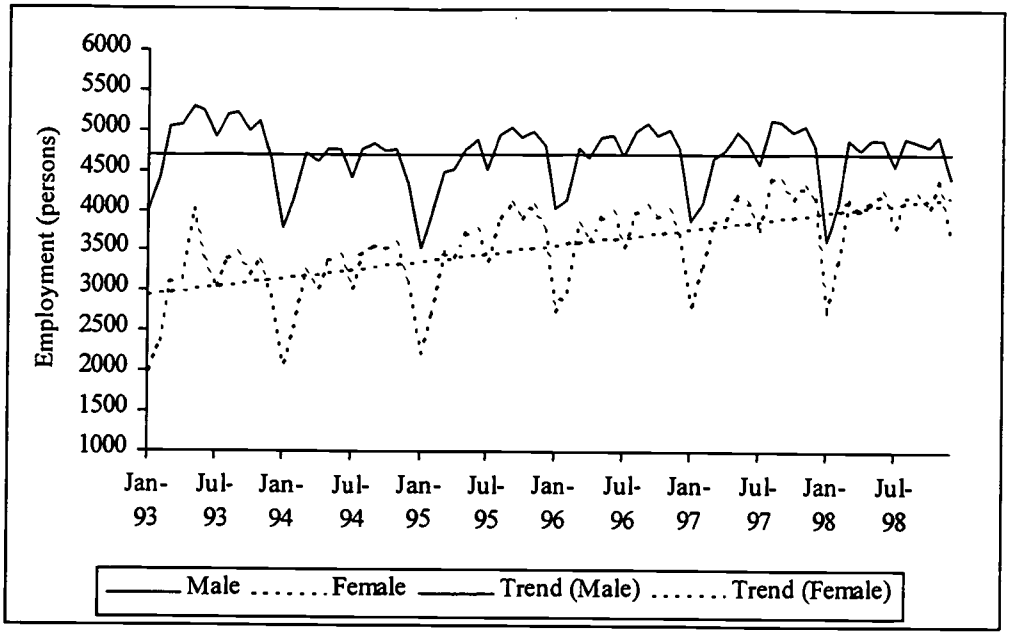

Figure 5 Monthly employment by sex, all teachers (persons) 1993-98

Tenured teachers

Tenured teacher numbers experienced the largest reduction of any sub-group in the workforce. They comprised 46 percent of all teachers in 1993, but only 37 percent in 1998. Males are still a majority of tenured teachers, but their relative share dropped by 11 percentage points over this period.

Table 5 shows that while male tenured full-time positions declined at an average annual rate of 6.2 percent, tenured positions for all other sub-groups actually had a positive growth. In particular, the growth in part-time positions, including those of males, has been quite spectacular, albeit from a relatively small base.

Table 5 Annual employment by sex and hours worked, tenured teachers (persons), 1993-98

	Full-time			Part-time		
	Male	Female	All	Male	Female	All
1993	2,864	595	3,458	66	196	262
1994	2,626	602	3,229	56	207	264
1995	2,537	625	3,162	76	257	333
1996	2,495	627	3,122	84	288	371
1997	2,251	631	2,882	85	324	408
1998	2,017	654	2,671	145	361	506
Average annual rate of growth, 1993-98	-6.2%	1.7%	-4.6%	16.0%	13.5%	14.2%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

Fixed-term contract teachers

Teachers on fixed-term contracts comprised 27 percent of all teachers in 1998, a proportion which is only marginally lower than it was in 1993. Females are a majority of this group. In contrast to tenured teachers, it is full-time female, and not male, employment that shows a negative average annual growth rate in this category, see Table 6. As discussed below, this may be an aberration due to institute mergers in 1997 and 1998 and may not be a sustained trend.

Table 6 Annual employment by sex and hours worked, fixed-term contract teachers (persons), 1993-98

	Full-time			Part-time		
	Male	Female	All	Male	Female	All
1993	661	632	1,293	322	606	928
1994	686	649	1,335	280	690	970
1995	686	677	1,363	269	738	1,007
1996	762	718	1,480	314	763	1,077
1997	757	666	1,423	318	774	1,092
1998	697	562	1,259	321	730	1,051
Average annual rate of growth, 1993-98	2.3%	-1.0%	0.8%	2.1%	4.2%	3.5%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

The plots for the monthly employment of full and part-time fixed-term contract teachers, in Figures 6 and 7, show similar cyclical patterns. These patterns suggest that a significant number of fixed-term contracts are of short duration, usually less than year. A number of contracts end before or at the end of the year while new contracts start in February or later. Such arrangements save on salary costs for the institutes but possibly lead to no income for at least a month for some teachers. The figures also show a decline in the number of female teachers in the last two years, after a period of gradual increase. For males the decline is only in full-time positions. Some of this decline could be attributed to the rationalisation that occurred with the merging of institutes that happened around that time. The mergers may have resulted in non-renewal of existing contracts or a freeze on new hires. Another possible explanation, supported by anecdotal evidence only, is that as a precursor to institute amalgamations in 1998, the junior partner in the mergers converted some fixed-term contract positions to tenure to protect the relative bargaining positions of their staff in the new institution.

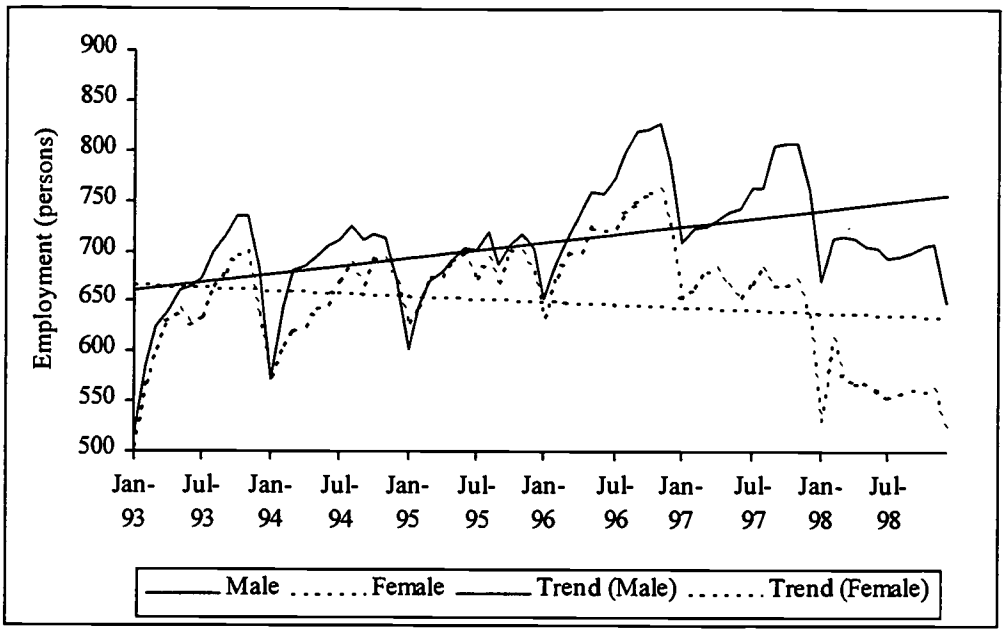

Figure 6 Monthly full-time employment by sex, fixed-term contract teachers (persons), 1993-98

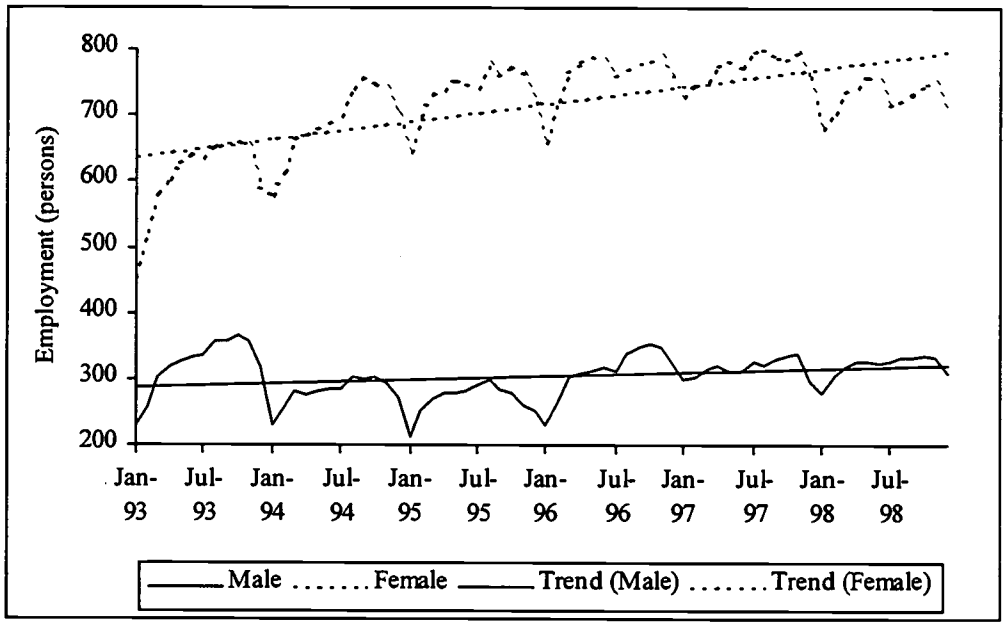

Figure 7 Monthly part-time employment by sex, fixed-term contract teachers (persons), 1993-98

Sessional teachers

Employment of sessional teachers in TAFE became more significant in the 1993-98 period. At the beginning of this period 26 percent of teachers were sessional but by the end the percentage had jumped to 36 percent, although in EFT terms they only represented 14 percent of the total. The average hours worked by a sessional teacher fell from 31 to 26 percent of EFT hours. It is possible that a sessional teacher may work simultaneously at more than one institute during a month, and therefore, may be counted more than once in these data. Thus, the actual number of persons working as

sessional teachers in the State at any one time may be less than the numbers suggested here.

Table 7 shows the average annual growth rate in the employment of sessional teachers was nearly 14 percent, and females outnumber males by only a small margin.

Table 7 Annual employment by sex, sessional teachers (persons), 1993-98

	Male	Female	All
1993	1,020	1,096	2,116
1994	912	1,025	1,937
1995	1,050	1,247	2,297
1996	1,099	1,309	2,408
1997	1,340	1,567	2,907
1998	1,465	1,609	3,074
Average annual rate of growth 1993-98	13.0%	14.8%	13.9%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year.
Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

Not surprisingly, the employment of sessional teachers is very cyclical, see Figure 8. The pattern, however, is more complex than it is for fixed-term contract teachers. The average difference between the maximum and minimum number employed in a year is nearly 2,400 in a year, and the employment series of females appears more volatile than that of males. In general, there are two periods, January and July corresponding to the summer holiday period and the inter-semester break, when sessional employment numbers drop considerably. The peak in sessional employment is around May and September.

Figure 8 shows the trend in the employment of sessional teachers to be strong. It is likely to continue in the immediate future, resulting in a further increase in the proportion making up sessional teachers.

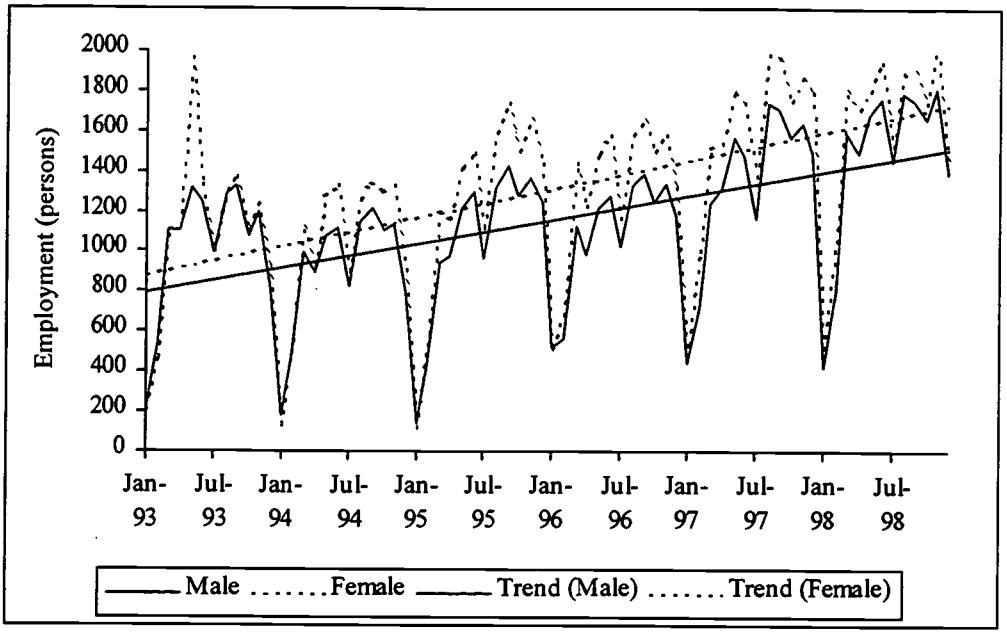

Figure 8 Monthly employment by sex, sessional teachers (persons), 1993-98

5 Non-teaching staff

Non-teaching TAFE employees are classified in one of the following three categories:

- executive;
- professional, administrative, clerical, computing and technical (PACCT); or
- "others".

PACCT is an industrial award and allows for both tenured and fixed-term contracts. There is no provision for a casual contract under the award. The last category, "others", includes those employed as maintenance staff, gardeners, nurses, etc. The type of contract they work under is not included in the data.

The proportion of the workforce classified as non-teaching increased from 34 to 37 percent between 1993 and 1998, at an average annual rate of 4.1 percent. The average hours worked by the group fell from 86 to 80 percent of EFT, a much smaller drop than that for teaching staff.

Female non-teaching staff outnumbered male teaching staff in 1998 by a ratio of 2:1. The gap between the two groups widened by 4 percentage points in the 1993-98 period. As Table 8 shows, the number of females employed increased at an average annual rate of 5.6 percent compared to a rate of just 1.7 percent for males.

Table 8 Annual employment by sex, non-teaching staff (persons and EFT), 1993-98

	Persons			Equivalent full-time (EFT)		
Year	Male	Female	All	Male	Female	All
1993	1,609	2,546	4,155	1,473	2,100	3,572
1994	1,603	2,683	4,286	1,468	2,178	3,646
1995	1,687	3,033	4,720	1,523	2,398	3,921
1996	1,750	3,281	5,030	1,556	2,573	4,129
1997	1,713	3,238	4,952	1,515	2,520	4,035
1998	1,715	3,237	4,952	1,471	2,512	3,983
Average annual rate of growth, 1993-98	1.7%	5.6%	4.1%	0.4%	4.2%	2.7%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

The evidence of annual cyclic pattern in employment of non-teachers is evident from Figure 9. The pattern is more discernible for females than for males, which indicates females are more likely to be employed on casual or short fixed-term contract basis than are males.

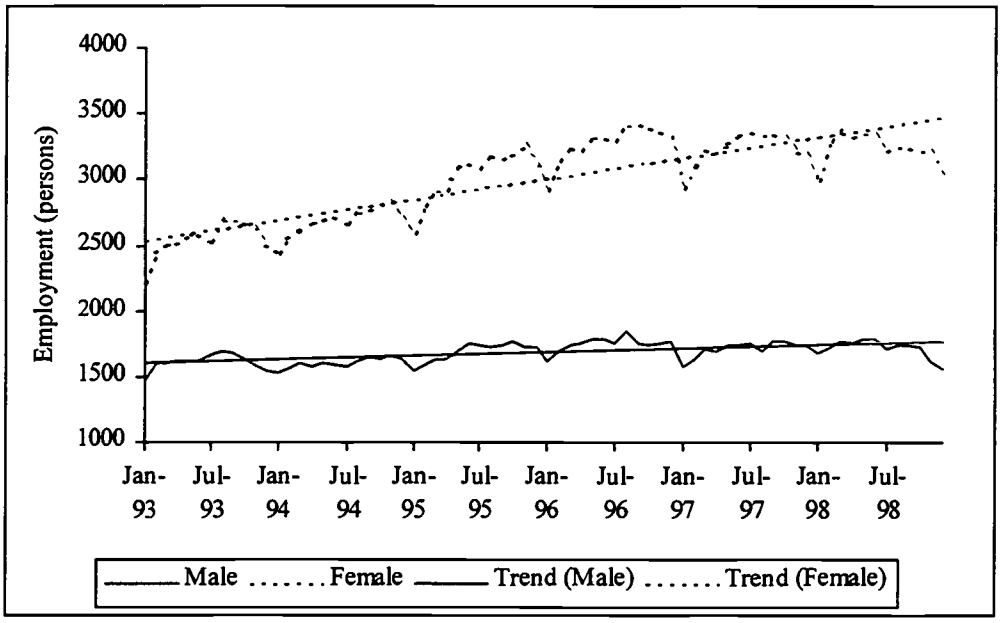

Figure 9 Monthly employment by sex, non-teaching staff (persons), 1993-98

Executive staff

The number of persons employed as TAFE executive staff increased until 1995 and since then has declined. In particular, as Table 9 shows, a significant drop occurred in 1998, probably due to institute amalgamations in that year. On average, there was one executive per 72 employees in 1993 compared to one per 88 employees in 1998. Although there are an increasing number of females in these positions, they still represented less than a quarter of the total in 1998.

Table 9 Annual employment by sex, executive staff (persons), 1993-98

Year	Persons		
	Male	Female	All
1993	140	29	169
1994	146	36	181
1995	148	38	186
1996	140	38	179
1997	131	38	169
1998	117	35	153
Average annual rate of growth, 1993-98	-3.6%	3.3%	-2.2%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

PACCT staff

PACCT staff dominate non-teachers, making up about two-thirds of their numbers. Their numbers increased at an average rate of 4.0 percent per year. Most PACCT employees are female with their numbers rising from 68 percent of the total in 1993 to 71 percent in 1998.

Employment of PACCT staff on tenure has become less common in the 1993-98 period. Their numbers fell from 64 percent of the total to 56 percent. However when data are analysed by hours worked then it becomes evident that only male full-time positions show a negative average annual growth rate, see Tables 10 and 11. Apart from female full-time positions, which had only a marginal growth rate, all other sub-groups show substantial growth rates.

It is interesting to note that in 1998 tenured PACCT positions experienced a similar renaissance to that of tenured teachers, and for similar reasons.

Table 10 Annual employment by sex and hours worked, tenured PACCT staff (persons), 1993-98

	Full-time			Part-time		
	Male	Female	All	Male	Female	All
1993	588	946	1,534	38	228	266
1994	539	860	1,399	30	230	260
1995	512	865	1,377	32	262	293
1996	527	923	1,450	41	289	330
1997	520	908	1,428	45	295	340
1998	520	966	1,486	39	327	366
Average annual rate of growth, 1993-98	-1.9%	0.9%	-0.1%	4.8%	7.8%	7.4%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

Table 11 Annual employment by sex and hours worked, fixed-term contract PACCT staff (persons), 1993-98

	Full-time			Part-time		
	Male	Female	All	Male	Female	All
1993	206	424	630	66	320	386
1994	243	514	757	64	375	439
1995	315	639	954	71	436	507
1996	353	685	1,039	83	467	550
1997	345	641	985	84	473	556
1998	322	610	932	97	446	543
Average annual rate of growth, 1993-98	10.4%	7.9%	8.7%	9.6%	7.6%	7.9%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

Figure 10 shows the cyclical pattern in the employment of PACCT staff on fixed-term contracts. The cycle appears to be more pronounced for females than for males. The pattern once again indicates that a number of contracts terminate in or before December and new contracts do not commence until February or later.

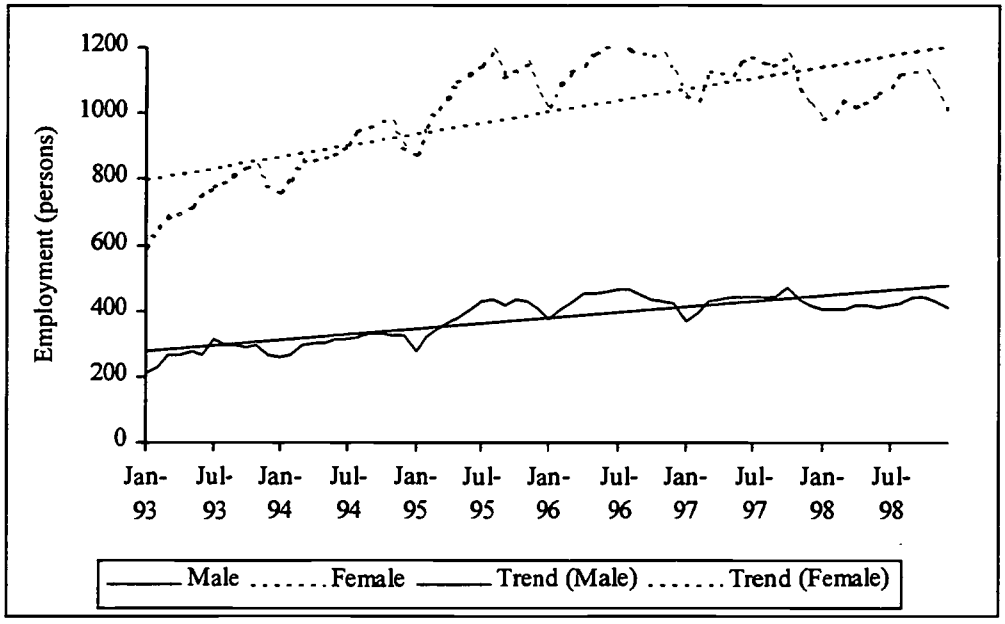

Figure 10 Monthly employment by sex, fixed-term contract PACCT staff (persons), 1993-98

"Others"

This group was not classified by the employment contract. The proportion of non-teaching staff in the "others" category increased only slightly from 28 to 30 percent in the 1993-98 period[3]. In line with the general trend in the TAFE workforce, the proportion of women and those on part-time employment increased substantially for this group as well. Females comprised 58 percent of the group in 1998, an increase of 7 percentage points from 1993. Full-time employment among the group fell from 53 to 41 percent, with part-time employment rising at an average annual rate of almost 11 percent, see Table 12.

Table 12 Annual employment by sex and hours worked, "others" (persons), 1993-98

	Full-time			Part-time		
	Male	Female	All	Male	Female	All
1993	419	204	623	152	396	548
1994	424	206	630	157	463	621
1995	410	238	648	200	556	756
1996	378	255	633	228	623	851
1997	372	258	631	217	625	843
1998	362	236	598	258	617	875
Average annual rate of growth, 1993-98	-3.6%	3.8%	-0.9%	12.0%	10.4%	10.8%

Annual employment is calculated by taking the average of monthly employment over the 12 months of the year. Average annual growth rates are based on ordinary least squares (OLS) estimates from a log-linear model

The part-time employment of "others" also has a cyclical pattern, similar to that for, say, sessional teachers, see Figure 11. This suggests that the employment of a substantial number of "others" is on casual or short fixed-term contracts. The amplitude of the cycle for female employment is bigger than for male employment, which means a higher proportion of females are more likely to be employed on a casual basis.

[3] The male numbers for March, April and May in 1997 appeared to be unusually low compared to their numbers for the months before and after this period. Conversely, the female numbers were unusually high. However, when the male and female numbers were added the total appeared to be consistent with the total for the corresponding period in 1996. To correct for this apparent error, male and female numbers for the three months in 1997 were estimated assuming the gender distribution for the corresponding three months in 1996. Separate calculations were made for full and part-time staff in each institute.

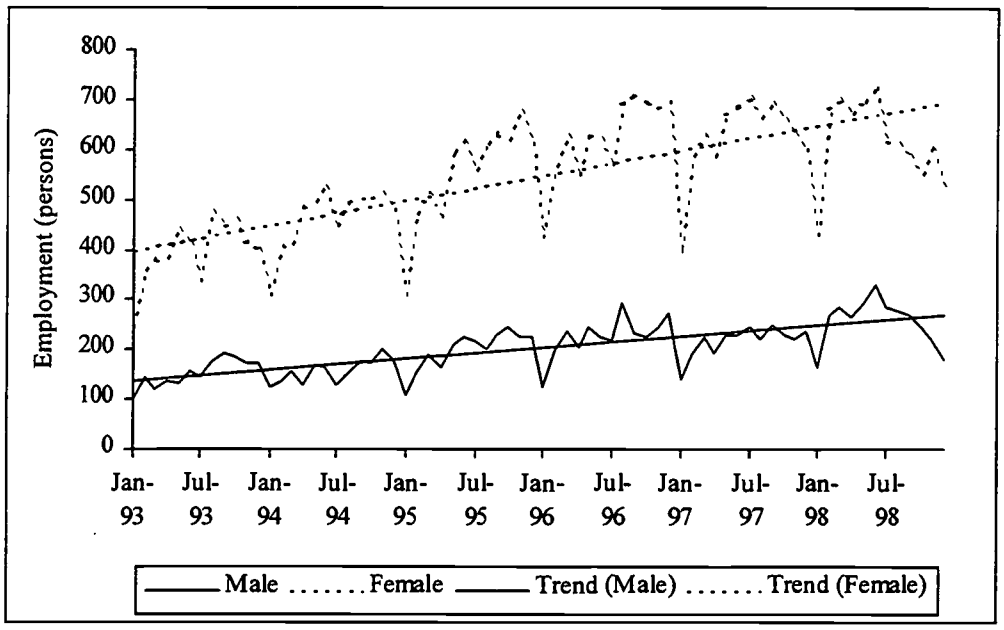

Figure 11 Monthly part-time employment by sex, "others" (persons), 1993-98

6 Institute level differences in employment patterns

In this section, the employment structure across institutes is analysed. For ease of exposition only two years' - 1993 and 1998 - data are considered. The scope of the analyses is further limited by the fact that for some institutes data were unreliable or missing and the number of institutes has changed over time. In particular, as a result of a major restructure of the TAFE system following the recommendations in Ramler (1997), the number of institutes was further reduced after June 1998. The following analyses are, therefore, based on the average employment in the institutes over the first six-month period of each year, which is unlikely to be very different from the average for the whole year if there had been no restructure in mid-1998. After removing those institutes for which data were unreliable, 29 were available for analysis in 1993 and 23 in 1998. The identities of individual institutes are concealed in the following presentation.

Teaching staff

Figure 12 shows the proportion of teachers in an institute's workforce varied from a low of 50 percent to a high of 78 percent in 1998. This is substantially the same range as in 1993. Some institutes have a much higher proportion of their workforce who are teachers because either they have outsourced functions that are normally performed by non-teaching staff or because they may be a TAFE division of a university. In the latter case some non-teaching staff who are shared across both the university and TAFE sectors may not be included in the monthly staff data returns to OTFE.

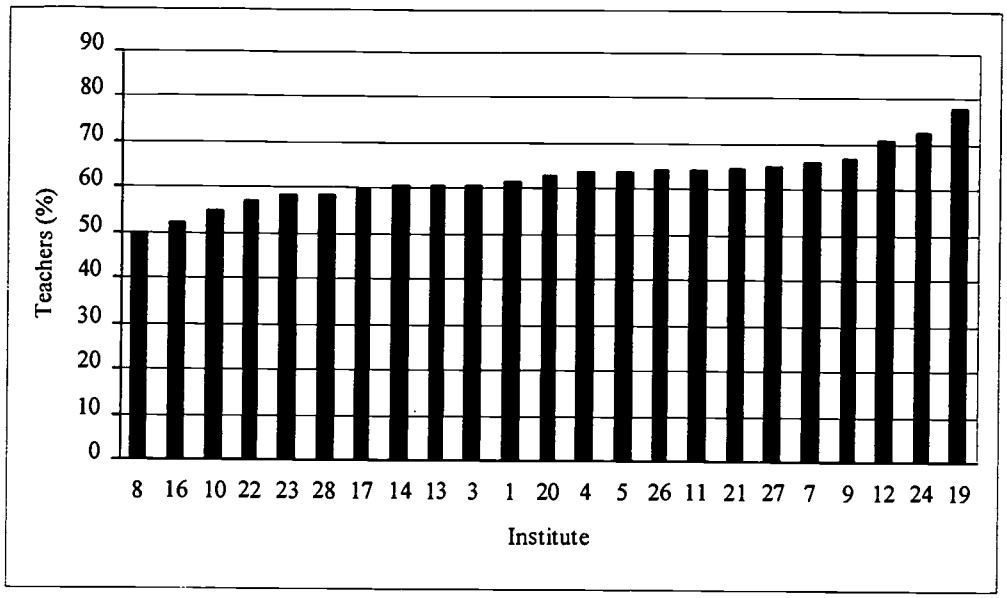

Figure 12 Proportion of teachers in the workforce by institute, 1998

The distribution of the proportion of teachers by employment contract, that is tenured, fixed-term and sessional, however, shows a lot more temporal and across institute variation. In 1993 the average proportion on tenure was 52 percent, but in 1998 it had dropped to 38 percent. More interestingly, the proportion varied enormously from institute to institute. While in 1993 it ranged from 20 to 92 percent, in 1998 the range was from 7 to 67 percent (see Figure 13). So although in general all institutes seem to have reduced the proportion of teachers on tenure, some seem to have gone a lot further than others, while others have gone against this general trend.

In contrast the average proportion of sessional teachers rose from 21 percent in 1993 to 32 percent in 1998. Although the minimum proportion increased from 1 to 16 percent, the maximum remained virtually unchanged, increasing from 57 to only 58 percent. Once again, some institutes went against the trend and actually reduced the proportion of teachers employed on a sessional basis.

The average proportion on fixed-term contracts shows a relatively small change, having increased from 27 to 30 percent in this period. The data, however, do not permit an analysis of the change in the distribution of the duration of contracts.

Although from the averages one may conclude a direct substitution of tenured teachers with sessional has occurred in most institutes, in reality there is quite a degree of variation from this "average" practice. Some institutes seem to have substituted tenured with fixed-term contract teachers whose contracts can often be less than one year. Therefore, as Figure 13 shows, in some institutes even though the proportion of teachers on tenure may be low, this does not necessarily imply the proportion of teachers who are sessional is going to be correspondingly high (eg institutes 20 and 22).

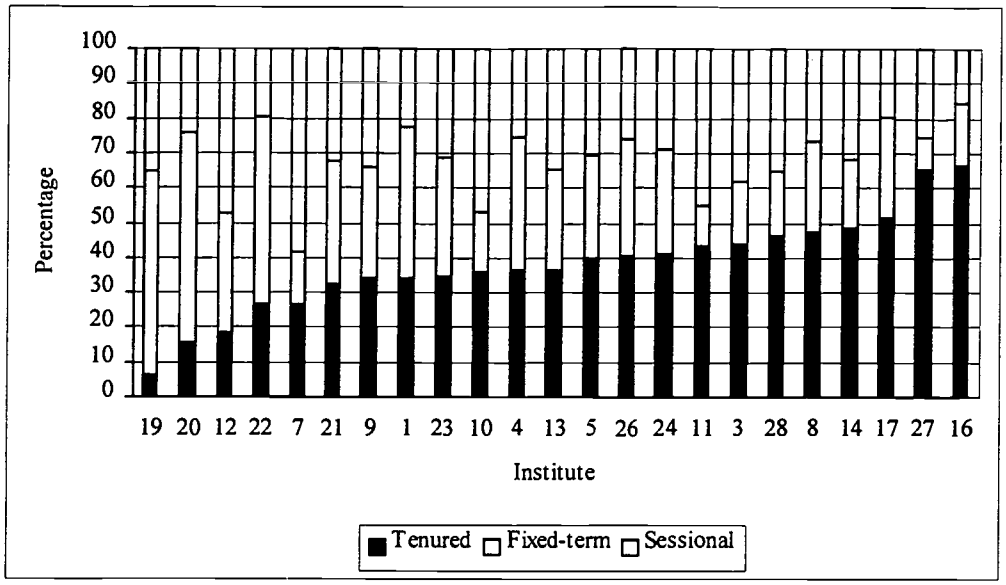

Figure 13 Percentage of teachers by employment contract and institute, 1998

Non-teaching staff

The average proportion of non-teaching staff, excluding the TAFE executives, in an institute on PACCT awards remained unchanged at around 70 percent for both years. However as already indicated through analyses of aggregate data, the average proportion of PACCT staff on fixed-term contracts increased substantially from an average of 33 percent in 1993 to 44 percent in 1998. In some institutes, the proportion in the "others" category is quite small (see Figure 14). This suggests that in such an institute, either a large proportion of the services normally performed by the group is outsourced, or else their numbers are excluded from the staffing returns to OTFE because the institute is a division of a university.

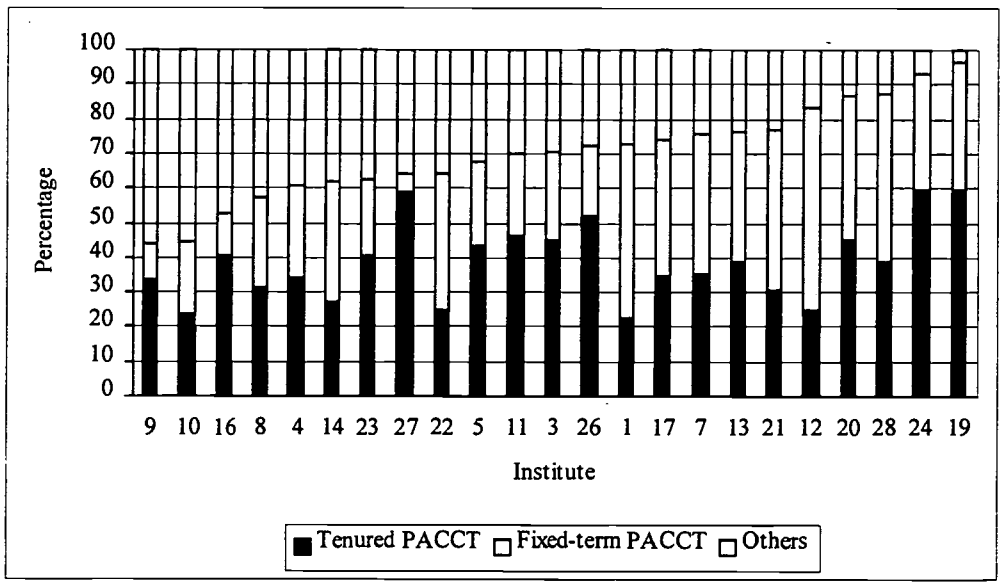

Figure 14 Percentage of non-teachers (excluding TAFE executives) by employment contract and institute, 1998

Finally, the average, across institutes, of the number of employees per executive went up from 70 to 85 between 1993 and 1998[4]. The ratio for each institute for 1998 is shown in Figure 15. The wide variation suggests the institutes differ significantly in their management structures. It is possible that a person in one institute is on an executive award, while in another institute a person in the same role may not be. Institutes that are a division of a university may have different management structures to other institutes.

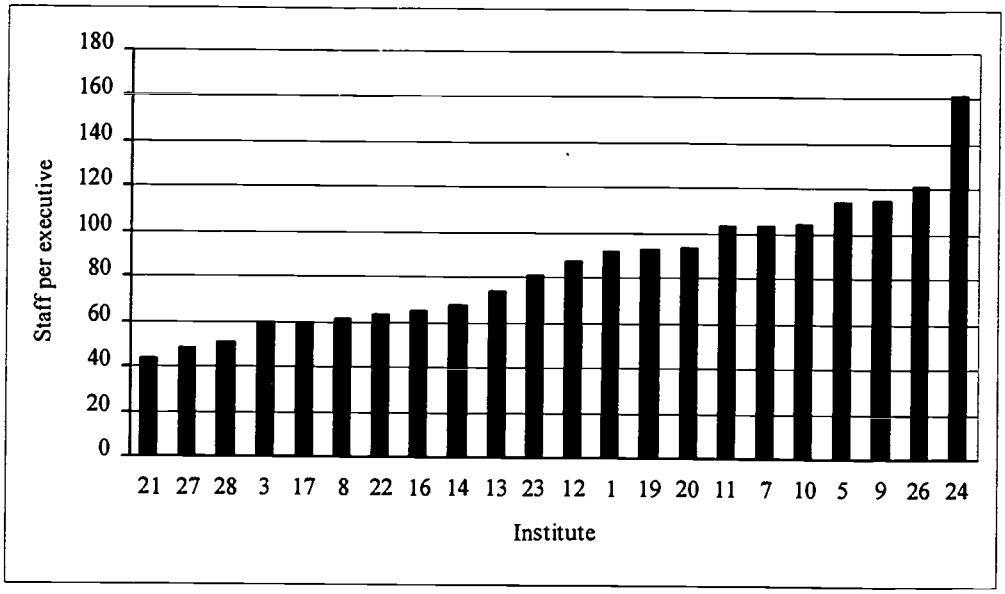

Figure 15 Number of employees per executive by institute, 1998

In summary, the data show wide variation in the staffing profiles across institutes. They reflect the variation in the management response to changes in funding arrangements, micro-economic reforms both at the State and Federal level and globalisation.

7 Discussion

The above analyses show that the TAFE workforce in Victoria went through a substantial structural change in the period 1993-98. There were changes in:

- the proportion of teachers in the workforce;
- the gender distribution of the workforce;
- the average hours of employment per employee; and
- the type of contract under which workers were employed.

The changes are evident for both teaching and non-teaching employees. In general, the institute-level staffing profiles are consistent with these aggregate trends. However there are quite large differences among institutes, with trends for some that are opposite to the general rule.

[4] The average for 1998 is calculated over 22 institutes because data for one institute were missing.

Diminishing proportion of teachers
In spite of a 15 percent increase in the delivery of training (measured by SCH) and a decline in the mean hours of employment for teachers, the proportion of teachers in the TAFE workforce fell by 3 percentage points in the 1993-98 period. This change is open to a number of interpretations. It could reflect efficiency gains. Such improvements could result from several sources including an increased use of flexible delivery or an increase in class sizes.. The available data do not address the possible explanations, but there is some anecdotal evidence available.

It has been suggested that some employees on PACCT award, who are not classified as teachers, perform teaching duties. Apparently this practice may be more prevalent in non-metropolitan areas. One reason suggested for its use is a shortage of teachers in certain subject areas.

A more worrying explanation, and one that may affect the quality of training, has been suggested in Forward (2000). On the basis of feedback from members of the teachers' union, of which she is the President, Forward asserts that some institutes are directing teachers to deliver a proportion of the annual curriculum hours *flexibly*. In other words the actual face-to-face hours of training delivered are less than the annual funded and specified curriculum hours. The implication of this, according to Forward, has been either that a teacher has been delivering the difference in the annual curriculum and face-to-face hours in his/her own time or that students are missing out on some part of their training. Teachers are concerned about this issue because they see the implications of such a practice for the quality of the training provided to students and also for its impact on their workloads. It is possible that for some modules of training, the annual curriculum hours overestimate the actual hours required. If this is the case, it may be better to address the issue by revising the annual curriculum hours at the system level.

Feminisation
Females have outnumbered males in the TAFE workforce since 1995, but only in 1998 did the EFT numbers for the two groups more or less equalise. The trends in the gender distribution parallel the changes in the structure of industries that has occurred over this period. Manufacturing and related industries have been in relative decline in Victoria, while information technology, business and finance services, community services and hospitality and tourism have grown at a faster rate. The declining industries were a bastion male employment, but the growth industries have a higher proportion of female employment. Data on training delivery provided by OTFE show the proportion of training in disciplines related to the growth industries, such as health sciences, administration, business, economics, law, hospitality, tourism, and personal services, increased by 4 percentage points between 1994 and 1998.

A second factor that has had an effect on the gender distribution of the TAFE workforce has been the increased use of part-time staff. Women hold a comparative advantage in this segment of the market because, in general, they are more likely to supply, voluntarily or involuntarily, their labour on a part-time basis than are men. For some women part-time work allowed them to bear and rear their children as well as keep a foot in the labour market.

Increase in part-time work
Overall there has been a shift from full-time to part-time employment. The average hours of employment fell from 80 percent of EFT hours to 71 percent over the six-year period.

A number of factors may have contributed to the increased use of part-time staff. First, the use of part-time staff offered management greater flexibility in resource allocation in an era of reduced recurrent public funding, uncertainty in other revenue sources and rapid technological change. As a result some institutes have been employing an increasing number of sessional/casual staff who cost less to employ. In most cases regulations prevent them from being employed on a full-time basis.

Second, supply factors have also contributed to the increase. Some teachers regard TAFE teaching as a second job and they are only able, and sometimes willing, to supply a fixed number of hours of labour for it. In certain subject areas they often find the financial incentive not strong enough to entice them into full-time teaching. On the other hand for some people, especially women, working part-time is a matter of choice, which allowed them time to raise their families and also keep a foot in the labour market.

Employment contracts
The general trend has been from tenured to sessional and short (less than a year) fixed-term contracts of employment. However the trends are not uniform in size or direction across different sub-groups of the workforce. The strongest downward trend is in the number of full-time male teachers with tenure. In contrast sessional teacher numbers have grown significantly, and in 1998 they made up 36 percent of all teachers. Although non-teaching PACCT staff numbers increased at an average annual rate of 4 percent, most of the growth has been among those employed on fixed-term contracts, a lot of which are often of short (less than a year) duration.

In order to reduce the price of training delivery, the State government increased the proportion of public funding for training that was to be contested among TAFE institutes and private providers. The effect of this policy has been uncertainty in the long to medium-term funding for individual institutes and private providers and a reluctance to employ staff on a more permanent basis. A number of institutes increased their commercial activities to meet the revenue shortfall.

The organisation of the curriculum into bite size competencies and modules may also have made it somewhat easier to farm out teaching duties to *just-in-time* sessional teachers.

Emerging paradigm for TAFE workforce structure
The emerging workforce structure indicates a segmentation of the internal labour market in TAFE. There is a decreasing core made up of staff who are full-time and on tenure or on longer (three years or more) fixed-term contracts. Surrounding the core is an increasing periphery of part-time staff, mainly employed as sessional/casual or on fixed-term contracts of short duration (less than a year). Some sessional/casual workers may work at more than one institute on occasion, but on average for no more than about 30 percent of EFT hours at any one institute.

There are a number of ways the model manifests itself operationally. It could be that the non-core functions of the firm or institution are outsourced to other firms. In this case the contracted firms employ the persons who perform the work. In another model the firm maintains a core of permanent staff and hires *in* contract/casual personnel on a *just-in-time* basis to perform not only the non-core functions but sometimes also the core functions. Some TAFE institutes adopted a hybrid of the above two models, with some non-core activities, such as cleaning, outsourced and sessional teachers brought in to do a substantial proportion of the core activity of teaching.

The impetus for the segmentation has come from a number of sources. First, in the 1990s there has been a general trend towards the core/periphery model in the economy as a whole, including in the public sector. In Victoria the State government went as far as to mandate that some public institutions, like local governments, spend a fixed proportion of expenditure on services through competitive tenders. The use of the core/periphery model may already be in widespread use among private providers of VET, who employ up to 70 percent of their teachers on a sessional basis (ACPET 1998). TAFE institutes who are in direct competition with private providers for the contestable public funding for VET, adopted the model, too, in some form or another.

There appears to be a convergence in a number of factors that either helped or did not hinder the push towards a core/periphery model. First, the core was already in the process of shrinking because of the departure of a substantial number of tenured, full-time male teachers who either retired or took voluntary departure packages. The demand for training in their area of expertise had declined due to the industrial restructure of the economy.

Second, there was an abundant supply of labour for the peripheral segment of the labour market. There appears to be a pool of women who were able, and prepared, to work part-time and on sessional/casual or fixed-term contracts. They had qualifications to teach in areas where there was an emerging demand for training. Furthermore, deregulation of TAFE teaching in the early 1990s had the effect of increasing supply substantially[5].

Third, the influence of unions in determining the conditions of work has declined because of falling union membership. This has been exacerbated by the changes in the industrial relations laws that allow for individualised staff contracts outside the award system and prevent collective bargaining at the sector level. Consequently, the managements of some institutes have been able to implement the core/periphery model with little resistance from their workforce.

Implications of the new paradigm

The changing structure of the workforce requires a re-examination of the environment in which TAFE staff work and the conditions under which they work. With the majority of the staff already female, and that proportion likely to increase, the provision of workplace childcare and flexibility in hours is more important than ever. The flexibility

[5] It is now possible to teach in the TAFE sector without formal teaching qualifications. The minimum requirement is a *Certificate IV in Assessment and Workplace Training*, which replaced the more pedagogically demanding education and training diploma courses. In one institute the certificate requires a nominal 300 hours of training, but is usually delivered on a fast-track mode in 70 hours. Questions regarding the quality of teaching and training do arise under these circumstances.

in hours does not necessarily mean shorter working hours; it means being able to take time off to look after sick children etc. This type of flexibility is just as important for the peripheral as it is for the core staff.

The growing peripheral segment of the labour market has implications for the ongoing professional development of the TAFE workforce as a whole. With funds for professional development limited anyway, those on full-time and on tenure or longer fixed-term contracts are more likely to be the only employees to be involved in such activities. Yet it is imperative that there is ongoing professional development of the highest quality for **all** staff if the TAFE workforce is to keep abreast of the rapid technological, economic and educational changes occurring in recent times. If TAFE institutes behave like other firms and organisations and invest primarily in their core staff, then who bears the responsibility for the professional development of the growing number of employees in the peripheral segment of the market? Do workers in the periphery have sufficient incentive and motivation to organise and finance their own professional development or should the State be responsible for these issues? If the State is interested in the quality of training workers receive then it seems it will have to be more pro-active in the professional development of those who provide and deliver the training. The cost could be quite high of not doing anything and letting the market take care of this crucial aspect of VET.

8 Conclusions

This paper has described changes in the TAFE workforce in Victoria for the 1993-98 period. The analyses show that the TAFE workforce has experienced a number of structural changes. First, there has been an increase in the participation of women. Females have been a majority of the workforce since 1995 and the trends suggest that feminisation of the workforce is likely to increase in the future. Second, the period saw a tremendous growth in part-time employment and a decline in mainly full-time male employment. Most part-time employment is non-tenured, as either fixed-term contract or sessional positions. The period covered in this paper is associated with some quite significant changes in the structure and operations of the VET sector in the State. They range from the amalgamation of 32 TAFE institutes into 19 to attempts at creating a competitive market for the sector in which public and private providers compete for public funds earmarked for the sector. At the same time the demand for training has shifted from the declining manufacturing industries to the service and information technology industries.

The changes at the system-wide level suggest a new paradigm for the TAFE workforce, in which the internal labour market is segmented into a core and a periphery. However workforce profiles at the institute level show wide variation in the way each institute responded to the factors that have affected the system as a whole. For example, not all institutes substituted sessional for tenured teachers when the latter retired or resigned. There were some institutes where the proportion of staff on tenure actually increased over the study period. It seems that, in spite of the general tide towards the core/periphery model, these institutes have opted for a different approach to human resource management.

Acknowledgments

The work for this paper emanated from a project for the then Office of Training and Further Education in Victoria. The data for this paper originated from that project. The author was part of the project team that included Robyn Hill, Jeff Malley, Phillip McKenzie and Carol Putland. The paper has benefited from useful and critical comments from Ian Gribble and Mike Long, and help from Greg Poppen and Frank Talarico with extracting the data from their original sources.

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