



Demographic and Statistical Analysis Unit

Beginning Teachers 2000 – 2004: Characteristics, employment trends, qualifications and subjects

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Data sources: STEER (the BTTA database); Teacher Payroll Data Warehouse; 2004 and 2001 Teacher Census; July school roll returns; Education Gazette

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Executive Summary

Beginning teachers are a small yet significant group within the teaching workforce. Because they represent the future of the teaching workforce it is vital to ensure that their experiences in their first few years of teaching are conducive to them becoming effective registered teachers. It is also important that the mix of beginning teachers entering the workforce matches demand.

In many respects beginning teachers mirror the overall teaching workforce, yet their age and level of experience mean that in some areas, such as employment conditions and when they choose to leave the teaching workforce, beginning teachers are very different. This paper paints a picture of beginning teachers using already existing Ministry of Education data. It documents some areas of difference and highlights some issues of concern.

Where beginning teachers are teaching

Overall, beginning teachers match the teacher population in terms of the split between primary and secondary and by their distribution over the different regions.

Although beginning teachers are relatively evenly spread across schools in each individual decile, they are consistently more likely to teach in low decile schools and less likely to teach in high decile schools than teachers overall. In particular, they are less likely to teach in decile 10 schools. Although beginning teachers are overrepresented at low decile schools, there appears to be sufficient experienced teachers at low decile schools to mentor them. At an individual school level, however, this may not be the case.

Demographic characteristics

Beginning teachers are predominantly female, as is the teacher workforce overall. It looks as though even more of the secondary teacher workforce may be female in the future, as the proportion of male beginning teachers at secondary level is lower than the proportion of male secondary teachers already working.

Beginning teachers tend to be younger than teachers overall. Over half of beginning teachers are in their 20s. However, a sizeable minority (20%) are over 40 years old.

Beginning teachers also appear to be more ethnically diverse than other teachers.

Employment information

Just over half of all primary teacher education graduates and around two-thirds of secondary teacher education graduates can expect to find employment in state schools within two years of finishing their teaching qualification.

Unlike teachers overall, first year beginning teachers are likely to be employed on limited term contracts. Most beginning teachers become permanent within the first three years of teaching. However, a small proportion of beginning teachers remained in teaching, some with broken service, without becoming permanent over the five year period covered in this paper. This is of concern as these teachers are less likely to have had consistent support and mentoring than beginning teachers who have remained at the same school while provisionally registered and have become permanent.

The proportion of a beginning teacher cohort still in teaching declines with each year. We can expect around 60% of beginning teachers to still be employed in the state sector four years after they started teaching. Younger beginning teachers are more likely to leave than older beginning teachers. By far the most common reason for leaving is to go overseas to work or travel. Losses due to leave without pay (includes parental leave) account for an increasing proportion of all losses for each extra year beginning teachers stay in teaching.

There is some evidence that beginning teachers benefit from being in a group of beginning teachers within a school. While most beginning teachers are employed in schools with other beginning teachers, just over a third of primary beginning teachers are the only beginning teachers in their school. Due to the small size of many primary schools it would be impractical for them to take on more than one beginning teacher at a time. Forming local clusters of beginning teachers is one possible way for schools to reap the benefits that come from beginning teachers sharing their experiences.

Qualifications

In terms of teaching qualifications, beginning teachers are more homogenous than teachers overall. The most common teaching qualification for primary beginning teachers is a teaching degree, while for secondary beginning teachers it is the graduate teaching diploma. Teachers overall are more likely than beginning teachers to hold post graduate teaching qualifications and also more likely to hold lower than diploma-level teaching qualifications. The greater variety of teaching qualifications that teachers overall hold is explained by the changing expectations over time of how qualified teachers should be. Post graduate teaching qualifications are likely a result of professional development while teaching.

Beginning teachers are more likely to hold non-teaching qualifications than teachers overall. Moreover, primary beginning teachers are more likely to hold a degree level non-teaching qualification than primary teachers overall. However, secondary beginning teachers are less likely than secondary teachers overall to hold post graduate non-teaching qualifications. This may be due to teachers undertaking study while employed, which beginning teachers have not had time to do.

Subjects

Beginning teachers are most likely to teach in the learning areas of English and health & physical well-being. They are less likely than teachers overall to teach mathematics. The proportion of beginning teachers who teach in the learning area of technology has declined between 2001 and 2004.

For subjects where there are incentive schemes in place to encourage graduates to enter teaching, only in English has the proportion of beginning teachers increased between 2001 and 2004. In other subjects the proportions are very similar in 2001 and 2004. Other types of incentives may therefore be necessary to increase the proportion of beginning teachers in certain subjects.

Introduction

What are beginning teachers and why are we interested in them?

Beginning teachers are provisionally registered teachers in their first two years of teaching. The first two years of a teacher's career are thought to be extremely important in terms of developing teaching practices. A teacher's experiences in their first few years of teaching are likely to shape their attitudes and practices for their entire career. Because of this, New Zealand schools are required to provide support and mentoring during the two years of provisional registration. Within a school a beginning teacher must be supervised by a fully-registered teacher.

Beginning teachers are important because they represent the future of the teaching profession. Their skills and knowledge have consequences for current and future student achievement. Thus it is valuable to look at trends in beginning teachers – are beginning teachers demographically diverse? How soon after graduation do they gain employment? How long are they likely to stay in the teaching profession? How qualified are they? What subjects are secondary beginning teachers teaching?

Definition of beginning teachers in this paper

In this paper we look at a subset of beginning teachers, namely first year beginning teachers on the Beginning Teacher Time Allowance (BTTA) database. The BTTA is a subsidy available to schools that employ beginning teachers. The BTTA gives schools an extra 0.2 full-time teacher equivalent (FTTE) for each beginning teacher they employ. This equates to one day a week and is designed to give beginning teachers out of class time for professional development. In primary schools, the BTTA may be shared between the beginning teacher and the supervising teacher. In secondary schools, the BTTA must go to the beginning teacher.

For a school to receive a BTTA for a teacher, the teacher must be:

- employed in a state school;
- provisionally registered;
- appointed to a position for at least 10 weeks and for at least 0.5 FTTE
- paid out of Teacher Salaries.

The BTTA database is the only Ministry of Education source where beginning teachers are individually identified, which is why this definition is used.

Since 2002 the BTTA has also been available for second year beginning teachers at secondary schools. For second year beginning teachers at primary schools it has been available since 2004. This report does not include second year beginning teachers due to the lack of a reasonable timeseries.

Not all first year beginning teachers are captured on the BTTA database. Some schools choose to pay beginning teachers out of their Bulk Grant rather than through Teacher Salaries, which means they are not eligible for the BTTA. An estimated 90% of first year beginning teachers are on the BTTA database¹.

¹ This is estimated by comparing the number of beginning teachers from the Teacher Vacancy Survey (undertaken at March) and the number of beginning teachers on the BTTA database at March.

This report utilises full-year information, rather than snapshot information, on beginning teachers. This means that all first year beginning teachers who appeared in the BTTA database in a given year are captured. Where a first year beginning teacher appears on the BTTA for more than one year they are only counted in the first year that they appear.

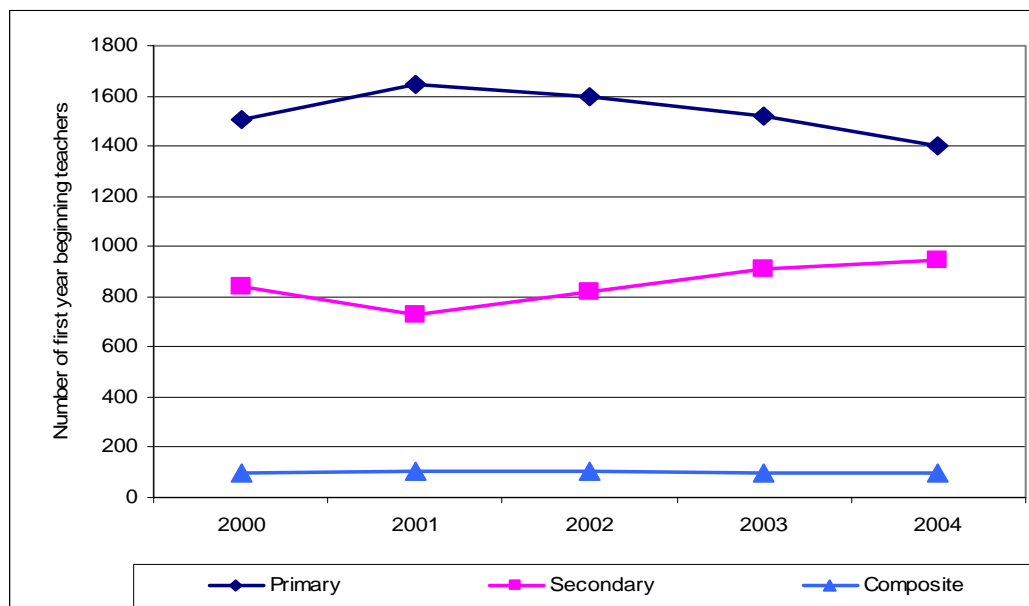
Where beginning teachers are teaching

Sector

There are around 2,500 first year beginning teachers each year. Over the past five years the total number of first year beginning teachers has remained steady. Over this time, however, the number of first year beginning teachers employed in primary schools has fallen slightly, while the number employed in secondary schools has risen (Figure 1). However, beginning teachers in these sectors account for the same proportion of teachers overall over this period. This tells us that the change reflects changes in demand due to roll decline in primary schools and roll growth in secondary schools. The number of beginning teachers employed in composite schools² has remained relatively static over this period.

Over half³ of all state school teachers are employed in primary schools. Thus it is not surprising that the majority (around 60%) of first year beginning teachers are employed in primary schools (see Figure 1).

Figure 1: Number of first year beginning teachers by school type, 2000 - 2004



Note: primary teachers include teachers at special schools

² Composite schools are schools that have both primary and secondary level students.

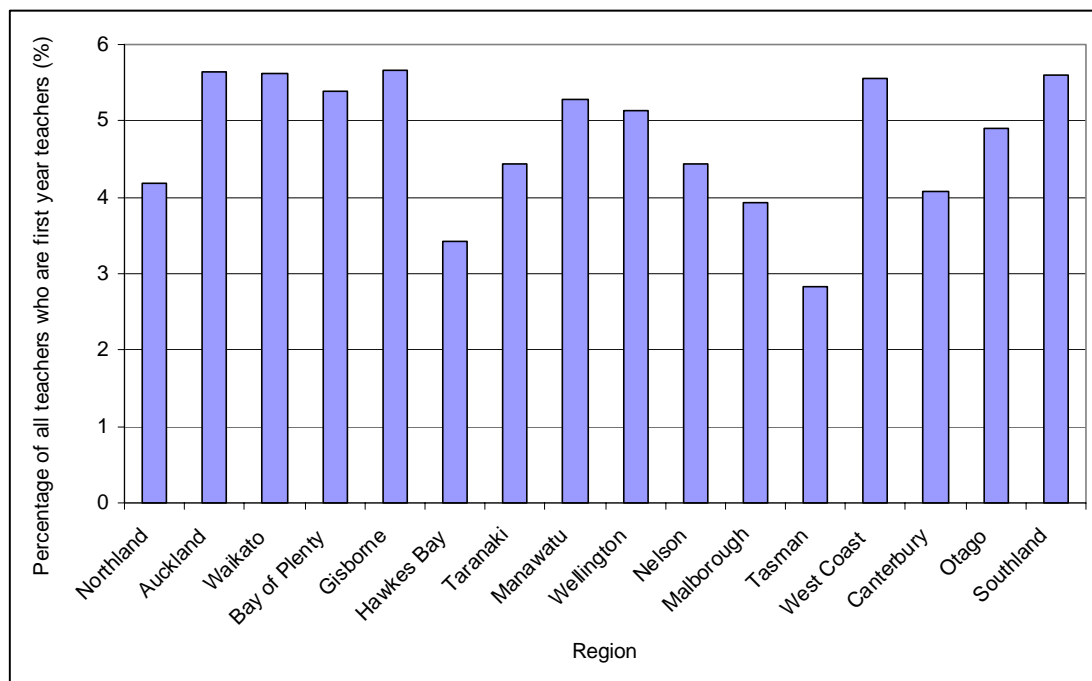
³ Primary school teachers make up between 54% - 57% of all teachers over the five years 2000 to 2004.

Region

In most regions first year beginning teachers make up just under 6% of all the state teachers in the region (Figure 2). Regions where first year beginning teachers make up less than 5% of all teachers tend to have relatively small populations and thus have fewer schools, which means they have greater variability in their demand for beginning teachers. The Canterbury region, which has a relatively large population, is an exception to this. Canterbury is one of the few regions to experience roll growth over the last few years⁴, so it is somewhat surprising that first year beginning teachers make up just 4% of all teachers in the region. Canterbury has low teacher turnover⁵ compared to regions such as Auckland and Wellington, which probably affects demand for beginning teachers in the region. Canterbury's low proportion of beginning teachers may also indicate that the region has drawn on teachers from the community pool, from other regions and on teachers returning from overseas in order to cope with the growth in rolls.

Although Figure 2 shows only 2004, for most regions the proportions are very similar across the years. The greatest variability occurs in regions such as Gisborne and the West Coast, which have small populations of both students and teachers.

Figure 2: First year beginning teachers as a proportion of all teachers in their region, 2004



Note: excludes the Chatham Islands

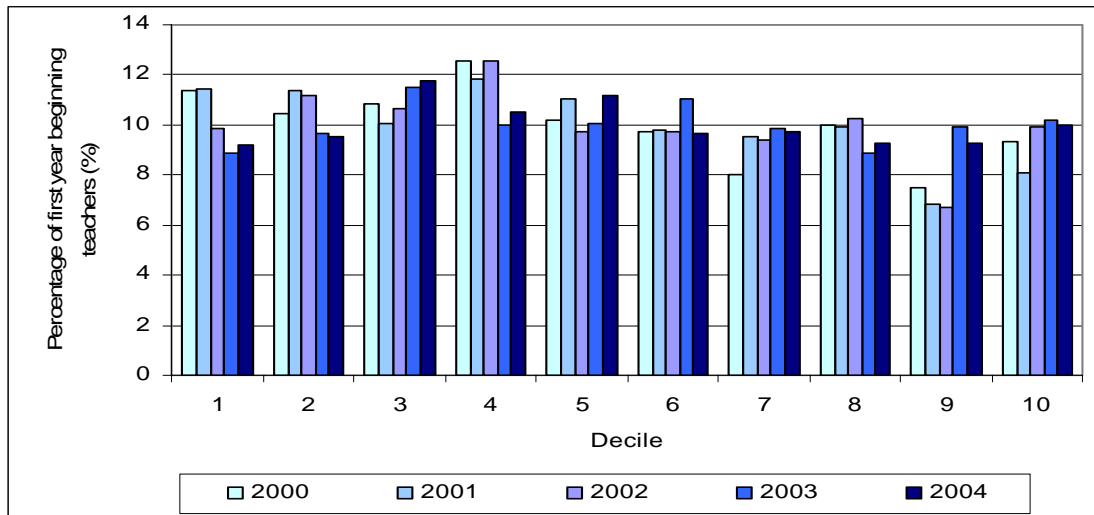
⁴ Between 2000 and 2004, school enrolments in Canterbury increased by 5%. Only the Auckland region experienced greater growth in school enrolments over the same period.

⁵ Teacher turnover refers to losses (teachers who leave the teacher workforce) and movements (teachers who change schools).

Decile

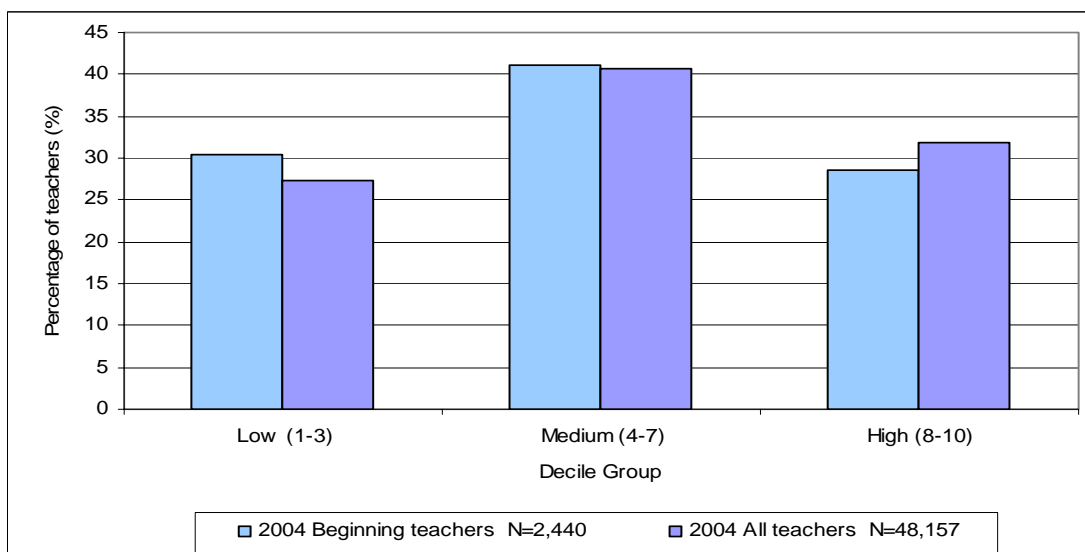
First year beginning teachers are relatively evenly spread across all deciles (Figure 3). Around 10% of beginning teachers are employed in each decile, though there is considerable variation in some deciles between different years.

Figure 3: Beginning teachers by decile, 2000 – 2004



When deciles are grouped and beginning teachers are compared to teachers overall, we see that beginning teachers are slightly more likely to work in low decile schools and slightly less likely to work at high decile schools than teachers overall (see Figure 4). Between 2000 and 2004 beginning teachers have been consistently less likely than other teachers to work at decile 10 schools, and this accounts for most of the difference at high decile schools. Decile 10 schools may have more competition for vacancies that arise, which may be why they are less likely than other schools to take on beginning teachers.

Figure 4: Beginning teachers and all teachers by decile group, 2004

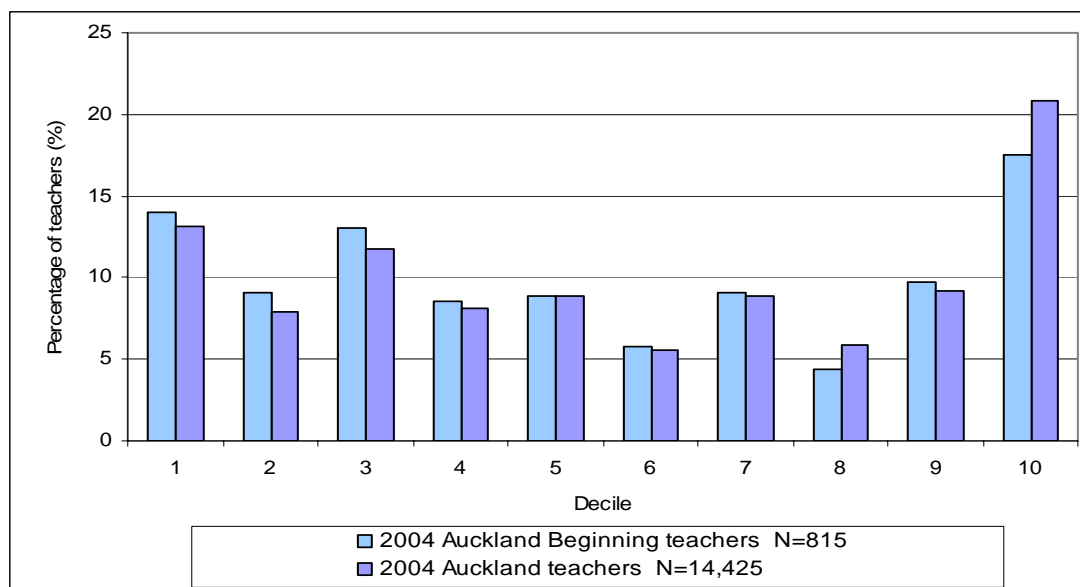


Should we be concerned that beginning teachers are slightly overrepresented in low decile schools? There is some concern that low decile schools, particularly in the Auckland region, are employing beginning teachers because they are unable to attract more experienced teachers. If beginning teachers are concentrated in schools that do not have adequate senior staff to mentor them, it could mean that they do not develop effective teaching practices. Nationally this does not seem to be the case, as experienced teachers in low decile schools outnumber beginning teachers by about 18:1. In medium decile schools the experienced teacher to beginning teacher ratio is 20:1, while in high decile schools it is 22:1.

Although nationally there appears to be enough experienced teachers to support beginning teachers, individual schools may be hiring more beginning teachers than they can effectively mentor. A beginning teacher in a secondary school may have no mentors in their specialist subject. In addition, many schools are reluctant to have more than 10% of their staff made up of beginning teachers, as they feel it would place an undue burden on their experienced teachers. Around half of all NZ primary schools employ fewer than ten teachers and a further 30% employ more than ten but fewer than 20 teachers. Therefore many primary schools may have difficulty providing adequate mentoring and development opportunities for more than one beginning teacher at a time.

The Auckland region has a different decile profile than the national profile⁶, but it shows the same pattern for beginning teachers as nationally – beginning teachers are slightly more likely to teach at low decile schools, slightly less likely to teach at high decile schools than teachers overall. When you look at the distribution of all teachers and of beginning teachers in the Auckland region by decile (in Figure 5), the difference is largest at decile 10. Decile 10 schools employ 22% of the teacher workforce in the Auckland region and 18% of the beginning teachers in the region.

Figure 5: Beginning teachers and all teachers in the Auckland region by decile, 2004



⁶ The Auckland region has a higher proportion of low and high decile schools and a lower proportion of medium decile schools compared to other regions. In particular, Auckland has a higher proportion of decile 1 and decile 10 schools. As at July 2004, 16% of schools in the Auckland region were decile 1 and 18% of schools in the Auckland region were decile 10. Decile 1 and decile 10 schools account for 10% each of all schools in NZ.

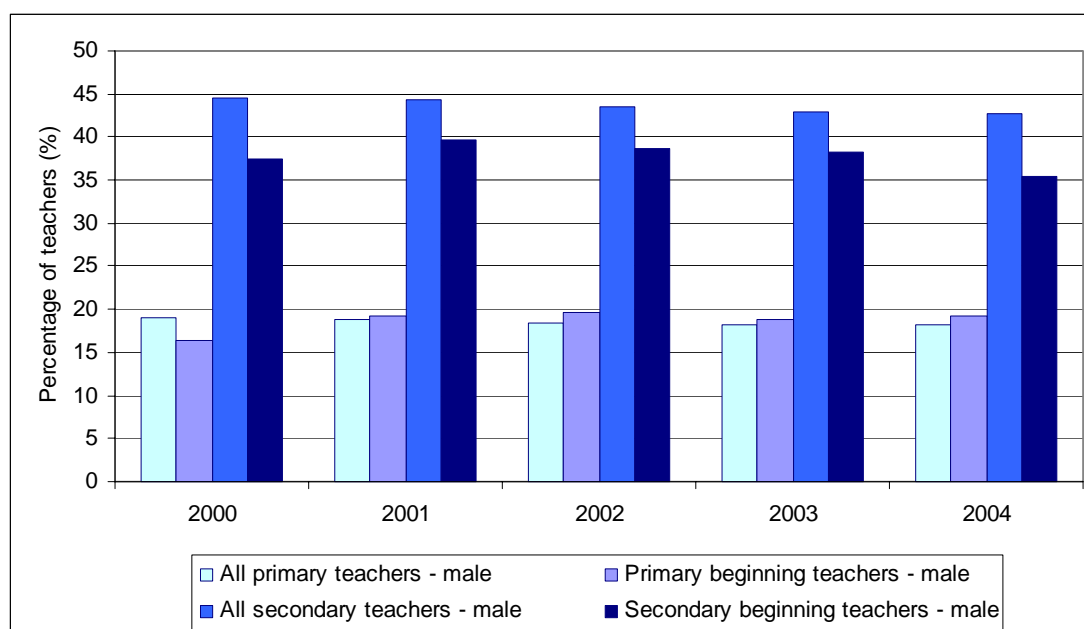
Demographic characteristics

Gender

The overall teaching workforce is predominantly female (70%). Around 80% of all primary teachers and around 55% of all secondary teachers are female. Beginning teachers too are much more likely to be female than male.

The proportion of primary beginning teachers who are male is very similar to the proportion of males already teaching in this sector (shown in Figure 6). This is not the case in secondary schools. Male teachers account for a higher proportion of all secondary teachers than of secondary beginning teachers. This short timeseries suggests that in future an increasing proportion of secondary teachers will be female.

Figure 6: Male beginning teachers as a proportion of all beginning teachers and male teachers as a proportion of all teachers at primary and secondary schools, 2000 – 2004

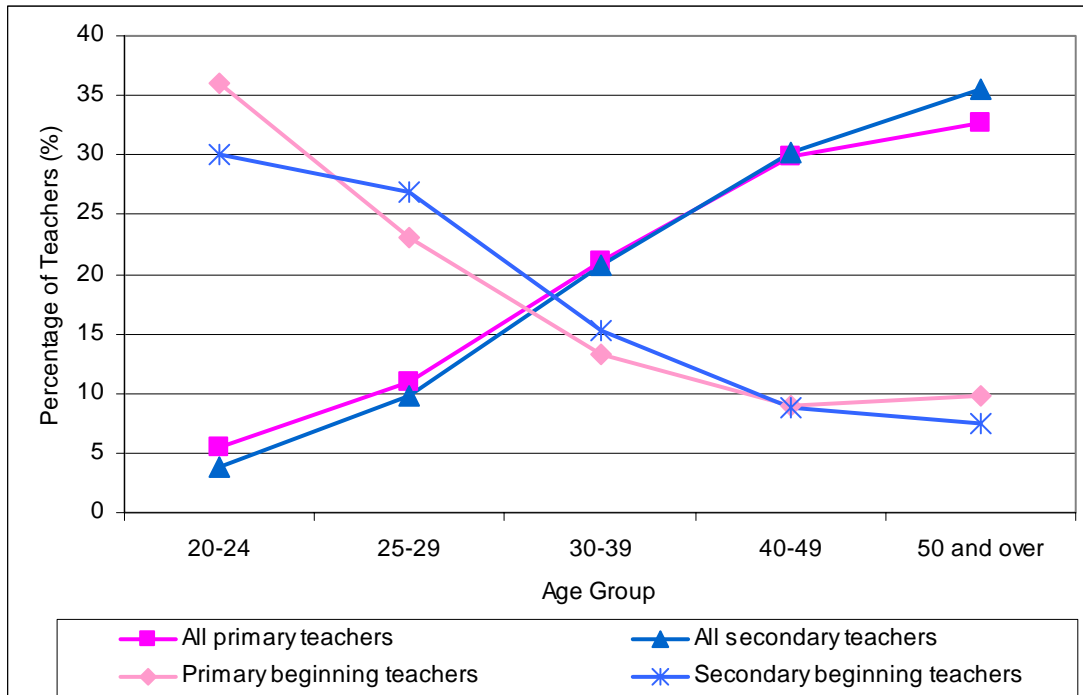


Note: figures for all teachers include beginning teachers.

Age

Beginning teachers are embarking on their teaching career, thus intuitively we would expect them to be young. Certainly beginning teachers are younger than teachers overall (see Figure 7). However, while most beginning teachers are under 30 years old, around 20% are over 40.

Figure 7: Beginning teachers and all teachers by age group, 2004



Although the age profile for all secondary and primary teachers is very similar, for primary and secondary beginning teachers the age distribution differs somewhat (see Figure 7). Primary beginning teachers are likely to be younger than secondary beginning teachers. The largest group of primary beginning teachers (around 36%) is under 25 years old. However, although secondary beginning teachers are on average older than primary beginning teachers, a higher proportion of primary beginning teachers are over 50 years old.

This information challenges some of our ideas about the age structure of the teacher workforce. Older teachers are assumed to be more experienced and longer serving. While this is generally the case, a small group of teachers over 40 years old have very little teaching experience. This information also shows that the number of teachers over 40 is continually added to by new teachers entering the workforce. Thus some of the fears that there will not be sufficient younger teachers to replace older teachers as they retire may be somewhat overstated, as the older age groups include beginning teachers as well as longer serving teachers.

Ethnicity

The most reliable source of information on teacher ethnicity comes from the 2004 teacher census. The teacher census did not capture all teachers – it had a response rate of 91%. The proportion of 2004 beginning teachers who took part in the teacher census (84%) is lower than the overall response rate, but is still high and provides us with indicative information about their ethnic mix.

Beginning teachers appear to be slightly more ethnically diverse than other teachers (see Table 1). When compared to the proportion of students from ethnicities other than European/Pakeha, teachers from minority ethnicities are in general not well represented. Thus it is encouraging that proportionately more teachers, particularly Maori teachers, are entering the workforce as beginning teachers.

Table 1: Ethnicity of first year beginning teachers compared to ethnicity of other teachers, 2004

	First year beginning teachers in 2004 N = 2,035*	Teachers who were not first year beginning teachers in 2004 N = 41,393*
NZ European/European	73%	79%
NZ Maori	15%	10%
Pasifika	4%	2%
Asian	3%	2%
Other	5%	6%

* Excludes teachers who did not respond to this question. There were 12 beginning teachers and 319 other teachers who did not answer this question.

Source: 2004 Teacher Census

Employment information

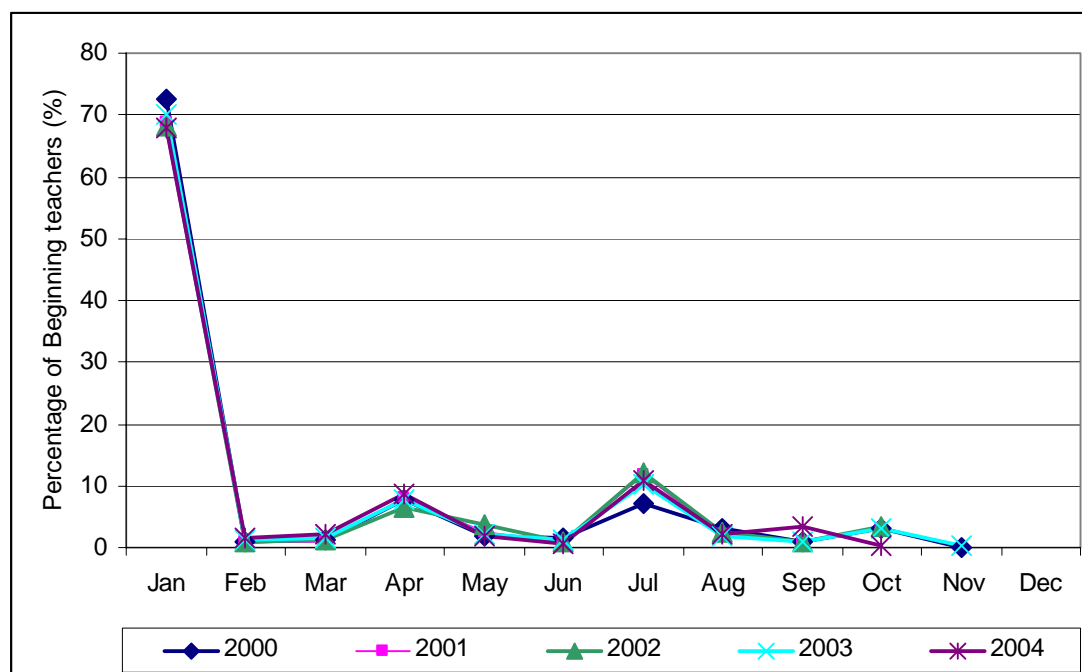
Month commenced employment

This measure shows when beginning teachers commenced the employment contracts that enabled their school to receive the BTTA.

Not surprisingly, the majority of first year beginning teachers (around 70%) start their contracts in January (see Figure 8). There are small spikes in April and July, when around 10% begin working. These spikes reflect the beginning of the second and third terms. The increase in June also coincides with the end of some teacher education programmes, the influx of secondary aged migrants and the outflow of NZ teachers who wish to teach in the northern hemisphere. Thus both demand and supply are slightly higher at this time of year.

Very few first year beginning teachers commence work other than in these three months of the year.

Figure 8: First year beginning teachers by the month they first entered employment in state schools, 2000 – 2004



Employment rates of teacher education graduates

Tables 2 and 3 illustrate the proportion of teacher education graduates who found employment in state schools between 2000 and 2004. To get the employment rates of teacher education graduates, the number of beginning teachers who completed their teacher education qualification in a particular year is compared to the number of graduates from that year. This measure underestimates the extent to which teacher education graduates get jobs. This is because some find employment in private schools and some are employed by state schools out of the bulk grant, thus these beginning teachers not eligible for the BTTA. In addition, beginning teachers at composite and special schools are excluded from these rates because we are unable to identify what type of teacher qualification they have. It should also be noted that not all teacher education graduates seek employment as teachers.

Not surprisingly, graduates are most likely to find employment in the year directly following their last year of study (see Table 2 and Table 3). A small proportion of teacher education graduates find employment in the year that they complete their studies. These teachers are likely to commence their employment in the second half of the year. Graduates of secondary teacher education programmes (Table 3) currently have a higher rate of employment than graduates from primary teacher education programmes (Table 2).

Table 2: Primary teacher education graduates who gained employment in state primary schools, 1999 - 2004

Year graduated		1999	2000	2001	2002	2003	2004
Number of graduates		2,636	3,076	2,956	2,785	2,594	2,537
Year entered teaching	2000	41%	5%				
	2001	7%	38%	6%			
	2002	2%	6%	37%	6%		
	2003	1%	2%	6%	35%	8%	
	2004	1%	3%	5%	11%	34%	7%
Total proportion who entered teaching 2000-2004		51%	54%	54%	53%	43%	7%

Note: these employment rates use full-year beginning teacher information

Just over half of primary teacher graduates can expect to find employment within two years of graduation. The employment rate of primary teacher graduates in the year following graduation has steadily fallen over the last five years (from 41% in 2000 to 34% in 2004 – see Table 2). In fact, the employment rate for primary teacher graduates has been falling since 1997, when just over 70% of those who graduated the previous year found employment as primary teachers. In spite of the fall in demand, the number of graduates of primary teacher education programmes continued to rise until 2001, and has only decreased slightly over the last few years.

The mismatch in supply of and demand for primary teacher education graduates is mainly due to the length of primary teacher education programmes. Most programmes are three years in duration. A drop in demand may only be apparent after two or three years of low employment rates, yet by this time many students will have already completed one year or more of their teacher training. Thus falling demand has a delayed effect on enrolments and completions of primary teacher education programmes.

Other factors that may influence enrolments and completions in these programmes are: high youth unemployment rates; student recruitment practices of tertiary providers; changes in the teacher collective agreements; and changes to government subsidies to tertiary providers and to tertiary students.

Employment rates for secondary teacher graduates are higher than for primary teacher graduates. Over half of secondary teacher education graduates find employment within a year of graduating (see Table 3). Around two-thirds (66%) find employment within two years of completing their studies.

Table 3: Secondary teacher education graduates who gained employment in state secondary schools, 1999 – 2004

Year graduated		1999	2000	2001	2002	2003	2004
Number of graduates		1,236	1,100	1,083	1,138	1,263	1,269
Year entered teaching	2000	55%	6%				
	2001	5%	50%	8%			
	2002	1%	6%	57%	7%		
	2003	1%	2%	5%	53%	13%	
	2004		1%	1%	6%	53%	10%
Total proportion who entered teaching 2000-2004		62%	65%	71%	66%	66%	10%

Note: these employment rates use full-year beginning teacher information

This raises the question of where do the remaining teacher graduates find employment? Do they stay within the teaching profession, or do they move to other sectors? This is a topic for further study and is not covered in this report.

Employment status – limited term or permanent

Teachers are employed on either a permanent or a limited term basis. Limited term employment is for a finite period and at the end of that period the contract may or may not be renewed. The majority of teachers are employed on a permanent basis – approximately 80%. Over the last three years the proportions of primary and secondary teachers employed on a permanent basis differ very little.

Beginning teachers have a markedly different pattern to teachers overall. About two-thirds of primary beginning teachers are employed on limited term contracts (Figure 9). Secondary beginning teachers are less likely than primary beginning teachers to be employed on limited term contracts (Figure 10). Nevertheless, the proportion of secondary beginning teachers employed on limited term contracts (approximately 40%) is around double the proportion for teachers overall.

Limited term employment provides employees with insight into the culture and practices of a workplace, work experience, and a foot in the door to potentially longer term employment. But such arrangements also lack stability for employees. That such a high proportion of beginning teachers are employed on a limited term basis may reflect a lack of available positions, especially in primary schools. Some schools may be employing beginning teachers to cover vacant positions, such as those left by teachers on leave without pay. Other schools may be employing beginning teachers on probation before deciding whether to take them on permanently. Does

this impact on the number of beginning teachers who continue teaching? Are schools employing beginning teachers for a single year and then not re-employing them the next year? The following sections attempt to answer these questions.

Figure 9: Primary school first year beginning teachers by employment status in their first year of teaching, 2000 - 2004

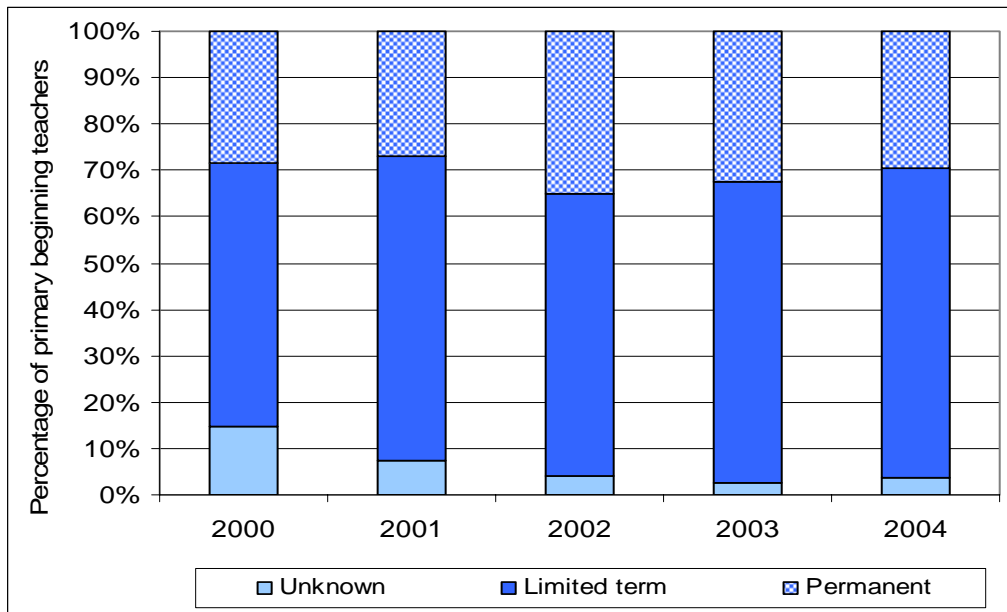
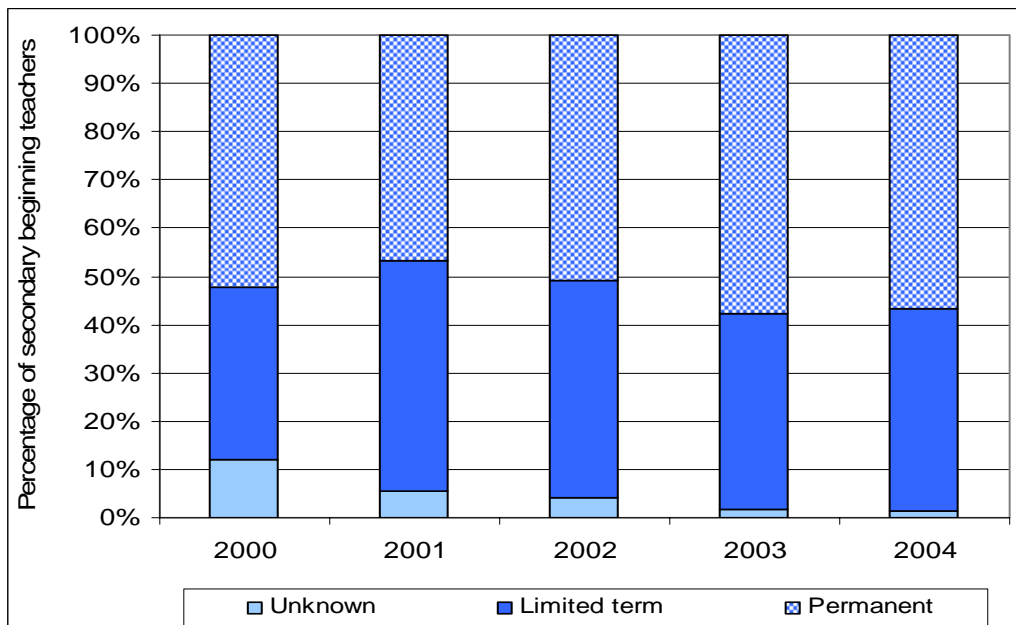


Figure 10: Secondary school first year beginning teachers by employment status in their first year of teaching, 2000 - 2004



Employment status over time

Does it matter that a high proportion of beginning teachers start their careers on limited term contracts? A recent report⁷ suggests that starting on a limited term contract does not diminish the likelihood of a beginning teacher developing into an effective teacher. But do beginning teachers who start on a limited term basis have difficulty becoming permanent? Are they more likely to leave than those on permanent contracts?

The information we have allows us to see when a beginning teacher first becomes permanent. From this information (shown in Table 4 and Table 5) we can see that starting on a limited term contract is not a barrier for most teachers to becoming permanent. Four years after starting, around 80% of primary beginning teachers and around 85% of secondary beginning teachers will have worked as a permanent teacher at some point. Many beginning teachers who were not permanent in their first year become permanent in their second or third year of teaching.

Table 4: 2000 – 2004 Primary first year beginning teachers by the time it took to become permanent

	Total number of beginning teachers	Permanent in 1st year	First became permanent in 2nd year	First became permanent in 3rd year	First became permanent in 4th year	First became permanent in 5th year	Total % of cohort that has worked as permanent**
2000	1,485	28%	20%	18%	7%	2%	75%
2001	1,624	27%	28%	17%	6%	3%	81%
2002	1,574	35%	26%	14%	5%		81%
2003	1,503	32%	26%	13%			72%
2004	1,382	29%	25%				54%

**This table does not take losses into account, thus these percentages do not represent the number of permanent beginning teachers in the cohort working at the end of 2004. These percentages represent the number of beginning teachers in a cohort who were appointed to a permanent position at some point between 2000 and 2004.

Table 5: 2000 – 2004 Secondary first year beginning teachers by the time it took to become permanent

	Total number of beginning teachers	Permanent in 1st year	First became permanent in 2nd year	First became permanent in 3rd year	First became permanent in 4th year	First became permanent in 5th year	Total % of cohort that has worked as permanent**
2000	839	52%	17%	6%	3%	1%	81%
2001	730	47%	23%	12%	4%	1%	87%
2002	816	50%	25%	7%	3%		86%
2003	911	56%	21%	7%			86%
2004	943	55%	18%				74%

**This table does not take losses into account, thus these percentages do not represent the number of permanent beginning teachers in the cohort working at the end of 2004. These percentages represent the number of beginning teachers in a cohort who were appointed to a permanent position at some point between 2000 and 2004.

⁷ Pp26-27, p32, *The quality of Year 2 beginning teachers*, Education Review Office, June 2004. Beginning teachers who started on limited term contracts (or temporary basis) were equally likely to be in the effective as in the less effective group of beginning teachers. However, this report only looks at beginning teachers in their second year of teaching, so does not take into account those who left after one year. In addition, it only looked at beginning teachers who were at the same school in their first and second years of teaching and who did not have breaks between their first and second years of teaching.

Table 4 and Table 5 show, however, that a sizeable minority (around 20%) have not had a permanent teaching position between 2000 and 2004. Did these teachers stay teaching or did they leave? The majority (between 50% and 60%) of the teachers who did not become permanent between 2001 and 2004 stayed in teaching for a second year on limited term contracts, and many continued for a third or fourth year on limited term contracts. This should be enough time for these teachers to become registered. However, if they have spent their first two or three years as relievers, or moving in and out of employment, or moving from school to school, they may not have built up enough experience to become registered or they may not have a supervising teacher who can recommend them for registration. Many of the beginning teachers in this group have probably not had adequate mentoring and support in their first two years of teaching⁸. This may negatively impact on development of effective teaching practices. Although this group of beginning teachers represents a small proportion of a beginning teacher cohort (around 12%) and of teachers overall (around 1%), it is still an area of concern.

⁸ The report *Voices: Beginning teachers' experiences during their first two years of teaching* (ERO, May 2005) identified a number of issues for beginning teachers with broken service. These included lack of support, lack of opportunity to develop teaching skills, little or no contact with assigned tutor teachers, 0.2 release time either not given or incorrectly used, lack of resources made available to them, and lack of professional development particularly in curriculum areas. Broken service also had a negative impact on the professional confidence of some beginning teachers.

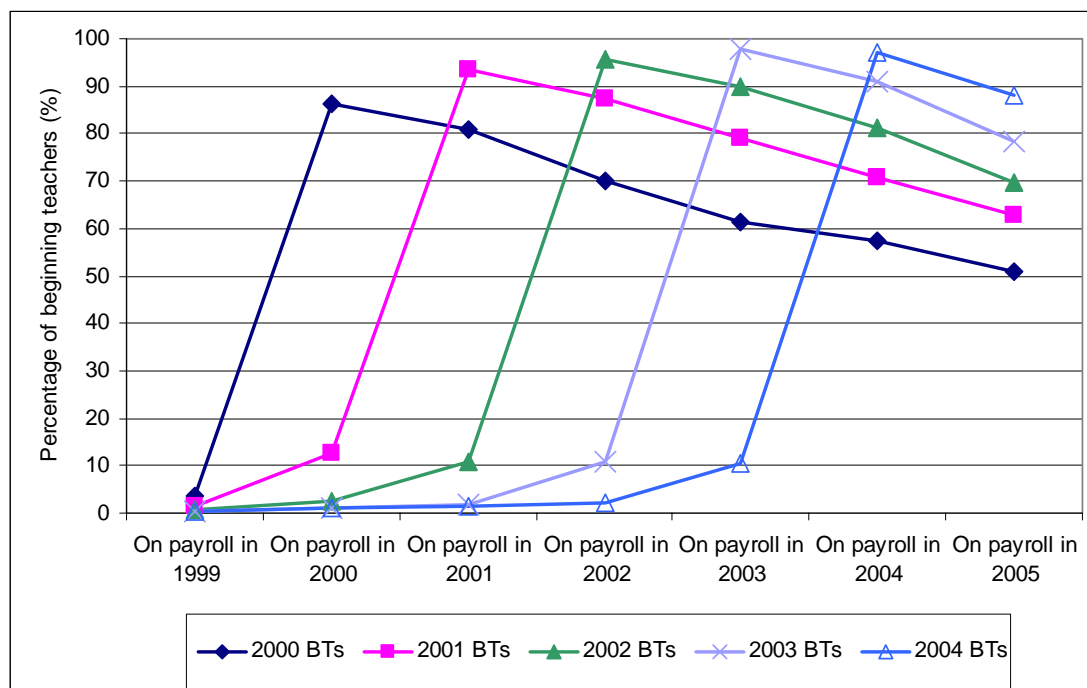
Length of time on the payroll

How long do beginning teachers stay in teaching in the state sector? We are able to get an estimate of this by matching the beginning teachers from the BTTA database with the data from three payruns⁹ in each year. This measure is depicted in Figure 11. Beginning teachers who were not present in any of these three payruns are not recorded as on the payroll for that particular year. This is why the proportion of beginning teachers on the payroll in their first year is less than 100% (see Figure 11). The proportion of 2000 first year beginning teachers on the payroll in 2000 is particularly low due to data issues that meant many teachers could not be matched. In spite of this the 2000 beginning teacher cohort was included because the pattern is similar, if somewhat lower, to the pattern for other beginning teacher cohorts. The pattern for primary and secondary beginning teachers is very similar, thus Figure 11 shows this measure for all beginning teachers.

Around 10% of first year beginning teachers are present in the payroll the year before they show up in the BTTA database (see Figure 11). To qualify for the BTTA a teacher needs to be in their first year of teaching, thus it is possible that a beginning teacher has already begun teaching but hasn't completed an entire year when their school applies for the BTTA.

A small proportion of beginning teachers (1%-2%) were on the payroll more than a year before their first year of teaching. These teachers appear to have been employed as untrained teachers for many years. After they gain a teaching qualification their school has applied for a BTTA for them.

Figure 11: First year beginning teachers by whether they appeared on the teacher payroll, 2000 – 2004



⁹ The three payruns were: payrun 01 at the end of March/beginning of April each year; payrun 04 at the end of May; and payrun 17 in mid-November of each year.

Figure 11 shows that around 6% of beginning teachers are not teaching in the year after their first year of teaching. Each subsequent year around 8% of each cohort is no longer teaching in state schools. From this timeseries there appears to be a relatively steady rate of attrition with no flattening out. This information indicates that around 60% of teachers who began teaching four years ago will still be employed in the NZ state school sector. A longer timeseries will show at what point, if ever, losses flatten out and whether these teachers return after absences – for example, after teaching overseas for a period.

Loss rates of beginning teachers

The Ministry of Education has an official measure of teacher loss that only looks at permanent teachers (the measure above takes account of both permanent and limited term teachers). Overall, teacher losses are an indicator of stability and morale of the teaching profession.

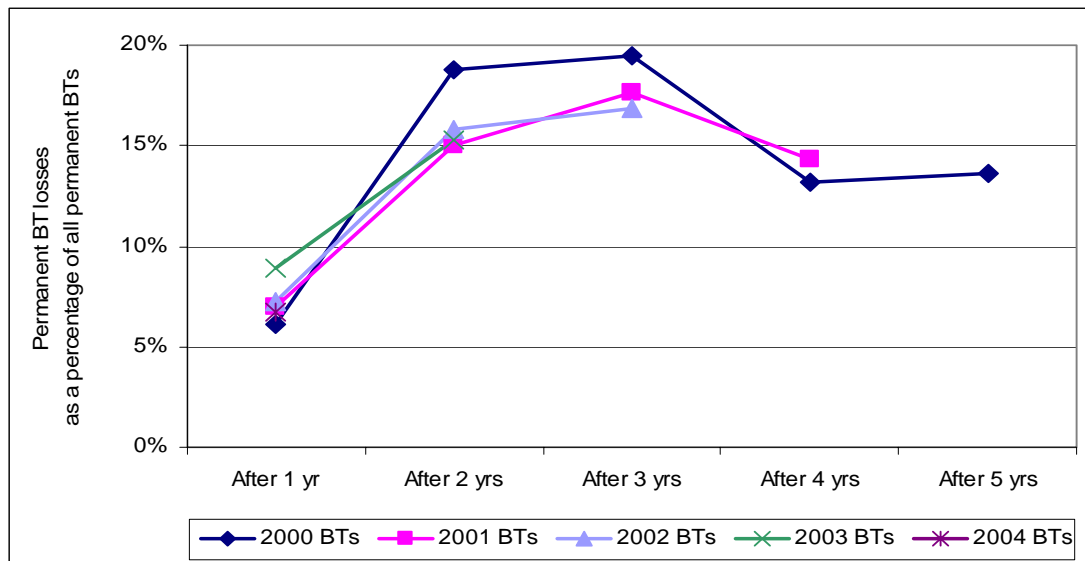
Teacher losses are measured by comparing the number of permanent teachers at May of one year to the number of permanent teachers in May of the following year. Teachers who were not on the payroll in the second period are counted as a loss. Thus teacher losses include teachers who have left the teaching profession and teachers on leave without pay. A loss rate is the number of losses of permanent teachers in the May-to-May period divided by the total number of permanent teachers at the first May payrun. In addition, the reasons for the May-to-May losses are collected from schools in July of each year. This information allows us to estimate the proportion of losses that are permanent losses to the sector. Around 10% of all permanent teachers leave each year.

Apart from in their first year of teaching, the loss rates for permanent beginning teachers (shown in Figure 12 overleaf) are much higher than for permanent teachers overall. The loss rate for permanent beginning teachers is highest after three years of teaching, thereafter it declines.

As mentioned already in this paper, just under 40% of a beginning teacher cohort is permanent in the first year of teaching. In spite of this, the loss rate for permanent beginning teachers after their first year is similar to the decline in all beginning teachers after one year of teaching (shown in Figure 11 in the previous section)¹⁰.

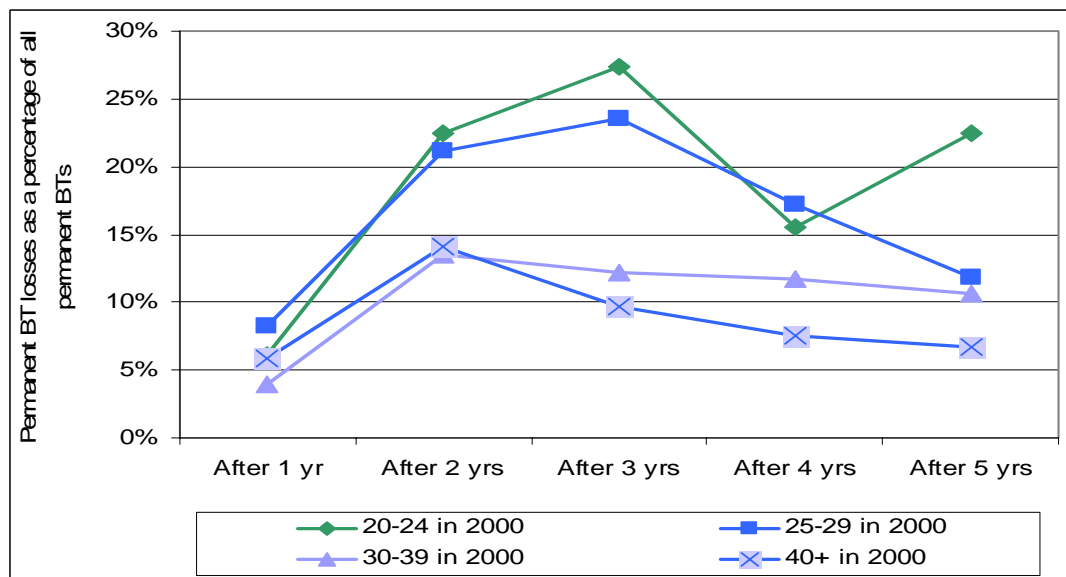
¹⁰ The loss rates shown in Figure 12 are only comparable with the rate of attrition shown in Figure 11 for losses after the first year of teaching. Figure 11 looks at the total cohort of beginning teachers, which is constant. The loss rates shown in Figure 12 are calculated on the number of beginning teachers in a cohort who were permanent the year before, which is variable.

Figure 12: Loss rates for beginning teachers from 2000-01 to 2004-05



When these loss rates are broken down by age group, we see that younger beginning teachers are more likely to leave than older beginning teachers (see Figure 13). For beginning teachers who were over 30 when they began teaching, the loss rates are highest after two years of teaching and then steadily decline. For beginning teachers who were under 30 when they began loss rates are high after two, three and four years of teaching.

Figure 13: Loss rates for 2000 cohort of beginning teachers by age group, from 2000-2001 to 2004-2005



Should we be concerned about the high loss rates for beginning teachers after their first two and three years of teaching? If there were indications that patterns of loss were changing or were unpredictable, then there would be cause for alarm. However, it appears that beginning teacher cohorts follow very similar patterns in terms of when they leave. The system has always coped with these losses, probably

because beginning teachers represent a small proportion of the teaching workforce overall. Besides which, losses between one year and the next may signify a break from the NZ state school sector, rather than a loss to the teaching profession. Reasons for losses are useful in estimating how many of the teachers who leave will come back.

Figure 14 shows the six most common reasons for the losses as a proportion of the losses of the beginning teacher cohorts. Going overseas is the most common reason for leaving and accounts for around half of the losses of these teachers in their second and third year of teaching. This is by far the most common reason for leaving for beginning teachers in their 20s, though older beginning teachers also leave to teach or travel overseas.

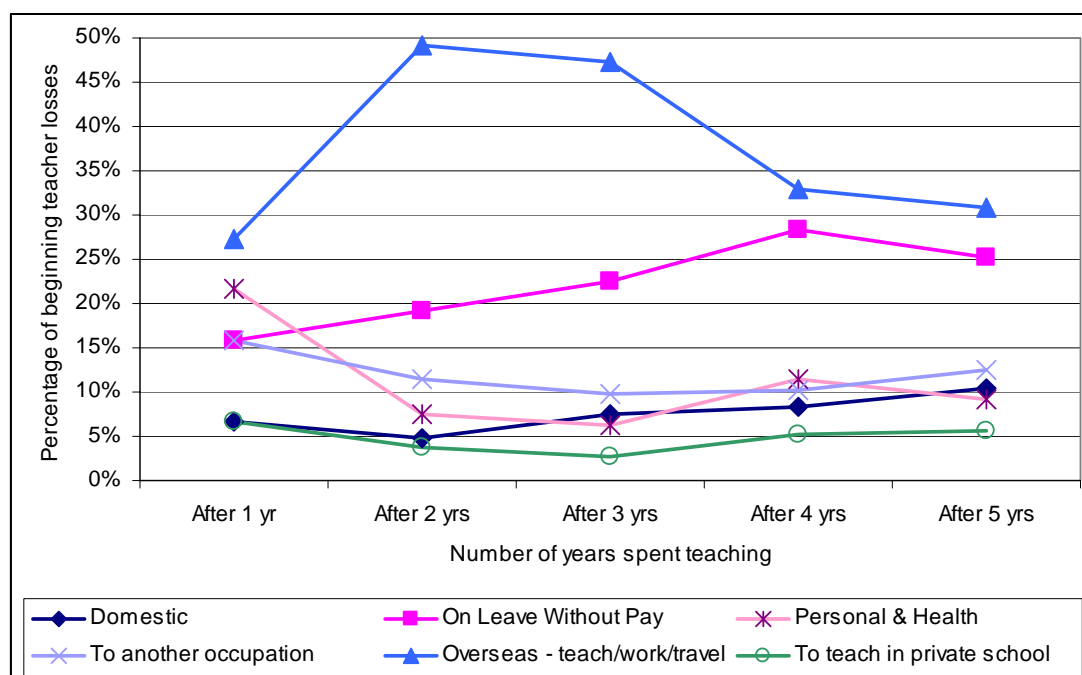
The proportion of losses due to leave without pay (which includes parental leave) increases for each year a beginning teacher is in teaching, except in the fifth year of teaching. Leave without pay is the most common reason for leaving for beginning teachers in their 30s.

Leaving for personal and health reasons or to go to another profession was more common for beginning teachers over the age of 30 than for their younger counterparts.

Around 5% of losses are due to these teachers moving to private schools.

Of the reasons depicted in Figure 14, only leaving to go to another profession suggests that these teachers are unlikely to return to teaching. Interestingly, this reason for leaving is highest for beginning teachers who leave after one year of teaching.

Figure 14: The six most common reasons for losses for 2000 – 2004 permanent beginning teachers, 2001-02 to 2004-05



Note: excludes losses where reason was unknown

Employing multiple beginning teachers

There is some evidence that beginning teachers benefit from being in a group of beginning teachers within a school¹¹, in terms of becoming more effective teachers. This is likely to be due to the collegiality and support offered by their peers in schools where there is a team of beginning teachers. It is also possible that schools with more than one beginning teacher have better systems in place for induction and mentoring of these teachers. For many schools it is not practical or possible to employ more than one beginning teacher at a time. ERO¹² suggests that forming local clusters of schools is one way that sole beginning teachers could benefit from collegiality with their peers when schools are unable to employ multiple beginning teachers. This section details how many schools employ more than one beginning teacher.

From the information we have on first year beginning teachers, it appears that primary schools are far less likely than secondary schools to employ more than one beginning teacher at one time (see Table 6). Over a third of primary first year beginning teachers are the only first year beginning teachers in their school. This compares to just 6% of secondary first year beginning teachers. Although many of these schools may also employ second year beginning teachers as well as first year beginning teachers, it is indicative of the situation. Primary schools tend to be smaller, thus it is not surprising that when primary schools take on beginning teachers they tend to take only one or two at a time.

Table 6: State schools by the number of first year beginning teachers they employed in 2004

Number of first year beginning teachers employed	Number of schools			
	Primary	Secondary	Composite	Special
Zero	1,239	61	41	33
One	503	61	24	10
Two	198	55	14	2
Three	93	37	5	2
Four	31	28	3	
Five	9	23		
Six	2	15	1	
Seven	2	10		
Eight		10		
Nine	1	4		
Ten		5	1	
More than ten		9		
Total number of schools employing BTs	839	257	48	14
Schools employing BTs as a proportion of all schools	40%	81%	54%	30%

Note: excludes the Correspondence School, Kura Teina Primary and Kura Teina Composite schools. The Correspondence School does not employ beginning teachers. Kura Teina are attached to parent schools

Primary schools are also less likely than secondary schools to employ beginning teachers at all (Table 6). The majority of primary schools (60%) employed no first

¹¹ *The quality of year 2 beginning teachers*, Education Review Office: June 2004

¹² p2, p36, *The quality of year 2 beginning teachers*, ERO: June 2004.

year beginning teachers in 2004. This may reflect a lack of demand for primary teachers due to falling primary rolls, or it could be that the mentoring requirements prohibit some small primary schools from employing beginning teachers.

Composite state schools are generally small, thus resemble primary schools in the number of beginning teachers they employ. A quarter (25%) of first year beginning teachers at composite schools are the only beginning teachers at their schools.

Half of teachers at special schools are the only beginning teachers at their schools, which reflects the small size of many special schools. Special schools are also less likely to employ beginning teachers than other school types (see Table 6). Teachers in special schools are often experienced primary school teachers, thus teachers who are embarking on teaching at special schools are less likely to be provisionally registered beginning teachers.

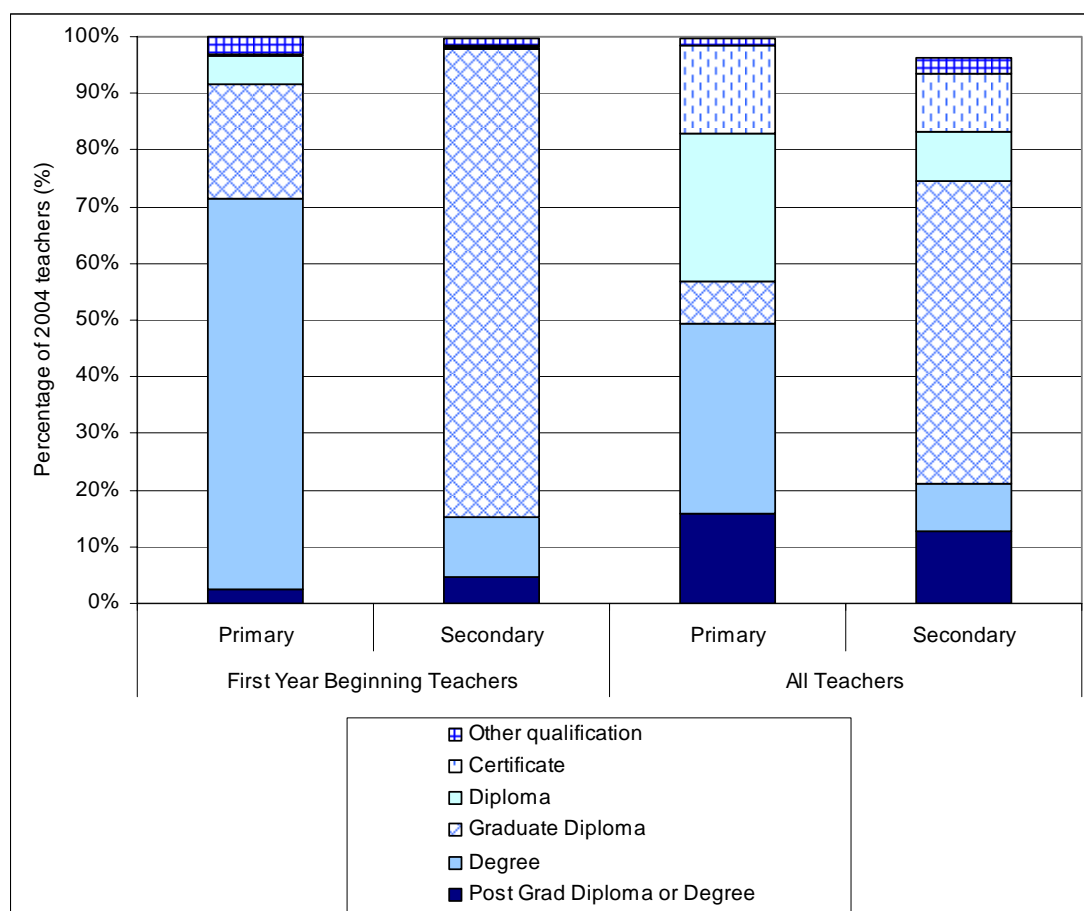
Qualifications of beginning teachers

Research indicates that the subject knowledge and the pedagogical knowledge of teachers are critical elements for teacher effectiveness¹³. One proxy available for teacher knowledge is qualifications – both teaching and non-teaching. This section provides an overview of the teaching and non-teaching qualifications of beginning teachers.

Teaching qualifications

New teachers are required to hold a teaching qualification if they want to become registered. So as we would expect, all beginning teachers hold a teaching qualification (see Figure 15). Primary beginning teachers are more likely than secondary teachers to hold a degree-level teaching qualification, while secondary beginning teachers are more likely to hold a diploma-level teaching qualification. This is not surprising given that the most common path for primary teachers is a three-year teaching degree, while for secondary teachers it is an undergraduate degree and then a one-year graduate teaching diploma. This is also the pattern we see for primary and secondary teachers overall with regards to teaching qualifications (Figure 15).

Figure 15: Teachers by level of highest teaching qualification in 2004



Note: excludes non-responses.

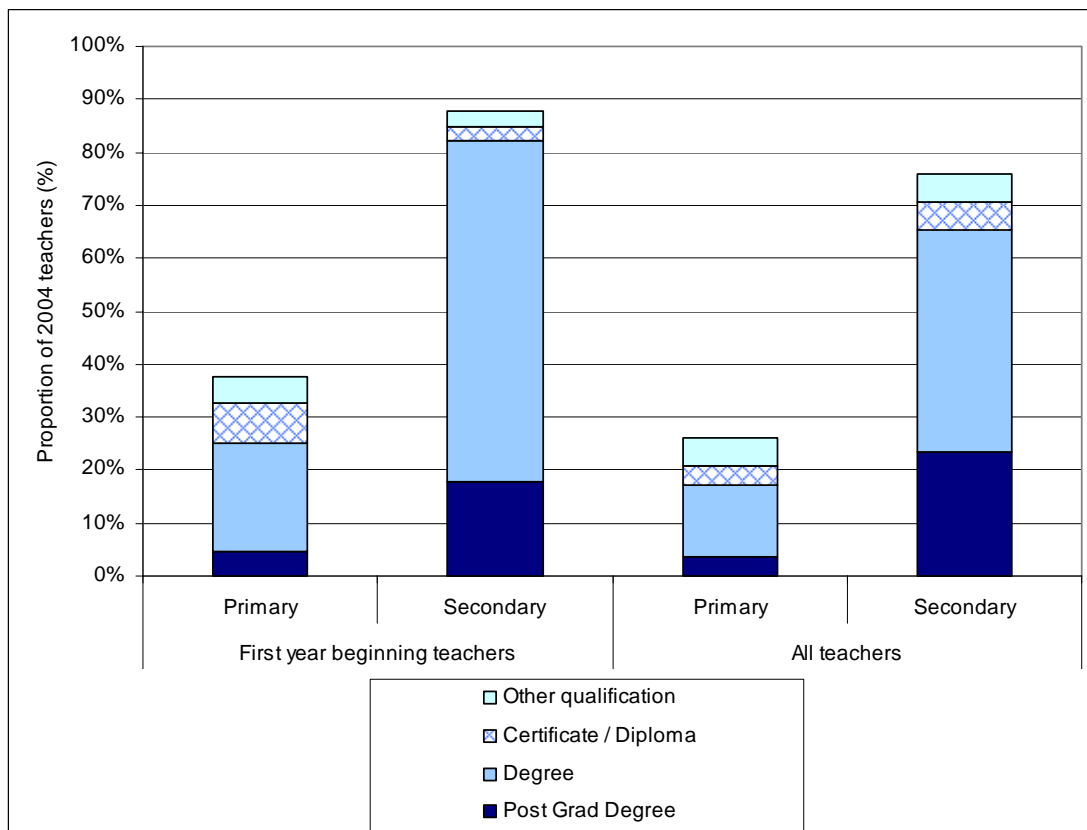
¹³ p20, Alton-Lee, A, *Quality teaching for diverse students in schooling: Best evidence synthesis*, Ministry of Education, June 2003

Teachers overall are more heterogeneous than beginning teachers. They are more likely than beginning teachers to hold post graduate teaching qualifications. These qualifications may have been undertaken as part of professional development while teaching, which would explain the difference between beginning teachers and teachers overall. Teachers overall are also more likely to hold lower-level qualifications than beginning teachers. This possibly reflects the changing expectations of how qualified teachers should be. The large difference between the proportion of primary beginning teachers and primary teachers overall who hold degree-level or higher teaching qualifications is partly explained by the introduction of pay parity for primary teachers.

Non-teaching qualifications

A common path to becoming a teacher is gaining an undergraduate non-teaching degree then completing a post graduate teaching diploma. This combination of qualifications is more common for secondary teachers, as is evident in Figure 16. This is not surprising given the subject teaching responsibilities of secondary teachers. Primary beginning teachers are more likely to have a non-teaching qualification than more experienced primary teachers, thus it appears that this pathway is becoming more popular for primary teachers.

Figure 16: Highest non-teaching qualification held by beginning teachers and all teachers, 2004



Note: excludes non-responses.

While secondary beginning teachers are more likely than more experienced teachers to hold a non-teaching qualification, teachers who were not in their first year of

teaching were slightly more likely to hold a post graduate non-teaching qualification (Figure 16). This may be a result of more experienced teachers undertaking post graduate study as part of professional development or in order to advance their careers. It could also reflect wider or more attractive employment opportunities available to graduates with Masters degrees or higher.

Subjects taught by secondary level beginning teachers

Secondary level teachers must have expertise in at least one subject area. Within secondary and composite schools it is important to get the right mix of teachers to cover core curriculum subjects, to teach subjects that enable pathways to tertiary education, as well as to offer subject choices to students. Subjects at secondary level are important because they influence students' preferences and opportunities once they leave school.

The information on the subjects that teachers teach is only collected through the teacher census. A high proportion of beginning teachers at secondary schools responded to the 2001 and 2004 teacher censuses¹⁴. This section looks at what subject areas beginning teachers are teaching in comparison to other teachers, with a focus on subjects where there are shortages or that are hard to staff.

Overview of subject areas

Figure 17 (overleaf) shows the subject areas that secondary level beginning teachers were teaching in 2001 and 2004. English (including English as a second language) and health and physical well-being were the most common subject areas for beginning teachers to be teaching in. Between 2001 and 2004 the proportion of beginning teachers teaching in the technology subject area has declined. Some of the subjects included in the technology subject area had different names in the 2001 and 2004 Teacher Censuses¹⁵, but it is doubtful that this accounts for all of the decline in beginning teachers in this subject area. With the exception of English, which has increased, and technology and health & physical well-being, which have declined, the proportion of beginning teachers in each subject area has remained the same between 2001 and 2004.

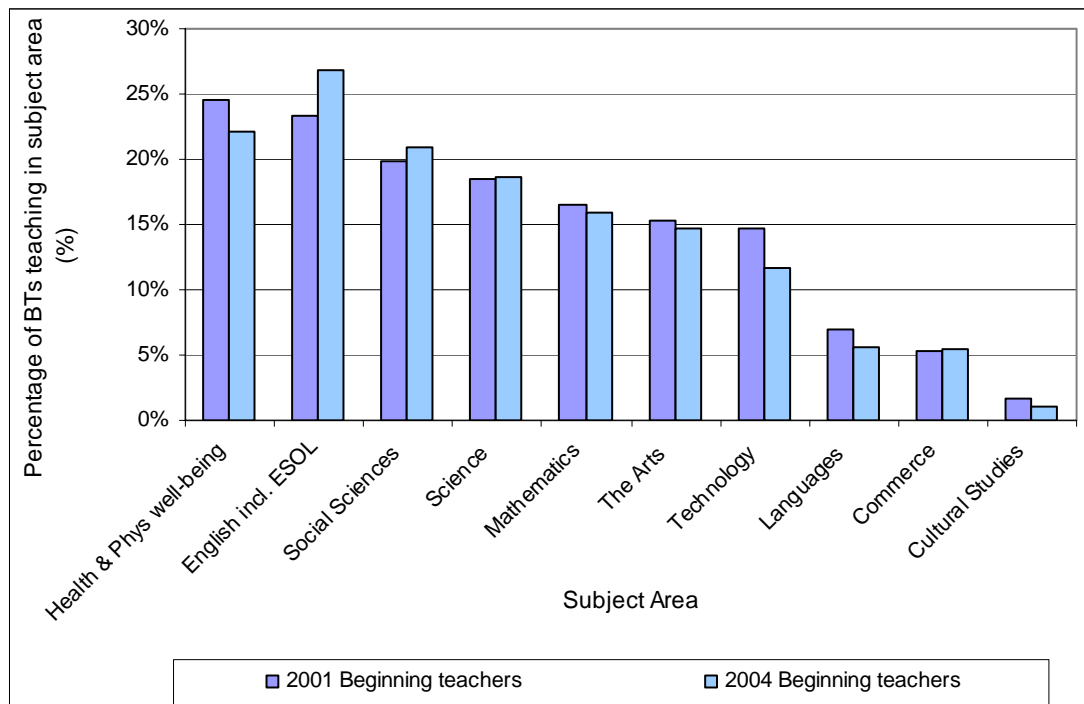
Beginning teachers (shown in Figure 17) are more likely than teachers overall (shown in Figure 18) to teach in health & physical well-being and in the social sciences. They are less likely than teachers overall to teach Mathematics.

In 2004, beginning teachers were less likely than teachers overall to only teach senior students. A fifth (20%) of secondary level beginning teachers only teach students at Year 11 or above, compared to a quarter (25%) of all teachers. The majority (just over 70%) of beginning teachers teach both junior and senior secondary students.

¹⁴ 79% of 2001 beginning teachers at secondary schools responded to the 2001 Teacher Census. 82% of the 2004 beginning teachers at secondary schools responded to the 2004 Teacher Census.

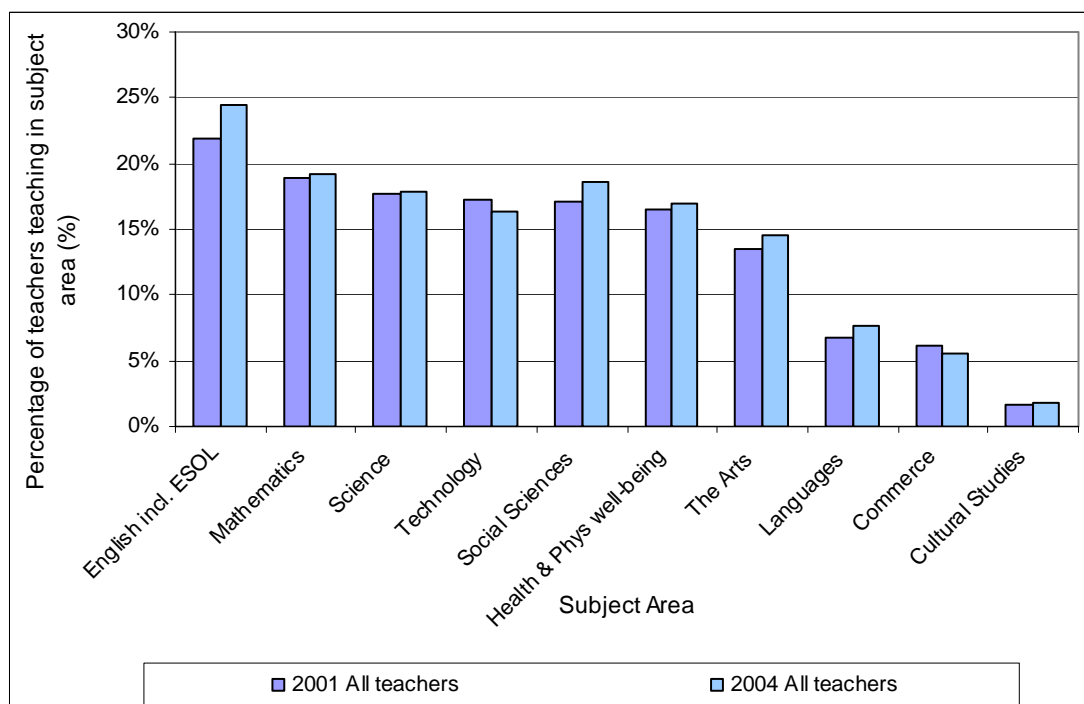
¹⁵ In the 2001 Teacher Census the subject area technology included workshop and graphics; in 2004 these changed to trade courses and graphic design. In the 2004 Teacher Census the subject design technology was added to the subject area technology.

Figure 17: Secondary and composite first year beginning teachers by the subject areas in which they teach, 2001 and 2004



Note: some teachers teach in multiple subject areas and so are counted more than once in this graph. Thus the percentages shown do not add to 100%

Figure 18: Secondary and composite teachers by the subject areas in which they teach, 2001 and 2004



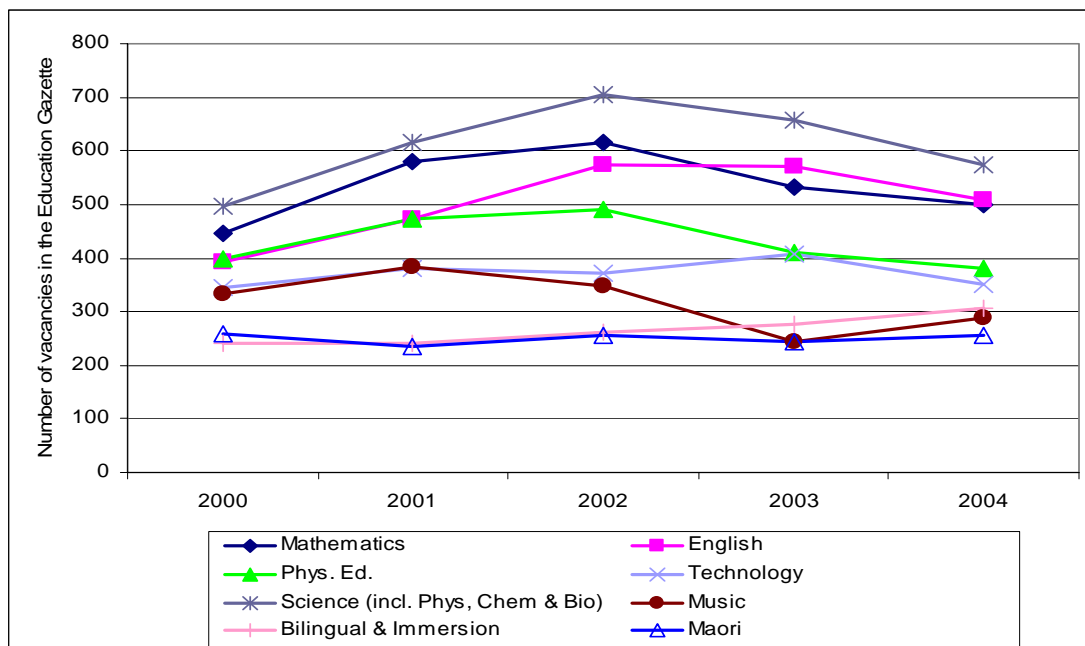
Note: some teachers teach in multiple subject areas and so are counted more than once in this graph. Thus the percentages shown do not add to 100%

Subjects where there is high demand

The Ministry keeps an eye on subjects where there may be shortages through monitoring advertised vacancies in the Education Gazette, through information on vacancies collected from principals as part of the March school roll return, and through reports from local Ministry offices about their regions. This informs where incentives could be offered in order to prevent shortages.

When we look at vacancy information from the Education Gazette, the subjects where there is consistently high need are science, mathematics and English (see Figure 19), probably because they are core subjects. There also appears to be high need for te reo Maori teachers, particularly those who are able to teach in an immersion or bilingual context. The demand for physical education teachers and music teachers has fallen since 2000, while the demand for teachers in the core subjects and in technology has risen since 2000. Demand appears to have been highest in 2002, and since then has been levelling off or declining in most subjects.

Figure 19: The eight most sought after subjects for secondary teachers, from subject occurrences* in advertised vacancies in the Education Gazette 2000 – 2004



*Vacancies advertised in the Education Gazette can be for teachers with multiple subjects, which is why we refer to subject occurrences rather than number of vacancies. For example, a school could advertise for a maths and physics teacher, and this vacancy would appear under mathematics and physics, but only corresponds to one vacancy.

Two incentive schemes already in place are the Secondary Subject Scholarships (SSS), which offers scholarships to students doing undergraduate degrees in targeted subjects, and the Secondary Subject Trainee Allowances (SSTA), which gives money to graduates in target subjects so they can study towards their teacher education qualification. There are currently seven subjects that are targeted through these schemes: Chemistry, Biology, Physics, Mathematics, English, Te Reo Maori, and Technology. Table 7 shows how many beginning teachers there were in these subjects in 2001 and 2004.

The proportion of beginning teachers teaching each subject is very similar in 2001 and 2004. The only exception is English, where there are proportionately more

beginning teachers entering the workforce in 2004 than in 2001. Conclusions about the effectiveness of the SSS and the SSTA cannot be drawn from this information, as it does not show how many graduates would have become teachers regardless of the schemes. The incentive schemes may be stemming a decline in the number of teachers in the targeted subjects. This information simply shows that, with the exception of English, the situation has not changed since 2001. Other types of incentives may therefore be necessary to increase the proportion of beginning teachers in certain subjects.

Table 7: Beginning teachers in subjects where Secondary Subject Trainee Allowances are available, 2001 and 2004

	2001 first year beginning teachers N=621		2004 first year beginning teachers N=810	
	N	% of total	N	% of total
English	136	22%	208	26%
Mathematics	103	17%	129	16%
Technology	31	5%	42	5%
Trade Courses	...	...	15	2%
Workshop	38	6%	...	...
Design Technology	...	...	11	1%
ITC/Computing	36	6%	52	6%
Graphics (2001) / Graphic Design (2004)	29	5%	20	2%
Biology	30	5%	48	6%
Chemistry	18	3%	27	3%
Physics	17	3%	21	3%
Te reo Maori	17	3%	17	2%

... indicates that this category was not collected in the teacher census for that year
The indented subjects all fall under the Technology subject area.

Appendix: Detail of reason for losses

Table 8: Details of reason for loss categories used in this report

Reason for loss category	Detail
Domestic	Change in employment area within NZ of partner Family commitment other than maternity/childcare Resigned following parental or childcare leave
Leave without pay	Leave without pay (incl. parental leave)
Overseas - teach/work/travel	To teach overseas To travel or work overseas
Overseas teacher returning home	End of Exchange period Overseas teacher returning home
Personal & health	Deceased Health reasons Personal reasons Termination following protected teacher status (e.g. supernumerary) Unsuitable
Retired	Retired
To limited term	To limited term full-time or part-time teaching
To study full-time	To study full-time
To another occupation	To another occupation outside of teaching in schools
To teach in private school	To teach in private education service