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Review of teacher recruitment, supply and retention in Wales

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Overview

The brief for this project was to complete "a detailed desk based study of existing secondary sources on teacher recruitment and retention" (GTCW, 2002, p. 8) comprising two related research activities: a search of existing literature in the area and the collection and analysis of relevant secondary data. Where possible, the project was also to make recommendations for policy, data collection and further research.

The report has the following structure:

1. Sources of information on teacher supply
 2. The demand for teachers
 3. Teacher recruitment and retention
 4. Implications for policy
 5. Recommendations for further research
 6. References used in the text
- Appendix A: Limitations of, and problems with, the available data

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• Sources of information on Teacher supply

- The number of potential sources of data on teacher numbers has grown.
- Most publicly available data is aggregated, not individual.
- Different data sets lead to confusions, contradictions and problems with comparability.
- There are changes over time in the dates and methods of recording data.
- There are changes over time in the bases for geographical aggregation.
- There are differences between reports in the definitions of ‘teachers’ and of ‘subject areas’.
- These changes lead to difficulties in drawing comparisons.
- A disproportionate number of studies rely on small-scale work and self-reporting.

Searches were conducted primarily via the internet, supplemented by conventional library services.

1.1 Strategies for the location of relevant literature

Much of the literature search was conducted using on-line resources. The catalogues of all Cardiff University libraries were searched with the aid of *Voyager* software, and relevant literature was retrieved by hand. In addition, on-line databases such as *ERIC* and *BIDS* were used to identify publications unavailable locally. Where necessary, these publications were accessed via inter-library loans. The findings of other researchers were included in this study on the basis of the following criteria:

1.1.1 The use of large-scale data sets

Work using large-scale or population data sets was of most immediate use and relevance to the project. Despite the existence of publicly available data, especially relating to England, very few researchers drew extensively on such data in their studies. Research projects using or generating large-scale numeric data were especially useful for two reasons. Firstly, summary information presented numerically complemented similar data gathered from official sources. Secondly, studies starting with an examination of national or regional trends, via analyses of official data sets, are able to situate data collected at a local level within these wider contexts. As a result, their conclusions are more valuable to readers interested in developments occurring at the regional, national or international levels.

1.1.2 The formulation of convincing explanations

Research providing convincing explanations for particular events was also helpful and is included where appropriate. Such explanations usually took the form of connections between one or more concurrent trends, or between policy implementation and corresponding impacts observed 'in the field'. It is analyses of this kind that are particularly valuable when attempting to make sense of data collected from many different sources, or trying to understand apparent irregularities. Previous work was drawn on in this way to aid the interpretation of secondary data collected at source.

1.1.3 Recent or noteworthy research

Research projects of historical significance, by virtue of their size, scope or methodological approach, are included where relevant. Again, references to other research only usually accompany the discussion of large-scale numeric data, but are sometimes referred to when related to an area in which no other data could be found. Where research was considered broadly similar in other respects, priority was given to the most recent work.

1.1.4 Addressing gaps in the secondary data

As mentioned above, where it was not possible to locate and/or retrieve secondary data relating to particular topics, evidence from, or findings of, previous studies were drawn on, where available. If considered necessary, a brief comment on the quality of the research is incorporated into the text. Particular attention was paid to the scale of the research and the scope allowed by the methodology for generalisation of the findings.

1.2 Strategies for the location and retrieval of secondary data

The majority of the secondary data used in this project was retrieved via the internet. Two main collection strategies were used. Firstly, the websites of organisations deemed to have an interest in issues of teacher recruitment and retention were located and searched for relevant data. Brief descriptions of the information retrieved from such sites are included later in this section. Governmental and government-funded organisations were, perhaps unsurprisingly, the most useful sources of data. Websites were searched systematically, by section headings, and, where possible, using internal search facilities. Internet search engines were used to locate web-based information not contained within official sites. Searches were usually restricted to sources of data located within the United Kingdom and more specifically Wales as, although international comparisons can add perspective to a study, this project was not primarily concerned with such analyses.

1.2.1 Large-scale numeric data sets

A principal concern was to locate as many large-scale numeric data sets as were publicly available. The websites of the following organisations were searched for data relevant to teacher recruitment and retention:

Office for National Statistics (ONS)

The ONS is one of the richest sources of official data in the UK. In addition to data held on its main website, it also contains links to other sources (such as the N AfW - see below). It is, in effect, a 'clearing house' for data collected by many different government departments and agencies. The ONS website was particularly useful for sources of information not directly related to education, such as population projections and data on migration. Although much of the data on this site are aggregated at the UK level, or only provided for England, some data relating to Wales was available either directly or via links to other sites. Where possible, the original sources of data accompany any figures and tables included in our analyses. However, where original sources were not stated, and when ONS was the first point of contact, sources are listed as 'ONS' or 'National Statistics'. Data reported by the ONS as originally collected by government departments are attributed to the original source. This means that data collected by the former DfEE and/or DES are attributed to those organisations rather than the current DfES.

<http://www.statistics.gov.uk/>

National Assembly for Wales (NAfW)

The NAFW website, and *Statistics for Wales* in particular was one of the richer sources of data. Some information was available for direct download in the form of spreadsheet data, whilst other material was available either in Microsoft Word or PDF formats. The NAFW site, however, was more difficult to navigate than the ONS site. Much of the data retrieved from the former was done so by following links initially located in the latter.

<http://www.wales.gov.uk/index.htm>

<http://www.wales.gov.uk/keypubstatisticsforwales/index.htm>

Universities and Colleges Admissions Services for the UK (UCAS)

UCAS administers applications to undergraduate courses offered by higher education institutions (HEIs) in the UK. Data was available (as Table C4.1) for all successful applicants to undergraduate courses for the years of entry 1994 to 2000. Data for each year was contained in separate files and was disaggregated by sex, institution and subject group. For the purposes of this project, the data sets had to be 'cleaned' by removing all institutions based outside Wales and all subject areas other than Education (subject area X). The data for all seven years was then combined. As the data did not differentiate between ITET courses and other undergraduate courses in the area of education (e.g. BA courses) institutions that were known not to offer undergraduate ITET (such as Cardiff University) were removed from the analysis. Data was only available, however, for *successful* applicants rather than all individuals submitting applications.

<http://wwwucas.ac.uk>

Education and Learning Wales (ELWa)

ELWa replaced the separate Welsh Funding Councils, who were previously responsible for the funding of further and higher education in Wales. Although ELWa is not a dedicated source of numeric data, many of its circulars contain data specifically relating to higher education in Wales.

<http://www.elwa.ac.uk>

Higher Education Funding Council Wales (HEFCW)

Although HEFCW data was not available for analysis in this research project other researchers have cited it as a source. Where it appears in the text it has been retrieved and analysed by researchers conducting previous work in the area.

<http://www.wfc.ac.uk/hefcw>

Higher Education Statistics Agency (HESA)

According to its website, "HESA was set up in 1993 following a Government White Paper 'Higher Education: A New Framework', which called for more coherence in higher education statistics. HESA is now the central source for higher education statistics and has standardised and streamlined the data collection and publication process to become a respected point of reference" (<http://www.hesa.ac.uk/about/home.htm>). Very little data are publicly available for download but many data sets retrieved from other locations are compiled using HESA data. Where possible, HESA is specified as the original source.

<http://www.hesa.ac.uk/>

Universities Council for the Education of Teachers (UCET)

Although it is specified on their website that "UCET encourages educational enquiry and research and disseminates information and the results of research" (<http://www.ucet.ac.uk/about.html>) their site is somewhat lacking in terms of the large scale data sets preferred for this project. It did, however, contain summaries of on-going and past research in the area, along with a minimum of separately presented numeric data.

<http://www.ucet.ac.uk/>

Teacher Training Agency (TTA)

As was the case with UCET, very little in the way of data could be found on the TTA website. Primarily a resource for ITET applicants, the TTA did not offer public access to any data through this site. However, TTA Performance Profiles are publicly available and were used in this project to assess the quality of applicants and entrants to ITET.

<http://www.canteach.gov.uk/>

Graduate Teacher Training Registry (GTTR)

The GTTR administrate applications to post-graduate ITET courses. Although their site was primarily oriented towards ITET applicants, their *Annual Statistical Reports* from 2000 and 2001 provided important information relating to post-graduate ITET.

<http://www.gttr.ac.uk>

General Teaching Council Wales (GTCW)

The GTCW hold a Register containing data relating to teaching staff in Wales. However, the Register was incomplete at the time of this project and was unavailable to the researchers.

<http://www.gtcw.org.uk>

The final section of the report contains some further comments on the currently available sources of data, and their limitations for a study of this kind.

1.3 Other types of data

Apart from large-scale data sets, summary information was sometimes published in ONS *Statistical Bulletins* or NAFW *Statistical Briefs* and *Press Releases*. The last *Welsh Office Departmental Report* (1999) was also used. Reports by the National Employers' Organisation for School Teachers were particularly useful sources of data on the topic of retention. For the sake of accuracy, data taken from official sources appearing in academic publications was included only if it was represented in a clear and detailed way. Other, minor secondary sources are referred to in the text.

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2. The demand for teachers

- There are a variety of indicators, including vacancies and pupil:teacher ratios, none of which is sufficient in isolation.

Vacancies

- There are two competing definitions of 'vacancies': advertised vacancies, and posts unfilled for 3 months or more. The former is most widely used but, perhaps, misleading.
- Vacancy rates in Wales are now lower than 1990/91. The most recent vacancy rate is now two-thirds of the 1997 rate and one-quarter of the rate in 1990.
- The vacancy rate in Wales is lower than in any of the economic regions of England.
- It is not clear how far the current vacancy rate is different from that predicted by the current rate of turnover of posts within teaching.
- Vacancy rates are highest in the secondary sector.
- In England and Wales, secondary sector vacancy rates are highest in Careers (4%) and Maths (2%).
- Corresponding vacancies in England and Wales are lowest in humanities, social sciences and PE.
- But proportionate vacancy rates can be misleading and hide the degree to which there may be a problem.
- In England, the vacancy rate has started to increase since its lowest recorded level in 1997.
- In England, this increase is most obvious in Maths, Science and Technology posts.
- Vacancy rates in England have been shown to vary between different types of secondary school.
- A large number of trained teachers in England are unemployed or not employed as teachers.
- Vacancies in England are especially high in London

Teacher and pupil numbers

- Pupil numbers in Wales have risen since 1990, this increase being especially marked in the secondary sector.
- Teacher numbers in Wales have shown an annual rise from 1996/97 to 2000/01, in both primary and secondary sectors.
- Teacher numbers are not clearly linked to pupil numbers – for example, the number of teachers employed in the primary sector continued to increase from 1996 to 2000 when primary pupil numbers dropped slightly.
- In England and Wales there has been a huge growth in the numbers of both pupils and teachers since 1970.

- Since 1999, the growth in teacher numbers in England has been greater than the growth in pupil numbers.

Pupil:teacher ratios (PTRs)

- In Wales, the average pupil:teacher ratio in secondary schools has been roughly constant (at 16.5) since 1980/81.
- In England, PTRs in primary and secondary schools fell almost every year from 1947 to 1989.
- The lowest PTR in England was in 1990, and there has since been a subsequent small rise.
- PTRs cannot be simply converted into class sizes due to differences over time and place in school organisation.
- In 1998, the UK PTR in secondary schools was lower than in comparable developed countries such as Canada, New Zealand, Korea and the Netherlands.
- In England, vacancies were *inversely* related to PTRs over the period 1985 to 2002.
- In 2002, vacancies were highest in London, where the PTR was smallest, and lowest in rural areas, where the PTR was highest.

Class sizes

- In Wales, average class sizes in secondary schools increased slightly from 20.2 in 1995 to 21.0 in 2000. In England it decreased from 20.7 in 1990 to 22.2 in 2000.
- There is considerable variation of class sizes between schools and regions.
- Inner London has the largest class sizes, but the lowest PTRs, and so PTR is not necessarily converted to small classes – perhaps due to administration, school sizes, and so on.

2.1 Introduction

Planning for teacher demand and supply is important for two reasons. First, changes in many areas of the educational system can have implications for teacher demand and supply (revised curricula, introduction of new methods of teaching or changes in subject emphasis, for example). According to Williams (1979), when planning for any changed or expanded educational programme the highest priority must be to secure the required number of teachers. The difficulty lies in ensuring that any changes take effect in time to achieve the intended objective. He suggests a time-scale of 5-6 years between changes in recruitment to teacher training courses and the time when the teachers will be needed. Perhaps political constraints rather than planning deficiencies can explain why central government ‘tended to do too little too late’ (Blackstone and Crispin, 1982).

2.1 Indicators of teacher numbers

The number of qualified teachers in Wales (and England, England and Wales, or the UK) varies over time for both demographic and economic reasons, while the demand for teachers also fluctuates according to demographic shifts and as a result of policy changes.

However, teacher supply cannot be calculated merely by using data on the number of teachers available and the number of pupils needing to be served.

Because of competing views on the indicators of teacher supply and demand, there have been disagreements, in the past and in recent years, between teacher representatives and the government over whether there was a teacher supply ‘crisis’ at all (Grace 1991, House of Commons First Report 1997a, 1997b, House of Commons Select Committee on Education and Employment 2000).

In their submission to the House of Commons Education and Employment Committee inquiry into teacher supply (House of Commons 1997a, 1997b) the NUT identified a number of indicators of the teacher supply situation. These included the public perception of the profession, the number of vacancies in schools, the number of applicants to promoted posts, recruitment to initial teacher education and training courses, vacancies in headteacher posts and the overall state of the economy. The most commonly used measure of teacher shortages is the number of vacant posts expressed as a percentage of the total number of posts (House of Commons 1997a, para. 21). However, because of the factors discussed above, alternative indicators are used in this report where possible.

2.2 Teacher vacancies

Teacher vacancies are perhaps the most direct measure of teacher shortages. They may not necessarily mean that there are too few teachers *per se*, but can indicate that there may be a mismatch between the teachers available for work and the types of posts needed to be filled. It is possible for teacher unemployment to co-exist with vacant posts, as it does today. Data on teacher vacancies must, therefore, be examined more closely before it is possible to identify exactly which types of teaching staff are required to address any shortfall.

Vacancies here refer to advertised vacancies for full-time appointments of at least one term’s duration. Vacancy rates refer to vacancies as a percentage of teachers in post which includes full-time regular teachers in (or on secondment from) maintained schools, plus the full-time regular divided service, peripatetic, remedial centre and miscellaneous teachers.

It is important to be aware that an alternative definition of ‘vacancies’ is sometimes used. This counts ‘vacancies’ as posts that have not been filled three months after they were first advertised. This is, perhaps, more in line with the conventional use of the term and the confusion of the two definitions may have lead to misinterpretations of the teacher supply situation in the media. All ‘vacancies’ and ‘vacancy rates’ referred to throughout this report, however, are of the former kind rather than this alternative definition.

2.2.1 Vacancies in Wales

Table 2.1 shows vacancies in Wales according to sector. The first important feature of the data is the dramatic fall in vacancies in both sectors between the academic years 1990/91

and 1995/96. Unfortunately, data for intervening years are not published, but in a five year period vacancies decreased to just over one-fifth of their 1990/91 level.

Table 2.1: Teacher vacancies in maintained schools, Wales 1990/91 to 2001/02

	1990/91	1995/96	1996/97	1997/98 ²	1998/99	1999/00	2000/01	2001/02
Secondary	159	53	38	60	77	42	60	77
Primary ¹	240	35	61	105	49	26	39	31
All	399	88	99	165	126	68	99	108

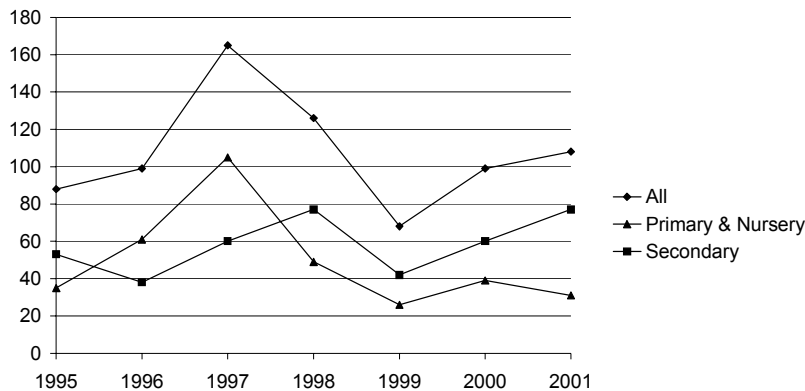
Source: Form Stats 3 (formerly 618G)

Data collected in January each year. Revised form used from January 1998.

1. Includes nursery schools.

The years for which consecutive data are available are represented in Figures 2.1 and 2.2. Given that the measurement of small numbers can lead to random volatility, there do not appear to be any particular trends over time. This is the case for both the data relating to the different sectors of compulsory education and positions within the professional hierarchy. In the academic year 1997/98 a new form (Stats 3) replaced the one previously used (618G) in Wales to collect data on teacher vacancies. Some of the change shown in the data between the years 1996/97 and 1997/98 may, then, be an artefact of a change in the instrumentation used to collect the relevant data, rather than a reflection of real change.

Figure 2.1 – Teacher vacancies by sector in Wales 1995/96 to 2001/02

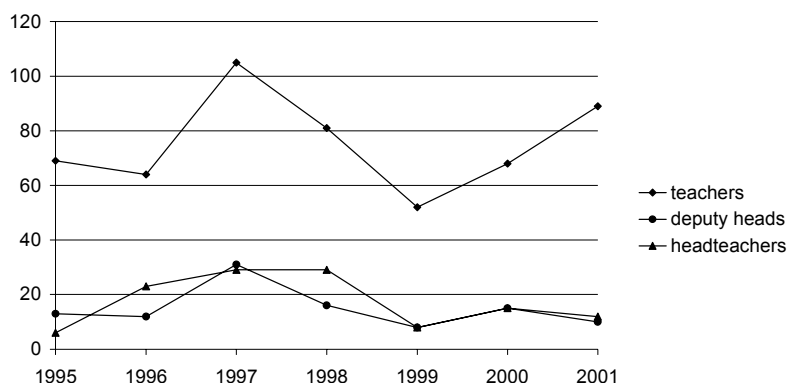


Source: Form Stats

3 (formerly 618G)

1. Data collected in January each year. Revised form used from January 1998.

Figure 2.2 – Teacher vacancies by position in Wales 1995/96 to 2001/02



Source: Form Stats

3 (formerly 618G)

2.2.2 Vacancies in England and Wales

Table 2.2 shows the vacancy rates for teachers in secondary schools in England and Wales, disaggregated by subject. The vacancy rates represent the proportion of unfilled, full-time equivalent (FTE) posts for each subject, expressed as a percentage. Vacancy data were available as frequencies only for 2001. However, the data for this year allow a judgement to be made regarding the scale of vacancy rates in absolute terms. For example, in 2001, careers was the subject area with the highest vacancy rate, at 4%. But this represented a recruitment shortfall of only 9 teachers, because the absolute number of careers teachers required is small compared to other subjects. In contrast, figures for the same year show a vacancy rate of just 1.5% in sciences, representing 407 unfilled vacancies. As these examples illustrate, where possible, frequencies must be used in conjunction with the vacancy rates to interpret the actual scale of the phenomenon they represent.

The most obvious trend shown in Table 2.2 is the increase in the overall vacancy rate in England and Wales, combined, by more than a factor of three (from 0.4% in 1997 to 1.4% in 2001). In terms of individual subjects, all vacancy rates were higher in 2001 than they had been in 1997. However, not all subject area vacancy rates rose each year. Vacancy rates in maths and sciences, the subject areas with the highest numbers of vacancies, rose each year, as did those for IT. Because the numbers of vacancies in these subject areas are fairly large, the observed trends over time are the least susceptible to volatility caused by minor, random changes. It is, therefore, reasonably safe to conclude that there has been a steady trend of rising vacancies in these subjects in England and Wales.

There are other subjects, notably English and languages, that also have relatively high numbers of vacancies, but not year-on-year rises in vacancy rates. Both of these subject areas experienced a fall in vacancy rates between 1998 and 1999, rising again in the following two years. Vacancy rates fell in five other subjects (geography, religious education, design technology and careers) between 1998 and 1999. On the basis of the available data, it is not possible to establish whether the downward trend in vacancy rates in so many subjects during this year is due to random variation or external factors.

Indeed, the change in recording instrumentation in Wales (from: Form 618G to Stats 3) may have had some impact. This is an area in which further investigation would be useful.

Table 2.2 - Vacancy rates (%) for classroom teachers in secondary schools, by subject, England and Wales, January 1997 to January 2001

	1997	1998	1999	2000	2001	2001(n)
Maths	0.4	0.7	0.8	1.2	2	421
IT	0.4	0.7	0.9	1.2	2.7	126
Sciences	0.3	0.4	0.5	0.6	1.5	407
Languages	0.5	0.7	0.5	0.7	1.5	250
English	0.4	0.5	0.4	0.6	1.7	366
Drama	0.4	0.2	0.4	0.6	1.6	60
History	0.1	0.2	0.2	0.1	0.5	39
Social Sciences	0.2	0	0.1	0.2	0.4	15
Geography	0.3	0.4	0.1	0.3	0.6	54
Religious Education	0.4	0.8	0.5	0.7	1.8	103
DT	0.3	0.7	0.6	0.7	1.2	206
Commerce/business	0.4	0.6	0.4	0.5	1.2	42
Art, craft or design	0.2	0.3	0.5	0.3	0.7	49
Music	0.9	0.7	0.7	0.8	1.8	82
PE	0.2	0.3	0.3	0.2	0.8	104
Careers	0.9	1.8	0.9	1.4	4	9
Other	0.7	0.7	0.8	1.1	1.6	199
Overall	0.4	0.5	0.5	0.7	1.4	2532

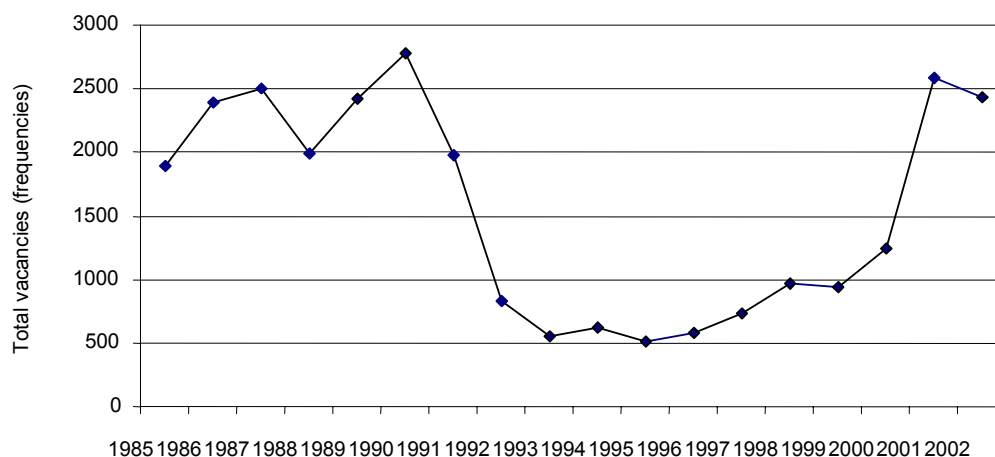
Source: DfES annual 618G survey and NAFW annual Stats3 survey

Note: Data for 1996 was available but, as the method of calculating vacancy rates changed in 1997, it was omitted.

2.2.3 Vacancies in England

As noted earlier, teacher vacancies are affected by more than just the absolute number of teachers and pupils. Between 2000 and 2001, there was a sudden increase in teacher vacancies from 1,250 to 2,590 (an increase of 107%). From 2000 to 2002 teacher vacancies rose by approximately 95%, even though the number of teachers had, for the first time, increased faster than pupil numbers over the same period.

Figure 2.3 Teacher vacancies in maintained secondary schools in England, 1985 to 2002



Source: DfES Statistical First release(2002a) Teachers in service and teacher vacancies

In England the lowest level of teacher vacancies in the last decade was experienced between 1992 and 2000, after a period of very high vacancies between 1985 and 1990. The much talked about impending 'crisis' was in fact the rise between 1995 and 2001, to its highest level since 1990. However, the growth in vacancies started from a low level, climbed slowly at first before rising rapidly in 2000. Up until this year, however, vacancies were still well below levels witnessed in the late 1980s (see Figure 2.3).

Between 1998 and 2001 teacher numbers rose by 3.9% while pupil numbers increased by 5.1%. and this period saw one of the most dramatic increase in teacher vacancies, from 970 to 2,590 – rising by 267% over a three year period (see Figure 2.3). It was only in 2002 that teacher vacancies started to ease, falling to 2,440. This was in part due to the narrowing of the gap between teacher and pupil numbers. Pupil numbers increased by 2.5% between 2000 and 2002 while teacher numbers increased by almost 4%. The related issue of pupil:teacher ratios is discussed in detail later in this chapter.

2.2.4 Variation between subject areas and school types

In England and Wales, vacancy rates are not uniform for all subjects (Table 2.3). Almost all subjects registered increases in vacancy rates between 1995 and 2000 with the exception of history, geography and physical education and in 2001 all subjects registered an increase in vacancies over the previous year (STRB 2002). Vacancies in the traditional shortage subjects such as mathematics, science, and information technology remained high (much higher than in Wales alone). Even subjects like English, history and PE, which previously were not considered shortage areas, experienced increased vacancy rates. However, to put these increases into perspective, teacher vacancies never again reached the high levels experienced in 1990 (see above).

Table 2.3 - Unfilled vacancies by subject, England and Wales, by subject, 2001

Special needs	27%
Science	17%
Geography	10%
Technology	26%
RE	16%
PE	10%
Maths	24%
Languages	15%
Art	7%
English	21%
Business Studies	15%
History	7%
IT	18%
Music	13%

Source: STRB (2002)

Table 2.4 suggests that finding teachers is more of a problem for some kinds of secondary schools than others. One explanation for this is that there is variation in the perceived desirability of working in each of these types of institution. As it can be seen in Table 2.4, secondary modern schools have the highest vacancy rate, whilst independent (fee-paying) schools have the lowest. The former may still suffer from being viewed as a 'second class' institution type, a hang-over from the days of the tri-partite system of secondary education, and the latter have traditionally been seen as 'high status' (although the reality may differ somewhat from public perceptions: see Gorard, 1997). However, if this reasoning was consistent, it might be assumed that selective institutions would be more desirable places of work than comprehensive schools. It should also be considered that there are very few secondary modern schools in England compared to the other institution types, and the high vacancy rate in the former may result from the volatility of random changes in small groups.

Table 2.4 - Unfilled vacancies by school type, England and Wales, 2001

Secondary modern	21%
Comprehensive	18%
Selective	16%
Sixth form colleges	12%
Independent	5%

Source: STRB (2002)

2.2.5 Geographical variation

Looking at England and Wales separately, the statistics show that although secondary vacancy rates in England and Wales had risen from 0.3% in 1995 to 1.4% in 2001, rates for Wales increased at a much slower rate from 0.2% to 0.5% (STRB 2002). All economic regions of England reported an increase in vacancy rates between 1995 and 2001, the biggest increase being in London, the South-East and the East of England

(STRB 2001). Table 2.5 shows that the problem is most obviously one for London, and that vacancies in Wales are lower than any other economic region.

Table 2.5 - Unfilled vacancies by region, England and Wales, 2001

Inner London	29%
Outer London	24%
West Midlands	17%
South-east	16%
East Midlands	15%
South-east	14%
North-west	13%
North Yorks.	13%
North-east	12%
Wales	11%

Source: STRB (2002)

Although the data was labelled 'unfilled vacancies', it is important to realise that, in fact, it complies with the STRB definition and therefore refers to *advertised* vacancies. It is not necessarily the case that these posts were not successfully filled and, as all labour market movements within the teaching profession will be registered, the data are only really a measure of turnover.

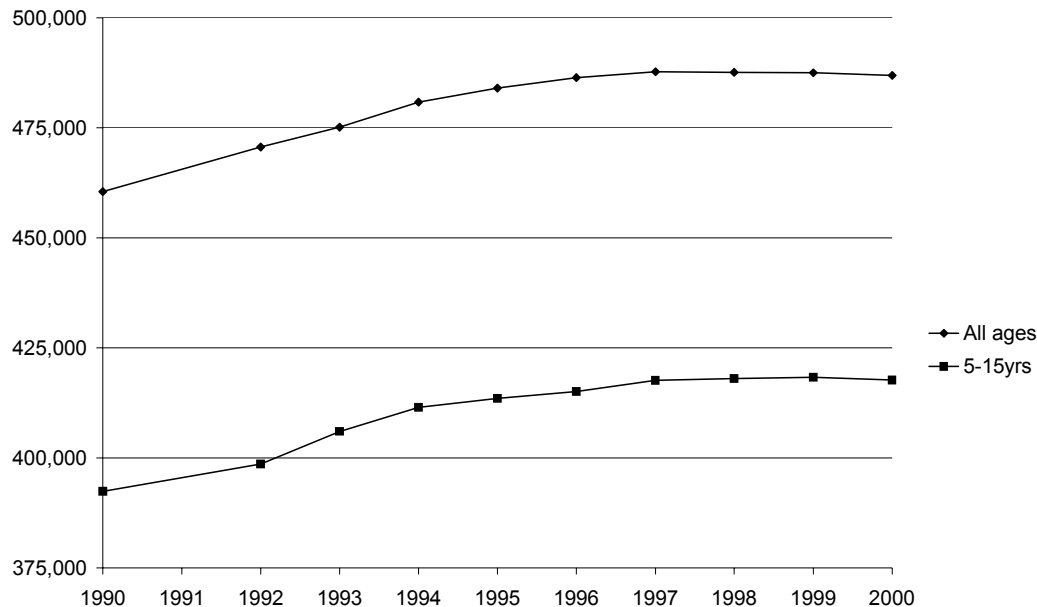
However, it was also recently reported that in 1999 there were 16,000 trained teachers registered as seeking work, many more unemployed but not receiving Jobseeker's Allowance, and more again in other employment who would prefer to be teaching (TES 2002). Therefore, the problem of vacancies, in so far as there is one, is of regional and subject dispersion, rather than total numbers.

2.3 Teacher numbers and pupil numbers

2.3.1 Teacher and Pupil Numbers in Wales

One of the most basic determinants of the number of teachers needed in any education system is the number of young people of school age. It can be seen from Figure 2.4 that the number of pupils rose for the first half of the 1990s before levelling off in 1997.

Figure 2.4 – Full-time pupils in schools in Wales 1990/91-2000/01 by age



Source: NAFW

But what implications does such a rise have in terms of the demand for teaching staff? An increase from 460,513 students in 1990 to 486,910 in 2000 represents a rise in school rolls by 26,397 or 5.7%. However, because of the variation in school size and local geography, an increase in the number of students does not automatically translate into a proportionate increase in demand for teachers. As is discussed elsewhere, teacher demand and supply is subject to regional and subject area variation, and such factors often outweigh the trends observed in aggregated, national data.

Table 2.6 - Provision for secondary education in maintained schools, Wales, 1980/81 to 2000/01

	1980/81	1990/91	1996/97	1997/98	1998/99	1999/00	2000/01
No. pupils:	239,641	185,193	200,288	201,852	204,158	207,916	210,396
FTE teachers	14,440	12,026	12,397	12,228	12,384	12,471	12,692
No. of schools	239	230	229	228	229	228	229
pupils:school	1,003	805	875	885	892	912	919
teachers:school	60	52	54	54	54	55	55
PTR	16.6	15.4	16.2	16.5	16.5	16.7	16.6

Adapted from: Schools in Wales: General Statistics 2001

Table 2.6, above, shows the different ways data relating to pupil numbers can be calculated in terms of other, related variables. The data shown is for secondary schools only.

Table 2.7 - Pupils in Schools in Wales by type and sector 1996/97-2000/01

	Nursery	Primary	Second.	Special	PRUs	Total	Indep.	All
2000/01	2,393	285,786	210,396	3,774	435	502,784	9,477	512,261
1999/00	2,435	288,418	207,916	3,784	341	502,894	9,521	512,415
1998/99	2,758	291,712	204,158	3,802	296	502,726	9,700	512,426
1997/98	2,845	293,691	201,852	3,693	299	502,380	9,810	512,190
1996/97	3,123	292,730	200,288	3,653	255	500,049	9,879	509,928

Source: Schools in Wales – General Statistics 2001

The number of pupils in all sectors is shown in Table 2.7. Apart from a rise between the academic years 1996/97 and 1997/98, the number of pupils overall is remarkably stable. An examination of the data at a sectoral level, however, reveals some interesting trends. Whilst the number of pupils in secondary schools rose by over 10,000 (or 5%) over the five year period shown, rolls in both the primary and nursery sectors declined steadily (by 730 [2.3%] and 6,944 [2.4%], respectively). This was paralleled by a fall in the number of institutions in these sectors, as was also the case for independent schools. An increase in the number of pupils in Pupil Referral Units (PRUs) accompanied a rise in the number of Units, but not in direct proportion. In contrast, pupils attending special schools increased in number but the number of institutions catering for them fell slightly.

Table 2.8 - FTE Teachers in Schools in Wales by type and sector 1996/97-2000/01

	Nursery	Primary	Second.	Special	Total	Indepen.	All*
2000/01	92	12,756	12,692	555	26,095	972	27,067
1999/00	93	12,677	12,471	561	25,802	959	26,761
1998/99	97	12,591	12,384	555	25,628	975	26,602
1997/98	100	12,295	12,228	531	25,153	982	26,135
1996/97	106	12,480	12,397	542	25,525	975	26,500

Source: *Schools in Wales – General Statistics 2001*

* excluding PRUs

The numbers of full-time equivalent (FTE) teachers, and the changes in these over time, did not necessarily match the direction or magnitude of the trends in pupil or institution numbers in each sector (see Table 2.8). For example, although the fall in FTE teachers in nursery schools accompanied the decline in pupil and institution numbers in that sector, such symmetry was not apparent in all other sectors. Special schools were the only other institution type for which all variables moved in the same direction, upwards in this case. Although both institution and pupil numbers decreased in the primary sector, the number of FTE teachers actually *increased* over this period. In the secondary sector, whilst the number of institutions was stable, both pupil and teacher numbers increased. And despite

a decrease in both pupil and institution numbers in independent schools, the number of teaching staff fluctuated yearly (Table 2.8).

2.3.2 Teacher and Pupil Numbers in England and Wales

Between 1985 and 1998 the number of full-time secondary school teachers in England and Wales fell by 21% (Social Trends 30, 2000) from 237 thousand to 188 thousand. By 1999, within a single year, the number had increased by 1,300. Between 1999 and 2000, the numbers went up by another 1,400. The number of full-time equivalent (FTE) qualified teachers in England increased from 161,200 to 232,500 from 1970 to 1980 (figures for England are used because although figures for England and Wales were provided by the School Teachers' Review Body (STRB), equivalent figures prior to 1991 are not available). This growth corresponded with an increase in pupil numbers from approximately 2.9 million to 3.9 million (DfEE Bulletin, 2000).

From 1980 onwards pupil numbers declined to 2.85 million in 1991, the lowest level since 1970. They had increased to 3.26 million by 2002. Teacher numbers also declined year on year, but while pupil numbers increased after 1991, teacher numbers continued to decrease to a low of 178.8 thousand in 1994 before rising to 192.7 thousand in 2002 (see Figure 2.5). Although teacher numbers then increased from 1997, the rate of growth of pupil numbers was initially greater. This is significant because, as teacher demand is determined in part by the target pupil:teacher ratio, in order to maintain the existing pupil:teacher ratios more teachers will be needed. This explains the increasing teacher vacancies, and perhaps the beginning of the recent 'crisis'. Since 1999, however, the growth rate of teachers has been greater than that for pupils (see below) and number of pupils has been predicted to decline over the next ten years.

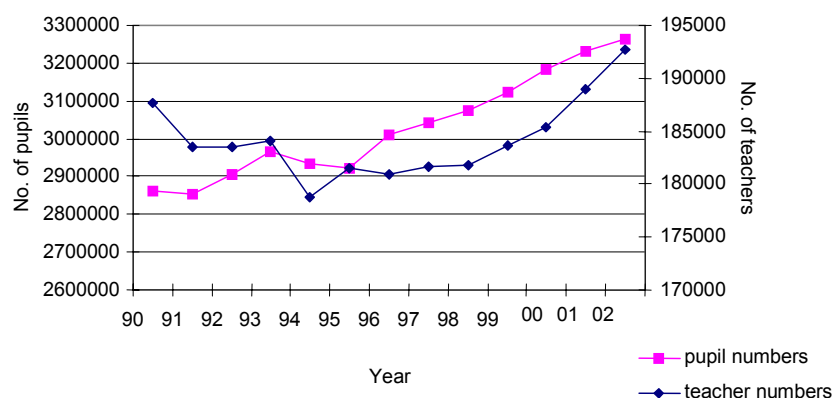


Figure 2.5 – Pupil and teacher numbers in maintained schools in England

Source: DfES (2002d) Statistics of Education – Schools in England

It would seem that, in spite of what the media may have portrayed, teacher numbers in 2000 were not at their lowest ever level (Slater, 2000b). In fact, teacher numbers had

increased by 2.2% from 1995. One possible explanation for the purported ‘crisis’ experienced today is that, although teacher numbers are increasing they are not rising in step with pupil numbers, which have increased by 6.3%. Another issue, however, is that some commentaries, especially in the media, do not make clear who they included when discussing changes in teacher numbers over time. There are total numbers of: qualified teachers, qualified full-time equivalent (FTE) teachers, teachers in post, teachers in the maintained sector, teachers in the maintained sector excluding special schools and/or PRUs and/or Grant Maintained Schools (when they existed). It is important that these are distinguished when comparing data sets.

2.4 Pupil:teacher ratios

Pupil:teacher ratios (PTRs) are an important factor to be considered when setting targets for ITET. The total number of pupils of school age must be divided by the PTR in order to assess the required number of teachers. The DfES calculate PTR by taking:

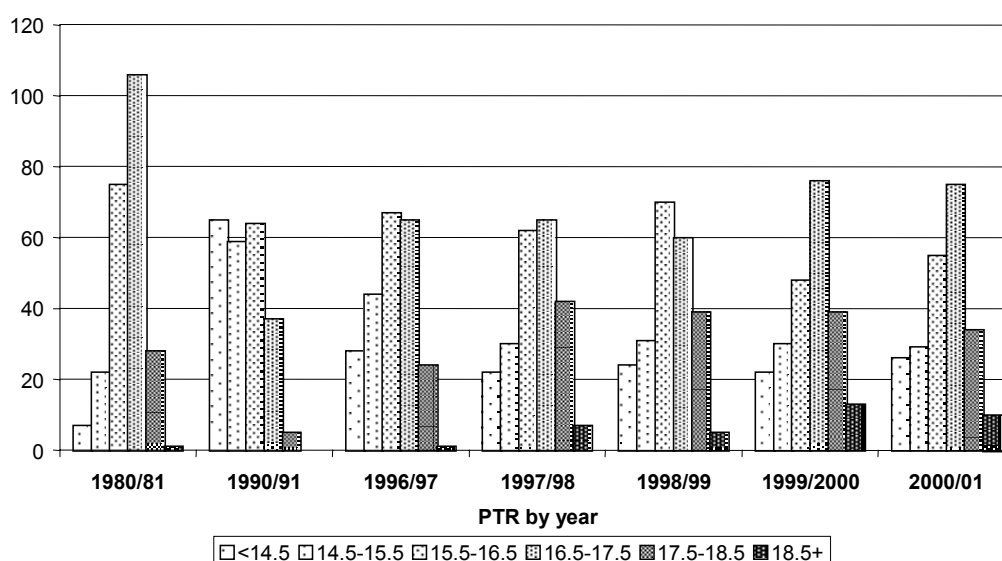
the full-time equivalent of all the pupils (where a part-time pupil counts as one half) and dividing it by the full-time equivalent of the number of teachers employed (calculated by looking at the number of hours worked by teachers).

(DfES, 2002a, p. 7)

2.4.1 PTRs in Wales

An examination of the data for the 1980s and 1990s shows that the mean PTR for maintained secondary schools in Wales has remained fairly constant. In fact, it is at exactly the same level in the academic year 2000/01 as it was in 1980/81, the earliest year for which PTR data was available. Apart from the year 1990/91, when it fell to 15.4, the aggregate PTR has remained at around 16.5. Figure 2.6 shows the number of maintained secondary schools in Wales, disaggregated by the mean PTR of each institution. Although an imperfect measure, owing to the arbitrary nature of the PTR categories used, it gives some indication of the number of institutions with PTRs at particular levels. It shows, for example, that in all years represented on the chart, most schools had a PTR of between 15.5 and 17.5.

Figure 2.6 – Maintained secondary schools in Wales, by PTR 1980-2001



Adapted from: *Schools in Wales: General Statistics 2001*

Importantly, Figure 2.6 also provides an overview of the variation in PTRs. Although the top and bottom categories are 'open' (i.e. they do not indicate the highest and lowest actually existing institutional PTRs) because of the relatively small number of schools in both, this does not hinder analyses greatly. It is evident, for example, that as very few schools have PTRs of greater than 18.5 and relatively few have rates of less than 14.5, PTR data presented as 'mean' averages do not disguise huge variations between institutional PTRs. It does not, however, provide any information regarding the size, location and type of schools that fall into each PTR category. This may be important because large institutions could use teaching staff more efficiently than small ones, for example. On the other hand, some rural schools may have high PTRs because of having to combine year groups. When planning teacher supply it is important to have access to such information in order to decide where very small or large PTRs are unavoidable due to particular circumstances relating to local provision.

The net results of these, sometimes divergent, trends within sectors can be seen in Table 2.9, which shows the PTRs for different schools types. As the number of secondary schools has remained almost constant, the steady PTR suggests that the increase in teacher numbers was in proportion to the rise in pupils in that sector. In contrast, the decrease in pupils, institutions and teachers in the nursery sector are clearly disproportionate, resulting in a steady decline in the aggregate PTR.

Table 2.9 - PTRs in Schools in Wales by type and sector 1996/97-2000/01

	Nursery	Primary	Second.	Special	Total	Indepen.	All*
2000/01	17.3	21.5	16.6	6.8	18.8	9.6	18.4
1999/00	17.3	21.9	16.7	6.7	19	9.8	18.7
1998/99	18.4	22.3	16.5	6.8	19.1	9.8	18.8

1997/98	18.2	23	16.5	6.9	19.5	9.9	19.1
1996/97	19.3	22.6	16.2	6.7	19.1	10	18.7

Source: *Schools in Wales – General Statistics 2001*

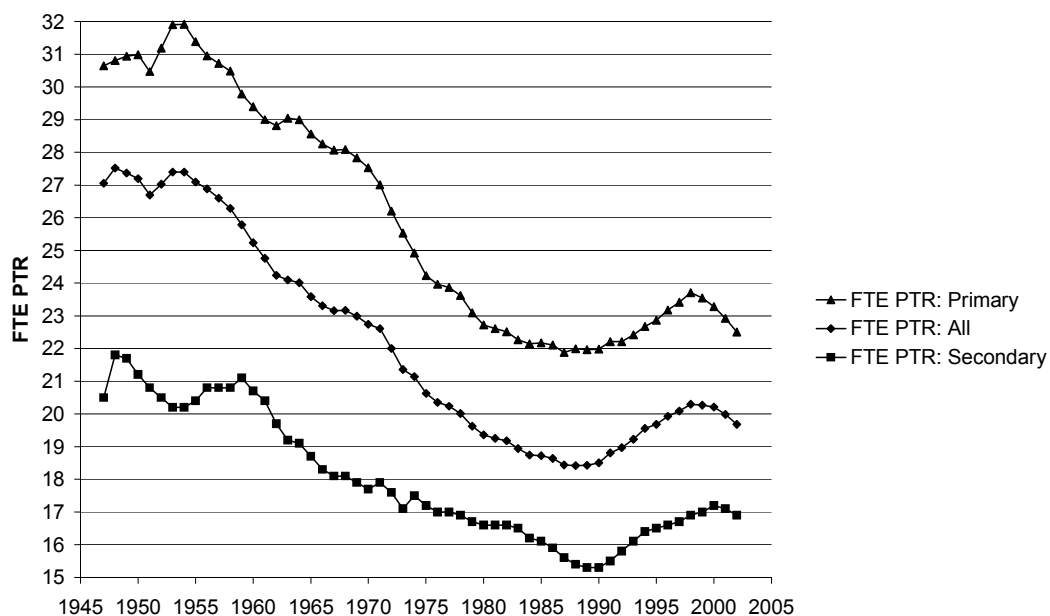
* excluding PRUs

Both the above examples are fairly simple to understand. However, trends in the PTR of other sectors are more difficult to fathom. For example, the decreased PTR in primary schools is, perhaps, not as great as might have been expected, given that the number of FTE teachers increased yearly, despite falling rolls and a decline in the number of institutions.

2.4.2 PTRs in England

Figure 2.7 shows the PTRs for primary and secondary schools in England from 1947 to 2002. As Smithers and Robinson (1991) note, from the mid-1950s until the late 1980s (the latest point for which they have data) the PTR, calculated from aggregate data, decreased steadily, on almost a year-on-year basis. From 1990, however, the PTR began to increase until, after reaching a peak in 2000, falling for two consecutive years. A brief examination of the top and bottom lines suggests that, from the mid-1970s onwards, trends in PTR were similar in both the primary and secondary sectors. Whatever the explanation underlying it, the increase in PTR from 1990 onwards, after more than thirty years of steady decline, might be considered to have a substantial impact on the number of teachers required relative to the school-age population.

Figure 2.7 – Full-time equivalent pupil:teacher ratios in England



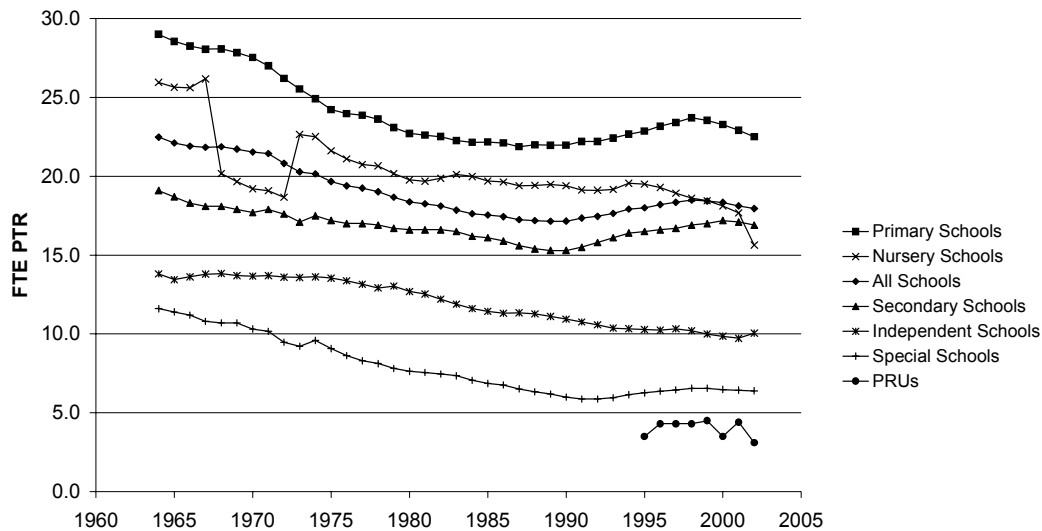
Adapted from: DfES, (2002a). N.B. Data collected in January each year.

However, Smithers and Robinson (1991) warn that average PTRs tell us nothing about the size of actual classes. By its very nature aggregate data disguises variation within the system. The DfES (2002a, p. 7) also caution that "while the number of teachers employed relative to the number of pupils enrolled will have an affect on class sizes, not all teachers will necessarily be in the classroom at any one time." (DfES, 2002a, p. 7)

In relation to the issue of teacher recruitment and retention, Smithers and Robinson (1991, p. 103, emphasis added) also note that although class size is an important issue in relation to the staffing of schools, it is not "... principally a teacher *supply* problem. It is, in part, a matter of policy, and, in part, a management problem to be resolved by management action". Solutions to any perceived 'problems' with teacher recruitment and retention do not necessarily have to come from the 'supply' end of the equation. Changing

the organisation of schooling can have more direct impacts on the requirements (or 'demand') of the system itself.

Figure 2.8 – Full-time equivalent pupil:teacher ratios by school type



Source: Adapted from: DfES, 2002b.

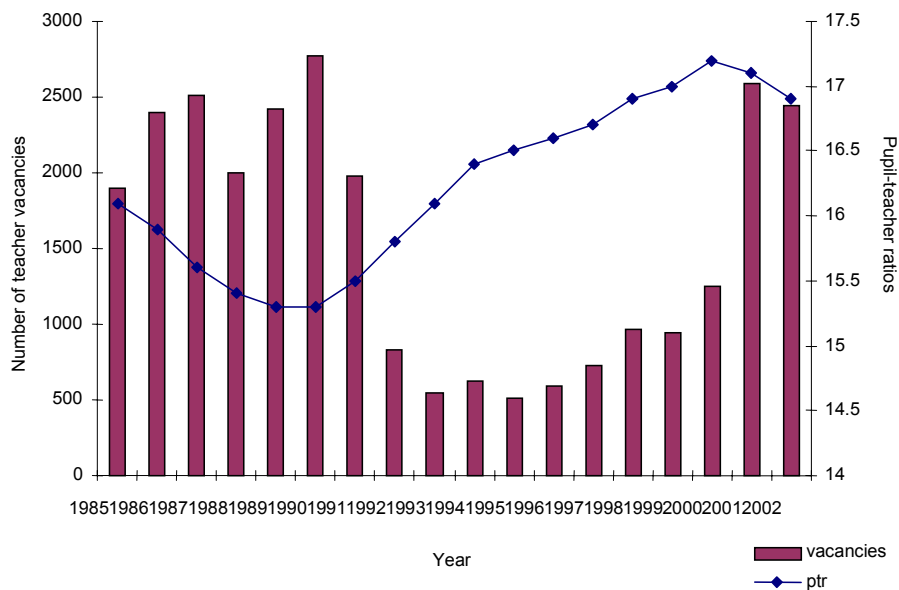
Examining data for all school types (including fee-paying institutions) it is interesting to note that PTRs follow approximately the same trends in most sectors, with the exception of nursery schools and institutions in the independent sector (Figure 2.8). Independent schools are, of course, not affected by most aspects of government policy relating to education and this may explain why, unlike the other sectors, PTRs did not bottom out in the early 1990s before starting to rise again until the turn of the century. More importantly, however, they are isolated from fluctuations in the supply of pupils caused by demographic change. Independent schools have a relatively fixed number of places and, once these are filled, do not have to worry about those pupils without places. State provision, in contrast, must attend to the task of finding places for *all* students, and so sudden changes in the size of yearly cohorts may be reflected in changes in PTRs.

The average PTR in nursery schools followed approximately the same trend as the other sectors, moving steadily downwards over the second half of the twentieth century. It differs, however, in two important respects. The DfES (2002b, pp. 12-13) states that "the reason for the low pupil:teacher ration between 1969 and 1972 was a sharp increase in the number of teachers employed in nursery schools". But whilst this explains the sharp decrease in the nursery PTR from 1969 to 1970 it sheds no light on the *increase* from 1972 to 1973. This seems most likely to be due to changes or errors in the data collection processes in these years.

Average PTRs in English secondary schools increased annually from 15.3 (at its lowest) in 1991 to 17.2 (the highest in 25 years) in 2000, before falling to 16.9 in 2002. However, all of these scores are lower than the highest pupil:teacher ratio in secondary schools,

which was 21.8 pupils for every teacher in 1948. Comparative data collected by the OECD (2000) shows that average secondary PTRs in the UK (16.9) in 1998 were lower than many other developed countries, such as Canada (22.1), New Zealand (21), Korea (22.8) and the Netherlands (18.5).

Figure 2.9 – Teacher vacancies and pupil:teacher ratios in England



Source:

DfEE (2002b) Statistics of Education-Teachers in England

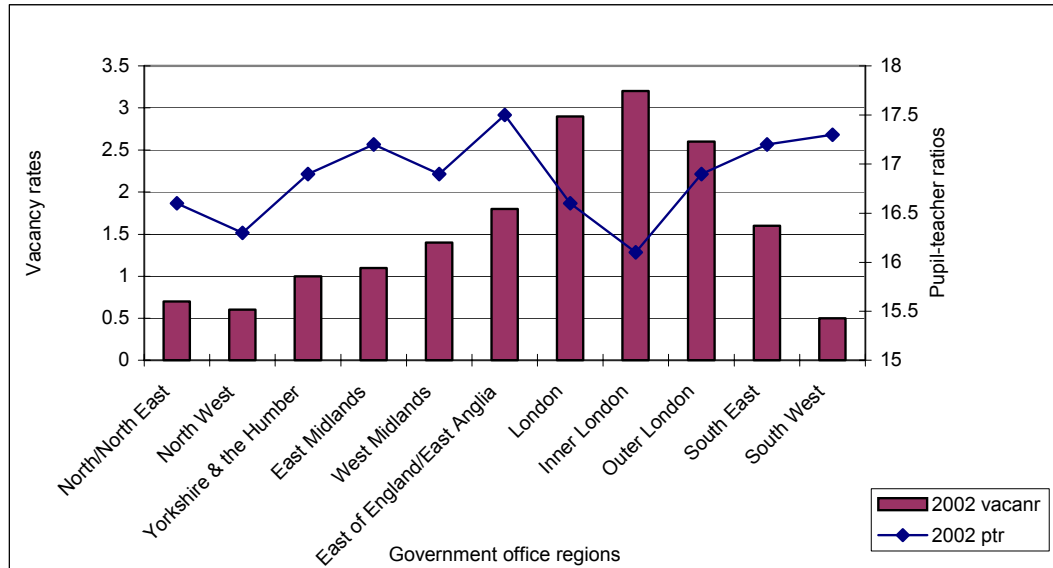
In reality, it is difficult to say when there may be a teacher shortage because the two commonly used indicators of teacher supply (PTRs and teacher vacancies) may not move in the same direction (see Figure 2.9). For example, when teacher vacancies were highest, in 1989 and 1990, PTR was lowest at 15.3 pupils for every teacher (see Figure 2.9). The common perception at that time was that there was a severe teacher shortage, if not a crisis. In contrast, PTRs increased from 15.3 to 16.5 between 1990 and 1995, coinciding with the period of lowest teacher vacancies. Although PTRs were high, the perception was that there was no shortage of teachers.

The long term trend for PTRs has, thus, been downwards. Although PTRs in some sectors have recently begun to increase, the last recorded levels were well below those in comparable developed countries. Also, PTR, like class size, can be subject to policy change independent of teacher supply and demand. In fact, as Figures 2.9 and 2.10 show, it could be used to ameliorate shortages in times of teacher scarcity.

2.4.3 Geographical variation in PTRs

There are also regional variations in teacher vacancies. There were proportionately more vacancies in some areas than others, but these were chiefly in inverse proportion to the local level of operational pupil:teacher ratios (Figure 2.10).

Figure 2.10 – Teacher vacancies and PTRs by regions (2002)



Source: DfEE Statistical First Release (2002)

The 2002 data show that areas with higher teacher vacancy figures, such as Inner and Outer London and the South-east, operate with correspondingly low pupil:teacher ratios, and areas with low teacher vacancies, such as North-east and South-west England, operate with higher ratios.

As PTRs do not necessarily reflect the deployment of teachers within schools (DfES Statistical First Release, 2002c para. 5), some commentators believe that class sizes are a better indicator of teacher shortages. In practice, however, the issue is even more complex because class sizes, like pupil:teacher ratios and vacancies, are not evenly distributed. For example, between 1995 and 2000, Wales experienced an increase in average class size in the secondary sector from 20.2 pupils to 21.0. In England, average class sizes in secondary schools increased from 20.7 pupils in 1990 to 22.2 in 2000, before falling slightly to 22.0 in 2002.

There is also significant regional variation in class size, with Inner London and the South-East having larger class sizes than other areas of the UK. At first glance it seems reasonable to expect these schools to have larger class sizes, because they had been widely accepted as having the highest teacher vacancies and experiencing the most difficulties filling them. Close analysis, however, revealed that these schools had more teachers than schools in other regions (Slater 2002). By contrast, the East of England and the East Midlands had smaller classes than would be expected given the staffing levels. For example, one school had the lowest PTR in the country, but was ranked only 63rd by

class size, whilst a neighbouring school ranked 18th on PTR and 16th on class size. According to the National Association of Schoolmasters/Union of Women Teachers (NASUWT), the gap between class sizes and staffing in similar authorities occurred because 'teachers were doing less teaching and more administration' (Slater 2002). This is clearly an administrative or management issue rather than a policy or demographic problem.

Review of teacher recruitment, supply and retention in Wales

3. Teacher recruitment and retention

Targets

- In Wales, enrolments for undergraduate ITET are generally in line with targets.
- However, PGCE enrolment declined in Wales between 1995 and 2000, while targets increased.
- In Wales, the targets for BEd enrolment were exceeded in every year from 1993 to 1998, but completion rates over this period fell slightly.
- During the same period, the targets for PGCE enrolment in Wales were not always met, but actual and projected completion rates were higher than for BEd students.
- Between 1999/00 and 2000/01 enrolment in Wales in all ITET subject areas either increased or remained constant, with the exception of Drama and Catering.
- In England and Wales, in 2001/02, ITET recruitment did not meet targets in many subjects such as Maths, Science and Languages.
- This was despite a downwards revision of targets for maths and science in 1998 and 1999.
- It is not clear whether targets incorporate an estimate of completion rates.
- It has been suggested that targets are primarily governed by cost factors and economic prospects, rather than demand.
- Targets in England and Wales have been reduced even in years when pupil numbers were rising.
- Regional problems might still exist if targets were met, as the DfEE calculated targets at the national level only. No evidence was found to suggest that practices have since changed.
- ITET recruitment is generally more difficult in periods of high employment.
- In 2002, employers reported a general difficulty in recruiting Maths and Science graduates.
- One limit on ITET recruitment in shortage areas of the curriculum is the number of students studying these subjects at A level and as undergraduates.
- It was estimated, in 2001, that around 40% of all languages graduates would need to enrol in ITET to meet current targets. Similar figures have been quoted for maths and RE.
- There is a growth in numbers of HE students, but an absolute decline in those studying some shortage subjects
- Some commentators suggest there may be a ‘vicious cycle’, with shortage subjects being made less attractive by poor teaching at school level.

Course completion

- In Wales, BEd completion rates varied between 74% and 87% in the years 1993 to 1996. PGCE completions rose and fell between 89% and 93% over the same period.
- In England and Wales in 1999/2000, 17% of PGCE students did not successfully complete their training.
- Over 29% of PGCE completers in England and Wales did not subsequently take teaching posts.
- It was estimated that, in 1999, only 50% of original applicants and 60% of those entering training, in England and Wales, consequently took up teaching posts.
- There is a growth in the number of new entrants to teaching, but a decline in the number of those who return after a career break.
- As a percentage of all entrants to full-time teaching in England and Wales, the proportion of NQTs increased from 46.8% to 61.8% between 1990 and 2000.

Turnover

- 'Turnover' is defined by the School Teachers' Review Body (STRB) as the number of resignations from post.
- Teacher turnover in England and Wales doubled from 1994 to 2001. Most of this represented teachers moving from one LEA school to another.
- In 2000, in England and Wales, turnover was greatest in London at 16.5% (where vacancy rates are therefore higher).
- In the same year, the turnover in Wales was 7.8%, lower than any economic region in England.
- In England and Wales, in 2000, turnover was greater among females (at 13.5%) than males (11.95%).
- Relatively high vacancy rates would be expected at any moment in time, due to teachers moving between posts, making vacancy rates a poor indicator of teacher supply.

'Wastage' rates and retirement

- 'Wastage rate', as defined by the DfES, is misleading, as it includes those moving to the further and higher education sectors, independent schools, and/or to part-time service.
- In England and Wales, between 1990 and 2000, 'wastage rates' between sectors varied in unison. There is no clear explanation for this synchronicity.
- Over this period, wastage was lower in the secondary sector than the primary and nursery sectors.
- In England and Wales, between 8-10% of teachers in service left the profession each year between 1990 and 2000.
- In England and Wales, many (58%) of those leaving the profession in 1999/00 were aged less than 40.
- In England and Wales, between 1994 and 2001, there was a small but increasing flow of teachers to independent schools, overseas, and to other employment.

- In England and Wales, before 1998, the outflow from teaching, for all reasons, exceeded the inflow. Since 1998 this has reversed.
- There were a large number of early retirements in England and Wales in 1997/98, perhaps due to changes in the Teachers' Pension Scheme in April 1997.

Cross-border movement

- In Wales, there has been a small growth in home-domiciled ITET students from 68% in 1996 to 75% in 2000. Most of the remaining trainees come from England.
- From 1993 to 1997 there was a steadily increasing proportion of Welsh-trained teachers finding posts in England.
- More Welsh-trained teachers graduating between 1992 and 1997 found work in the nursery and primary sectors in England than in Wales.
- The proportion of English-domiciled students in HEIs in Wales is generally much greater (>50% in 1997/98) than the 25% in ITET.
- Since the 1970s, migration of teachers into Wales has generally been greater than migration out, but this may involve an ageing population.
- In-migration to Wales has generally greater than out-migration since the mid-1970s, but this may involve an ageing population.

Quality of teachers

- It was reported in 1997 that, in England and Wales, there was considerable variation in entry qualifications to ITET by subject. Trainees in maths and Science tended to have the lowest qualifications.
- In England and Wales, between 1990 and 2000, there has been a growth in PGCE applicants with first and second class degrees (from 82.3% to 91.7%) but this growth is in line with national trends.
- In 2000, concerns were raised in a report to the House of Commons regarding the 'poor' quality of supply teachers.
- Similar concerns were aired, in 1997, regarding the quality of primary school teachers.
- According to a NAHT survey published in 2001, in London 70% of vacancies had been filled by 'inappropriately qualified' teachers.
- In 2002, it was reported that one-thirds of physics teachers in England did not have a physics degree and another third did not even have an A-level in the subject.

Other issues

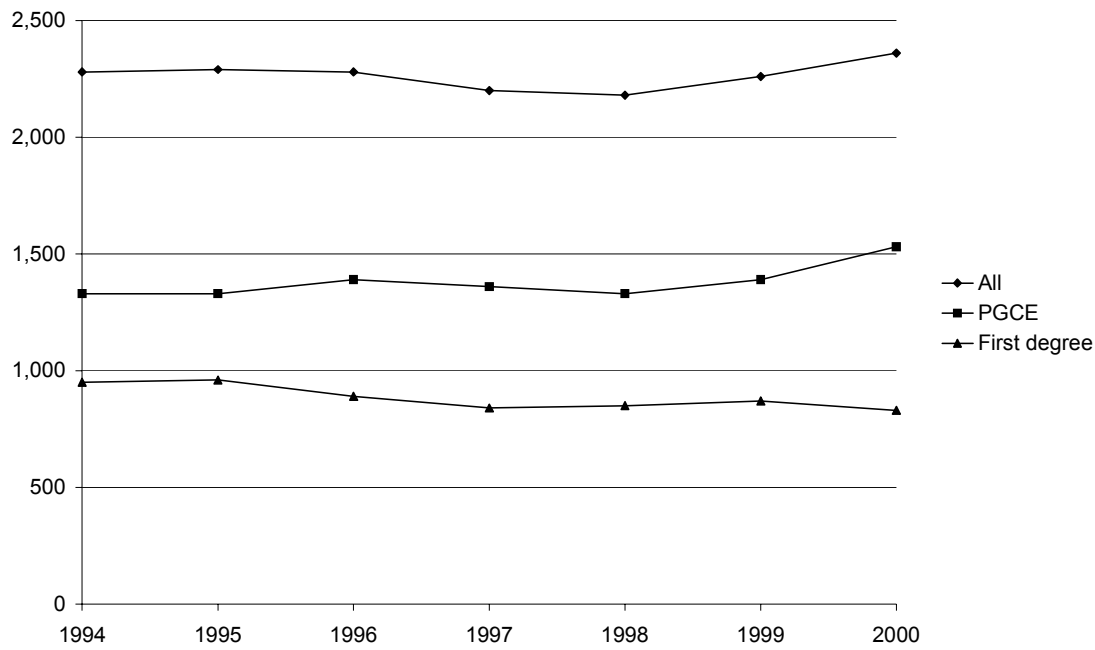
- Between 1985 and 1999 the proportion of female full-time secondary school teachers in England and Wales increased from 46% to 53.4%.
- To redress this imbalance, potential solutions include attracting more men into teaching and attracting more women to study shortage subjects as undergraduates and at A-level.
- In England and Wales, in 2000, the most common age for full-time teachers was 45-54. Very few teachers were aged 55+, perhaps due to early retirement
- In the same year, relatively few teachers were in their 30s.

- The proportion of male and female teachers in their 30s was roughly equal, but in the <25 and 25-29 age groups females far out-numbered males. This is perhaps due to maternity and child-rearing.
- But in 2001 applicants in their 30s were also those least likely to be accepted onto PGCE courses in the UK.
- In Wales, in 2000/01, 2% of the population were from minority ethnic groups, compared to only 1% of ITET students and nearly 4% of first year higher education students.
- None of these ITET students described themselves as belonging to 'black' minority ethnic groups.
- However, the small numbers of students reporting themselves as belonging to minority ethnic groups (n = 20) means that random volatility could easily make this 'snapshot' unrepresentative of longer term trends.
- Also, 420 of the 2360 students gave no information regarding their ethnic origin. It is possible that some of these belonged to minority ethnic groups.
- In Wales, in 2000/01, students with disabilities were also under-represented on ITET courses, at 4% of all trainees. This includes students registered as dyslexic.
- This compares with an estimated 11% of the economically active UK population.
- In 2000/01, 21% of first year ITET students in Wales were following a course leading to the ability to teach in Welsh. This has increased from 11% in 1996/97, nearly doubling in absolute terms (from 260 to 500).
- It reached a peak, however, at 28% (n = 390/2260), in 1998/99, and has since fallen slightly.
- In England, funding per pupil was 10% greater in 1999/2000 than it was in 1995/96. However, between these dates it fluctuated.
- In 1997 it was reported to the House of Commons that increasing funding can lead to the creation of extra posts and, therefore, increased vacancies.
- In England, between 1995 and 2000, there was a strong correlation between the number of schools and the number of teacher vacancies.
- In Wales the number of schools in all sectors remained relatively constant between 1996/97 and 2000/01.

3.1 Recruitment to Initial teacher education and training

3.1.3 ITET in Wales

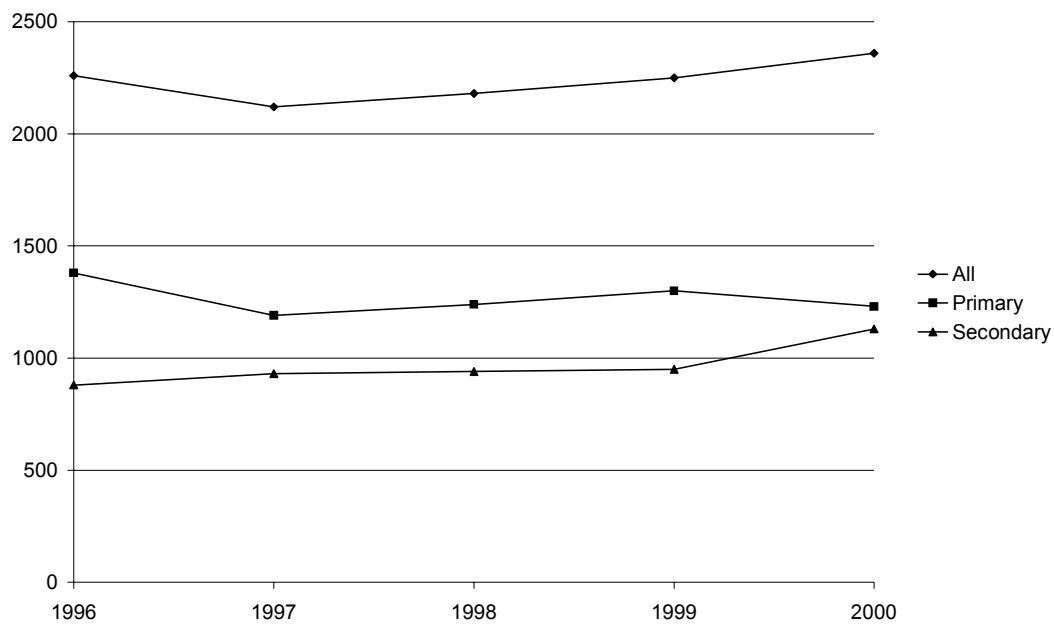
Figure 3.1: Enrolments on ITET by course type, Wales, 1994/95 to 2000/01



Source: NAFW/HESA

Figure 3.1 shows ITET enrolments by course type for the academic years 1994/95 to 2000/01. As can be seen, throughout this period the overall number of enrolments has remained relatively stable, reaching its lowest point of 2,180 in 1998/99 and peaking at 2,360 in 2000/01. However, the concurrent increase in PGCE and decrease in first degree enrolments meant that the proportionate difference between the two routes changed significantly. Whilst in 1994/95 there were 950 enrolments on first degree ITET courses and 1,330 on PGCEs, in 2000/01 there were 1,530 of the latter and only 830 of the former. Thus, first degree students fell from making up 42% to 35% of all ITET enrolments over the period observed. It would seem, then, that there is a slight trend towards training to teach via PGCE courses.

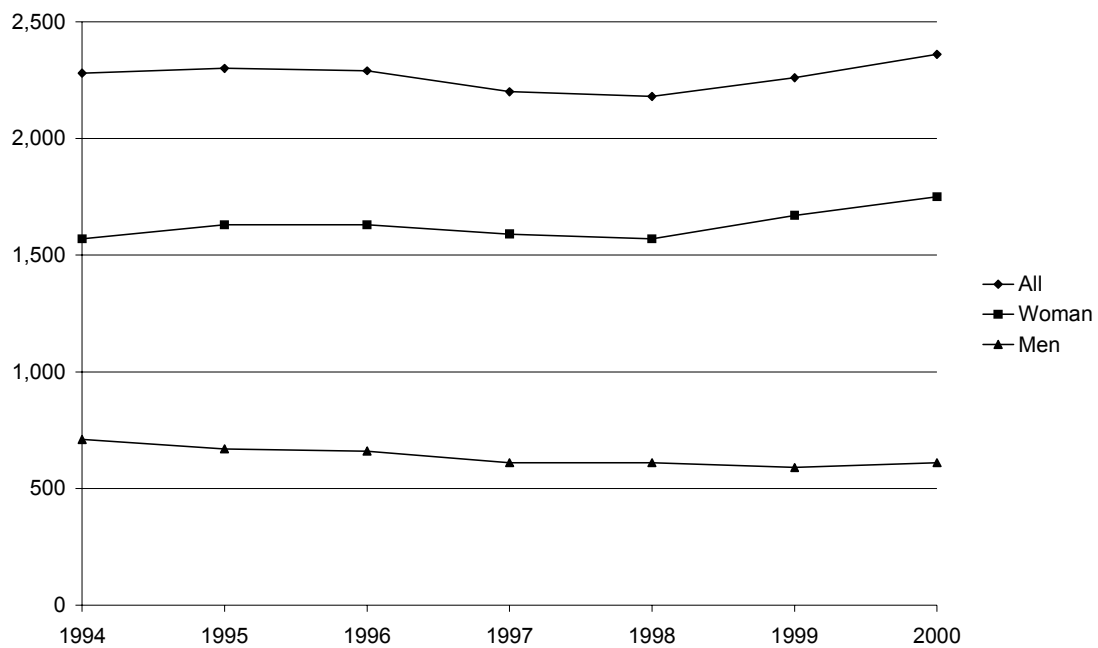
Figure 3.2: First year students on ITET courses by sector, Wales, 1996/97 to 2000/01



Source: HESA

Figure 3.2 demonstrates that, while enrolments on primary ITET courses have consistently been higher than those on secondary courses, the trend over the four year period shown has been of convergence. Whilst in 1996/97 secondary trainees made up less than 39% ($n = 880/2,260$) of all ITET enrolments in that year, by 2000/01 this had increased to nearly 48% ($n = 1130/2,360$).

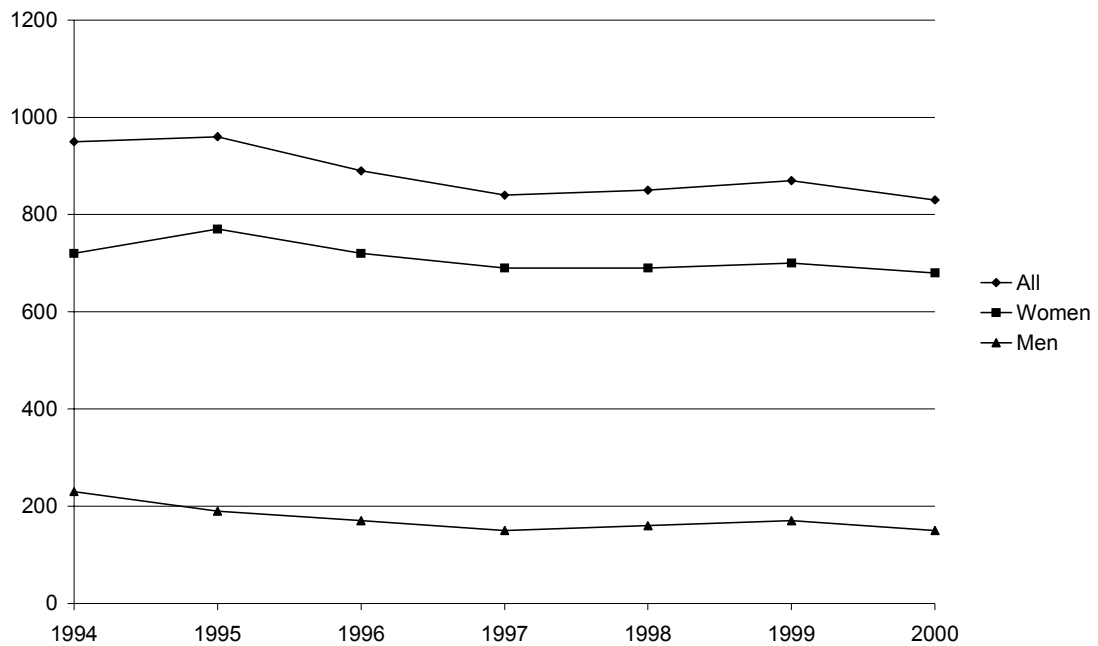
Figure 3.3: Enrolments on ITET courses by sex, Wales, 1994/95 to 2000/01



Source: NAFW/HESA

As Figure 3.3 shows, between 1994/95 and 2000/01, many more women than men enrolled on ITET courses in Wales. In the academic year 2000/01, the last for which data was available, women made up 74% of all enrolments. In absolute terms, there also has been a slight decrease in the number of men enrolling in ITET, with their numbers declining from 710 in 1994/95 to a low of 590 in 1999/00.

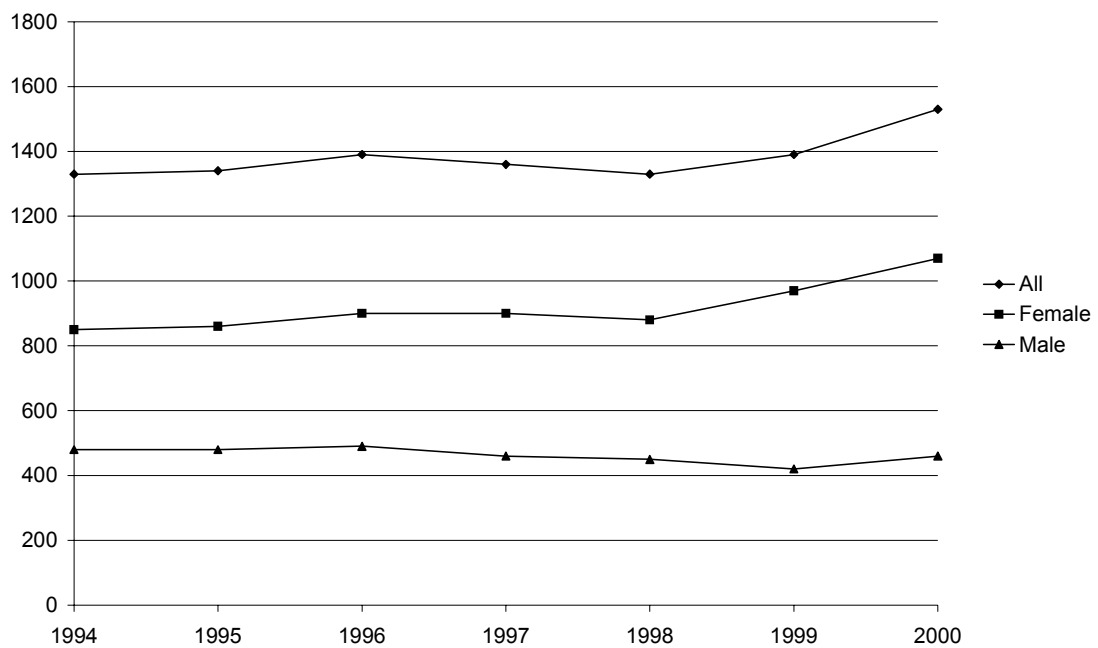
Figure 3.4: Enrolments on first degree ITET courses by sex, Wales, 1994/95 to 2000/01



Source: NafW/HESA

The difference between male and female enrolments is even more pronounced when data on first degree ITET enrolments are examined (Figure 3.4). In 1994/95 men made up almost 25% of enrolments on first degree ITET courses, compared to 18% ($n = 150/830$) in 2000/01.

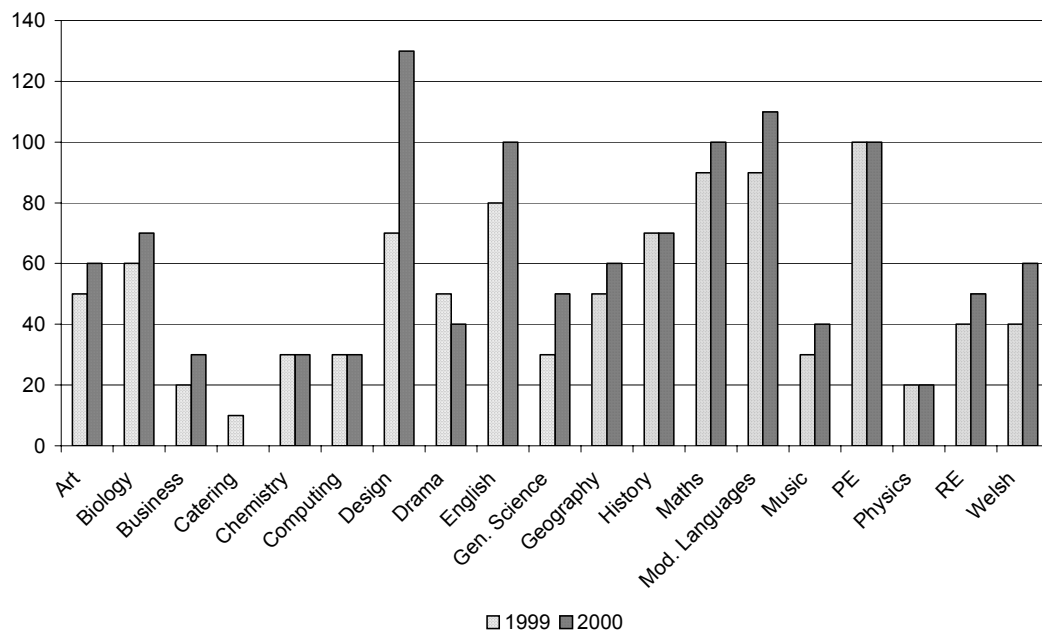
Figure 3.5: Enrolments on PGCE ITET courses by sex, Wales, 1994/95 to 2000/01



Source: N AfW/HESA

The story of PGCE enrolments is slightly different (Figure 3.5). Whilst the proportion of men only decreased very slightly each year between 1994/95 and 1998/99 (from 36% to 34%), it fell to 30% in 1999/00 and remained constant for a year. This is only a small change, but could be the beginning of a longer term trend, caused largely by an increase in female trainees.

Figure 3.6: First year students on secondary ITET courses by subject, Wales, 1999/00 to 2000/01



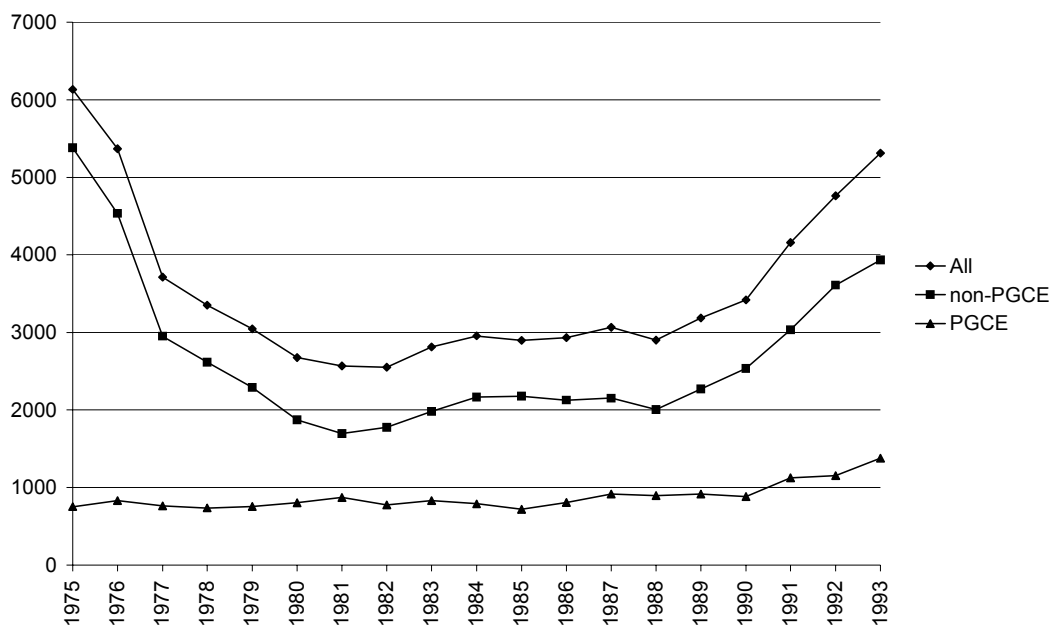
Source: HESA

When individual subjects are examined, it is clear that, from 1999/00 to 2000/01, enrolment increased or remained constant in most areas of the curriculum. The exceptions to this were drama and catering, which experienced a loss in recruitment. All shortage subjects either increased or maintained their enrolment.

Data from HESA, then, shows the following trends in ITET enrolments in Wales. Enrolments on ITET remained relatively stable between 1994/95 and 2000/01, but there was a small proportional swing to postgraduate training. Many more women than men enrolled on ITET courses and this imbalance was greatest on first degree ITET courses. Slightly more students trained to teach in the primary than secondary sector although, over the period studied, the proportions training in the two sectors was converging. In the secondary sector, between 1999/00 and 2000/01, the number of trainees in shortage subjects either increased or remained constant. Only enrolments to teach drama and catering declined.

The data examined up to this point in this section were retrieved from the NAFW 'Statistics Wales' website and HESA was acknowledged as the source. However, other data were also located on the site accredited to the 'Digest of Welsh Statistics' (DWS). The data examined below caused confusion as, although only covering the period up to and including 1993/94, they did not appear compatible or comparable with the HESA data examined above. The DWS data was summarised in several ways and are discussed directly below.

Figure 3.7: Enrolments on full-time ITET by course type, Wales, 1975/76 to 1993/94

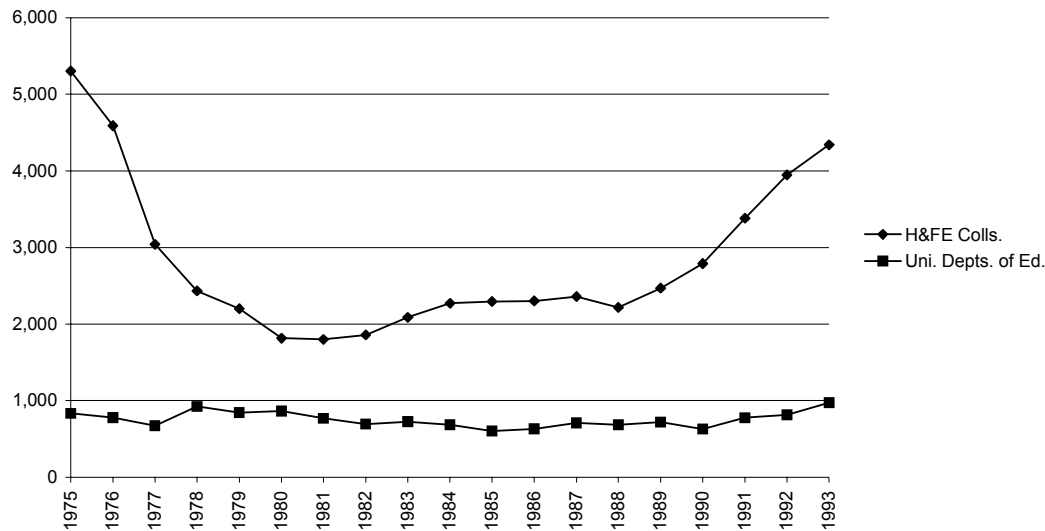


Source: Digest of Welsh Statistics, various years.

In Figure 3.7, data on ITET enrolments from 1975/76 to 1993/94 are disaggregated by course type. When data on PGCE enrolments from 1993/94 are compared with the next year's data (see Figure 3.1) no inconsistencies are apparent. DWS data shows that there were 1379 PGCE enrolments in 1993/94 and HESA data (Figure 3.4) recorded 1330 PGCE enrolments in the following year. These figures are perfectly plausible and, although the trend in the preceding years was a year-on-year rise, it is possible that enrolments peaked in 1993/94 before beginning to fall.

However, when the DWS data on 'other ITET' enrolments is examined, inconsistencies arise. For example, in 1993/94, the DWS reported 3,935 enrolments on ITET courses other than PGCEs. The equivalent HESA figure is 830 enrolments on first degree ITET courses (Figure 3.4). This is clearly incommensurate, as are the figures for all ITET enrolments (DWS = 5,314, HESA = 2,360). The DWS data specifies that the figures are for full-time courses only, precluding the possibility of part-time enrolments as being the basis for the mismatch.

Figure 3.8: Enrolments on full-time ITET by institution type, Wales, 1975/76 to 1993/94



Source: Digest of Welsh Statistics, various years.

Figure 3.8 shows the DWS enrolment data disaggregated by institution type. This representation of the data does little to resolve the inconsistencies, however. According to DWS data, the total number of ITET enrolments in both university departments of education, and further and higher education colleges in Wales was 5,134 in 1993/94 (Figure 3.1). HESA data for the following year recorded 2,360 enrolments. Given the nature of the trends observed in Figure 3.6, such a dramatic fall appears unlikely and it is, therefore, unlikely that the DWS and HESA data are measuring the same phenomenon.

The number of ITET enrolments in university departments of education (only) recorded by DWS does not convincingly link up with the total number of ITET enrolments registered by HESA, either, ruling out the possibility that the latter data set applies only to universities. DWS data for 1993/94 recorded 974 enrolments in university departments of education, while HESA data for the following year recorded a total of 2,280. Such a dramatic rise over the course of only one year seems highly unlikely.

One possible explanation is that HESA data includes ITET enrolments in universities and colleges of higher education but excludes full-time enrolments in further education institutions. It is not possible to confirm this by combining the two data sets as they cover different time periods, but the following estimate can be made.

It can be calculated from HESA data that the average (mean) enrolment number on full-time ITET courses between 1994/95 and 2000/01 was 2,264. If this figure is used as an estimate of 1993/94 enrolments, it can then be compared with the DWS data shown in Figure 3.8. The DWS recorded 974 ITET enrolments in university departments of

education and 4,340 in colleges of further and higher education. If the above thesis regarding the two data sets is correct it would mean that, in this year, 974 students enrolled on ITET courses in universities, 1,290 (2,264 - 974) enrolled in higher education colleges, and 3,050 (4,340 - 1,290) enrolled in further education colleges. Although this is only an estimated figure, arrived at through the manipulation of the two data sets, it would seem that this is an extremely high number (not to mention *proportion*) of ITET places in the FE sector.

Another possibility is that the reclassification of higher education institutions, implemented as part of the 1992 Further and Higher Education Act, affected the composition of the categories. Many former polytechnics and institutes of higher education were granted university status as a consequence of this legislation. Thus, if all the ITET enrolments in (formerly) non-university HEIs in the DWS data were subsequently counted in the HESA data, alongside enrolments in university departments of education, the total number of enrolments would be 2,264 (974 + 1,290). This compares to the HESA recorded total of 2,280, making this explanation at least plausible.

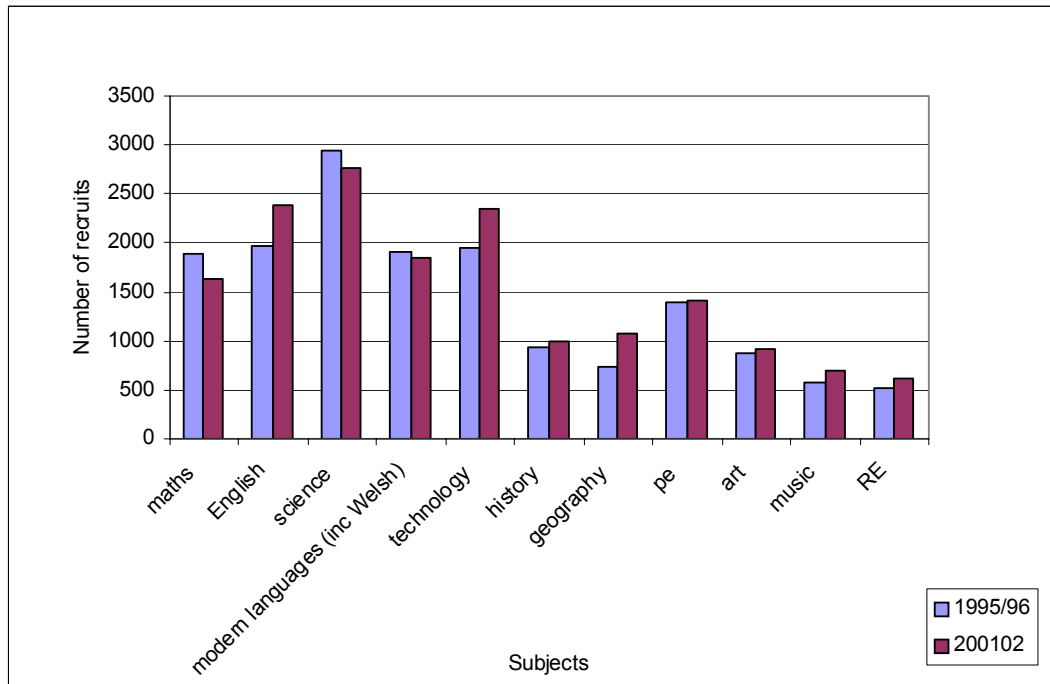
However, what is not clear is the large number of enrolments unaccounted for in this calculation. There are few, if any, full-time ITET courses in further education (FE) colleges – certainly not nearly enough to account for 3,050 enrolments. One possibility is that, contrary to the labelling of the data set, part-time ITET enrolments have been included from FE colleges (and/or other types of institution).

This, then, is an example of the problems with comparing data sets from different sources. Although some inconsistencies can be resolved, this is not always the case. Further problems with data are discussed in Appendix B. As HESA data is available for most of the 1990s, this problem did not significantly disrupt any conclusions relating to recent trends.

3.1.2 Secondary ITET in England and Wales

Between 1995 and 2001 secondary ITET recruitment declined for maths, science and modern languages in England and Wales. Technology showed the most impressive improvement in recruitment over this period (Figure 3.9). Although there was an increase in ITET recruitment in maths and science between 2000 and 2001, they were still below the 1995 figures.

Figure 3.9 – ITET recruitment in England and Wales (1995 and 2001)

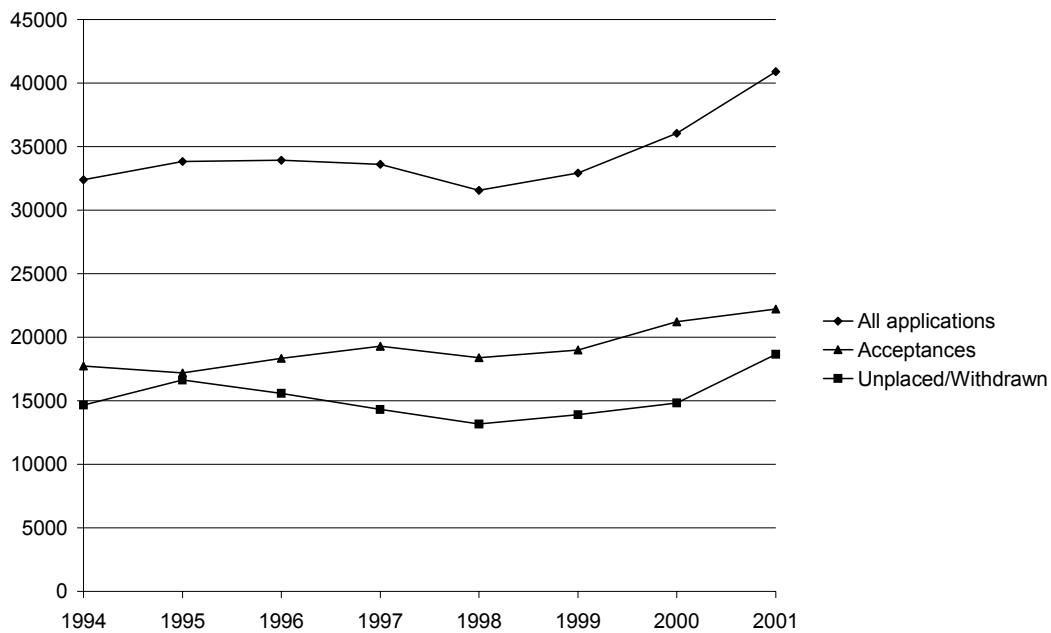


Source: School Teachers' Review Body (1999, 2000a, 2000b, 2001, 2002)

3.1.3 ITET in the United Kingdom

In addition to undergraduate students completing BEd degrees, postgraduate students with Post Graduate Certificate of Education (PGCE) qualifications constitute a significant proportion of entrants to the teaching profession. The Graduate Teacher Training Registry (GTTR), which administers applications to PGCE courses, provides data relating to applicants, including aspects of their social background and success rates in gaining places on courses.

Figure 3.10 Post-graduate ITET applications UK, by outcome



Source: Adapted from GTTR 2001, 2002.

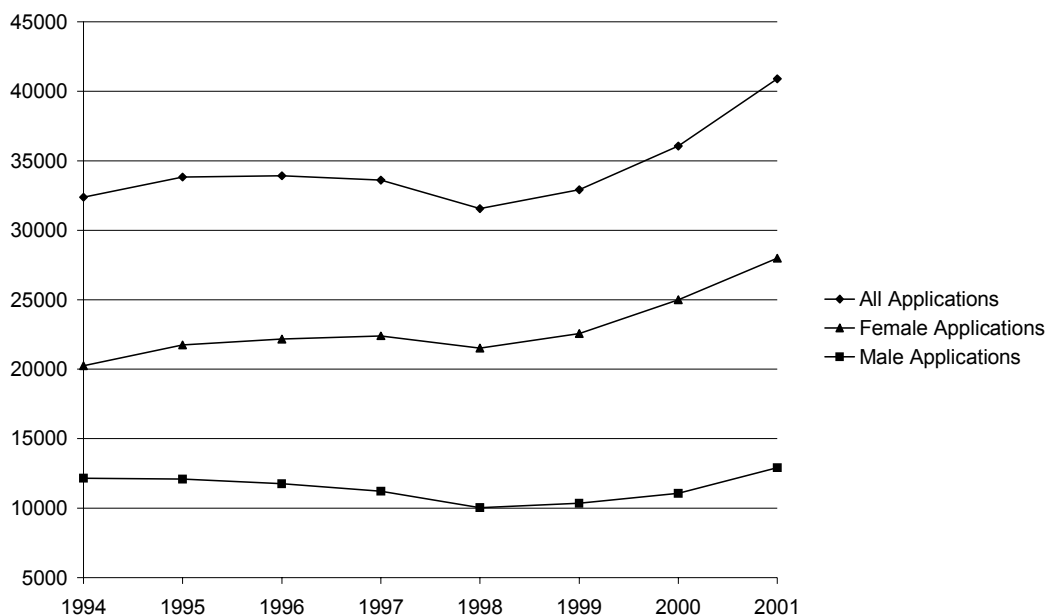
Figure 3.10 shows applications for PGCE courses in the UK, for the years 1994 to 2001. This first important point is that between these years both applications and acceptances have experienced a net gain. Applications rose from 32,389 in 1994 to 40,895 in 2001, although their lowest point was in 1998, when only 31,555 were received. However, there was no consistent trend during that time. After rising by 1,442 (4.5%) from 1994 to 1995 they remained almost static for a year before falling for the next two years, first very slightly ($n = -338$ or -1%) and then, in 1998, more sharply ($n = -2057$ or -6%). Following this drop, however, are three consecutive years of increases in the number of applications, the absolute rate of increase rising each year.

Table 3.1 - Percentage of accepted applicants

year	1994	1995	1996	1997	1998	1999	2000	2001
apps.	32389	33831	33920	33612	31555	32914	36065	40895
accept.	17733	17209	18332	19297	18394	19007	21230	22223
% acc	55	51	54	57	58	58	59	54

Source: Adapted from GTTR (2001, 2002)

In the same period (1994 to 2001), acceptances rose from 17,733 to 22,223 with the lowest point being 17,209 in 1995. As can be seen in Table 3.1, they do not appear to follow a particular trend, nor are they related to the total number of applications. In the period studied, acceptance rates remained between 51% and 59%, ending up, in 2001, 1% lower than the 1994 rate.

Figure 3.11 – Post-graduate ITET applications by sex, UK, 1994 to 2000

Source: adapted from GTTR (2001, 2002)

Examining the rates of applications disaggregated by sex reveals that, at the UK level, many more female than male students apply to take PGCE courses. In 1994, for example, 20,236 applications were made by females compared to only 12,153 by males. As can be seen in Figure 3.11, the trends in applications by both males and females approximately correspond to the overall pattern of applications. Although there are slight discrepancies, all three lines follow a similar pattern over an eight year period. This suggests that there were no major changes in the proportions of male and female students submitting applications to PCGE courses in these years.

Table 3.2 reveals that, when the relative proportions of male and female applications are calculated, the percentage of female applications increased from 62% in 1994 to 68% in

2001. Between 1994 and 1999 the proportion of female applicants increased each year, reaching a maximum of 69%. Thus, in addition to the general trend of a rise in applications over the period studied, it is also the case that the *proportion* of female applicants rose slightly. This trend, relatively small in scale as it is, is actually more steady than the change in application rates overall, which although upward, fluctuated over the eight year period examined.

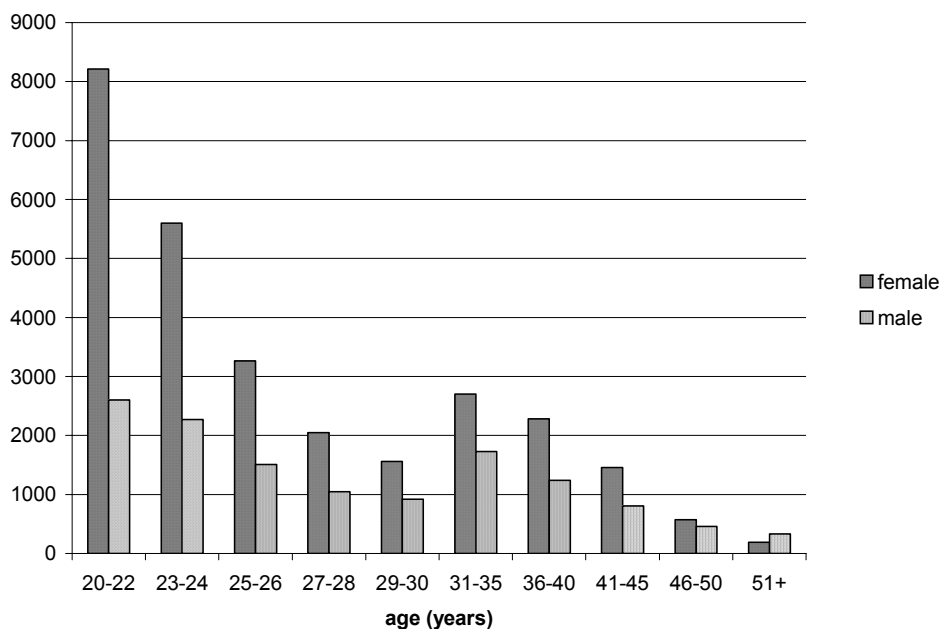
Table 3.2 - Percentage of female PGCE applicants (UK)

year	1994	1995	1996	1997	1998	1999	2000	2001
All	32389	33831	33920	33612	31555	32914	36065	40895
female	20236	21741	22176	22400	21523	22564	25009	27989
fem %	62	64	65	67	68	69	69	68

Source: GTTR (2001, 2002)

Figure 3.12 shows PGCE applicants disaggregated by sex and age, for the most up-to-date year available (2001). However, before any analysis of the data is undertaken, the limitations of the mode of presentation should be highlighted. The chart below was constructed from GTTR data (GTTR 2001, 2002) that had already been divided into seemingly arbitrary and, most importantly, *unequal* age categories. For example, whilst the first category covers the three years from 20 to 22, the next three categories each only contain applicants born in two different years (e.g. 23-24). There is no explanation for why ages have been grouped at all, nor a theoretical justification for placement of the divisions where they are.

Figure 3.12 – Post-graduate ITET applicants 2001 (UK), by age and sex



Source: GTTR (2001, 2002)

At every age category apart from '51+', female applicants significantly out-numbered males. In all categories from '20-22' to '29-30' the proportional difference between the two sexes decreases from one age category to the next. This can be confirmed by calculating the relative proportions from the original data set, the results of which can be seen in Table 3.3, below.

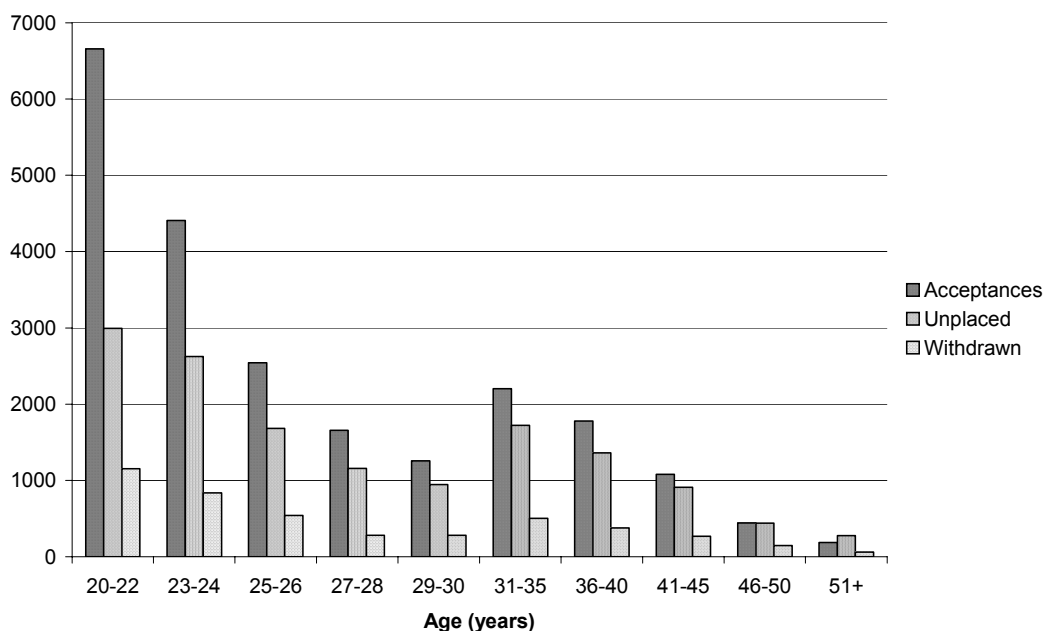
Table 3.3 - Percentage of female PGCE applicants, by age category (UK: 2001)

age	20-22	23-24	25-26	27-28	29-30	31-35	36-40	41-45	46-50	51+
apps.	10179	6883	4145	2854	2044	3807	3057	1905	804	387
F	7804	5012	2874	1843	1274	2386	2055	1174	431	156
% F	77	73	69	65	62	63	67	62	54	40

Source: GTTR (2001, 2002)

Figure 3.13 confirms that the sex balance of applicants becomes progressively more equal from the first category (20-22) until the fifth (29-30). However, the *absolute* number of applicants (of both sexes) also decreases with each advance to the next age category. This means that the impact of the sex balance on total application numbers *decreases* with advancing age. The most important age categories in terms of teacher supply are, therefore, the first three (20-22, 23-24 and 25-26) as they account for 21,207, or 59%, of all applicants, and it is in these three age categories where there is the greatest imbalance. In fact, female applicants from these youngest three categories combined (20 to 26 years) account for 15,690 or 44% of *all* applicants for 2001.

Figure 3.13 – Post-graduate ITET applicants 2001 (UK), by age and outcome



Source: GTTR (2002)

It appears that younger applicants not only account for a disproportionate number of applications but also have a more favourable *acceptance* rate. This has implications for any strategies aimed at ameliorating short-term imbalances in the age profile of the teaching profession.

Although, as mentioned previously, caution must be exercised when analysing these data (because of the unequal width of the age groupings used) there is an aspect of the data that is worthy of further comment. If the '31-35' and '36-40' age groups are examined, it appears that there is a substantial number of applicants in their thirties. However, it must be taken into consideration that these two age groups include a total of *five* years each, whilst most of those preceding then only contain *two*. Nevertheless, it is important to note that of 5954 applicants in these two age groups (not counting those who withdrew) 2273 did not get allocated PGCE places, considering that it is teachers of this precisely age who are under-represented in the profession as a whole.

Figures for ITET First Degree courses were not available but, as PGCE courses are usually available only to graduates, it may be the case that any age discrimination, if it is taking place, would be felt less on post-graduate courses, where the entry age is by necessity at least three years higher than for First Degrees. Policy makers wishing to increase the number of teachers in the maintained sector may be advised to investigate the (low) acceptance rates for applicants of this age on PGCE courses, and also to examine comparable data for ITET First Degree courses.

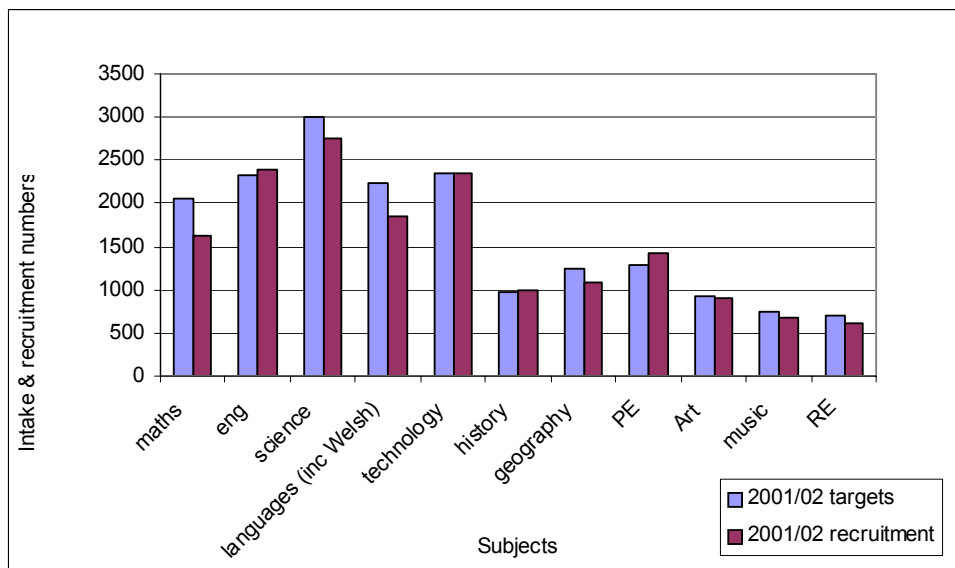
It may be the case that, for example, older applicants tend generally to have lower qualifications or less desirable *curricula vitae* than younger ones. However, this may have more to do with historical circumstances than suitability for teacher training. Indeed, higher education institutions often apply different entry criteria to mature applicants wishing to study on undergraduate courses. If policy makers wish to redress the imbalanced age profile of the teaching population, a thorough investigation into this issue would be a good place to start.

3.2 Recruitment targets

3.2.1 Targets in England and Wales

Another indication of success (or otherwise) in teacher recruitment is the extent to which the government's targets are met (House of Commons 1997, Vol. I, para. 13). In 2001/02 recruitment showed a significant improvement on the previous academic year. Recruitment rose in all subjects with the exception of Welsh, art and religious education (STRB 2002). However, for most subjects the intake was still below the targets (see Figure 3.14).

Figure 3.14 – ITET recruitment and intake targets, England and Wales, 2001/02

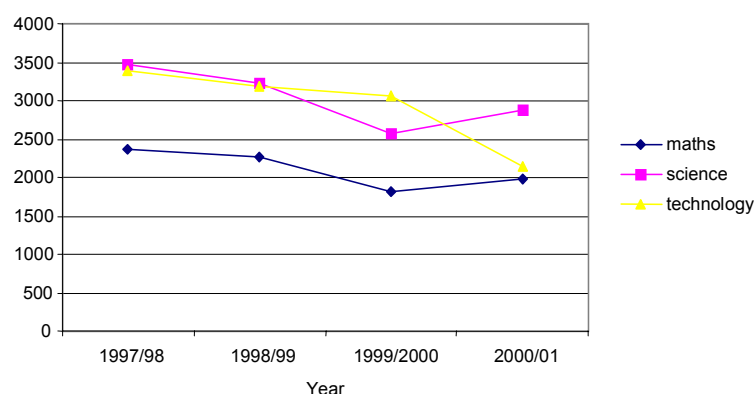


Source:

School Teachers' Review Body (2002)

The intake targets for maths, science and technology had previously been revised downwards, even though vacancies for these subjects had been increasing. In maths, for example, the target was reduced from 2,700 in 1996 to 1,691 in 1997. This represented a drop of approximately 40%, even though only 65.6% of the target was met in 1996. In 1997, despite the huge reduction, only 62.9% of the revised target was met. It was not until 2000 that intake targets for these subjects were raised (Figure 3.15).

Figure 3.15 – ITET intake targets for maths, science and technology, England and Wales, 1997/98 to 200/01



Sources

: Intake targets – National Assembly for Wales and DfEE

The reduction in intake targets were implemented against the backdrop of an increasing student population in secondary schools, rising pupil:teacher ratios and increased teacher vacancies. The number of full-time equivalent (FTE) pupils in secondary maintained schools in England and Wales had risen from 3.24 million in 1997 to 3.5 million in 2002 (STRB 2002). DfEE and Welsh Office projections show that the number is likely to increase to 3.56 million by the year 2005 (School Teachers' Review Body, 2001).

There are also important questions about how intake targets were set, even though DfEE had published an explanatory paper on the model and assumptions they used in setting targets. There were suggestions that the targets were actually based upon how many new teachers could be afforded, rather than on actual demand (House of Commons 1997a, 1997b).

The massive reduction of targets in 1996 and 1997, in the face of rising pupil numbers, was seen by some as indicative of the lack of government confidence in increasing the number of teachers. In reality, however, this reduction was an effort to undo the 'mistake' made in 1995 where there was an unexplained, and perhaps unwarranted, upward revision of targets (House of Commons 1997a, Vol. I, para15). The indicative targets for 1997, issued in 1994, appeared to be in line with the long-term trend. If the long-term projection for 1997 had been considered there might not have been the controversial reduction in targets in 1996 and 1997.

Taken in perspective, however, the scale of the targets appear challenging. To achieve the PGCE secondary maths intake target for 2001/02, for example, would mean recruiting nearly half of all maths students graduating in 2001 (STRB 2001). According to the then Secretary of State for Education, four out of ten maths graduates would need to become teachers if existing training targets were to be met, and to aim higher might not be practicable (Howson 2001a, 2001b). Similarly, to meet PGCE targets in modern foreign languages and RE, over 40% of the UK graduate output in these subjects would be

needed each year (Schoolsnet 2001). So the problem is more than the perceived unattractiveness of teaching as a career or poor pay, for example. The issue is that the number of people being taught to graduate level in these shortage subjects is relatively low. Taking into account the fact that the teaching profession must compete with other industries recruiting graduates, the number entering ITET in recent years might be considered to be healthy. According to the Teachers' Training Agency (TTA), more than two-thirds of employers had difficulty recruiting graduates of the right calibre between 2000 and 2001 (STRB 2002). The problem was particularly acute among organisations recruiting maths and science graduates. It would seem, then, that the teaching profession might not be experiencing specific recruitment difficulties, but only those affecting graduate employers more widely.

According to the Higher Education Statistics Agency (HESA), between 1997 and 2001 the number of graduates (including postgraduates, first degree and other undergraduates) increased from 431.9 thousand to 470.3 thousand (an increase of 8.9%). Graduations from the physical sciences, engineering and technology, in contrast, declined by approximately 10%, while mathematical science graduates showed an increase of 10% during the same period (from 5,000 in 1997 to 5,500 in 2001). There are several issues here. One is that the number of graduates in shortage subjects is not increasing fast enough to cope with the increasing demands of the labour market in general. The second is the reluctance of these graduates to go into teaching, and the third is the difficulty in getting students to opt for these subjects at higher levels in school and university.

In a report reviewing the supply of scientists for the Treasury, it was found that school children had greater difficulty in getting high marks in science and maths than for other subjects (Canovan 2002). One of the reasons was the 'parlous state' of science teaching in schools described in the report. The report also found that, to protect their league table positions, some schools were discouraging their students from doing 'hard' science subjects at A-level. In the words of the House of Commons science and technology committee' chairman: 'School science can be so boring it puts young people off science for life. The committee also remarked that GCSE coursework was 'boring and pointless' and 'stultifying'. It added that 'it kills the interest which may have been kindled at primary school' (Canovan, 2002, p. 6). This may contribute to a spiral effect because if science teaching was not up to standard, the number of students going on to do science at A-level or degree level might decline. With fewer graduates in a competitive job market, the proportion going into teaching with good degree results is likely to be affected.

Some have argued that recruitment to PGCE courses is closely related to the peaks and troughs in new graduate unemployment, and that the current teacher supply 'crisis' is due to high employment in the economy making it difficult to recruit graduates (Schoolsnet 2001). However, even if overall teaching recruitment targets were met, there would still be shortages in some regions. This is because the DfEE (as it then was) did not take into consideration regional differences in its calculation of recruitment targets. According to the DfEE 'the number of teachers needed, minus the number in post and those known to be returning to teaching, will give the number to be trained nationally' (Dean 2000a, p. 4). A report by the Education Management Information Exchange at the National

Foundation for Educational Research (NFER) suggested this calculus might be partly responsible for the continued teacher shortages in some regions because 'such a view seems to assume that those trained teachers will fill automatically the teaching vacancies wherever they appear. The regional data suggest otherwise' (Dean 2000b).

3.3 Completion rates

3.3.1 Completion rates in Wales

The last Departmental Report published by the Welsh Office contains information relating to teacher training enrolments from the years 1993 to 1998. In addition to the number of yearly enrolments on undergraduate and postgraduate courses, it includes the corresponding intake targets for both types of course for each year. Data is also provided on the percentage of trainees successfully graduating in each year.

It must be noted, however, that this 'completion rate' refers to the graduating year group and *not* to the cohort *starting* the course that year. So, for example, the enrolment of 1350 students on PGCE courses in Wales in 1994 and the corresponding completion rate of 92% *does not* mean that 92% of those 1350 students graduated. It signifies that, as PGCE courses usually last for one year, 93% of those first enrolling *the previous year*, 1993, successfully completed the course in 1994. Thus the number of students first enrolled in 1993 (n=1273) and the completion rate in 1994 (93%) can be used to calculate the number of students successfully graduating in 1994 (n=1184).

Although the 'completion rates' refer to cohorts of trainees enrolling in earlier years, it is nevertheless useful information. One possible use of the data would be to calculate the number of trainees successfully graduating each year, using the method described directly above.

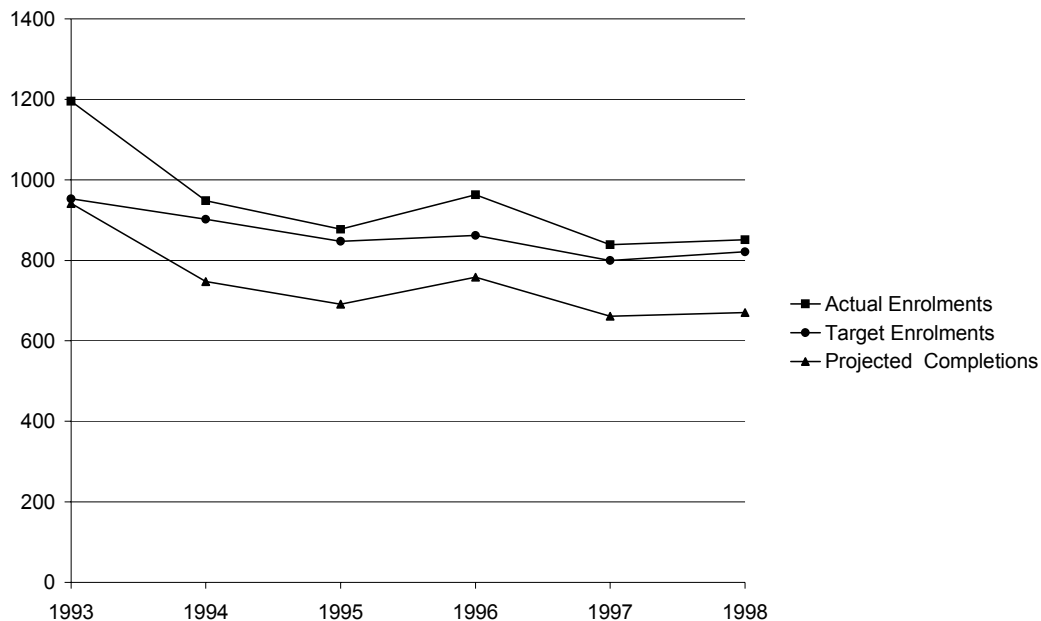
There are, however, several problems with this approach. Firstly, as only four years of 'completion rates', from 1993 to 1996, are available (and the last of those is labelled as 'provisional') the successful number of graduates could only be calculated for three years. Secondly, it is not made explicit whether it also includes enrolments and graduates from part-time courses. As part-time courses are longer, usually at least two years in duration, the 'completion rates' could not be matched to enrolment years with any confidence.

These problems are exacerbated when the data on BEd enrolments and completions are examined. Here, again, only three years of data relating to completions are provided. As we know that BEd courses last between two and four years, these figures could not be mapped accurately against the relevant year of enrolment. This raises the same problem as mentioned in relation to the data for students on PGCEs. And, again, there is the same question regarding part-time students.

In light of the above problems, it was decided that the most useful way to use the data was to calculate the mean completion rate for the years in which data was available. Although this would result in no actual numbers of completions being produced from enrolment figures, the problems discussed above meant that few such calculations would

be possible with the available data, and that even these could not be relied upon. However, what such a strategy *would* enable is the calculation of 'projected' completion rates, based on the average completion rate of trainees graduating in the years from 1993 to 1996. This 'mean completion rate' could then be used to anticipate the number of successful graduates for all years for which there is enrolment data, including 1997 and 1998, but where data on completion rates is not provided. The resulting data, separated by course type, is shown in Figures 3.16 to 3.18 and Table 3.4.

Figure 3.16 – Target and actual BEd enrolment, and completion rates, Wales, 1993 to 1998

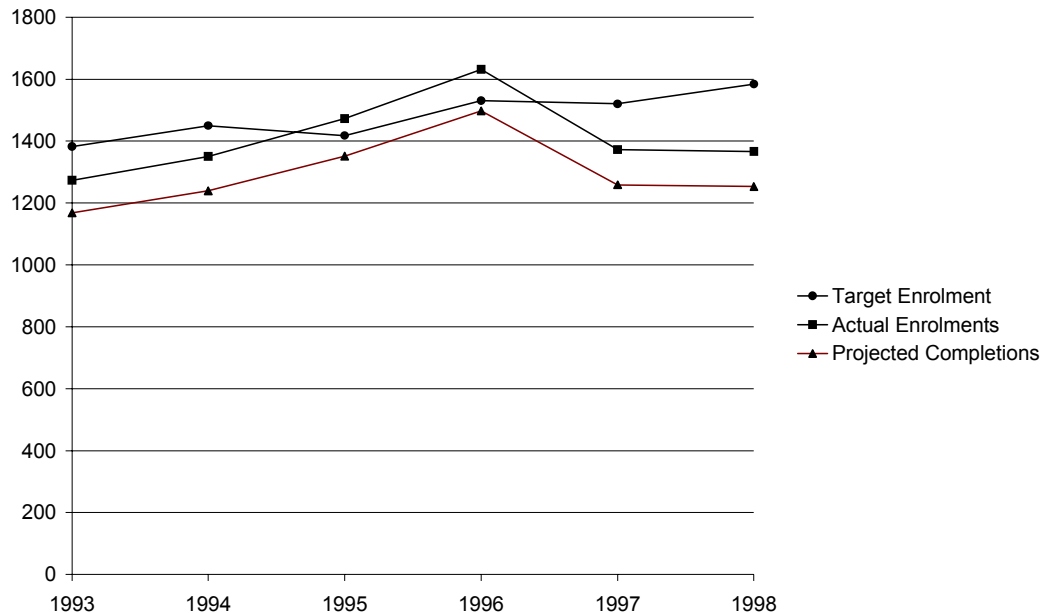


Adapted from: Welsh Office (1999, p. 73)

1. Based on mean completion rate from 1993 to 1996 (78.75%)

As can be seen, enrolment on BEd courses exceeded enrolment targets in every year from 1993 to 1998. Also, the general trend for both targets and actual enrolments appears to be downward. Only once, in 1993, does the number of trainees expected to graduate in each year (based on the mean completion rate of 78.75% from 1993 to 1998) come close to the enrolment targets set in that year. However, even ignoring the fact that these are projected rather than actual completion numbers, it is possible that enrolment targets are set with an expected 'drop-out' rate already factored into the equation and such a shortfall may be expected. Indeed, any targets must account for trainee attrition, if they are to be effective. It is not clear whether this is the case, as no information on target setting procedures could be located.

Figure 3.17 – Target and actual PGCE enrolment, and completion rates, Wales, 1993 to 1998



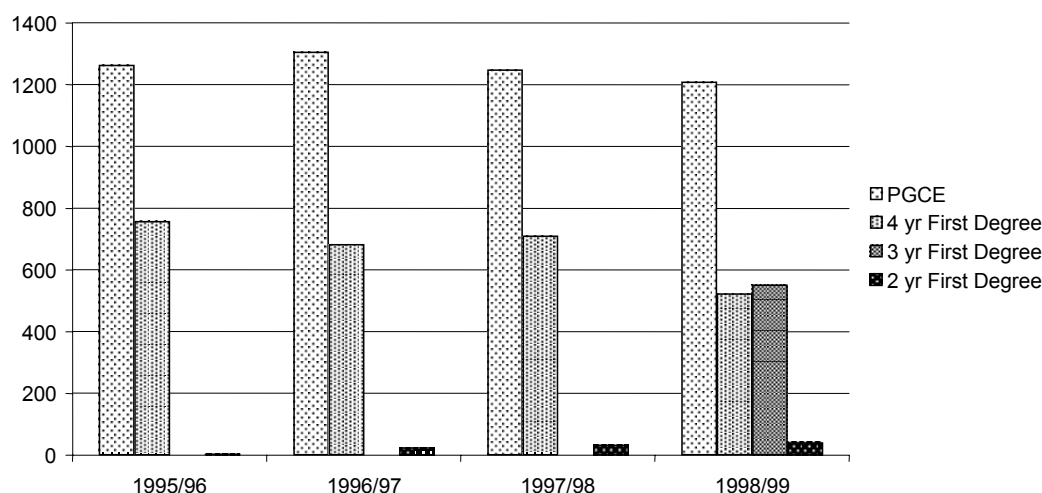
Adapted from: Welsh Office (1999, p. 73)

1. Based on mean completion rate from 1993 to 1996 (78.75%)

In contrast to enrolments on BEd courses, PGCE enrolments only exceeded the targets in two (1995 and 1996) out of the six years shown in Figure 3.15. However, the completion rates were higher than for BEd courses and, with proportionally more trainees graduating, the number of projected graduations almost equalled the target enrolment figures in the same two years. But in the remaining four years graduations were far below enrolment targets, by as much as 331 in 1998. The trend from 1996 to 1998 suggests a widening shortfall between target enrolments and projected completions and the unabated continuation of this trend could be a cause for concern. However, as with the BEd data, clear conclusions are difficult to draw from a comparison of these two measures.

This, again, raises questions regarding how enrolment targets are set. Do they, for example, anticipate a proportion of students withdrawing after initially accepting a place or enrolling but not successfully completing their training? Alternatively, are they premised on a 100% completion rate? And, either way, what formula are they based upon?

Figure 3.18 – Students successfully completing full-time ITET courses, by qualification in Wales 1995/96-1998/99



Source: HESA/ National Statistics SDB 81/2000

Note: Three year courses for ITET first degree, leading to QTS, were introduced in 1996/97

From an examination of data on ITET completions in Wales, it is clear that, as is the case with enrolments, PGCE trainees significantly outnumber undergraduate ITET students. As was discussed earlier, PGCE students have the higher completion rate, making the difference between the number of completions in the two groups even more pronounced. It is interesting to note, however, that in 1998/99, the first year in which students graduated from two-year BEd courses, the total number of undergraduate completions was much higher than the previous year. So, instead of displacing students on three year courses, the introduction of two-year BEds lead to an overall increase in the number of undergraduate trainees. However, because every year a large number of ITET applicants are unsuccessful, increases of this type may be the consequence of higher enrolment targets or the creation of extra training places, rather than being indicative of greater interest amongst potential recruits to the profession.

Table 3.4 - PGCE and BEd completion rates (%), Wales 1993 to 1996

Course/Year	1993	1994	1995	1996
PGCE	93	92	93	89
BEd	74	87	80	74

Source: Welsh Office (1999, p. 73)

The actual completion rates, measured in terms of the number of trainees graduating each year, as a proportion of the cohort enrolling on the course, are shown in Table 3.5. The rate for trainees on PGCE courses is consistently higher than those on BEd courses. There could be a number of explanations for this, the most obvious being the relative

length of the two types of course. It could also be that, as entrants to a PGCE course have already completed an undergraduate degree, individuals with a propensity to drop out of higher education courses will not have reached the application stage for this type of training. Whatever the explanation, the differential completion rates has implications for both target-setting and for planning teacher recruitment more generally. However, as there are proportionally more PGCE students, the *overall* completion rate is closer to the postgraduate than it is to the undergraduate rate.

3.4 Wastage rates

The number of teachers who leave the service include those who retire, those who resign due to ill-health, to seek alternative employment, to look after young children or for other reasons. This includes both 'wastage' and 'turnover' rates. The definitions adopted here are those used by the School Teachers' Review Body (STRB 2002). Wastage is defined as teachers who leave full-time service in the maintained sector during the school year. Some of these may not leave teaching at all, but either continue into part-time service, move to the further or higher education sectors, or teach in fee-paying institutions. Turnover is defined as teachers in full-time service in the maintained sector but who are not in full-time service in the same establishment the following year. It constitutes all retirements, resignations, and includes 'wastage' and transfers to other institutions within the sector. Because teachers *must* resign from their post before they can take up another, it means that, theoretically, turnover rates can increase although the number of teachers remains the same. Data in this area were taken from DfEE Statistics of Education: Teachers in England and Wales (2000, 2001), the School Teachers' Review Body Statistical Annex (2000b) and the School Teachers' Review Body Eleventh Report (2002).

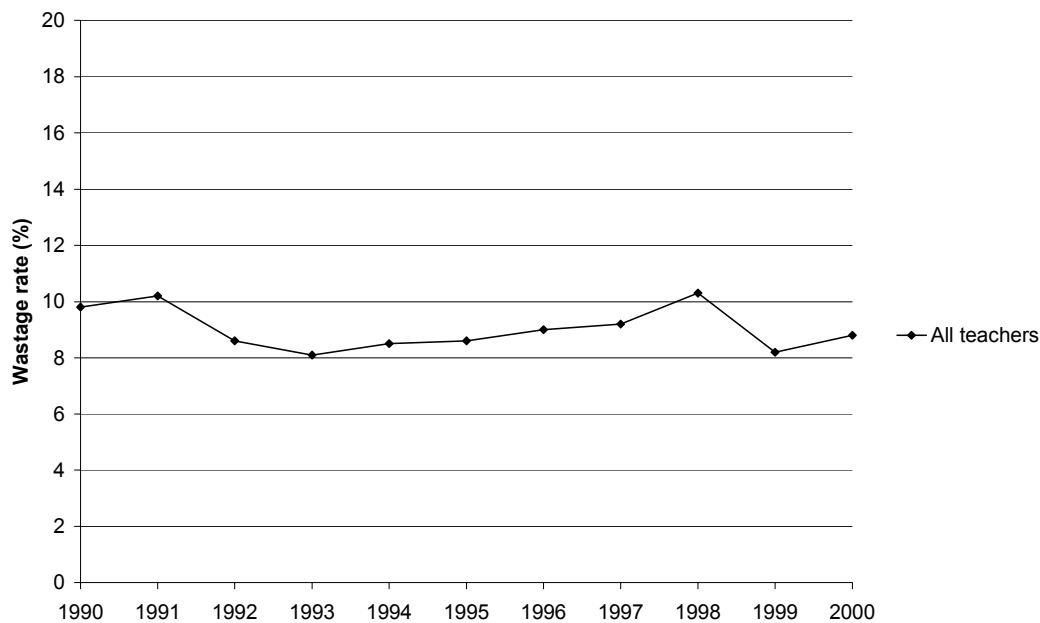
3.4.1 Wastage in England and Wales

Until 1998, the number of teachers leaving full-time service in England and Wales was consistently higher than the number who entered. In 1997/98, 37,700 left while 34,700 entered service. From 1998 onwards, despite an increasing number of teachers leaving full-time service, inflows have been higher than outflows. In England, in 1999/00, the number of full-time qualified teachers who left the secondary maintained sector was 11,600 and the corresponding inflow was 13,500 (DfEE data includes England only from 1999/00 onwards). One reason is that the increase in outflow was due to a higher number of people moving from full-time service to part-time service. According to the STRB figures on England and Wales, there was also an increase in the number of teachers who have moved to schools in other LEAs or non-LEA institutions (see below). This may explain why the popular perception runs counter to that of the government's. In other words, an increasing number of teachers were leaving schools, but not necessarily the profession. Many were still in teaching.

Figure 3.19, below, shows the 'wastage rate' for full-time teachers in England and Wales. Unfortunately, information relating only to Wales could not be located, nor could data expressed as frequencies. This definition of 'wastage' can be misleading, as it runs counter to popular uses of the term. Teachers moving to the further or higher education

sectors, and to fee-paying schools, are counted as 'wastage'. It is unlikely, however, that students in such institutions (or their parents) would define them as such. In the case of employment in post-sixteen institutions, teachers are merely moving from one sector of state-funded education to another. Although independent schools are not state-funded, they could be argued to be providing a public service and teachers working in these institutions are responsible for the education of a substantial proportion (approximately 7%, according to Gorard, 1997) of UK-domiciled pupils.

Figure 3.19 – Wastage rates for full-time teachers, England and Wales 1989/90 to 1999/00

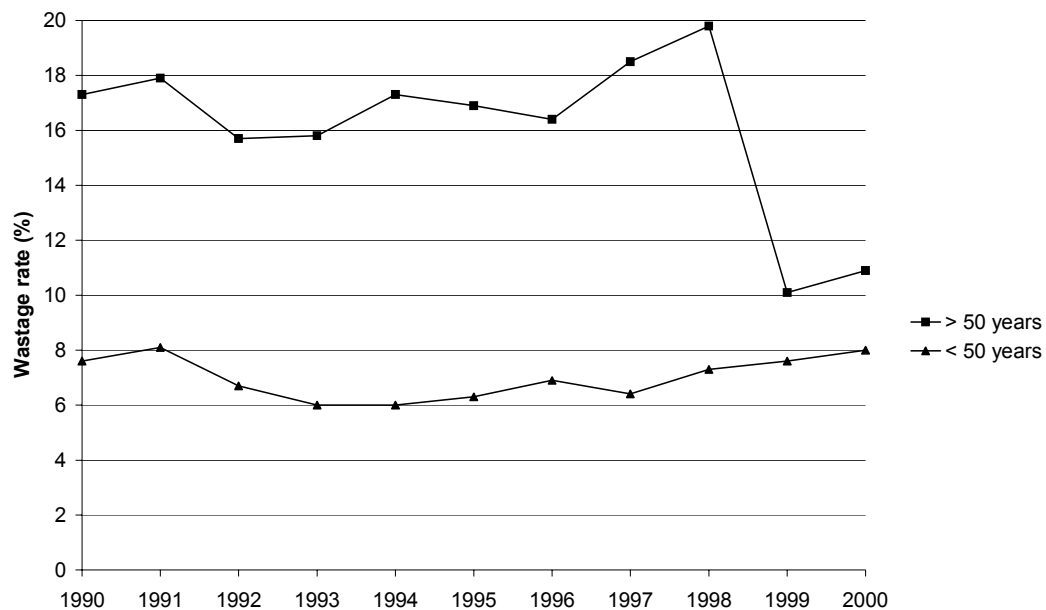


Source: DfES, Database of Teacher Records.

It must first be noted that the data are accompanied by the following warning, specifying that "the wastage rate for those aged 50+ in 1997 and 1998 reflects the increase in early retirements brought about by changes to the Teachers' Pension Scheme in April 1997 and September 1997. The subsequent decrease in early retirements resulted in a much lower wastage rate in 1999".

There are no particularly remarkable trends in the data for wastage rates for the years 1990/91 to 2000/01. Although the proportion of teachers leaving the profession rises year by year from 1992/93 to 1997/98, the change in pensions legislation affecting figures in 1998/99 obscures the extent to which this may, or may not, have continued over the following two years. It should be noted, however, that the wastage rate in 1997/98 (10.3%) is only marginally higher than in 1990/91 (10.2%).

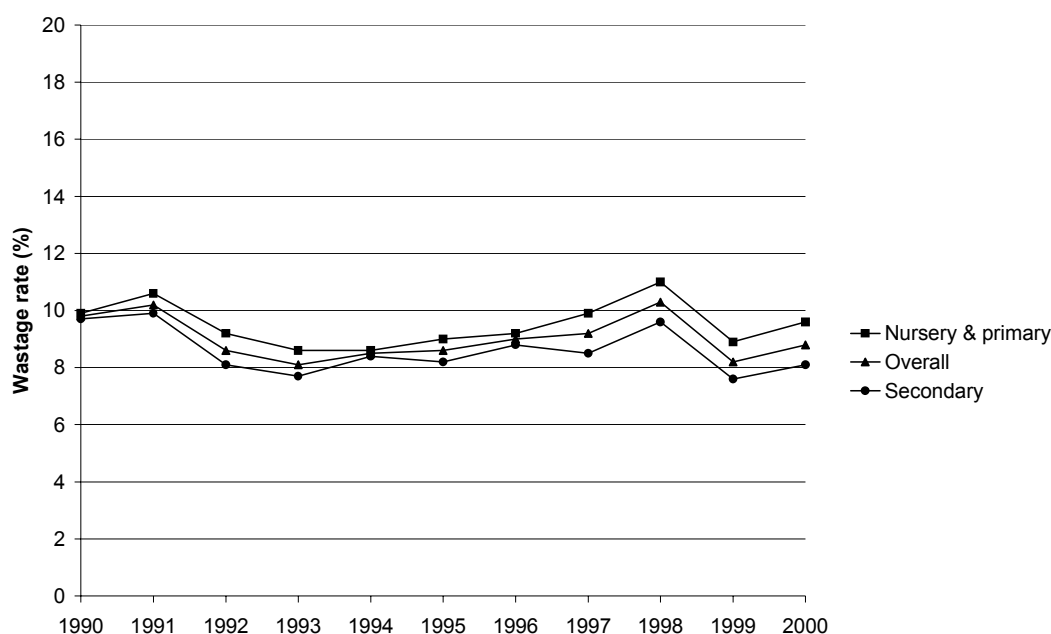
Figure 3.20 – Wastage rates for full-time teachers, England and Wales 1989/90 to 1999/00, by age group



Source: DfES, Database of Teacher Records.

The effect of the above mentioned policy change can be seen more clearly when the data is disaggregated by age group (Figure 3.20). The wastage rate for teachers aged fifty and above rises from 1996 to 1998 before falling sharply between 1998 and 1999, whilst the figure for those under fifty actually rises slightly in that year. However, with that single, dramatic fall accounted for, no other clear trends emerge. Indeed, the wastage rate for teachers younger than fifty is higher in 1991 (8.1%) than it was in 2000 (8.0%), the last year for which data was available. However, because of the recent change in policy, which affected rates for the over-fifties so dramatically, it may be some years before sufficient data to allow an assessment of any long term patterns in wastage rates is available. There is also the question of whether 'wastage rates' are a useful measure of teacher retention (or even waste). As some of those counted as 'wastage' merely move to teach in a different state sector or in fee-paying institutions, the degree to which there is a 'loss' in the system is obscured.

Figure 3.21 – Wastage rates for full-time teachers, England and Wales 1989/90 to 1999/00, by sector



Source: DfES, Database of Teacher Records.

The effect of the change in pensions legislation is, again, evident in Figure 3.21. What is interesting is the extent to which the wastage rates between the nursery and primary, and secondary sectors are correlated ($n = 11$, $r = 0.815$). There are many reasons why it would be reasonable to expect differences in wastage rates between (as well as within) sectors. Working conditions vary according to age of pupils taught and at an aggregate level the social and educational backgrounds of teachers varies, in certain respects, according to the sector they are employed in. What is unclear, however, is why the changes in wastage rates for the two sectors tends to be in the same direction over the course of any given year, and why such a high correlation exists between both the direction and magnitude of the changes. This, perhaps, suggests the influence of factors affecting the whole teaching profession or, alternatively, could be an artefact of the data collection and analysis processes used by the DfES.

The destinations of resigning teachers are important for several reasons. First, it is necessary to differentiate between individuals resigning to take up a similar job in a different school, those leaving the sector they were previously employed in, and those who leave the profession. Table 3.5 shows the total number of resignations from full-time, permanent positions in LEA schools, in England and Wales, between 1994 to 2001.

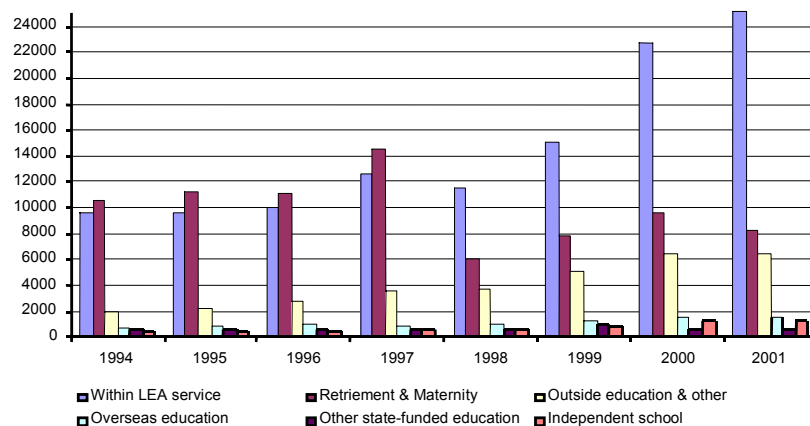
Table 3.5 - Destinations, by sector, of LEA full-time permanent resigning teachers, 1994 to 2001: a) those leaving education (%)

	1994	1995	1996	1997	1998	1999	2000	2001
Total resignations	25170	26260	27260	34860	25830	34840	46190	47930
Known destinations	23950	24830	25810	32610	23360	31230	42310	43120
Percentage known	95	95	95	94	90	90	92	90

Source: adapted from Employers' Organisation (2002, Table 4)

It is clear that, overall, the total number of resignations has increased over the period studied. There has been a steady increase from year to year, with the exception of 1997 to 1998, a disparity which may be explained by the changes to pensions legislation. This, however, does not mean that more teachers are leaving the profession, as the data includes those taking up employment in institutions similar to the ones they left. Indeed, increased turnover of this type may be considered reflective of a healthy internal labour market. If the proportion of teachers in the latter group remains constant there will be no net losses. However, a high and growing turnover rate does have accounting implications for the vacancy rate. The greater the turnover the higher the vacancy rate will appear in any snapshot. However, high turnover and vacancy rates do not necessarily have direct implications for how difficult posts are to fill, or to obtain.

Figure 3.22 – Destinations of LEA full-time permanent resigning teachers, England and Wales 1994-2001

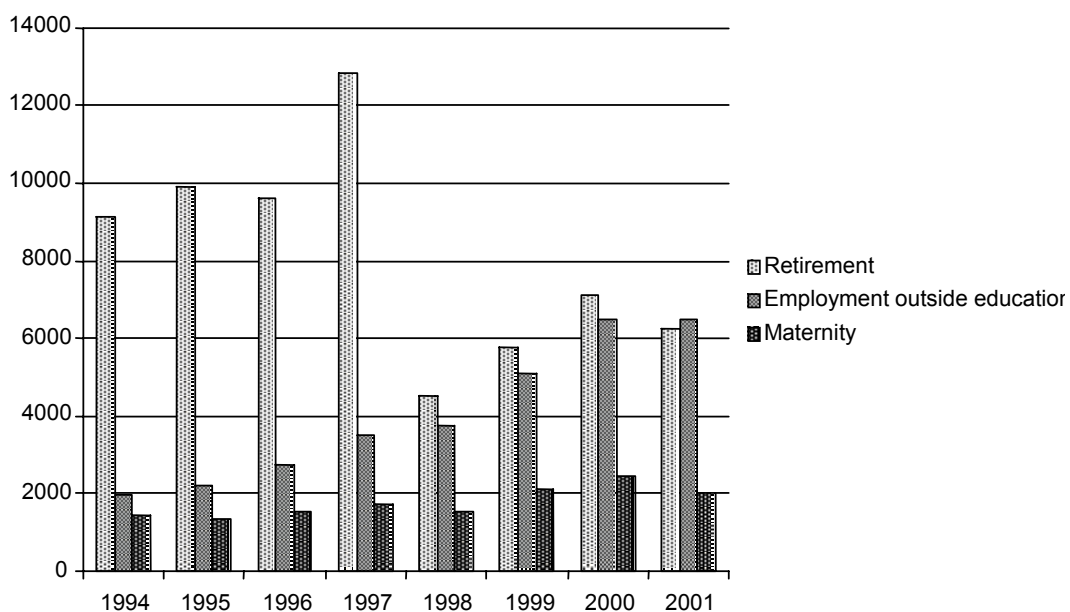


Source: adapted from Employers' Organisation (2002, Table 4)

As Figure 3.22 shows, since 1994 the most popular destination of resigning teachers has been a post in an LEA school within the compulsory sector. Retirement and maternity are the second most popular destinations, although the former accounts for many more resignations than does the latter (see below) and were previously (from 1994 to 1997) the most popular destination. The change in pensions legislation, mentioned earlier, may be responsible for the change in this trend. And it should also be considered that those teachers resigning to raise children may return to the profession at a later date, whilst those who retire are less likely to. Leaving the teaching profession altogether is the next most prevalent career choice, followed by taking a teaching post in a non-LEA institution.

A large majority of resignations, then, are accounted for by moving from one teaching post to another in a similar institution, or by 'natural' wastage due to retirement or maternity. Total resignation and turnover rates can, thus, give a misleading impression of the state of teacher supply. Those teachers moving from their present school to a similar one do not, presumably, present a major problem for the profession. Retirements, whether due to ill-health or reaching the normal retirement age are usually unavoidable, as is maternity. It is only resignations leading to other kinds of outcome that can be considered subject to any strategies to increase retention. It is these outcomes that are the main focus of the remainder of this section. Firstly, however, the scale of teachers' resignations due to retirement and maternity will be examined briefly, and compared to those leading to alternative employment.

Figure 3.23 – Destinations of LEA full-time permanent resigning teachers England and Wales 1994-01: a) those leaving education



Source: adapted from Employers' Organisation (2002, Table 4)

Figure 3.23 shows the destinations of teachers resigning from their position and leaving the profession. As can be seen, a large number of these resignations were due to retirement (including premature and ill-health retirements). Interpreting trends in retirements is difficult because of the dramatic fall in 1998, which may be related to the changes to the Teachers' Pension Scheme and consequent rise in early retirements in the last years of the 1990s, mentioned elsewhere in this report.

An interesting feature of the data in Figure 3.23 is the steady increase in the number of teachers leaving the profession to enter employment outside education. Whereas, for

example, the number of teachers taking maternity leave has remained fairly stable over the time period, those leaving teaching for alternative work roles increased year-on-year from 1,950 in 1994 to 6,470 in 2000 (dropping by only 10 resignations to 9,460 in 2001). Not only does such a trend suggest an increasing propensity for those quitting the profession to be leaving education completely but it represents nearly a three-and-half-fold increase in this type of resignation in just seven years.

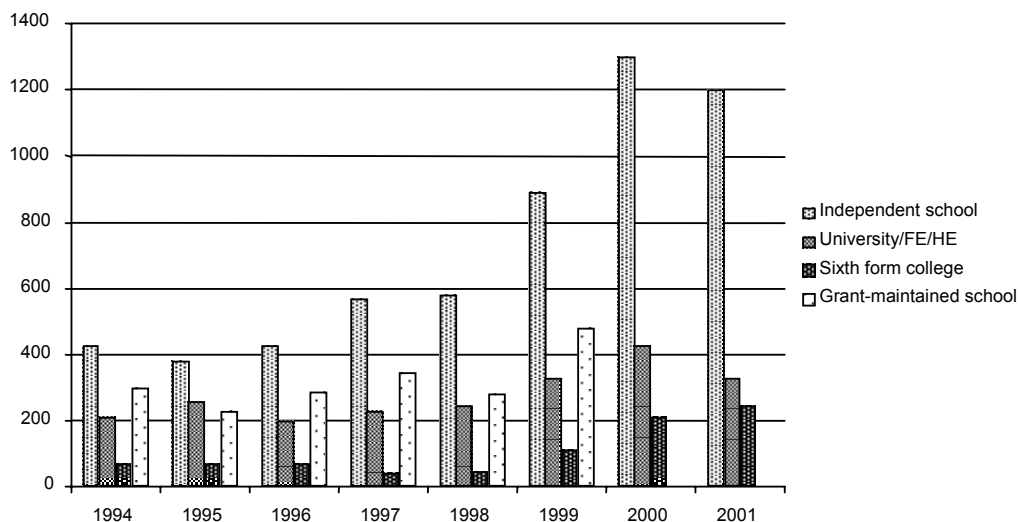
Table 3.6 - Destinations, by sector, of LEA full-time permanent resigning teachers, England & Wales, 1994 to 2001: a) those leaving education (%)

	1994	1995	1996	1997	1998	1999	2000	2001
Retirement	81	82	79	81	60	59	58	60
Employment outside educ..	13	12	13	11	20	21	20	20
Maternity	6	7	8	8	20	20	21	21

Source: adapted from Employers' Organisation (2002, Table 4)

Examined proportionally, there has been a steady decrease in the proportion of retirees accompanied by an increase in the proportion of those taking maternity leave and those leaving to work outside education. Those leaving the profession for alternative employment have increased in both proportional and absolute terms. Although there has been a proportional increase in women leaving to have children, the effect in absolute terms is small, with the percentage rise mainly due to the sharp fall in the number of retirees after 1997.

Figure 3.24 – Destinations of LEA full-time permanent resigning teachers England & Wales, 1994-01: b) those continuing to teach in the UK



Source: adapted from Employers' Organisation (2002, Table 4)

Amongst resigning teachers who moved to positions outside LEA schools but within the UK education system, the most common destination, for every year between 1994 and 2001, was an independent (fee-paying) school. In 1994 only 43% (430 of 1010) of resignations leading to employment in non-LEA institutions were comprised of those taking posts in the independent sector, but by 2001 this had risen to 67% (1200 of 1780) (Employers' Organisation 2002, Table 4).

Table 3.7 - Destinations, by sector, of LEA full-time permanent resigning teachers, 1994 to 2001: b) those continuing to teach in the UK (%)

	1994	1995	1996	1997	1998	1999	2000	2001
Independent School	42	40	43	49	50	49	67	67
University/FE/HE	21	28	21	19	22	18	22	19
Sixth form college	7	7	7	3	4	6	11	14
Grant-maintained school	30	24	29	29	24	27	-	-

Source: adapted from Employers' Organisation (2002, Table 4)

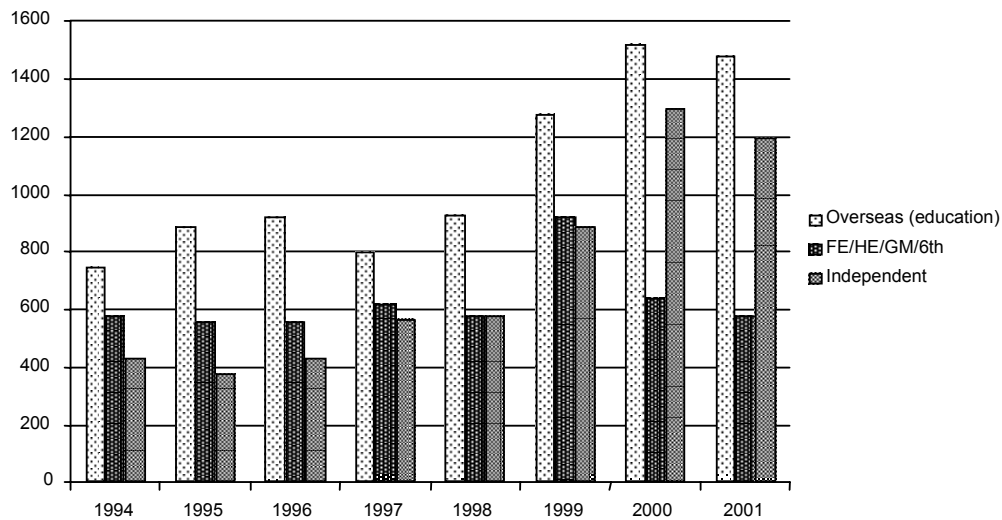
During the same time period those moving to employment in further or higher education institutions rose in number from 210 to 320, but fell proportionately from 21% to 19%. The number of teachers leaving LEA schools to work in sixth form colleges was fairly stable between 1994 and 1998, varying from a low of just 40 in 1997 and a high of 70 between 1994 and 1996. During these years resignations of this type peaked, proportionally, at 7%, in 1996 and fell to a low of 3% in 1997. However, both in absolute terms and as proportions of teachers resigning to teach in educational institutions other than LEA schools, no particular pattern is evident between 1994 and 1999.

However, from 1999 to 2001 an upturn appeared to have taken place, at least numerically. Resigning teachers moving to sixth form colleges rose from 50 in 1998 to 110 in 1999 and to 210 and then 250 in 2000 and 2001, respectively (Figure 3.22). However, examined proportionally, the 1998-99 increase was only from 4% to 6%, the latter figure not even reaching 1994-96 levels. And although the 2000 figure was 11% and that for 2001 was 14%, these proportional rises may have more to do with the abolition of Grant Maintained schools, which were included in the analysis subsequent to losing their status in 1997/98 (thus leaving only three groups in this breakdown).

The figures for teachers resigning to take employment in Grant Maintained Schools, available for the years 1994 to 1999, showed no clear pattern at all, either in absolute or proportional terms. This was also the case for teachers moving to the further or higher education sectors. Table 3.7 shows the data expressed proportionally, as percentages of all resigning teachers continuing to teach in the UK.

It is not clear why, in the Employers' Organisation (2002) study, Grant Maintained (GM) Schools were separated from LEA schools. Teachers moving to GM schools were, after all, continuing to work within state-funded schools in compulsory education. Figure 2.33 shows the destinations of resigning teachers continuing to work in education but outside of the state-funded compulsory sector. For the purposes of this analysis, those moving to employment in GM schools, sixth form colleges and further or higher education institutions were combined to form a single group. The rationale for this was that, in contrast to the other two groups, they continued to work within state-funded institutions and so do not represent 'wastage' in the same way as those moving overseas or to work in the independent sector. The issue of 'wastage' will be returned to, and discussed in greater depth, at the end of this section.

Figure 3.25 – Destinations of LEA full-time permanent resigning teachers, England and Wales 1994-2001: c) those remaining in education



S

Source: adapted from Employers' Organisation (2002, Table 4)

As can be seen from Figure 3.25, teaching overseas is clearly the most popular employment choice. It was established, earlier in the section, that independent schools are a common destination for resigning teachers. They are not quite as popular as working overseas, however, and are closely rivalled by those leaving to work in the state-funded post-sixteen sector and GM schools. However, it should be noted that in comparison to England, Wales has only a relatively small number of independent schools (Gorard, 1997). Those teachers leaving state schools in Wales for the independent sector, have many more destinations to choose from in England.

Table 3.8 - Destinations, by sector, of LEA full-time permanent resigning teachers, England and Wales (1994-2001) continuing to work in education (%)

	1994	1995	1996	1997	1998	1999	2000	2001
Overseas (education)	43	49	48	40	44	41	44	45
FE/HE/GM/sixth form	33	31	29	31	28	30	18	18
Independent schools	24	21	23	29	28	29	38	37

Source: adapted from Employers' Organisation (2002, Table 4)

(a) Percentages may not total 100 due to rounding

(b) GM schools ceased to exist after 1999. Data for 2000 and 2001 does not include teachers moving to former GM schools.

The gradual increase in the total number of resignations can be seen in Figures 3.24 and 3.25. An examination of longer term trends Table 3.8 reveals little else regarding the balance between the different types of destinations. The proportional difference in

destinations remains fairly constant between the three groups and whilst there appears to be a change in the years 2000 and 2001, this may have more to do with the fact that GM schools ceased to exist (they had their status changed to 'Foundation' schools) and teachers moving to former GM institutions were not included in the data set for those years.

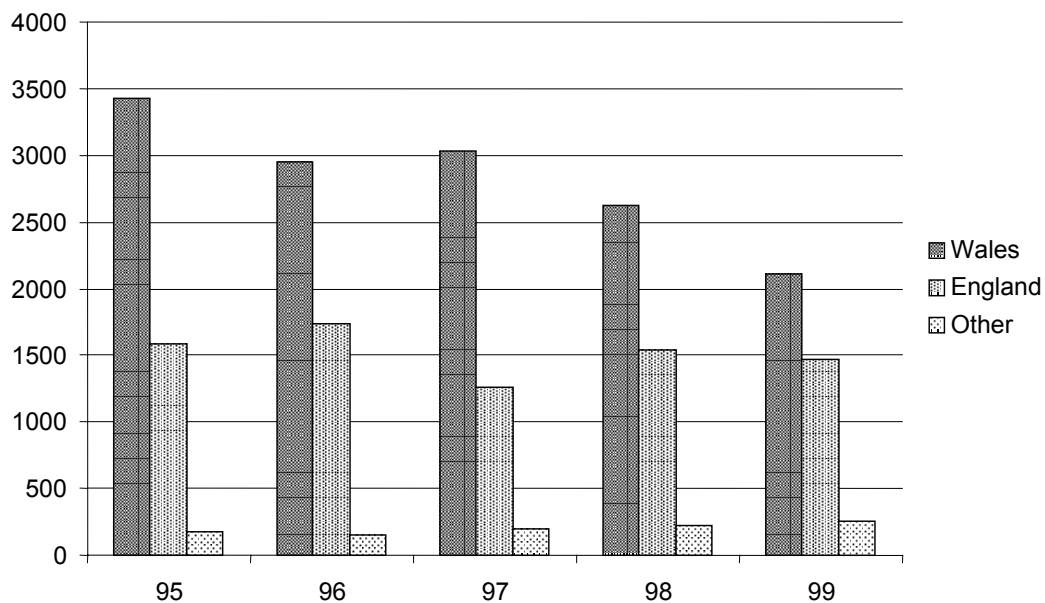
The highest turnover rates among secondary FTE permanent teachers in England and Wales were between 1993 (7.4%) and 1997 (11.3%). In 1998 turnover rates dropped to 8.5% before increasing to 12.7% in 2000 (STRB 10th Report, 2001, 2002). Looking at Wales separately, the turnover rates were slightly lower, rising from 7.0% in 1993 to 10.7% in 1997. They fell to 5.5% in 1998 before rising to 7.8% in 2000. Turnover in Wales, then, is generally lower than in England.

On a regional basis, the highest turnover rate in 2000 in the maintained secondary sector was in Greater London, at 16.5%, compared with the average of 12.7% for England and Wales (School Teachers' Review Body 2002). Wales experienced the lowest turnover rate at 7.8%. There was also a gender difference in turnover rates, with female teachers showing a higher turnover rate (13.5%) than male teachers (11.9%) in 2000.

3.5 Cross-border flows

Cross-border movement is an issue of particular concern to Wales. As is the case with most courses in higher education institutions in the UK, not all students enrolled on ITET courses in Wales were formerly Welsh residents. Figure 3.26 demonstrates that a significant minority of ITET students attending Welsh institutions are from other UK nations and some travel from overseas to train in Wales.

Figure 3.26 – ITET enrolments at Welsh institutions



Source: NAFW

Figure 3.26 suggests that there has been a gradual increase in the proportion of non-Welsh-domiciled students enrolling on ITET courses at institutions in Wales. Comparable data was not available for all students across the same time period, but a ‘snapshot’ of 1997 is shown in Table 3.9.

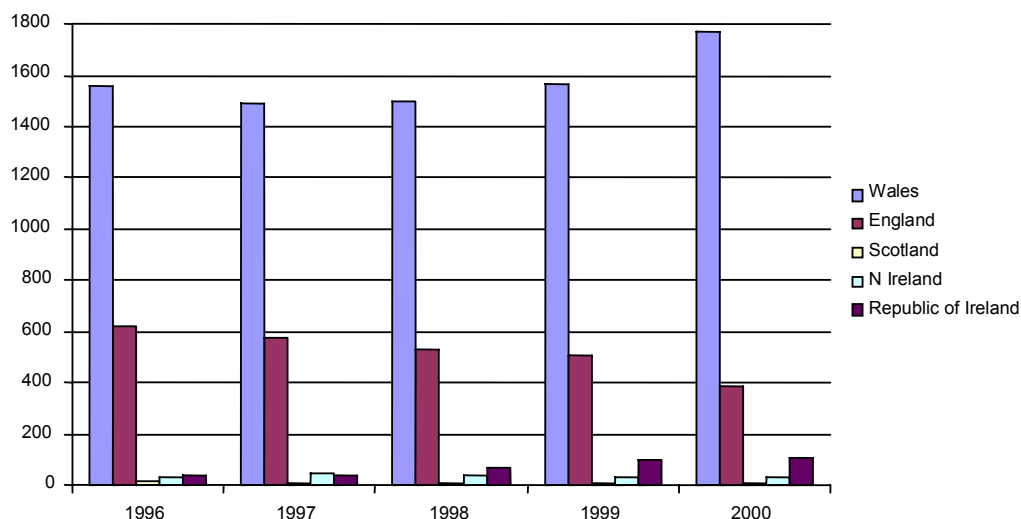
Table 3.9 – All student enrolments at universities in Wales, 1997.

Country	Enrolments
Wales	28,713
England	27,489
Other	724

Source: National Assembly for Wales, reporting Higher Education Statistics Agency (HESA)

Table 3.9 suggests that, for 1997 at least, the proportion of non-Welsh students studying in Welsh institutions was far higher than the proportion of non-Welsh students who were taking ITET courses in Wales. Although this data is far from conclusive, it suggests that the situation for teacher training, recruitment and retention may be far more positive than for training in other professions.

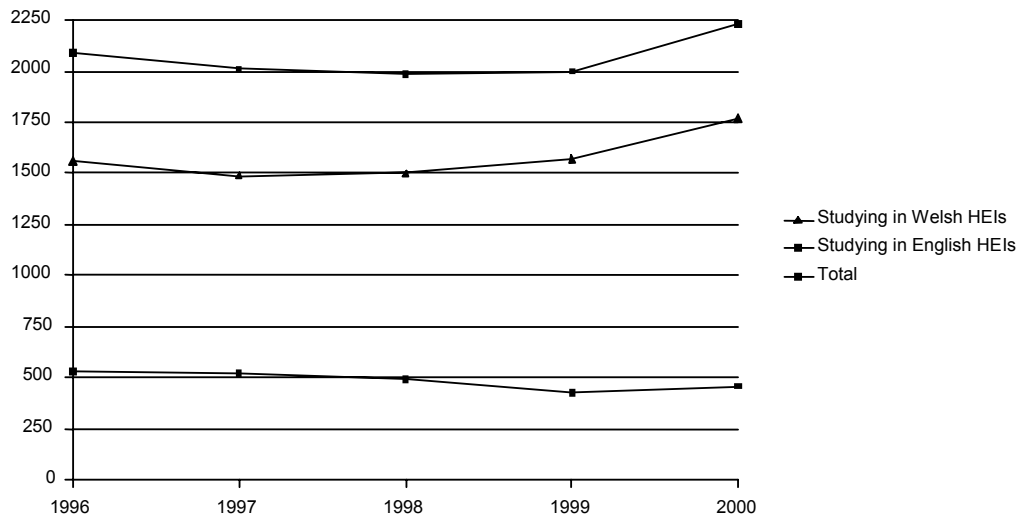
Figure 3.27 – First year ITET students training in Wales 1996/97 to 2000/01, by domicile



Source: HESA/National Statistics Statistical Bulletin SB 90/2002, 16th October 2002

In the years 1996 to 2000, students formerly residing outside the UK never made up more than 10% of the total ITET intake. During this period, Northern Ireland and the Republic of Ireland, despite their overseas location, have both been richer sources of recruitment than has Scotland. Indeed, the Republic of Ireland accounted for 5% of the 2001 intake - more than Scotland and Northern Ireland combined.

Figure 3.28 – First year Welsh domicile ITET students 1996/97 to 2000/01, by country



Source: HESA

However the overwhelming majority of students on ITET courses in Wales are of Welsh domicile. In 1996, they accounted for 68% of first year teacher trainees studying in Wales and by 2000 this had risen to 75%. By far the largest other group were students formerly living in England but, over the same period, this group diminished in size in absolute and relative terms, falling from 620 in 1996 (27% of the total intake) to only 390 (16%) in 2001 (Figures 3.28 to 3.30).

Figure 3.29 – First year Welsh domicile PGCE students 1996/97 to 2000/01, by country of study

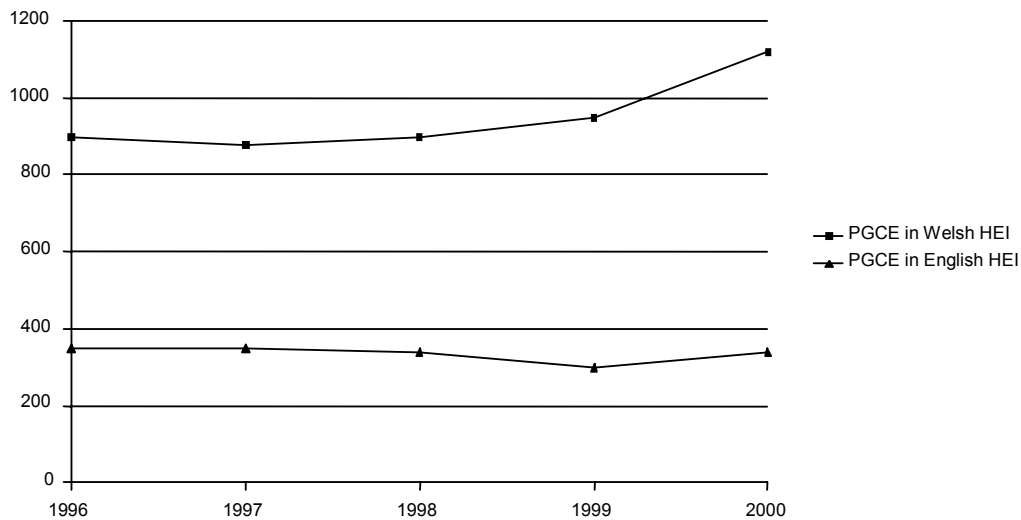
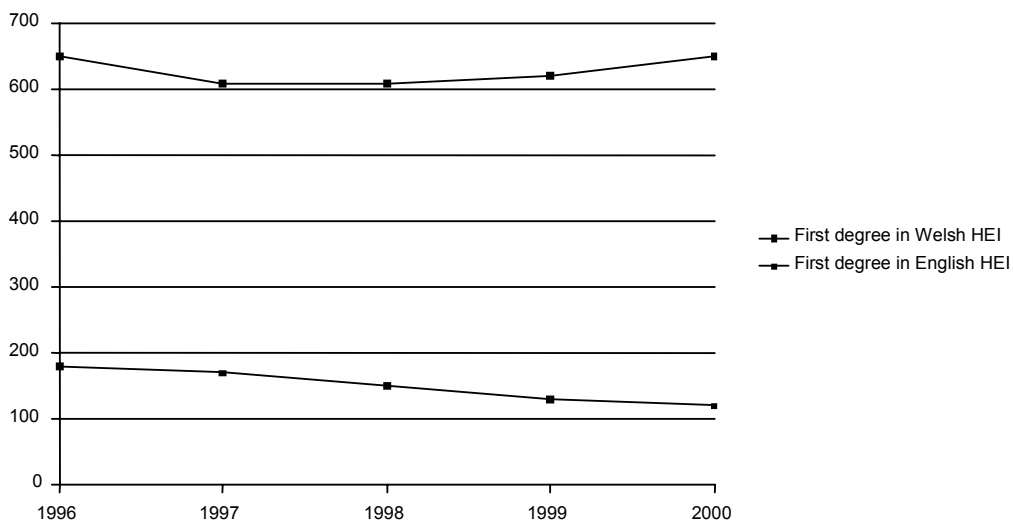


Figure 3.30 – First year Welsh domicile ITET students 1996/97 to 2000/01, taking a first degree leading to QTS, by country of study



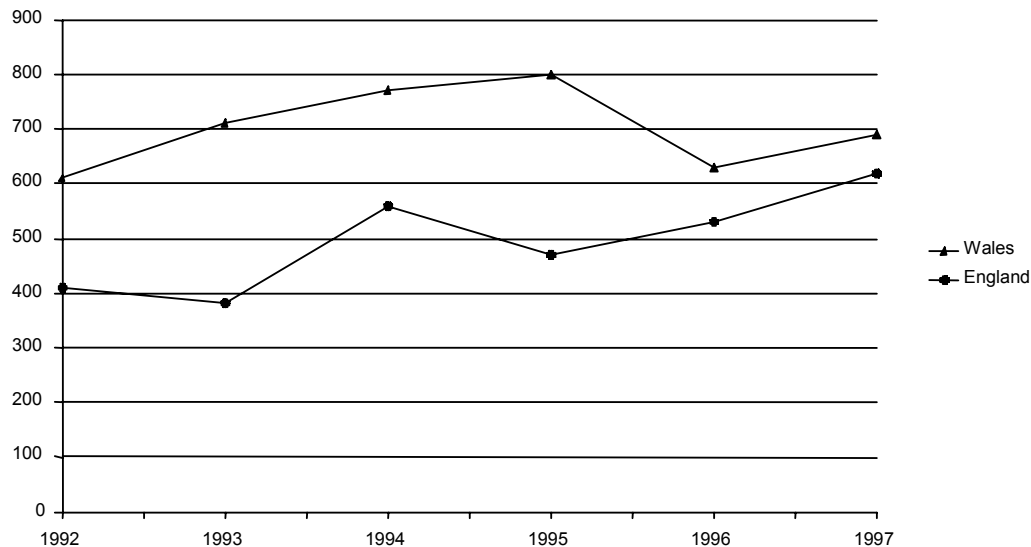
Source for all: HESA

If institutions offering ITET in Wales wish to recruit more students from outside their national borders, their declining attraction to students from England should be the focus of their concern. Although increased recruitment from the Republic of Ireland has, to

some extent, off-set losses from England, it is the latter that has traditionally served as a secondary 'customer base' for Welsh higher education institutions (HEIs).

The numbers of applications and enrolments on initial teacher education and training courses in Wales has already been examined. These figures, however, are by no means the end of the story. As has been noted, not all trainees starting ITET successfully complete the course and, of those who do graduate not all will go on to teach. Of those entering the profession, not all will teach in Wales for the rest of their careers. Some may never teach in Wales at all. An analysis of data relating to these issues is, therefore, an important element of a study of recruitment and retention, as the findings will have implications for those involved in setting ITET recruitment targets. Information on 'cross-border' movements of those trainees taking up teaching posts was available, but only covered the year immediately after graduation. Figure 3.31 shows the number of ITET students, graduating from Welsh institutions and finding employment in England and Wales.

Figure 3.31 – Country of service: ITET graduates trained in Wales 1992-1997



Source: Digest of Welsh Statistics, various years

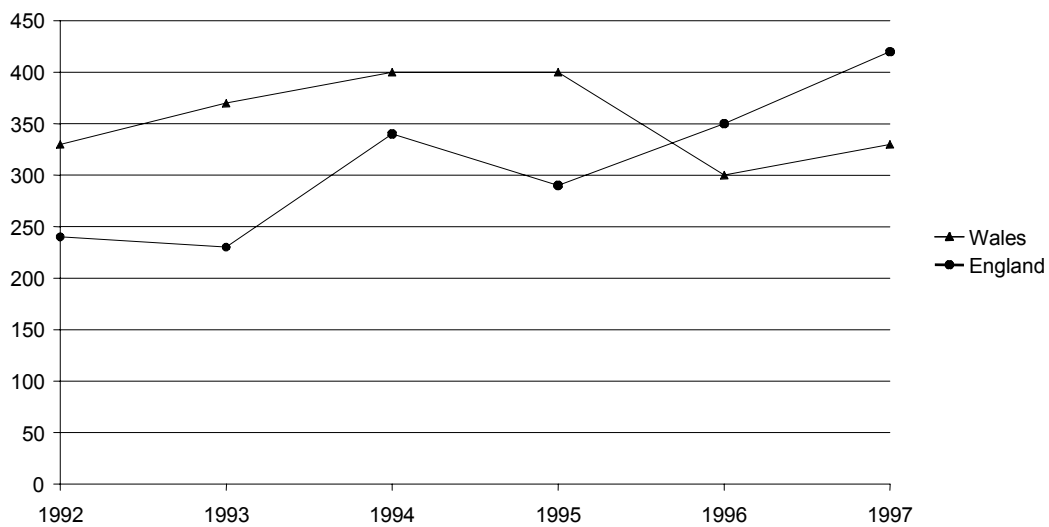
Whilst employment in both countries has fluctuated over the years, the absolute number of ITET graduates finding work in England has risen considerably (from 410 to 620) over the six years studied. Although, between 1992 and 1995 the number of trainees gaining employment in Wales rose steadily from year to year (from 610 to 800), the next year was characterised by a sharp drop (of 170), followed by only a slight recovery. The net result of these trends was that in 1997 only slightly fewer Welsh-trained ITET graduates entered the teaching profession in England than did so in Wales (620 and 690, respectively).

It must be considered, however, that there are many more schools in England than there are in Wales and, consequently, more employment opportunities. This is the most obvious explanation for ITET graduates' migration across the border. An additional factor may be that schools and LEAs in England appear to value teachers trained, or experienced, in Wales in a way that schools and LEAs in Wales do not reciprocate. This may be partly due to differences in the curriculum, but this, it could be argued, would work equally in both directions.

Figure 3.32 shows the same data for trainees in the primary and nursery sectors. In 1992, 330 out of 570 (58%) Welsh-trained ITET graduates entering the teaching profession were employed in schools in Wales. However, by 1996, although the total number of trainees gaining employment had risen to 650, the number teaching in Wales had dropped to 300 (46%). This trend continued to 1997, the last year for which data was available, meaning that in these two years more graduates of Welsh ITET primary courses took up their first teaching post in England than in Wales. The average 'out-flow' for primary trainees, calculated using data from 1992 to 1997, was 46%, peaking at 56% in 1997.

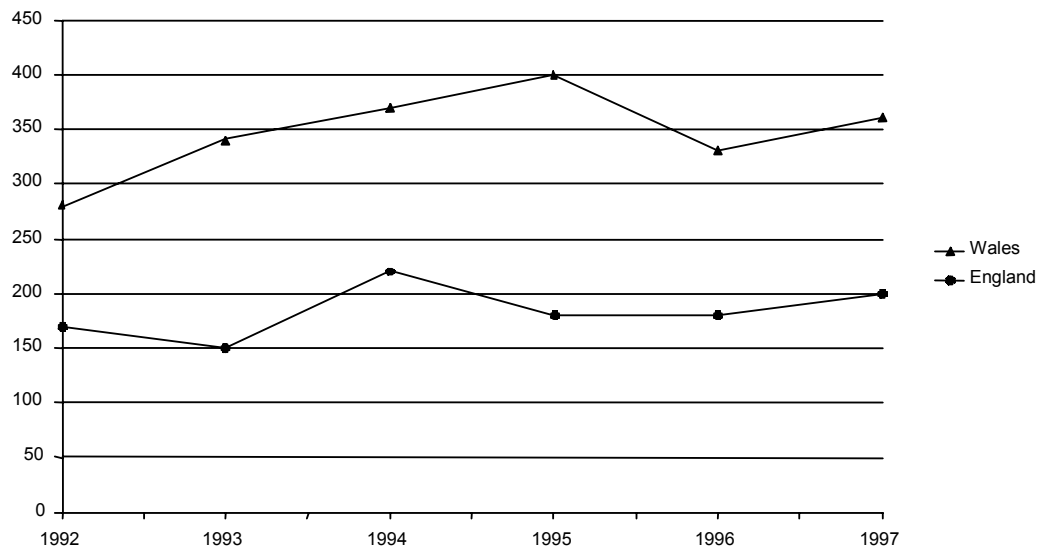
Stated simply, this means that over half the students finding employment as teachers, who trained in Welsh institutions to teach in the primary sector, end up teaching in schools in England.

Figure 3.32 – Country of service: primary and nursery ITET graduates trained in Wales 1992-1997



Data taken from the College Exit Exercise 2000

Figure 3.33 – Country of service: secondary ITET graduates trained in Wales 1992-1997



Data taken from the College Exit Exercise 2000

Figures for the secondary sector (Figure 3.33) are lower, fluctuating between 31% and 38%. But if all graduates of ITET courses in Welsh institutions are taken into consideration, the overall rate of 'out-flow' to England has not dropped below one-third of those taking up teaching posts in the six years for which data is available.

The extent to which this issue of 'out-flow' is deemed a problem is debatable. Previous to devolution, when England and Wales were in many respects treated as a single financial and administrative unit, a degree of movement between these countries would not have been a major problem unless it was causing a great imbalance in supply and demand. However, in a devolved country with a different educational agenda, training teachers only to lose them directly after graduation could be considered an inefficient use of resources.

According to National Statistics data, Wales has a positive population balance as a result of migration within the UK for every year from 1976 to 2001; i.e. more people have entered Wales than have left Wales every year from 1976 to September 2001. This may not be the case in the age group that might be considered critical for teacher training and recruitment (16 – 24 year olds), however. More 16 – 24 year olds left Wales than entered Wales for the year mid 1999 to mid 2000, the only year for which data was available.

3.6 Teacher quality

Teacher supply is not just about numbers; it is also about quality. DfEE figures showed that in England and Wales, between 1990 and 2000, the proportion of students

completing (n.b. – not enrolling on) PGCEs with a first or second class degree had increased from 82.3% to 91.7% (DfEE 2000c, DfEE 2001b). But this was in line with the overall rise in the proportion of students obtaining these degree classes over the same period.

TTA figures (for England only) showed that the proportion of secondary maths PGCE students with 2:1 or better increased from 33% in 1996/97 to 37% in 1998/99 (TTA Performance Profiles 2000). However, Sir Steward Sutherland noted that entrants to mathematics ITET courses were twice as likely than average to have a third class degree or lower (House of Commons 1997a, para. 49). For science the figures were slightly higher with 42% for the 1998/99 cohort holding a 2:1 or better. For almost all subjects, the proportion either remained the same or had improved slightly.

Less than half PGCE entrants (n.b. - not 'completers', as in data above) in England training to teach maths and/or science have a degree classification of 2:1 or above. In comparison, the proportion of all first degree students obtaining 2:1 or better was 50% in 1999, showing a slight increase from 48% in 1996. Graduates training to teach in these two areas hold slightly lower degree classifications than average, but only slightly so. This calculation, however, compares them with graduates from *all* other courses. It should be considered that comparing them with their peers graduating in maths and science (for which data was not available) could produce different results.

There are particular concerns about the quality of entrants to primary ITET courses. The mean A-level scores of applicants to all undergraduate courses was 18.8, while that for ITET undergraduates was 13.6 (Select Committee First Report, 1997). Sutherland's report also stated that only 4% of postgraduate ITET students held a first-class degree while the majority had a second class honours degree. DfEE figures show that, in the secondary sector, the quality of PGCE students improved in the first half of the 1990s. The proportion of students with second-class degrees or higher rose from 81.5% in 1988 to 88% in 1995 (Select Committee First Report, 1997).

There were concerns that 'insufficient high quality entrants were being attracted in comparison to other professions' and 'the quality of entrants was low in shortage subject areas' (House of Commons, 1997a; BBC News, 2001). In a survey by the National Association of Head Teachers (NAHT), seven out of ten vacancies in secondary schools in a London authority had been filled by people without the necessary qualifications (Levenson, 2001). The shortage in teachers was affecting the quality of teachers, especially those in the shortage subject areas. According to a TES report, only a quarter of Key Stage 3 teachers had maths qualifications, and up to 45% teaching 11-14 year olds had limited knowledge of maths and little or no training. Many of the teachers did not study the subject beyond A-level (Henry and Thornton, 2001). The dependence on supply teachers also had serious implications on the quality of lessons delivered. About 25% of lessons taught by supply teachers were regarded as unsatisfactory (House of Commons 2000). This was likely to have a spiral effect as sixth-form drop-out rates were reported to have worsened. In physics, one-third of the teachers did not have a physics degree while another third had not even passed physics A-level (Canovan and Ward, 2002). There were

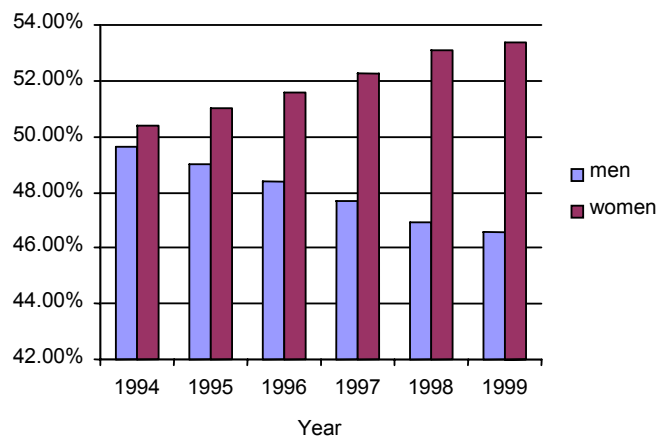
also concerns that some schools were discouraging students from doing ‘hard’ sciences at A-level, meaning fewer students could take these subjects at degree level. And fewer graduates means fewer teachers with the required qualifications.

3.7 Gender, age, ethnicity and disability

3.7.1 Gender

Between 1985 and 1998 the number of female full-time primary teachers in England and Wales increased by 13% (from 134,000 to 151 thousand) while the number of male teachers declined by 21%. Similarly, male full-time secondary teachers fell by more than 31% (to 88,000), but the number of female teachers also declined, by 9%, with most of the decline among both sexes occurring during the 1980s (Social Trends 30, 2000. p. 53). Within a year the number of teachers increased by 1,500 to 189,300. However, most of this increase resulted from a rise in the number of women in the profession (Figure 3.34) (Social Trends 30, 2000). There was a corresponding drop in the proportion of men in the sector (to 31%). This has important implications for teacher supply, as women are more likely to take breaks in their career for child-rearing. More importantly, there are proportionately more men than women taking degrees in shortage subjects such as maths, science and technology,. Therefore, in order to increase the number of teachers in these subjects, it is crucial to make teaching attractive to men, or to encourage women to take maths, science and technology at school and university.

Figure 3.34 – Changes in the proportion of men and women teachers



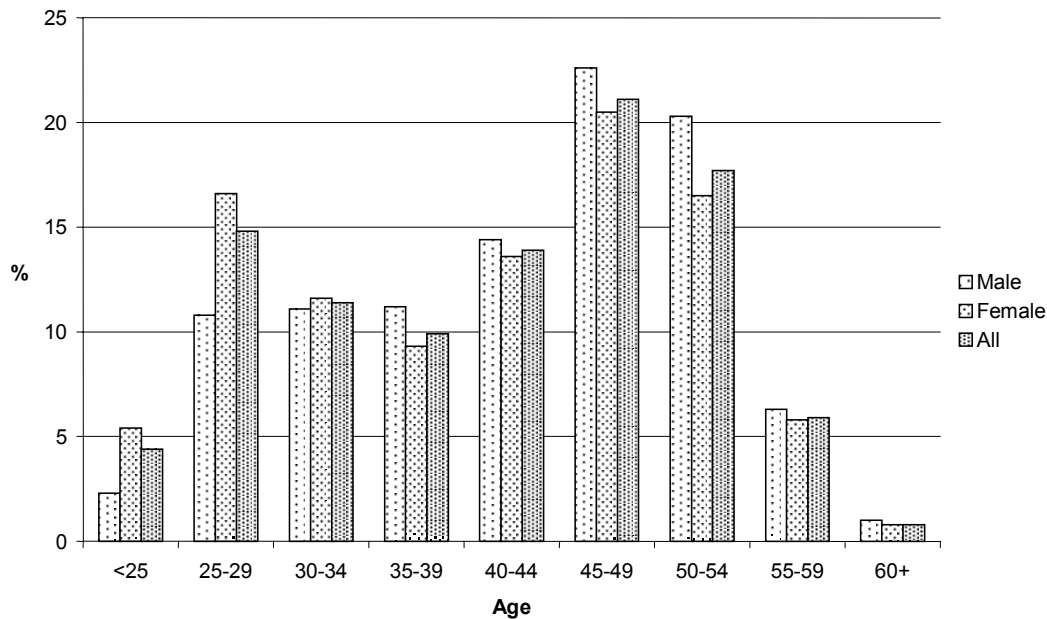
Source: Social Trends 30 (2000)

3.7.2 Age

The age profile of teachers in England and Wales in the year 2000 is shown in Figure 3.34. As can be seen the age groups containing the largest proportions of the profession were 45 to 49 and 50 to 54 years. Examining the age distribution in more detail reveals some interesting features of the data. It is, perhaps, unsurprising that there are relatively few teachers under the age of 25 as only those individuals who enrolled on ITET courses almost immediately after leaving post-compulsory or higher education would attain QTS and be able to enter the profession before that age. As many young people take ‘gap’ years between the various stages of education they participate in, and some individuals do not decide to enter the teaching profession until later in life, the proportionally small representation of under-25s in the profession as a whole should not necessarily be interpreted as evidence of a recruitment problem.

It is interesting, however, that interviews with headteachers, conducted as part of a major study in the late 1980s, revealed that ITET graduates in this age group, preferably with a PGCE qualification, were the applicants most sought after by those making appointments (Smithers and Robinson, 1991).

Figure 3.35 – Distribution of full-time teachers by age and gender, England and Wales, March 2000



Source: DfES. Database of Teacher Records.

Several plausible explanations for the small proportion of teachers in the 55 to 59 and 60+ age brackets can also be provided. Early retirement has been available to teachers for some time. The relatively small number of teachers aged 55 and over, then, may be predominantly accounted for by early retirements and/or retirements due to ill-health (and the legislation on retirement was changed in the late 1990s). What is less clear, however, is the explanation for the proportion of teachers in the 30 to 34 and 35 to 39 age groups. These two groups, combined, account for only slightly more than 20% of all teachers. This could, of course, be accounted for by historical trends in recruitment to the profession but, as previously mentioned, new entrants are not all graduates in their twenties entering their first career. Some graduates of ITET courses previously worked in other areas of the labour market or may be mature entrants to higher education. The age profile illustrated in Figure 3.35, then, is unlikely to be *solely* the product of historical trends in the recruitment of new entrants to the profession. Indeed, if all previous years showed a similar age profile as the year 2000, the most obvious explanation for the observed pattern would be teachers leaving the profession in their thirties. A common explanation for leaving work during these years is maternity and childrearing. The data offers some evidence to support this, as, whilst the proportion of male teachers aged 25 to 29 is almost identical to those aged 30 to 34, the proportion of female teachers in the 30 to 34 years category is much smaller than that in the 25 to 29 years group. However, as the data is only a 'snapshot' of one year's distribution, it is an insufficient basis on which to make any definitive conclusions.

Whatever explanation underlies the relative lack of teachers in their thirties, it is, perhaps, paradoxical that it is applicants to ITET courses of this age that are, proportionally, the least likely to be offered training places. If the imbalance in the age profile of the teaching profession is perceived to be a problem, the reasons for the

imbalance in acceptance rates onto ITET courses for this age group would be a productive area of investigation. Strategies could then be introduced, perhaps, to ensure that more applicants from this age group are accepted onto ITET. It may be the case that the entrance requirements for ITET are not as flexible for 'mature' entrants as for many other undergraduate courses and that access could be widened in this respect. This would not, of course, ensure that these trainees eventually enter the profession (or even complete the training) but it may increase the number who get the opportunity to do so.

3.7.3 Ethnicity

As can be seen in Table 3.10, the overwhelming majority of students in their first year of ITET in Welsh educational institutions described themselves as 'white'. Of the 1,940 students providing information on their ethnicity, only 20 were from ethnic minorities. Ten described themselves as 'Asian', an additional ten as from ethnic groups other than 'Asian' or 'Black', and none described themselves as 'Black'.

Table 3.10 - First year ITET students in Wales, by ethnicity, December 2000/01

Ethnicity	<i>n</i>	%
White	1920	81
Black	0	0
Asian	10	<0.5
Other	10	<0.5
Unknown/No information	420	18
<i>Total</i>	<i>2360</i>	<i>100</i>

Source: adapted from HESA data (ONS, 2002a)

In 1998, 2% of the population of Wales were from non-white minority ethnic groups. In 2000/01, 3.7% of first year higher education students were from minority ethnic groups (HESA/Statistics Wales, 2003). The equivalent number of trainee teachers in their first year of ITET in the academic year 2000/01 was less than 1%. This is despite the arrival in Wales of a considerable number of students domiciled in England, where ethnic minorities are more prevalent (13.6% of first year HE students). Therefore, while the absolute numbers are small, it is clear that the future teaching force in Wales under-represents those from ethnic minorities. However, the small absolute numbers involved, coupled with the 18% of the cohort who did not respond to the question, mean that any policy-relevant conclusions should be very tentative.

3.7.4 Disability

The number of students with disabilities made up less than 4% of first year teacher trainees in Wales in 2000/01 (Table 3.11). This compares with 4.8% of first year HE students in the same year (HESA/Statistics Wales, 2003). Labour Force Survey data for the United Kingdom shows that just under 30 million of the working age population are economically active (i.e. either in work or looking for work). There are 6.8 million people with disabilities of working age, but nearly half (48.8% or 3.4 million) are economically *inactive* (ONS 2001, p. 73). It can therefore be estimated that around 11% of the economically active population of the UK have a disability. Thus, it can be tentatively concluded that people with disabilities are under-represented amongst teacher trainees in Wales.

Table 3.11 - First year ITET students in Wales, by disability status, December 2000/01

Disability	<i>n</i>	%
No known disability	2280	97
Dyslexia	30	>1.5
Other disability	50	2
<i>Total</i>	<i>2360</i>	

Source: HESA (adapted from ONS, 2002a).

Percentages do not add up to 100 due to rounding.

3.8 Teaching through the medium of Welsh

Table 3.12 - First year students on ITET courses in Wales, by language 1996/97 to 2000/01

	1996/97		1997/98		1998/99		1999/00		2000/01	
	no.	%	no.	%	no.	%	no.	%	no.	%
Not a certificate of bilingual education nor enables to teach bilingually	2030	89	1810	82	1570	72	1870	83	1870	79
Enables to teach bilingually or leads to a formal certificate of bilingual education	260	11	390	18	610	28	390	17	500	21
Total	2290		2200		2180		2260		2370	

Source: HESA/National Statistics Statistical Bulletin SB 90/2002, 16th October 2002

(a) Original figures rounded by HESA. Percentages calculated using rounded figures.

Between 1996/97 and 2000/01 the number of first year ITET students training to teach bilingually nearly doubled, rising from 260 to 500 (Table 3.12). The total number of ITET students remained relatively stable meaning that proportionally, those training to teach in Welsh increased from 11% to 21% of all trainees.

Table 3.13 - Maintained primary schools teaching through the medium of Welsh, 2000/01

	n	%
Schools having classes where Welsh is the sole or main medium of instruction	440	27
Schools having classes where Welsh is used as a medium of teaching for part of the curriculum	87	5.3
Schools having classes where Welsh is taught as a second language only	1104	67.7
Total	1631	

Source: National Statistics

As Tables 3.13 and 3.14 demonstrate, proportionately, schools teaching all or some of the curriculum in the medium of Welsh schools in both the primary and secondary sectors make up approximately one-third of all institutions in the compulsory sector. However, Welsh is taught as a second language in all other state-funded schools, and a substantial number of Welsh language teachers are required to fill posts in these institutions. Evidence presented earlier in this report established that Welsh language was a shortage subject and that current recruitment targets were not being met. It may be that the number of trainees able to teach in Welsh-medium schools is sufficient to meet demand, but it is likely that continued under-recruitment of Welsh language teachers will lead to a supply shortfall in this area of the curriculum.

Table 3.14 - Maintained secondary schools teaching through the medium of Welsh, 2000/01

	n	%
Schools where Welsh is taught as both a first and second language	51	22.3
Schools where Welsh is taught as a first language only	21	9.2
Schools where Welsh is taught as a second language only	157	68.6
Total	229	

Source: National Statistics

3.9 What are the limits to recruitment?

Although pay may not be the main factor putting people off teaching, it certainly is an important factor. Teacher unions have repeatedly asserted that teachers' salaries compare unfavourably with average graduate starting salaries in other sectors of the economy. The Smithers and Robinson report (Schoolsnet 2001), commissioned by the National Union of Teachers, noted that the starting salary for teachers with a good honours degree (£16,000) did not compare well with many other graduate occupations, which averaged at £18,300. The authors recommended that teachers' salaries be made more attractive and competitive, with salaries starting at between £20,000 and £22,000 for teachers in state schools, and with heads of department earning a maximum of £40,000. Dissatisfaction with salaries was also linked to recent changes in the profession. According to Smithers

It looks as if many (teachers) have got ground down by the changes in the profession. One of the arguments on better salary was that people had gone into teaching as a vocation, and it has become a much more industrial process where they (teachers) were judged by output. If the criteria and targets of industry were going to be applied to them (teachers), they were looking for a commensurate salary.

(from: Naylor and Schaefer 2002, p.1)

Higher salaries were justified, it was argued, because they could bring about higher quality education and thus make teaching more pleasurable and rewarding. However, the salary figures used by the NUT and the Smithers and Robinson report were from the Association of Graduate Recruiters (AGR). The AGR's figures were based on better qualified graduates, on special recruitment programmes, with major graduate employers (National Employers' Organisation for School Teachers 2001). These graduates accounted for only one in eight of all graduates entering employment. In other words the figures used by the AGR overstated the average salaries of new graduates. Moreover, the starting salary for teachers quoted by the unions were based on figures outside London, while the figures used by the AGR (which the unions used as evidence for the disparity) were based primarily on average starting salaries among London-based employers (STRB, 2001; National Employers' Organisation for School Teachers, 2001).

Other salary surveys, such as those conducted by Barclays Bank and by the Higher Education Careers Services Unit, indicated that graduates were entering a widening range of jobs with many employers who were not AGR members. These graduates were often on salaries more than £2000 below the figures used by the AGR (STRB, 2001). The selective nature of the statistics used by the unions on graduate pay progression thus maximised the gap between the pay of 'graduates generally' and the pay of teachers (National Employers' Organisation, 2001).

Another discrepancy in the teachers unions' submission was the use of two different data sources in their comparison of teachers' pay. The unions compared teachers' earnings from the Review Body's survey with those of non-manual earnings data from the New Earnings Survey. It would make more sense to use data from the same source which used

the same methodology. Using the same data source, it was found that teachers' earnings were actually 110% of the average non-manual earnings for the year 2000. In fact, compared to non-manual earnings teachers' earnings were higher in 2000 than at any time between 1982 and 1990 (National Employers' Organisation, 2001). The National Employers' Organisation condemned the unions' submission as misleading by not comparing like with like when comparing teachers' pay with average earnings in the economy.

The number of teachers needed in a school is, in part, dependent on how many teachers the school can afford. Table 3.13 shows how funding per pupil in secondary maintained schools in England has changed between 1995/96 and 1999/2000. Funding per pupil had fallen between 1996 and 1997, the period of lowest teacher vacancies. From 1997 to 2002 pupil funding continued to increase. This coincided with the period when teacher vacancies started to rise.

Table 3.13 – Changes in funding per pupil in England 1995/96 – 1999/2000

	'95-96	'96-97	'97-98	'98/99	'99-00	'00-01
Real-terms index (%)	100	100	98	99	102	110

Source: DfES (2002) Departmental Annual Report

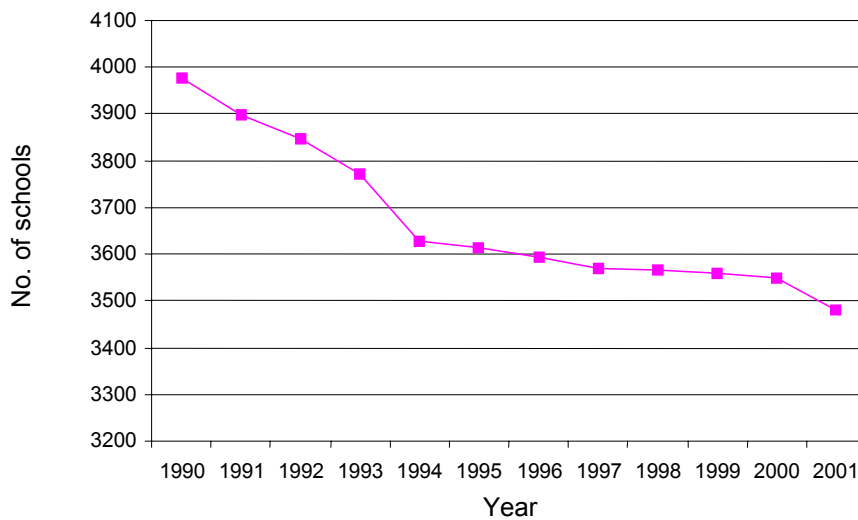
In a memorandum submitted to the House of Commons Education and Employment Committee (House of Commons, 1997, Appendix 15), it was found that in 1996 and 1997, when there was a budgetary cut, 36.7% of schools surveyed reported having to reduce staffing with 43.6% saying they may have to do so the following year. It was calculated that such reductions amount to a loss of 0.7 teachers per school. Funding per pupil has been recognised as one of the reasons for the current increase in demand for teachers. In May 2001 a response to the Select Committee on Education and Employment Minutes of Evidence stated:

It is true that there is increased demand for teachers and in fact extra money which is in the system is being used to create extra posts. Compared with last year it has created 7,700 extra teaching posts and that is part of the reason why demand for teachers is increasing

(House of Commons, 2001, para. 40).

Another alternative explanation for the decline in teacher vacancies in the early 1990s is school numbers. Interestingly, the period between 1991 and 1995 coincided with the early impact of the Education Reform Act in 1988, which saw the introduction of policies such as school choice and pupil-led funding. These policies were partly an attempt to reduce surplus places in some schools. By closing very small schools with surplus places and transferring children to other schools, there was greater efficiency in the deployment of staff, since these teachers are likely to be in larger schools with a higher pupil:teacher ratio (Fidler et al, 1993). The policies resulted in the merger and closure of schools. The result is fewer schools. Fewer, but larger, schools led to fewer teacher vacancies year-on-year from 1990 to 1996. However, after 1996, as the number of schools continued to decline, teacher vacancies increased. Two factors were at play here. One was that the decline in the number of schools in England slowed down (Figure 3.36), the other was the increase in pupil funding. Looking at Table 3.16, it can be seen that from 1997/98 onwards expenditure per pupil (including spending on teaching and non-teaching staff salaries), increased every year, and the biggest increase was between 1999/00 and 2000/01. This perhaps explains the sudden surge in teacher vacancies over the same period. Between 2000 and 2001, the rate of decline in the number of schools increased again, partly explaining the drop in teacher vacancies in 2002.

Figure 3.36 – Number of maintained secondary schools in England 1990-2001



Sou

ree: DfES Statistics of Education –Schools in England (2001)

This re-analysis of national secondary statistics relating to teacher recruitment and teaching vacancies serves to remind us that the dominant contemporary discourse is based on a partial account. There are more trained teachers in service today in England and Wales than there have ever been, and teaching vacancies are only a fraction of what they were in the late 1980s and early 1990s. There are proportionately more vacancies in some areas than others, but these are chiefly in inverse proportion to the operational level of local pupil:teacher ratios. Areas with higher vacancy figures, such as Inner London, operate with correspondingly low pupil:teacher ratios, and areas with low vacancies, such as South West England, operate with higher ratios. In fact, regression analysis shows that variation in teacher vacancies over time is almost entirely explicable in terms of school closures (See 2001). After the reforms of the 1980s many schools in England and Wales were closed to reduce surplus places in the system (even though pupil numbers had begun to rise again). Fewer, but larger, schools inevitably led to fewer teacher vacancies year-on-year from 1990 to 1996. Since 1997, more recent policy changes relating to diversity and class sizes have meant that the number of schools began to rise in proportion to the size of the relevant age cohorts. Simultaneously, teacher vacancies also rose (but nowhere near the level of 1990 as yet). It is this rise that lies at the heart of the current crisis.

However, Table 3.14 shows that, in Wales, the number of educational institutions in all sectors did not change dramatically between 1996/97 and 2000/01. Furthermore, maintained secondary schools were remarkably stable over this period, changing from 229 to 228 institutions (and back again). But the nature of the aggregate data means that, again, nothing more about the exact nature of these changes can be inferred from these figures alone. For example, it is unlikely that, between 1996/97 and 2000/01, the same school closed and was opened twice in succession (although, of course, it is possible). It is more likely that this apparent stability was the net result of a number of school closures and openings (or re-openings). The effect of this will depend on the geographical

locations in which each of these events takes place, the relative sizes of the schools opened and closed, and so on. The same applies, of course, to any changes in the number of schools in any other sectors (and local demand for teachers may be affected by the interaction of sectoral changes).

Table 3.14 - Schools in Wales by type and sector 1996/97 to 2000/01

	Nursery	Primary	Second.	Special	PRUs	Total	Indep.	All
2000/01	41	1,631	229	45	30	1,976	54	2,030
1999/00	42	1,644	228	47	30	1,991	55	2,046
1998/99	46	1,660	229	48	27	2,010	54	2,064
1997/98	47	1,673	228	50	23	2,020	57	2,077
1996/97	51	1,681	229	51	24	2,035	59	2,094

Source: *Schools in Wales – General Statistics 2001*

Another policy measure affecting teacher supply is the proposal for a greater degree of school-based teacher training (Fidler et al., 1993). Gilroy (1998) argued that this move away from a university-based teacher education was an important cause of the recruitment ‘crisis’ experienced in the recent years. He explained that by handing over the one-year secondary initial teacher education course to schools, at least 80% of students’ time would be school-based - an equivalent to four days per week. This would mean a ‘considerable shift of funds’ from universities and colleges to the schools (Clarke, 1992). An important consequence of this change in policy was a substantial increase in the cost of initial teacher education (Gilroy, 1998). Teachers, on the other hand, were concerned that they were spending too much time with student teachers at the expense of the school children. Consequently some schools withdrew their partnership with their universities. This started a chain of events whereby students might apply to courses but were rejected because no schools could be found to place them for the school-based training. There could also be a situation where students are accepted only for the school to withdraw a partnership later on. If a school cannot be found for the students to carry out their school-based component of the course, the university must withdraw their offer to the students (Gilroy, 1998). The net results are fewer universities running initial teacher education courses and fewer students that can be accepted on to courses.

Review of teacher supply, quality and retention in Wales

4. Implications for policy

- There are currently many more applicants for ITET than places available, meaning that places could still be filled if targets were increased.
- The vacancy rate is lower in Wales than in any economic region in England.
- It is not clear that the vacancy rate represents more than a snapshot of turnover: i.e. teachers moving from post to post.
- It appears easier for teachers trained in Wales to obtain jobs in England than vice versa.
- Vacancies vary considerably by sector.
- To be representative, the profession needs more men, more older trainees, more disabled trainees, and trainees from minority ethnic groups.
- More variation in what are considered relevant qualifications and/or experience may encourage mature applicants to ITET. This could address the 'shortfall' of teachers aged 30 to 40.
- Keeping school numbers to a minimum can lead to a more efficient use of teachers and thus avoid shortages.
- Minimising bureaucratic and managerial tasks for teachers may help maximise the use of teachers' time.

4.1 *Wales is different*

As has been shown from the data examined in this report, at least compared to other regions of the UK, Wales has a relatively small problem in the areas of teacher recruitment and retention. Vacancies in Wales are the lowest of any economic region in England. Nevertheless, the scale of cross-border movement and the asymmetry caused by more teachers trained in Wales taking posts in England than vice versa, raises potentially important funding issues.

4.2 *The planning of teacher supply: Starting with the 'problem'*

The methods used to measure the demand for teachers are central to any policies relating to teacher recruitment and retention. It is important to begin with where the perceived 'problem' lies, that is, the extent to which teachers are needed to adequately staff schools. Several different indicators have previously been used to assess the demand for teachers in the school system. Both pupil:teacher ratios (PTRs) and class sizes have been used, as have the number of vacancies for teaching posts. However, as has been argued in this report, there are problems with the use of all these measures.

4.2.1 Measuring demand

One of the most important points is that there is considerable regional variation in all of these variables. This is not necessarily a problem and, indeed, to some extent it is to be

expected in a country like Wales, characterised by extreme contrasts in terms of population density and communication and transport infrastructure. In estimating requirements for teaching staff, it is as important to consider the degree of variation (or 'spread') of the values for any variable as it is to calculate the 'average' value (usually presented as the 'mean'). Information relating to all factors deemed important in estimating the demand for teachers, then, needs to be both collected and presented in ways which allow easy interpretations of not only average values, but also the distribution and variation present in the phenomena under examination.

In addition, more sophisticated 'measures' of staffing requirements could perhaps be developed. These instruments would, ideally, use multiple indicators and consider the issues of distribution and variation mentioned above. Indicators could even be ranked and subsequently 'weighted' in order to provide outcome measures congruent with contemporary thinking on educational priorities. Subsequent analysis could then extend beyond the situation viewed at a national level, to provide information at regional, LEA and institutional levels.

4.2.2 Data collection

Analysis of the kind described in the last section would, ideally, be served by a centralised strategy for data collection. This would be tailored specifically to issues relating to the demand for teaching staff in Wales. Data collection methods would be carefully formulated and frequently reviewed.

With such a mechanism in place to ensure the accurate and regular collection of all the relevant data, the estimation of personnel requirements could move from the, not inconsiderable but predominantly practical, problem of retrieving basic information, to that of making decisions regarding the priorities upon which any future policies or interventions should be based.

4.2.3 Political, organisational and managerial control

As was discussed earlier in this report, solutions to any perceived 'problems' with the demand for teachers do not necessarily have to come from the 'supply' end of the equation. Changing the organisation of schooling can have more direct impacts on the requirements (or 'demand') of the system itself. Decisions regarding acceptable pupil:teacher ratios (PTRs) or average class sizes are arbitrary in nature, rather than based on empirical evidence regarding effectiveness or equity. As previously noted, aggregate data on class sizes disguises not only variation between individual institutions but also differences between subject areas and age groups. PTRs are perhaps a better indicator of the present distribution of teachers, but used in isolation this data reveals little about how teachers are distributed *within* institutions. The deployment of teaching staff within institutions is important as, because most teachers do not teach all of the time and may also have administrative duties to attend to, it may be that their timetables are not organised to ensure maximum efficiency in the use of their time.

What PTRs, class sizes and teacher deployment all have in common is that they are under the control of policy makers and management, and can be manipulated independently of

the supply and demand of teachers. Imbalances in supply and demand, in whichever direction, can be temporarily addressed by changing PTRs or class sizes in schools. Decisions must be made, perhaps at a national level, regarding acceptable maximum and minimum levels, but the size, location and other characteristics of institutions must be taken into consideration when constructing appropriate limits in either direction. A system could be devised where, for example, national limits were set but that institutions had these limits 'weighted' according to the population density of the area from where they drew the majority of their intake. Thus smaller minimum class sizes would be permitted in rural areas, to allow the viable running of institutions in sparsely populated areas, and in urban areas larger maximum class sizes would be considered acceptable.

The deployment of teaching staff within schools could also be investigated and, where necessary, changes implemented. If, for example, it is the case that teachers spend a significant amount of time engaged in administrative work which could easily be performed by suitably trained support staff, such staff could be employed to free up teachers' time for teaching. This could ameliorate shortages in areas in which they are known to exist, with the additional effect of ameliorating teachers' dissatisfaction with their current administrative workloads. Such strategies might be employed selectively, with particular regions, subject areas and age-groups identified as priority areas. Individual institutions experiencing specific recruitment challenges could, perhaps, apply for such support. The extra resources required for this strategy would be minimal (or non-existent) as administrative staff are relatively inexpensive to employ compared to teachers. Teachers' time and skills would thus be more efficiently used and their work roles less vulnerable to accusations of 'de-skilling'.

4.2.4 Value judgements and evidence

Although evidence regarding the demand for teaching staff is an essential prerequisite to making and/or changing policies relating to teacher recruitment and retention, it is an insufficient basis for this task. Ultimately, all policy is based upon value judgements which underlie the aims and objectives of what is put into practice. Whether policies are effective in realising their goals is another matter (and related to the extent to which they use empirical data to assess the 'problem' they wish to address in the first place).

Those charged with attending to the practicalities of teacher recruitment and retention must, therefore, first be prepared to address issues central to, and with profound implications for, the demand for teachers. To take a single, illustrative example, decisions must be made regarding:

To what extent are limits on class sizes principally aimed at:

- maximising pupils' learning
- managing teachers' workloads
- providing an equitable learning environment
- ensuring learning is an enjoyable and sociable experience for pupils

Many further questions could be asked relating to pupil:teacher ratios, teacher employment and unemployment, particular subject areas, and so on. It would, of course,

be unrealistic to expect policy-makers to have considered the endless number of issues that could be raised. What is required, however, is an acknowledgement that any strategy formulated to respond to the demand for teachers will be premised on a particular construction of the nature of 'demand', and the ideal solution to any imbalances in supply. This construction, in turn, must be based on an underlying philosophy regarding what elements in the equation (e.g. PTRs, class sizes, teacher unemployment) are of most importance. A 'hierarchy of priorities' must be created, against which future policy decisions can be justified and policy effectiveness measured.

Once such a framework has been outlined, empirical evidence can then be used both to assess the nature of teacher 'demand', according to the criteria set out within that framework, and as a resource to inform policy-making solutions. It may be the case, however, that further empirical research is needed to inform the policy process sufficiently well to enable any decisions to be evidence-based in any meaningful sense.

4.3 Possible solutions

If policy makers decide that there is a requirement for more teachers in the school system, there are various ways in which this can be addressed. Some strategies, such as those relating to ITET recruitment, would take a considerable period of time before any impact was felt, but others could redress any existing imbalances relatively quickly.

4.3.1 ITET places

As is discussed earlier in this report, there are many more applicants to ITET courses in Wales than there are available places. Every year, a large minority of applicants are unsuccessful in their applications to ITET courses. Unless it is the case that every one of these unsuccessful applicants was unsuitable for teacher training, there are potential teacher trainees being turned away by training institutions each year. An obvious way of increasing the number of future teachers would be to expand the number of ITET places available in accordance with demand. This may, perhaps, raise issues relating to the 'quality' of students on ITET courses but, up to the present time, debates surrounding teacher 'shortages' have focused almost exclusively on problems associated with vacant teaching posts, rather than on the quality of new entrants to the profession.

There are particular issues relating to the age profile of ITET applicants and that of the teaching profession more widely. As previously noted, older applicants are much less likely to be accepted onto ITET courses than younger ones. Again, this may be due to the quality of their applications rather than suggestive of any age bias in the admissions process. Nevertheless, there are, for example, a significant number of unsuccessful applicants in their thirties at a time when teachers of this age are under-represented within the profession as a whole. It could be the case that the present number of ITET places available is restricting the entry of a large number of suitable applicants and, as a result, many potentially enthusiastic, committed and talented individuals are being denied entry to their profession of choice (at least temporarily).

More information, then, is needed in relation to the profiles and suitability of unsuccessful ITET applicants. Drives to increase recruitment to the profession are of limited value if they are thwarted by overly restrictive limits on the number of training places available. The competition created by the high ratio of applicants to places may, indeed, raise the 'quality' of trainees but, as stated above, this issue does not appear to have been the highest priority in terms of the current debate. It is certainly the case that without an investigation into this issue informed decisions regarding any change in policy cannot be made.

4.3.2 Un- and under-employment

It is telling that when a 'crisis account' of teacher recruitment is published in, for example, *The Times Educational Supplement*, it is followed the next week by letters from unemployed teachers unable to find work. This alone does not, of course, form sufficient evidence upon which to make policy decisions. However, as is made clear earlier in this report, these letters do not represent isolated cases as there are a large number of qualified teachers unable to find work in the profession. There are also qualified teachers working in employment outside of education who would prefer to take up teaching posts.

Unsuccessful applicants to ITET courses represent a potential wastage of talent, and un- and under-employed teachers may be a symptom of inefficiency in the present organisation of teacher deployment. Such individuals have invested their time and other resources in becoming qualified as teachers only to be unsuccessful in attempts to pursue this career further. The state has also invested heavily in their training. These graduates represent trainees who have, at the very least, not only been accepted onto a ITET course but have also successfully completed their training. It may also be the case that some of these un- or under-employed teachers have had a number of years classroom experience and have been unable to re-enter the profession.

Clearly, more needs to be known about qualified teachers not presently working in the profession but wishing to return to teaching (and are harder and more costly to research). These groups represent the most obvious 'wastage' presently produced by the system and are, perhaps, the most pressing 'problem' for those concerned with teacher recruitment and retention in Wales. Training more teachers is not an efficient way to fill existing vacancies if there are already qualified teachers unable to find work. ITET graduates unable to find teaching posts immediately following the completion of their training may find it increasingly difficult to find employment as time passes, as has been the case in other sectors. Only once sufficient information has been gathered on these groups can appropriate strategies be devised to ameliorate the situation.

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5. Recommendations for further research

- The recording and use of records on individual ITET applicants, and the tracking of their progress through the training and employment process.
- The conduct of more complex, multivariate, analyses of the determinants of teacher supply and retention.
- The use of turnover rates to create a model predicting expected vacancy rates, thus allowing an estimate of the long-term vacancy rate.

As has already been highlighted, there is at present insufficient data publicly available, especially at the level of the individual, to adequately inform policy making. More research is needed if decisions relating to teacher recruitment and retention policy are to be grounded in empirical evidence. However, as is explained below, this does not necessarily mean that large-scale projects need to be commissioned. There are relatively simple ways in which the bodies presently concerned with organising and administering recruitment and training could aid and/or conduct the collection and analysis of data in these areas.

5.1 The need for better data

One of the frustrations of researching teacher recruitment and retention is the lack of a centralised source of data. As explained in Section 1, many different sources had to be accessed in order to collect data in the area. It was also often the case that the data sets eventually retrieved were not directly comparable (see Appendix A). Data were sometimes only available aggregated at the UK level or, more frequently, for England and Wales combined. The spread of years for different data sets were seldom identical, limiting the time scale for which data could be compared when several sources of data were combined.

A centralised strategy for the collection and analysis of all sources of data in the area could do much to ameliorate the problems inherent in the present situation. Relevant bodies (e.g. HESA, GTTR, GTC, NafW etc.) would need to liaise with regarding the collection and presentation of important data sets. Ideally, a central database would be created into which, where possible, historical records (in addition to current and future data sets) could be incorporated.

When such a database has been established, policy decisions can be made in the light of a comprehensive knowledge of the existing situation in teacher recruitment and retention. Analyses of supply and demand would be much simpler than is the case at present and any strategies could be defended in terms of a complete and coherent evidence base.

5.2 More advanced analyses

Once several years of individual level data are available, it would be possible to model the issues and the determinants of teacher supply in Wales in a more accurate and elegant way than in this report. In the meantime, a multivariate analysis of the potential determinants of vacancies is possible (but not within the time frame necessary to produce this report). Perhaps the most fruitful avenue in the short term is to create a model from turnover data predicting the levels of vacancy rates. From this model it would then be possible to estimate how far the existing vacancy rates diverge, and therefore whether there is indeed a problem of supply, or simply one of increased turnover.

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Appendix A: Limitations of and problems with the data

There are various sources of information on applications and acceptance rates to initial teacher education and training (ITET) courses, such as the Graduate Teacher Training Registry (GTTR), the Teacher Training Agency (TTA), the DfES and the National Assembly for Wales/Welsh Office. Figures from these sources did not always tally. Some problems with the data included:

- Figures varied depending on the date of publication and the document referred to. As ITET applications are updated and revised from month to month, data on the same topic for the same year may differ, depending on which figure one is used.
- Data on teacher vacancies in maintained secondary schools for 1985 to 1990, published in the Department of Education and Science (DES) Statistical Bulletin, were for England only. Those for 1991 to 1993 were from the Department for Education (DFE) Statistical Bulletin, while those for 1993 onwards were from DfEE First Release, School Teachers' Review Body and the DfES Statistics of Education: Teachers in England and Wales.
- DfEE vacancy rates before 1994 for classroom teachers by subject exclude sixth-form colleges. This inhibits analysis of longer-term trends. Similarly, in 1998 DfEE data on teacher vacancies ceased to distinguish between vacancy rates for single science and combined science. Recent analysis in this area is, therefore, necessarily less detailed.
- In the academic year 1997/98 a new form (Stats 3) replaced the one previously used (618G) in Wales to collect data on teacher vacancies. Some of the change shown in the data for this year may be an artefact of the change in instrument used to collect the relevant data, rather than reflecting any real changes.
- Some ITET intake targets include places for the employment-based route scheme. Maths and Science targets for England in 1999/2000, published by the Higher Education Funding Council (HEFC), are one example. Howson (2000) excluded targets for this route in his calculations.
- The latest indicative targets for 2000/20001 were split by phase (under- or post-graduate) with places for modular provision separately identified while those prior to that did not. Figures for ITET intake targets for periods prior to 1996/97 are not available.
- The TTA performance profiles collected data for England only, while GTTR did not include applications to Open University (OU) PGCE courses and some school-centred ITET courses (SCITTs).
- Acceptance and recruitment rates are different. Prospective trainees can withdraw after initially accepting a place an ITET place or can withdraw during training. So

recruitment numbers and the number of first year ITET students are also different measurements.

- The TTA Performance Profiles provided the number of first year undergraduate and PGCE students, while the GTTR gave the number of applications and acceptances, excluding those from the OU and SCITTs.
- The Statistical Report from the National Assembly for Wales provided information on the number of students on full-time ITET courses only. Those on part-time courses were not included in the report. Alternative sources of information such as from the Higher Education Funding Council for Wales (HEFCW) had to be sought. These did not completely resolve the matter, however, as whilst the English figures provided a breakdown of ITET students by gender and subject, the Welsh figures did not.
- DfES statistics for English include drama, and those for languages include all modern foreign languages but exclude Welsh and Classics. The DfEE Review Body, on the other hand, include Welsh and Classics. GTTR's broad classification include English, Welsh, modern languages and Classics under the umbrella term Languages.
- The DfEE Review Body include business studies, computing and home economics under design and technology. It was not clear if it also included information technology. In the GTTR annual statistical report, design and technology, information technology and computing were three different subjects. While design and technology and home economics were classified under specialist subjects, information technology was classified as a science subject, and business studies as one of the social sciences.
- While the GTTR refer to social studies as a subject and social sciences as a group of subjects including business studies, economics, geography and social studies, TTA Performance Profiles referred to social science/ social studies as a separate subject.