

Teacher Numbers in New Zealand: Attrition and Replacement*

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While the supply of primary teachers is expected to decline between 2005 and 2009 because of current enrolments and completions, there is likely to be a sufficient pool of graduates available to meet demand in 2006.

TeachNZ (2006: 6)

INTRODUCTION

There are a number of issues involved in trying to calculate the number of teachers that will be available in future years to meet the requirements generated by the number of students enrolled in schools within the compulsory sector.

Future projections of student numbers are 'best guesses' at best! Other factors that need to be taken into account are:

- 1) The retention rates of students in the senior secondary area. Increases in retention could affect the demand for teachers.
- 2) Policy changes that impact on student/staff ratios, such as class sizes and the provision of non-contact time for teachers.
- 3) The demographics of current teachers.

STUDENT NUMBERS AND GROWTH PROJECTIONS

The Ministry is predicting that numbers of students will decline a little during the next decade – as shown in Figures 1 and 2 for the primary and secondary sectors respectively. But note that there is no zero point on the graphs, hence they look more dramatic than they are.

Figure 1: Primary Sector Student Numbers and Growth Projections

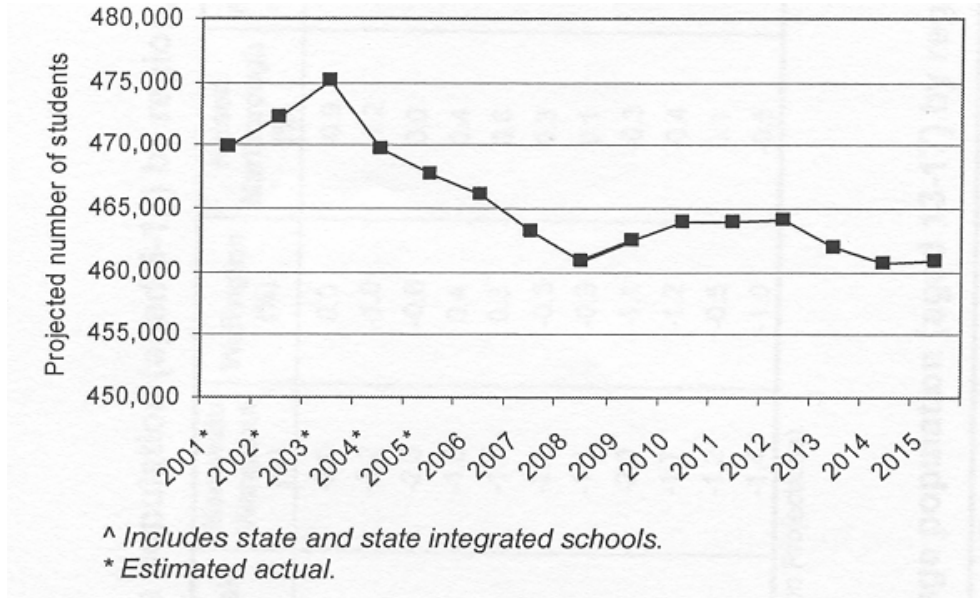
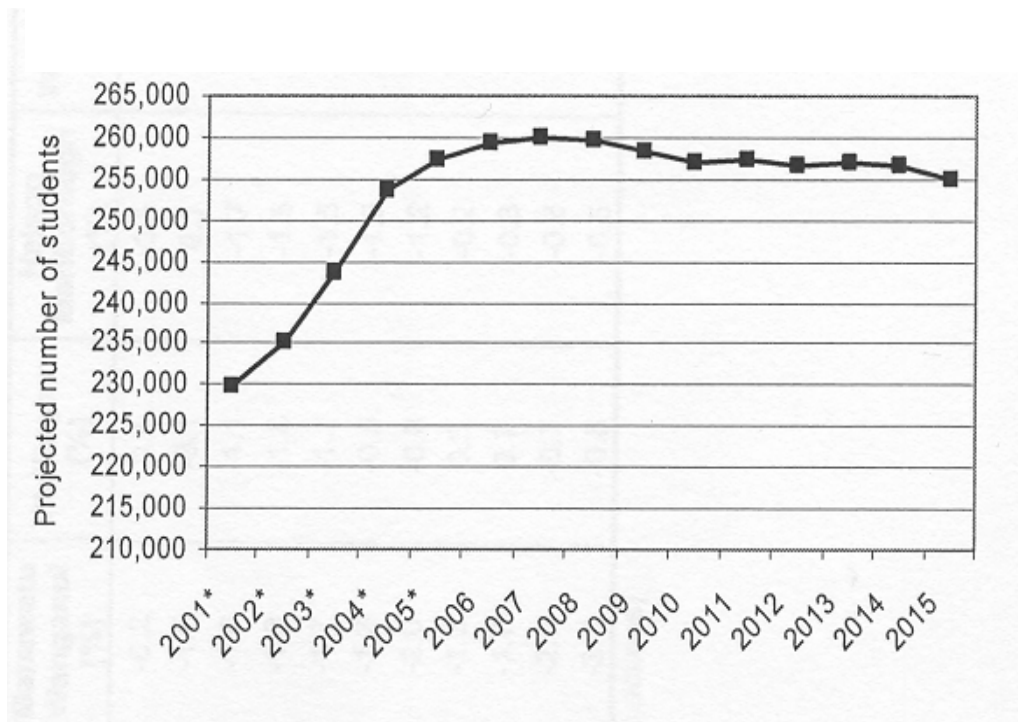


Figure 2: Secondary Sector Student Numbers and Growth Projections



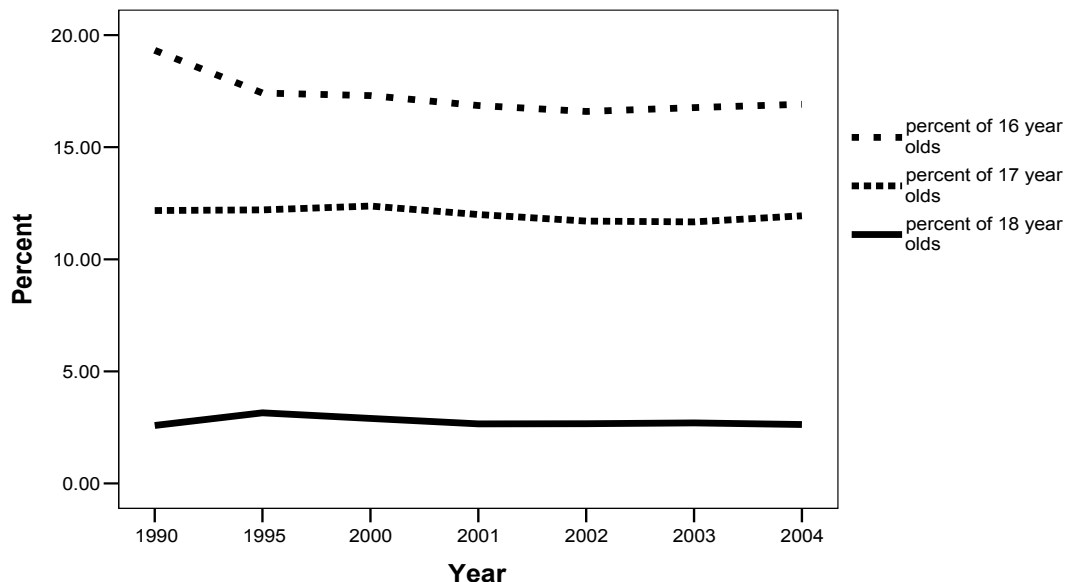
Primary numbers reached a peak in 2003 and appear set to decline by around 14,000 (2.9 %) by 2015. Secondary numbers will peak in 2007, and decline by around 5,000 (1.9 %) by 2015. In percentage terms, the decline is not large, and with recent policy changes designed to give teachers more non-class time for preparation and professional development purposes, the small decline is an opportunity to make these a reality, rather than as an opportunity to cut the numbers of places offered in pre-service teacher education programmes.

We now turn to some of the other factors that need to be taken into account when considering the need to recruit an adequate number of teachers.

RETENTION RATES

Retention rates into the senior years of the secondary school rose steadily during the 1970s and 80s. However, as Figure 3 shows, the retention of post-compulsory school age students has changed little over the past decade.

Figure 3: Student Retention: 16, 17 & 18 Year Olds as Percentage of students 13-18



A variety of reasons for this flat trajectory have been suggested. The funding of private tertiary providers in the mid 90s drew many vocationally oriented students away from secondary schools which were often viewed as overly academic in the senior years. Changes in tertiary funding regimes, and moves from the secondary sector to provide a greater range of options for senior students, together with the changes to the qualifications that are now available to senior students through NCEA, could well impact on this pattern.

THE CURRENT TEACHERS

Perhaps the most important aspect of the demographics of the current teaching force is the age structure which will have a direct impact on the loss rate (due to retirement, amongst other reasons) from the profession and hence on the need to find a sufficient number of replacements.

Age Distribution

The age distribution of teachers over the past fifteen years is shown separately for primary and secondary teachers in Figures 4 and 5, and summarised for 1985 and 2004 in Table 1. These data show quite clearly that the age structure of current teachers is quite strongly negatively skewed, and that an increasingly large number of teachers will be retiring over the next fifteen years. In 2004, nearly half of both primary and secondary teachers were over 45, compared with about one third of teachers in 1985, as shown in Table 1.

Table 1: Age Distribution of Primary and Secondary Teachers, 1985-2004

Primary	Less than 45	%	45 or more	%
1985	11,638	66	5,965	34
2004	13,117	51	12,775	49
Secondary	Less than 45	%	45 or more	%
1985	9,324	70	3,918	30
2004	10,098	53	8,988	47

The following graphs show clearly the age-bulge moving through the age groups between 1985 and 2004, and also the smallness of the younger age groups from which replacements for the much larger older age groups have to be drawn as they retire or quit. This is notable at both levels but is particularly striking in the secondary teacher data (Figure 5), where the numbers below the age of 40 are quite clearly inadequate to make up for the loss of colleagues in the older age groups.

Figure 4: Primary Teachers by Age Group (%)

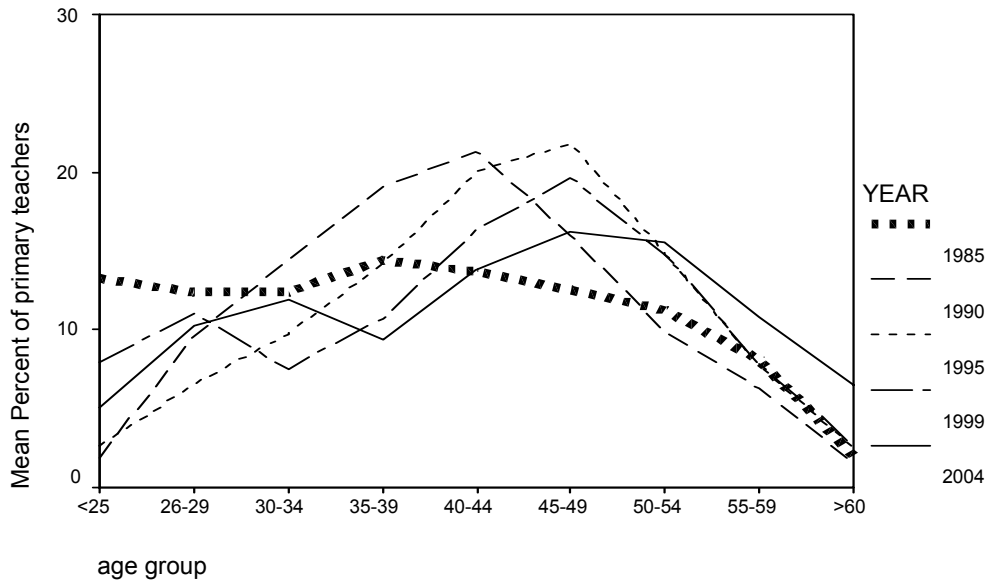
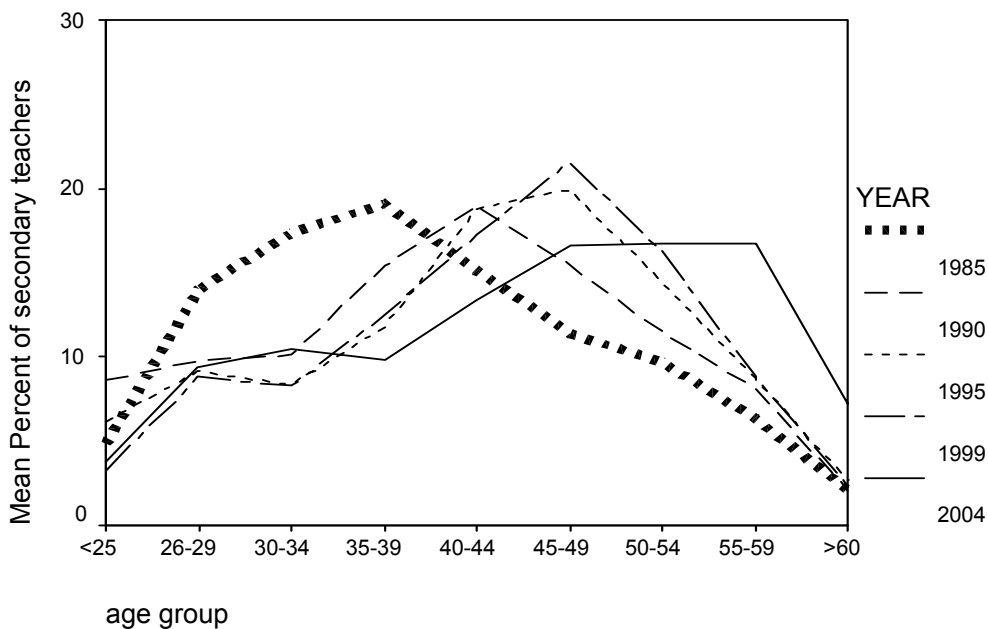


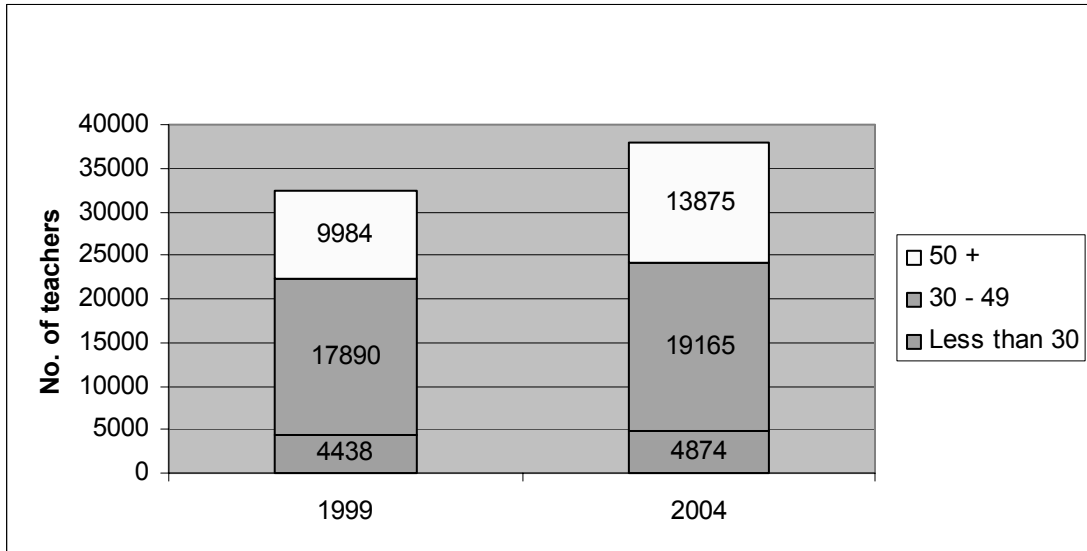
Figure 5: Secondary Teachers by Age Group (%)



As one would predict from the line graphs above, the changes from year to year are rapidly increasing. Figure 6 shows, when comparing 1999 with 2004, that numbers of both primary and secondary teachers over 50 years old has increased by 3,891, a 39% increase over this 5 year period.

The number of teachers under 30 has grown by 436, a 9.8% increase over the 5 years. In terms of maintaining teacher numbers to keep pace with demand, a much greater effort would seem to be called for to attract young graduates into the teaching profession – it is dying of old-age!!

Figure 6: Age Distribution of Primary and Secondary Teachers, 1999-2004



Gender and Age

Breaking the 2004 age distribution down further by gender, Figure 7 shows at the primary level a much flatter distribution across age groups for the (markedly fewer) male teachers, while at the secondary level (Figure 8) the distribution is very similar for male and female teachers. In both sectors, females out-number males in all age groups.

Figure 7: Age Distribution of Primary Teachers by Gender, 2004

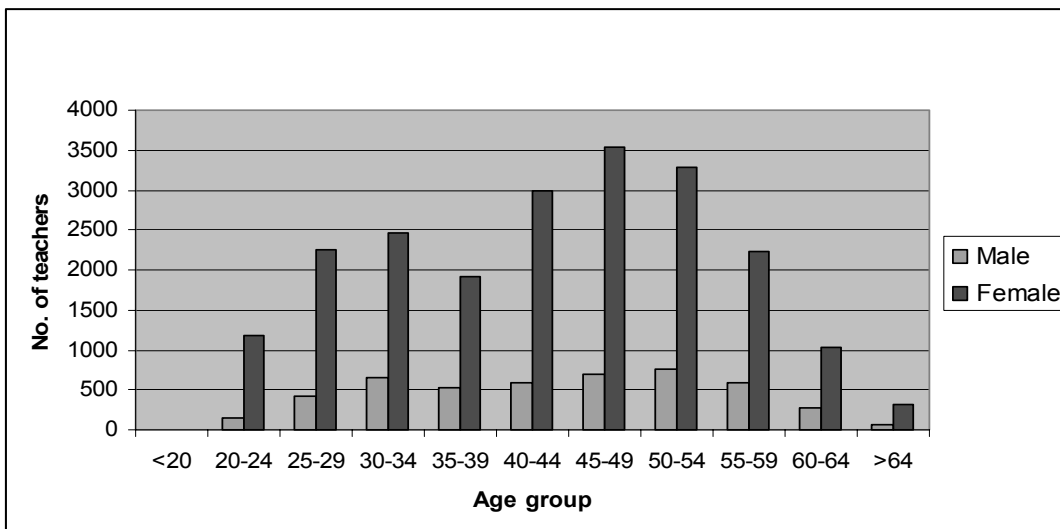
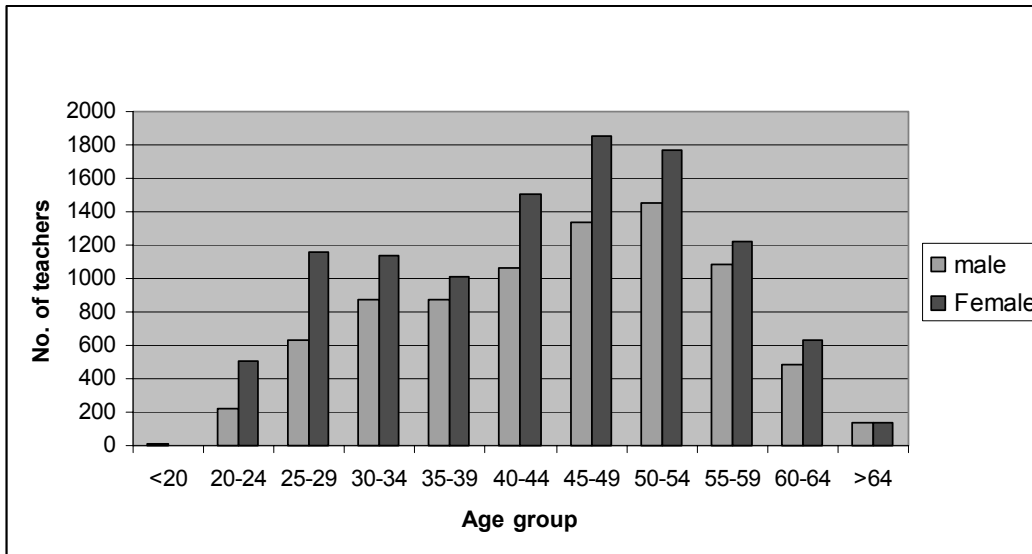
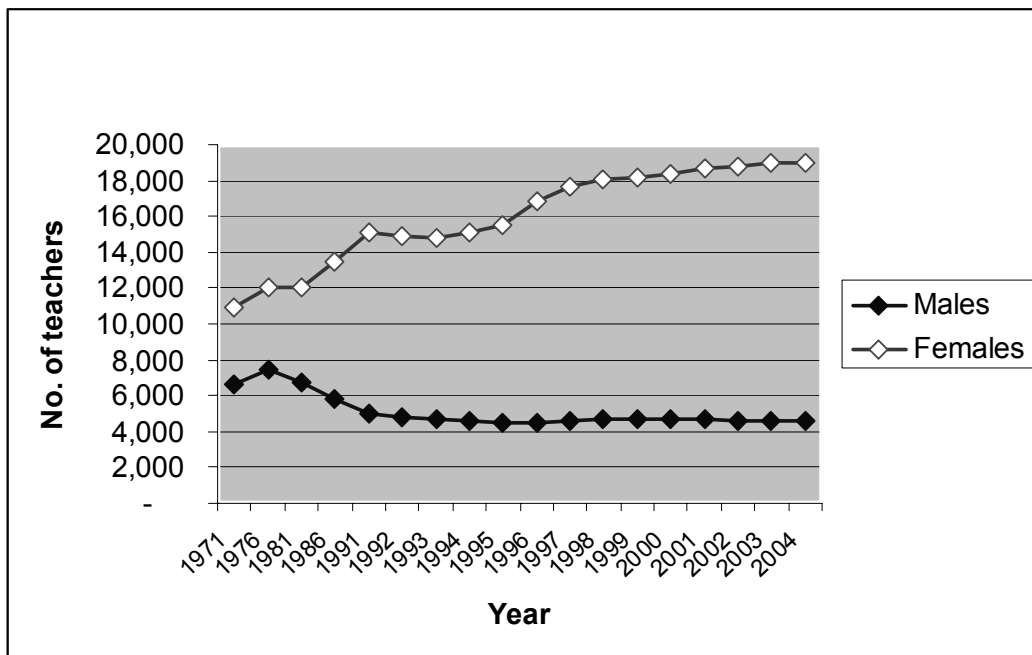


Figure 8: Age Distribution of Secondary Teachers by Gender, 2004



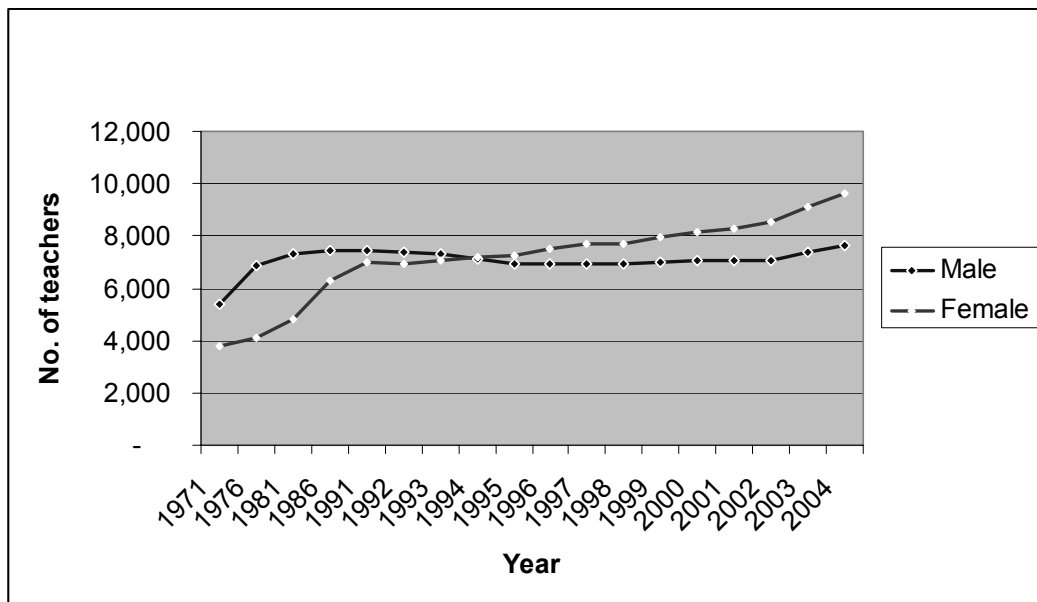
The gender balance in the profession has also changed quite dramatically over the past few decades. As Figure 9 shows for the primary sector, that in 1971, 38% of teachers were male, by 2004 this had halved to 19.5%. During this period teacher numbers increased by around 6,000 (from 17,500 to 23,500), but the number of male teachers declined from 6,600 in 1971 to 4,600 in 2004.

Figure 9: Gender and Teaching – Primary, 1971-2004



A similar trend in the same direction is also taking place in the secondary sector as can be seen in Figure 10 where the number of male teachers has stayed much the same since the early 80s, while the growth in the numbers of teachers is all accounted for by the increase in female teachers. Indeed, 1994 can clearly be seen as the point at which female teachers exceeded the number of male teachers. The gap has been rising steadily since then.

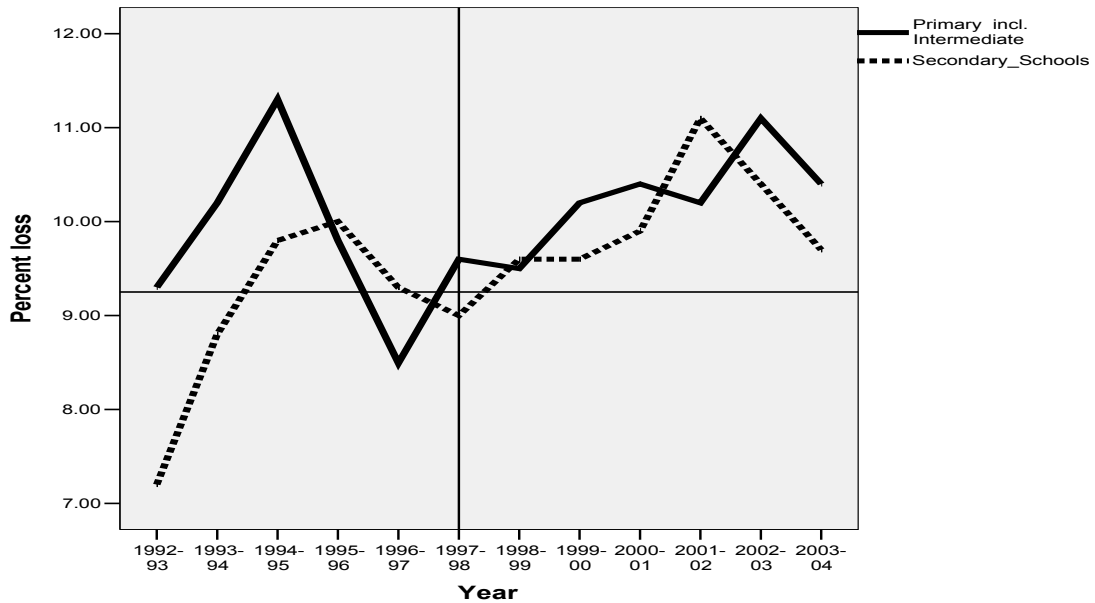
Figure 10: Gender and Teaching – Secondary, 1971-2004



LOSS RATES FROM THE PROFESSION

Loss rates from the profession have shown a slow rise over the past decade, but with the negatively skewed age distribution of current teachers shown in Figures 4 and 5 above, increasingly large cohorts of teachers can be expected to leave over the next few years as the peak age group reaches retirement age. It is for this reason that we would argue that an over-reliance on the projected small decline in the numbers of students over the next few years is an inadequate basis on which to predict the demand for teachers, or to control the numbers of students in teacher education programmes. Figure 11 shows the loss rates as reported on the Ministry of Education website, as a percentage of non-returning permanent teachers each year, and indicates a rising tendency over the last decade. Considering the age structure of the profession, this rate will certainly increase more rapidly over the next decade.

Figure 11: Percent Loss (Non-Returning) Teachers



To generate the time lines in Figures 12 and 13, the percentage has been turned into actual numbers of teachers by applying the percentage figure to the total number of teachers in the relevant sector (not just the permanent teachers). Thus the recent loss rates of around 10 percent, translates into an increasing number of teachers as the size of the teaching profession grows.

Figure 12: Primary: Teacher Loss and Trainee Numbers

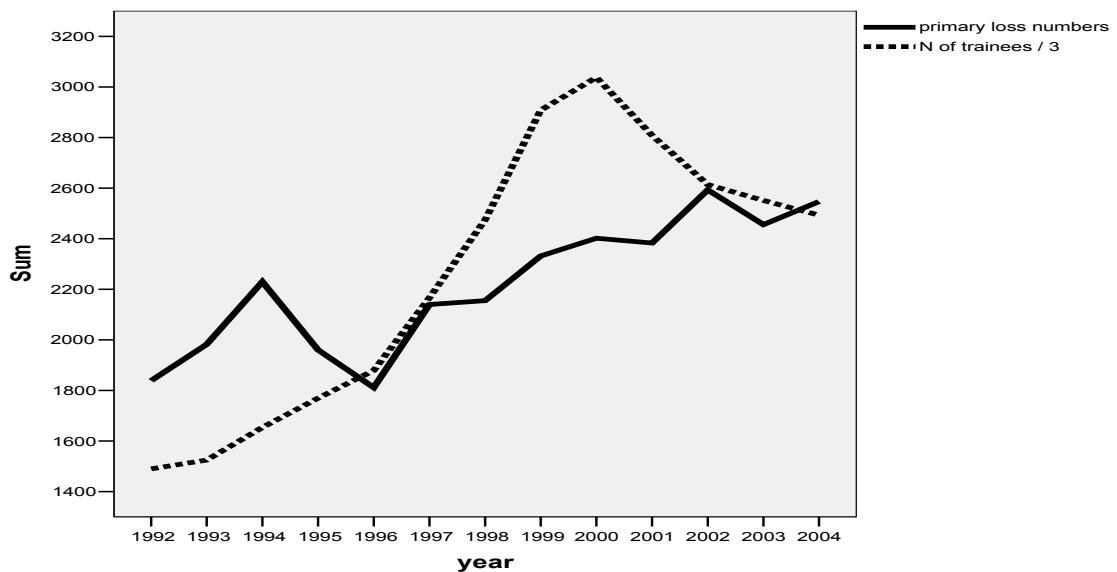
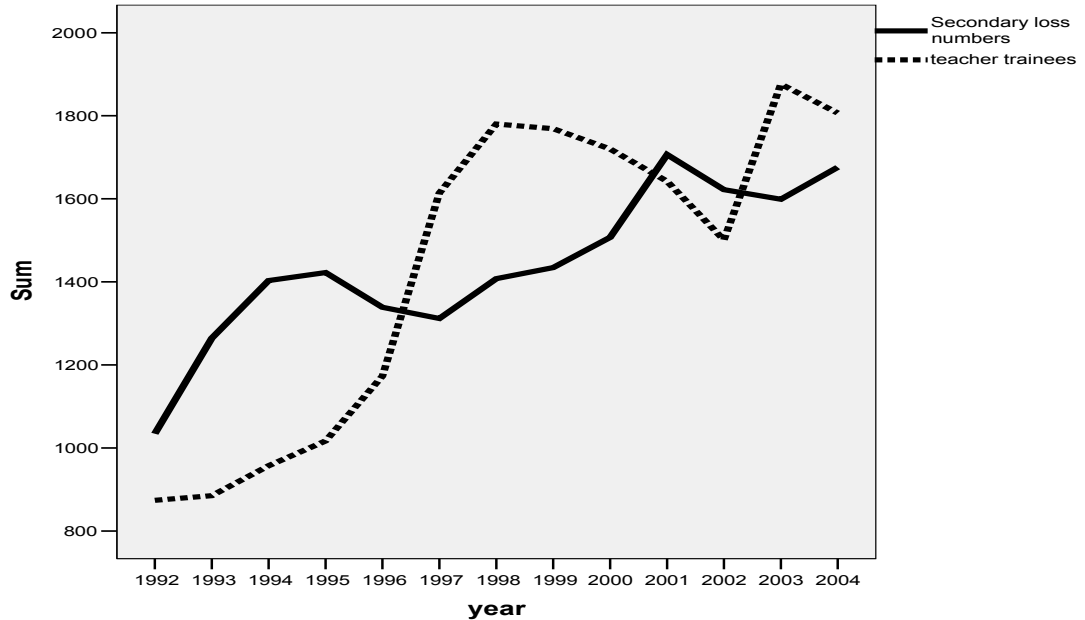
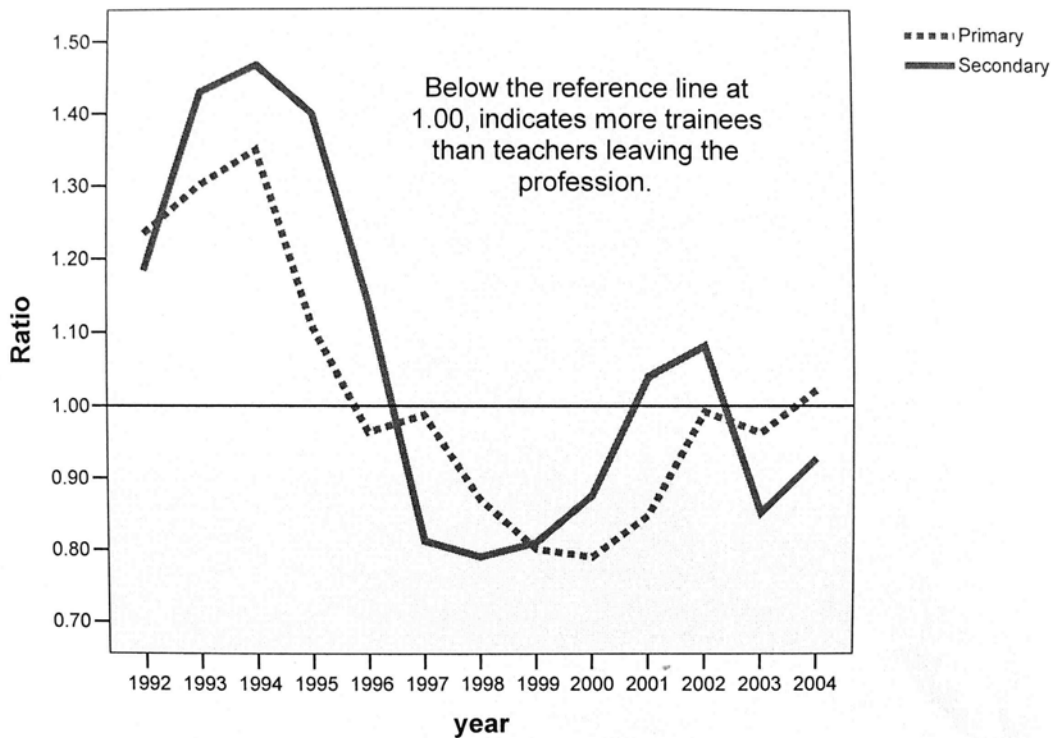


Figure 13: Secondary: Teacher Loss and Trainee Numbers

Figures 12 and 13 also show the number of teacher trainees in each relevant year (the detailed data are shown in the Appendix). Despite an increase in the late nineties, the numbers appear quite closely related more recently, and as the ageing teacher bulge reaches retirement age, the number in training will be quite inadequate to replace the numbers leaving.

It should be noted that the number of primary trainees in any one year has been divided by 3, which assumes students are evenly divided between the 3 years of the 3 year programme – which means that the number of graduates in any one year is almost certainly overestimated, due to attrition from the programme. The problem can be illustrated as in Figure 14, where throughout the early to middle nineties there were fewer trainees than there were teachers leaving the profession. However since 1996, the number of trainees has kept up with the number leaving, but is showing signs of deteriorating again towards non-replacement.

Figure 14: Ratio of Losses to Current Trainees



CONCLUSION

Despite the fact that student numbers in the compulsory sectors of education in New Zealand can be expected to decline a little over the next few years, there is a number of other factors that need to be carefully considered as the basis for estimating the demand for teachers over the same time period. Policy decisions have been made to adjust staffing ratios to allow teachers less class contact time in order to:

- 1) have more time for the preparation of teaching materials and other resources;
- 2) to engage in professional development activities; and
- 3) allow secondary teachers to engage with the much increased compliance work necessitated by the implementation of the NCEA assessment regime.

In addition there has been in the past an acknowledgment of the need for smaller classes, particularly in the early years of primary education, which has been shown to have a positive effect on the achievement levels of the students (see Harker, 2003, for a review of the research literature in this area). Many of the studies show that the impact of smaller classes is particularly strong on the attainments of 'disadvantaged' students. Increasing the number of graduates from our teacher education

programmes would allow a serious and comprehensive implementation of a reduced class-size policy as well as making it much easier to implement reduced class-contact time.

It is also important to consider the age structure of the present teaching workforce. In common with other developed nations, New Zealand's teaching workforce is heavily negatively skewed, and with insufficient younger teachers to replace the increasing numbers approaching retirement age. In addition, some of the other developed countries (notably Australia and the United Kingdom) are actively recruiting teachers from New Zealand. A combination of perceived better salaries, and the desire to pay off student loans quickly, make the offers very attractive to many new graduates. This can only add to the replacement problem for schools in New Zealand which is exacerbated by a decline in the status of teaching in the community, and in the perception of secondary school graduates who compare such things as the ratio between starting salaries and the level of student debt required to gain the necessary qualifications.

All of these factors, some of which have been quantified here, lead us to conclude that it would be disastrous to reduce the number of places funded for pre-service teacher education programmes, or indeed to even maintain them at current levels. We are going to have to find an increasingly large number of teachers to staff our schools over the next few years, hence we need to increase the number of positions in pre-service teacher education programmes and try to improve current employment conditions that seem to be generating an unsustainable attrition rate from the profession.

REFERENCES

Harker, R. (2003, November). *Class size: Research and strategic implementation*. Paper presented at the joint NZARE/AARE Conference, University of Auckland.

TeachNZ. (2006). *Teacher Supply Initiatives 2005*. Wellington: Ministry of Education.

Data in this paper were obtained from the Ministry of Education website: www.minedu.govt.nz Go to the 'school statistics' page.

Appendix

Primary and Secondary Teacher Loss Rates and Teacher Trainees

	Total Primary teachers	Primary loss rate (%)	Primary loss numbers	Primary trainees (/3)
1986	19303	-	-	-
1991	20035	-	-	1413
1992	19767	9.30	1838	1490
1993	19434	10.20	1982	1524
1994	19735	11.30	2230	1654
1995	20003	9.80	1960	1770
1996	21307	8.50	1811	1879
1997	22289	9.60	2140	2167
1998	22681	9.50	2155	2475
1999	22857	10.20	2331	2908
2000	23095	10.40	2402	3038
2001	23362	10.20	2383	2809
2002	23358	11.10	2593	2614
2003	23613	10.40	2456	2551
2004	23583	10.80	2547	2493

	Total Secondary teachers	Secondary loss rate (%)	Secondary loss numbers	Secondary teacher trainees
1986	13761	-	-	-
1991	14413	-	-	1009
1992	14364	7.20	1034	874
1993	14369	8.80	1264	885
1994	14317	9.80	1403	957
1995	14225	10.00	1422	1017
1996	14394	9.30	1339	1173
1997	14577	9.00	1312	1614
1998	14663	9.60	1408	1780
1999	14940	9.60	1434	1769
2000	15223	9.90	1507	1720
2001	15374	11.10	1707	1642
2002	15596	10.40	1622	1501
2003	16486	9.70	1599	1876
2004	17279	9.70	1676	1807

* This is an updated version of a paper presented at the TEFANZ Conference 2006, Dunedin College of Education, Dunedin, New Zealand.

ABOUT THE AUTHORS

Richard Harker is Professor of Educational Research and Development and served as Director of the Institute for Professional Development and Educational Research (IPDER) at Massey University's College of Education from 1998 to 2003. In that role, he directed a cross-college research and development unit providing technical advice and management of externally funded contracts and grants. Professor Harker has taught and researched for many years in the general areas of the Sociology of Education, School Effectiveness, as well as designing and teaching in post-graduate Research Methods courses.

Professor Harker was co-researcher (with Roy Nash) on a major New Zealand study, the *Progress at School Project*, a longitudinal study involving over 5,000 students in 37 secondary schools. This project was able to separate and identify school effects on outcomes from effects due to family and community resources, and data were analysed using multi-level modelling. A book, *Making progress: Adding value in secondary education*, resulted from this work and is widely cited in work on school effects. He has also participated in an international study of teachers and their relationship with their professional work and presented research utilising detailed analyses of the Ministry of Education databases on Class size and School size.



James Chapman is Professor of Educational Psychology and Pro Vice-Chancellor of the College of Education at Massey University. He trained as a secondary school teacher and taught for two years before starting his PhD in Educational Psychology at the University of Alberta in Canada. In 1980, he joined Massey University, and since then has taught and researched in a range of areas related to learning disabilities, reading and reading difficulties, self-concept/motivational development, and research methods. James is the President of the International Academy for Research on Learning Disabilities, and in 1999 he was awarded the Dina Feitelson Research Award by the International Reading Association for outstanding research in reading. From 1998 to 2001 Professor Chapman also served on the New Zealand Ministry of Education Literacy Experts Group.