

What impact does the wider economic situation have on teachers' career decisions? A literature review

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This research report was commissioned before the new UK Government took office on 11 May 2010. As a result the content may not reflect current Government policy and may make reference to the Department for Children, Schools and Families (DCSF) which has now been replaced by the Department for Education (DFE).

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education.

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Acknowledgments

This literature review was written in the context of a research project led by TNS-BMRB. I would like to thank Alex Thornton of TNS-BMRB for his helpful comments and support

1 Introduction

This literature review focuses on the impact of the wider economic situation on teachers' career decisions, and specifically on their decisions to remain in or leave teaching during recession and recovery from recession. Like most other public sector jobs, teaching is often identified as 'recession-proof' because the demand for teachers does not generally change in response to the wider economic factors. This contrasts with private sector jobs, which are much more vulnerable in times of recession because the market declines. According to the ONS, between December 2007 and December 2008 (i.e. a period during which UK GDP was declining), private sector employment in the UK declined by 105,000 (0.4 per cent) while public sector employment increased by 30,000 (0.5 per cent) (ONS, 2009). This makes public sector jobs more attractive for new graduates, and may increase retention of workers in the public sector. During the recent recession, the *Telegraph* (22.11.2008) reported that graduate job applications to the civil service had increased by 22 per cent in the previous year, adding that university leavers were 'shunning banking and finance roles for the safe-haven of the public sector'.

The impact of the wider economic situation on teachers' career decisions is an important issue for workforce planning, but is an area about which there has been only limited research. In fact, Dolton et al. (2003a) reported that there is very little research literature focusing on the extent to which the economic cycle affects the supply of workers to *any* specific occupation.

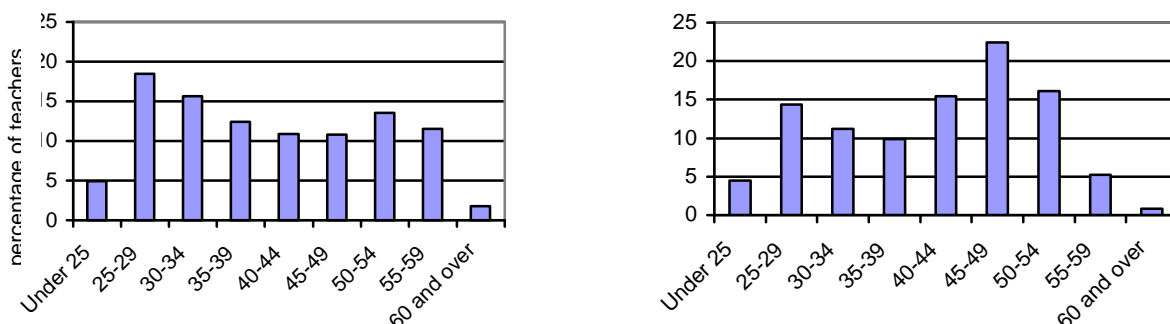
Before considering the research findings, we review the demographic composition of the teaching profession in England, and the pattern of teacher movements in recent years: entry to teaching, movement out of the profession and return to teaching, and retirement. These patterns have important implications for how the workforce might respond to recession.

2 The teacher workforce and teacher flows in England

2.1 Characteristics of the teacher workforce and labour market for teachers

In England, the age distribution of teachers, shown in Figure 1, is of importance in that the factors affecting the career decisions of teachers at different ages are likely to differ. This age distribution has changed over time, with a higher proportion of teachers currently being in the younger age groups than was the case ten years ago, and a flatter age distribution; the 1999 figures are shown for comparison.

Figure 1: Percentage of full-time teachers in each age group in England, 2009 and 1999



Sources: DfE, 2010, DfEE, 2000. (Note that the age distribution of part-time teachers is not published, so they are not included here.)

The proportion of women teachers in England has increased over time; in 2009, 70 per cent of full-time teachers were women (DfE, 2010) (as were 76 per cent of new entrants to full-time teaching). While the gender breakdown of part-time teachers in post is not published, it can be assumed that a higher proportion are female than of full-time teachers because, in 2009, 87 per cent of part-time entrants and 86 per cent of part-time leavers were women. However, the proportion of women in teaching is not yet as high as it is in the USA; Belfield (2005) pointed out that the proportion of female teachers in the USA had risen from two-thirds in 1966 to almost four-fifths by 2001.

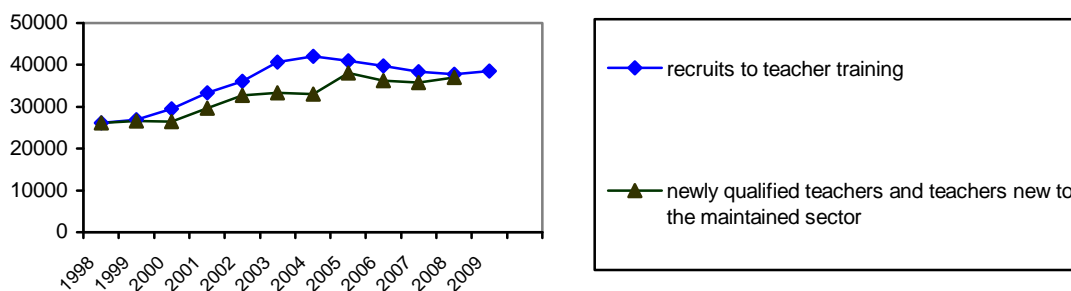
The proportion of teachers working part-time has also increased steadily over the last thirty years from less than four per cent of the full-time equivalent teaching workforce in 1985 (DfEE, 2000) to 12.7 per cent in 2010 (and this is higher in primary and special schools at 14.6 per cent and 15.8 per cent respectively) (DfE, 2010). This means that more than a fifth of the individuals in teaching are working part-time. We will show below that the pattern of teacher movements into and out of the profession for part-time teachers differs from that of full-time teachers. However, none of the research about the impact of the economic situation on teacher supply distinguishes between part-time and full-time teachers.

It is important to note that there are considerable differences in career opportunities relating to school phase, secondary subject taught and location, with higher vacancy rates in London, in special schools, for headteachers and for teachers of secondary mathematics, information technology and science. The alternative career opportunities that might be open to teachers also vary across the country, with the most varied and best-paid opportunities in London. Thus the labour market for teachers has to be seen as a number of distinct markets, by school phase, subject taught and region (Dolton, 1996).

2.2 Patterns of initial entry to teaching

Figure 2 shows DfE figures for the number of recruits to teacher training and new entrants to teaching¹. Both have increased over the last decade; the increase in numbers entering teaching lags behind the increase in recruits. The increase in entrants to teacher training can be related to efforts to attract people into the profession following concerns in 1999-2001 about teacher shortages (see Hutchings et al., 2000; Menter et al. 2002).

Figure 2: Number of recruits to teacher training and new entrants to teaching



Source: DfE School Workforce Statistics 2010. Note that entrants to teaching are for the year March – March i.e. those shown for 2008 are those who entered teaching in the year March 2008-March 2009.

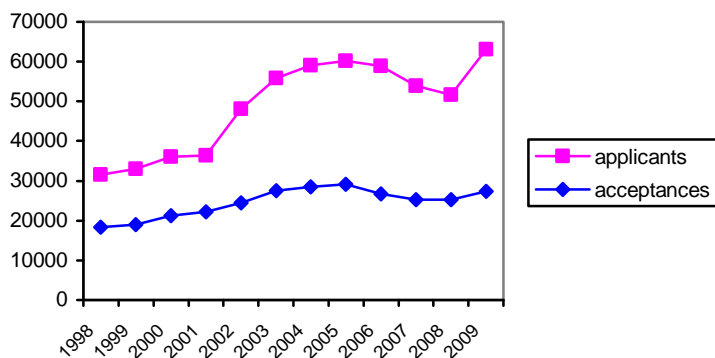
It is important to recognise that the total number of new teachers reflects not only the number of people who want to become teachers, but also numbers of teachers leaving; pupil numbers;

¹ New entrants to teaching in this context are made up of newly qualified teachers (those who qualified the previous year) and those who are new to the maintained sector (who may previously have taught in the independent sector, or may simply have delayed entering teaching after gaining their qualifications).

government decisions about pupil teacher ratio; and funding to schools; demand is not elastic. Thus analysing data about numbers entering the profession against economic trends (which is the main way that labour economics has analysed the impact of the economic situation on entry into teaching) has only limited value in terms of indicating the impact of the economic context on career decisions.

A better indicator of the way the economic context may impact on the decisions of individuals is the number of applicants to teacher training. Figure 3 sets out Graduate Teacher Training Registry (GTTR) figures for applicants and acceptances to postgraduate teacher training (the largest route), and shows that over the last decade there have been much greater fluctuations in the number of applicants than in the number who were accepted.

Figure 3: Number of applicants and acceptances to teacher training courses through the GTTR



Source: GTTR statistics

2.3 Patterns of movements out of and returns to teaching

A key fact, from the perspective of the issue we focus on in this review, is that only about a quarter of teachers in England continue in teaching until they retire; the majority leave teaching at an earlier stage in their careers; in 2008-9, less than a quarter of those leaving teaching did so for retirement (DfE, 2010). Thus patterns of teacher attrition (leaving the profession before retirement) are a key issue for those engaged in workforce planning; if the current patterns of teacher attrition and return were to change significantly, this would then impact significantly on the number that need to be recruited into teacher training and into the profession.

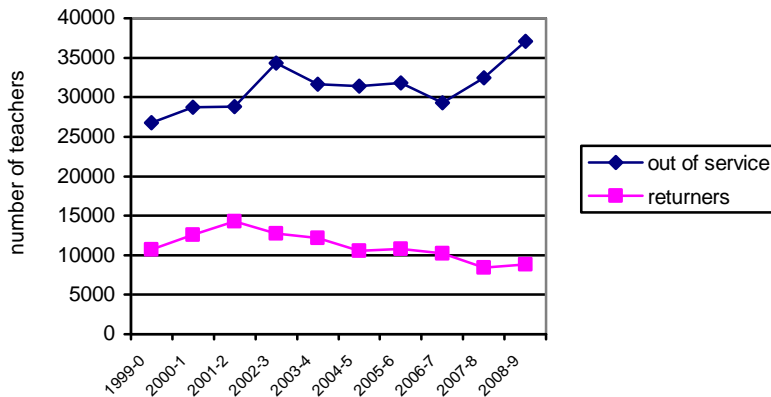
It should be noted that in England, the number of teachers leaving the profession before they reach retirement age is higher than it is in France, Germany, the Netherlands, Portugal and Hong Kong. The USA has a pattern of attrition similar to that in England; both countries have significant losses of teachers at the start of their careers (Cooper and Alvarado, 2006; Boe et al., 2008; Howson, 2009).

The patterns of teachers' movements into and out of the profession are complex, including movements from full-time to part-time and vice versa as well as career breaks. In comparison to the number of teachers going out of service (excluding those who retire), far fewer return to service. Figure 4 combines the figures for the numbers of full-time and part-time teachers going out of service and returning. The number going out of service shows an overall increase in the last decade, and continued to rise in 2008-9 when the economy was in recession. When these figures are broken down by gender and full-time or part-time working, it becomes clear that the increase in attrition between 2006-7 and 2008-9 is almost entirely an increase among full-time teachers; attrition among both male and female full-time teachers increased by about 30 per cent over this two-year period.

Figure 4 also shows that the total number returning to service (full-time and part-time) has fallen, though with a slight increase in provisional figures for 2008-9 when the UK economy was in

recession. This decrease in numbers returning to teaching is part of a longer-term trend; in 1989-90, returners (full-time and part-time) made up about 44 per cent of the total number of entrants to teaching (DfEE, 2000). Ten years later (1999-0) they formed just 26 per cent of all entrants (DfEE, 2002), and by 2007-8, only 18 per cent (DfE, 2010).

Figure 4: Total number of full-time and part-time teachers going out of service, compared with total number of full-time and part-time returners, 2000-1 – 2008-9

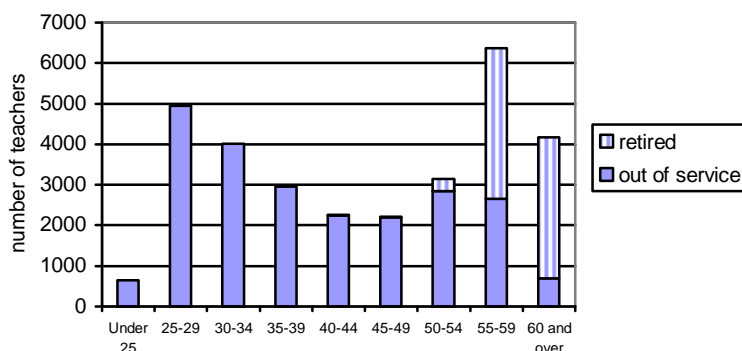


Source: DfE, 2010 and previous volumes

Patterns of attrition vary by region and possibly by subject. Hutchings et al. (2000) showed that young teachers tended to move out of London after a few years because they could not afford to buy property in the capital. Smithers and Robinson (2004) suggested that retention may be less good in certain secondary subjects (English, maths, science), but acknowledged that lack of national data about the number of teachers of each subject made it difficult to draw firm conclusions. Later research that they conducted into the supply and retention of physics teachers (Smithers and Robinson, 2008) suggested that wastage was no worse for science than for other secondary subjects. Similarly, an answer to a written parliamentary question indicated that retention rates for teachers of English, mathematics and science were all average (Daily Hansard, 2008)

Attrition also varies by gender and age. Figure 5 shows the pattern of full-time teacher wastage by age, distinguishing between those going out of service (attrition) and those retiring. This shows that teachers tend to go out of service both towards the start of their careers and then in their fifties, partly reflecting the age distribution of teachers in England.

Figure 5: Full time qualified teacher wastage March 2008-9 by age

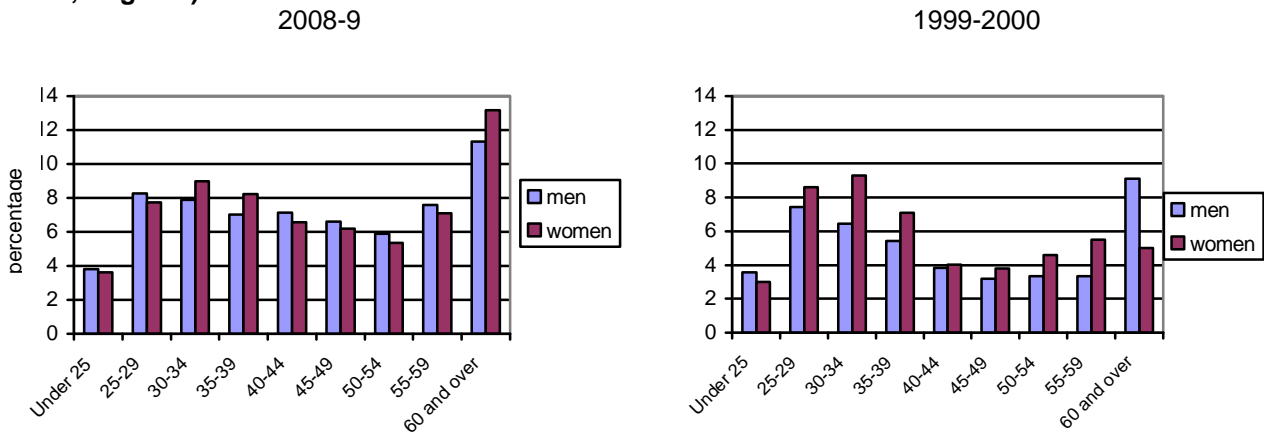


Source, DCSF, 2009a. Provisional figures.

In Figure 6, we have therefore calculated those going out of service (e.g. attrition) as a *percentage* of the total number of teachers in each age group at the start of the year, by gender. Only full-time teachers are shown here because the age distribution of part-time teachers is not available; the part-time teacher workforce is particularly volatile, with more than 11 per cent going out of service in 2008-9, and a further six per cent moving to full-time service. The latest

figures (2008-9) are compared with those for 1999-2000, showing that the pattern of attrition has changed. A higher proportion of both men and women in almost every age group leave teaching before retirement than was the case a decade ago. Overall, the proportion of men going out of service has increased from 4.5 per cent to 7.2 per cent, and the proportion of women from 5.7 per cent to 7.1 per cent. Thus recent figures show very little difference by gender in comparison with those from 1999-2000.

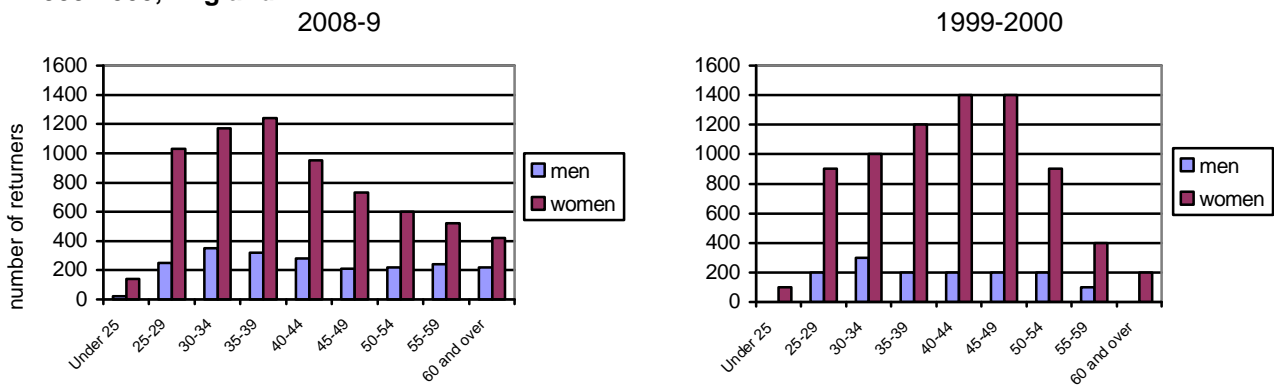
Figure 6: Full-time qualified teacher attrition: those going out of service as a percentage of the total number of teachers at the start of the year, by age and gender (2008-9, compared with 1999-2000, England)



Sources: DCSF, 2009; DfE, 2010; DfEE, 2000; DfES, 2002.

There are also changes in the age and gender pattern of return to teaching. We have already shown that the total number of returners has fallen; Figure 7 shows that fewer women return now than did a decade ago, and that there is no longer a 'peak' of women returning in their late forties, presumably after taking career breaks for child-care; those who do return to teach do so at a younger age. However, numbers of male returners have increased, particularly those in their late fifties and sixties.

Figure 7: Number of full-time and part-time returners by age and gender: 2008-9, compared with 1999-2000, England



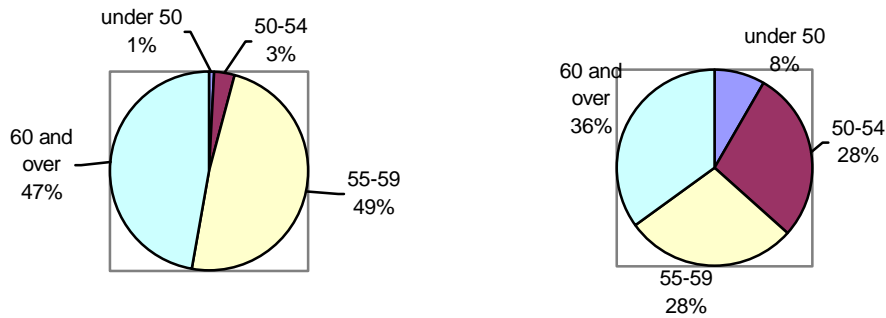
Source: DfE, 2010, DfES, 2002

2.4 Patterns of teacher retirement

There has been a substantial shift in retirement patterns in the last few years, with fewer teachers now taking retirement in their late forties or early fifties, and more in their late fifties and in their sixties (Figure 8). Whereas a decade ago, almost two-thirds of teachers retired in their

fifties, the 2008-9 figures show that almost half of those teachers who retire do so aged 60 or over.

Figure 8: Percentage of full-time teachers retiring at different ages, 2008-0 and 1999-2000



Sources: DfE, 2010, DfEE, 2002

2.5 Key issues arising from consideration of demographic characteristics of teachers in England and pattern of teacher flows

This section has identified a number of issues that have an impact on the ways in which teachers may respond to the wider economic context.

- A majority of full-time teachers (70 per cent) are female. More than one in five work part-time; a higher proportion of these are female.
- The labour market for teachers has to be seen as a number of distinct markets, by gender, school phase, subject taught and region.
- Government policies have a strong influence over numbers entering the teaching profession, though the number of applications may be more influenced by the wider economic context.
- Movement out of the profession and return to teaching are key aspects of teacher supply, in that the majority of teachers do not stay in the profession until they retire. These are also aspects of teacher supply which are perhaps the least likely to be influenced by the wider economic context.

3 Research methodologies

Research that sheds some light on teacher career decisions and how they relate to the wider economic situation comes from two main perspectives:

- labour economics, which considers patterns of supply and demand, wages, employment levels etc. and the relations between them (e.g. Dolton and Van der Klaauw, 1995, 1999; Dolton et al., 2003a; Dolton, 2005; Chevalier et al., 2007); and
- education research exploring the reasons that teachers themselves put forward for their career decisions (e.g. Smithers and Robinson 2001, 2003, 2004, 2005).

This section briefly reviews the characteristics and limitations of each type of research.

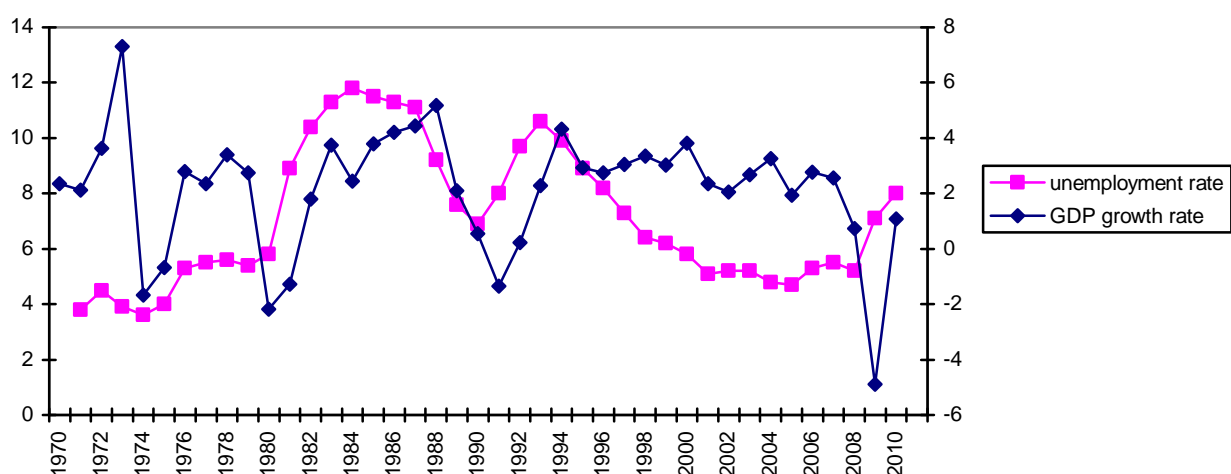
Labour economics uses large longitudinal or cohort datasets to try and establish relationships between teacher supply and retention and economic trends such as GDP changes and patterns of pay and unemployment. Generally the datasets used also enable researchers to make comparisons between different groups of teachers (by gender, qualifications etc.).

Many of the studies of teacher supply and retention from this perspective focus on England, because national data about teacher numbers and teachers flows has been collected over a long period, and teachers have been employed on national pay scales and conditions. In contrast, it is much more difficult to undertake such studies in the USA, where decisions about teacher training requirements, recruitment and pay rest with school boards, and thus vary from one district to another, and where only limited and intermittent data are collected or published nationally (Dolton et al., 2003a; Borman and Dowling, 2008).

Research studies from this perspective have investigated the relationship between teacher supply and wider economic trends such as unemployment levels and pay levels. Only a minority have specifically addressed the relationship between teacher movements and economic cycles as defined by GDP growth rates. Dolton et al. (2003) did this, and found that the real GDP growth variable was not generally significant, but that there was a relationship between the economic cycle and teacher supply when measured through unemployment and relative wages.

In previous UK recessions (1974-5, 1980-1, 1990-1), unemployment levels have responded immediately to falls in GDP, and have continued to rise after the economy has returned to positive growth output (ONS, 2009). Figure 9 shows aggregate UK unemployment against GDP.

Figure 9: UK unemployment against GDP growth rate



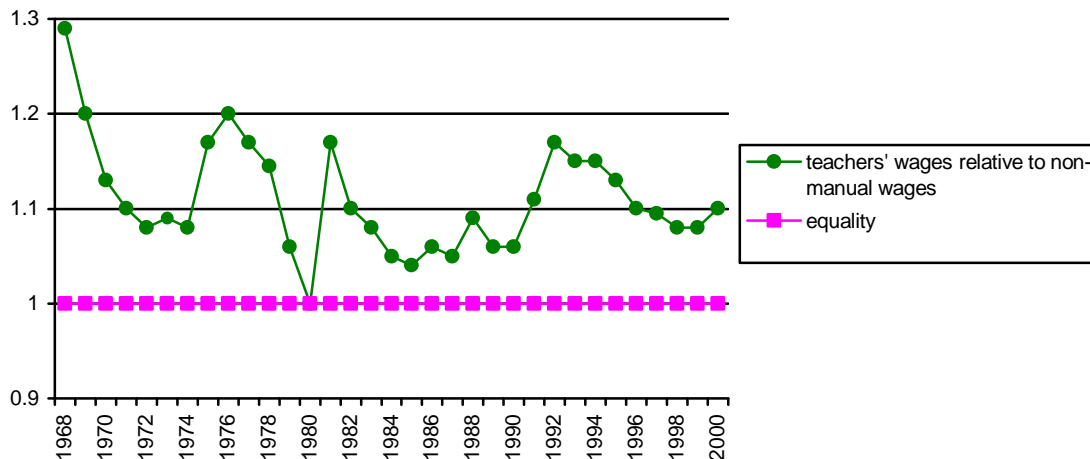
Source: ONS

While Figure 9 shows aggregate unemployment, most of the research studies referred to in this review use unemployment rates that might be more likely to be relevant to teachers or prospective teachers: unemployment rates for non-manual workers, graduates or the public sector, often differentiated by gender.

During a recession, pay levels tend to be frozen, or any pay rise awarded is typically very small. The ONS (2009) show that real earnings growth was negative during the first two quarters of the recessions in 1980 and 1990, and the 2008 recession showed a similar pattern. However, it is not necessarily the case that there will be a relationship between the economic cycle and teachers' wages relative to those of alternative occupations. This is because teachers' pay scales are set nationally and take into account the level of supply of teachers, and demand (in terms of pupil numbers, which fluctuate). Thus during the mid-seventies recession, teachers in

England were awarded an average pay rise of 29 per cent following the Houghton report, and during the recession in 1980-1, teachers were awarded another substantial pay hike following the Clegg report. In each case, this followed a period of decline in teachers' pay relative to that in comparable professions, and also related to a rise in pupil numbers, and therefore demand for teachers; the pay rise was not directly related to the recession. Figure 10 shows teachers' pay relative to non-manual pay.

Figure 10: Teachers' wages relative to non-manual wages, 1971-1999



Source: Dolton (2005).

The labour economics studies that consider relative wages for teachers have selected various groups for comparison: average non-manual pay (e.g. Dolton, 1996); 'professional' earnings (e.g. Bacolod, 2007); graduate pay (often by gender) (e.g. Dolton and Makepeace, 1993); and pay levels achieved by those who have a teaching qualification but are not teaching (e.g. Chevalier et al., 2007). There is also variation in whether the pay levels chosen are pay on entry, average pay for the profession, or estimated lifetime earnings. The different choices made result in some differences in findings.

While some studies focus on the impact of a single factor (e.g. unemployment levels) on teacher supply, a few use econometric modelling to assess which factors have the key influence (e.g. Dolton et al. 2003a).

There are a number of limitations to research from a labour economics perspective. In particular, it ignores the complexity of individual employment decisions, and focuses only on economic factors. It does not examine the role of non-pecuniary factors (workload, stress, pupil behaviour etc.), though many authors acknowledge that they play a significant role in teachers' career decisions. Dolton and Chung (2004: 90) write, 'An individual making an occupation decision will take into account both the pecuniary and non-pecuniary benefits accrued from the alternative jobs.' However, they point out that while non-pecuniary factors such as job satisfaction have been shown by other research to have an important influence in decisions to enter teaching (e.g. by Coulthard and Kyriacou, 2002), it is difficult to include these in quantitative analysis because they are difficult to measure.

Another limitation is that government actions to manage the number of teachers joining or leaving (for example, through setting numbers for teacher training courses) are not included in the models created. Finally, while much of this research is longitudinal, most existing studies have not used data from the last decade. While it might be assumed that there will be similar relationships between wider economic conditions and teachers' movements at different periods of time, this is clearly not necessarily the case, as each recession or boom has its own characteristics, and policy responses have varied at different times.

The second type of study that is relevant here is research that explores the reasons that teachers themselves put forward for their career decisions. A limitation of research of this type is that it has generally involved surveys, and the findings therefore reflect the specific questions that were asked. None of the studies along these lines has specifically asked teachers about the impact of the wider economic situation on their career decisions, though most have asked about the extent to which salary levels (in teaching or in other occupations) are factors in teachers' decisions.

4 Research and evidence about teacher supply and the wider economic situation

The two types of research identified in the previous section offer rather different perspectives about the impact of the wider economic context on teacher career decisions. This section sets out details of research from each perspective in relation to entry into teaching; moves in and out of the profession; and retirement. It also draws on some evidence relating to the impact of the 2008-9 recession; it should be noted that this is generally based on partial data and may be impressionistic

4.1 Entry into teaching and the wider economic situation

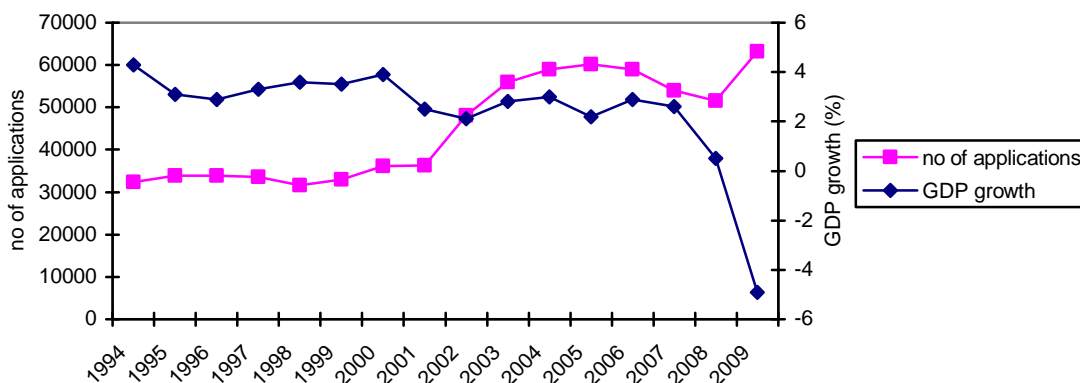
Dolton et al. (2003a) suggest that economic factors impacting on decisions to enter teaching include:

- salary in teaching compared to other potential occupations;
- time taken to train, and cost of training (or financial support offered);
- labour market conditions including potential for entering other occupations and job security in teaching and in alternative occupations;

However, the factors included in labour economics research about teacher supply tend to be limited to GDP change, teachers' salaries relative to those of alternative occupations, and levels of graduate unemployment. Each of these is considered in turn.

There is a strong and significant negative correlation between number of applicants to the GTTR and GDP growth over the last fifteen years (Figure 11). When GDP falls, the number of applicants rises. Thus the number of people applying to enter PGCE courses rose by record numbers during the first quarter of 2009 (Howson, 2009).

Figure 11: Number of applications to the GTTR and GDP growth 1994-2009



Sources: GTTR statistics and ONS.

Numbers accepted on training courses also rose. Since the government fixes quotas for numbers recruited, the increase reflects previous under-recruitment in certain subjects. The TDA

(press release, 18 November 2009) reported that for the first time ever, the number of people recruited onto teacher training courses starting in September 2009 had exceeded government targets in every main subject and phase area, including mathematics, a particularly challenging target that had never previously been achieved. Graham Holley, Chief Executive of the TDA was quoted in the press release as saying, 'The recession has, of course, played a part in these excellent results.' In addition, numbers entering teaching have been found to have a negative relationship with GDP growth over the period 1959-2000 (Dolton et al., 2003a).

Recent reports indicate that as a result of the recession, teaching is more attractive not only among new graduates, but also for career changers. In 2010, the TDA reported a 35 per cent increase in the number of career changers applying to train as teachers (Guardian, 4 January 2010). In an effort to understand the increased recruitment, particularly among career changers, and the impact of the recession, the TDA commissioned research to explore how the career priorities of selected groups of city workers (who were not at that time intending to become teachers) had changed over the last twelve months. The report (Future Foundation, 2009) showed that job security and salary/remuneration had both increased in importance as priorities as the recession worsened. Thus, while there is a correlation between GDP and applications to teach, individual decisions are framed in terms of unemployment levels and relative salary.

Dolton (1996) reported that numbers applying to enter teacher training have risen when graduate unemployment is rising or high, for example, in the early 1990s. Using time series data over the whole post war period, Dolton et al. (2003b) found that most graduates' willingness to enter teaching improves when graduate prospects are poor in alternative occupations and when graduate unemployment is high. They noted that it should be appreciated that for many graduates, teaching is considered as a 'fall-back' profession that they will only consider entering if times are bad and more attractive jobs are difficult to find, and that this may in turn affect their propensity to stay in teaching when labour market conditions improve.

Similarly, Chevalier et al. (2007), analysing data about six cohorts who graduated at different dates between 1960 and 1995, noted that graduates' decisions to teach are affected by the level of graduate unemployment. They suggest that the cohort that entered teaching in 1980 during a very deep recession in the UK may have been looking for a 'relatively recession-free profession such as teaching' (2007: 79). However, they also show that that cohort had lower academic credentials than the other cohorts analysed (i.e. the graduates who turned to teaching in that recession were not the most highly qualified). This contrasts with the assumption in DCSF evidence to the STRB (May 2009) which suggests that the current recession makes public sector employment (including teaching) an attractive option, and that recruitment and retention of a high calibre teaching workforce should therefore become easier.

The effects of unemployment levels impact on likelihood of entering teaching differently for different groups. For example, Chevalier et al. (2007) found that the effect of unemployment levels was seven times greater for women than for men. They suggest this indicates either greater risk aversion on the part of women, or a lower set of alternatives for women when labour market conditions are poor. Similarly they reported that higher subject-specific unemployment levels had a positive effect on the probability of becoming a teacher, but that this was only marginally significant overall.

Labour economics research has also focused on the impact of teachers' pay relative to that of alternative occupations in the decision to enter teaching. Overall, it has shown that entry to teaching is higher when the relative salary in teaching is higher (Dolton, 1996). This is the case for both men and women, though men have been found to be more sensitive to relative salary, presumably because they are more often the main earners in a family. Nevertheless, Dolton and Makepeace (1991: 1405) reported that for women, the choice of teaching was significantly affected by relative pay: 'An increase in the earnings a female graduate receives as a teacher relative to the earnings she receives as a non-teacher increases the probability that she will become a teacher.' However, they also showed that the choice of teaching as a career among

women was strongly related to the decision to participate in the labour market; given the same level of family commitments, women outside teaching were less likely to be in employment. Women also give more weight than men to non-pecuniary factors in their career choices (Dolton, 1996).

While men are more sensitive to the level of relative earnings in teaching, Dolton and Chung (2004) showed that the level of pay in teaching could also be a greater deterrent for men than for women; this is because the rate of return on teaching as a career choice is such that males entering teaching since 2000 stand to lose an average of £67,000 worth of lifetime earnings (primary) or £40,000 worth (secondary) in comparison to those with similar qualifications choosing alternative occupations. However, teaching is still a relatively well paid choice for women. This suggests that relative pay levels may be a factor in the decreasing proportion of men in teaching.

It was suggested by Nickell and Quintini (2002) that falling relative wage levels may be responsible for a decline in quality of male teachers over time, whereas they reported that the quality of female teachers had not declined. This research used UK data; however, research in the United States (Bacolod, 2007) found a relationship between salary levels and the quality of women teachers. Using a longitudinal dataset covering the period 1940-1990, she showed that the more teachers are paid relative to other professionals, the more likely it is that educated women will choose to teach. But when pay in teaching is less attractive, the quality of women entering teaching declines.

While labour economics research has found links between numbers entering teaching or applying to teach and levels of GDP, unemployment and relative salary, other research has not identified economic factors as having major importance in the decision to teach. A systematic review of research about reasons for entering teaching (Edmonds et al. 2002) concluded that key reasons for entering teaching are working with children, intellectual fulfilment, and making a contribution to society. It is seen as a secure job. However, but most studies included in this review found pay level to be a deterrent rather than an attraction. Similarly, Hobson et al. (2004) found that the reasons for teaching most frequently identified as important by a sample of student teachers were 'helping young people to learn', and 'working with children or young people', while 'teachers' morale' and 'salary' were the most frequently identified deterrents. The Future Foundation (2009), researching the career priorities of city workers; reported that the perceived attractions of teaching included good work-life balance and long holidays.

Overall, then, the research shows that job security and salary are among the factors taken into account by prospective teachers, though they are not the factors generally perceive as the *most* important. However, the relationship between all stages of entry to teaching (from application to training to starting work as a teacher) has been shown to be linked to the economic cycle, and the key factors in this appear to be both unemployment levels in alternative occupations and relative pay levels in teaching.

4.2 Teacher attrition

While the effect of recession on teacher recruitment is evident; what is perhaps less clear-cut is the effect of recession on the career decisions of teachers in post. In this section, the evidence about teacher attrition is examined.

There is evidence that wider economic conditions do have some influence on teacher attrition. McDonald (1999) cites Forojalla's (1993) conclusion that attrition is generally lower during economic recession when alternative employment opportunities are fewer. However, Dolton et al. (2003a), using longitudinal data series for the period 1959-2000 for England, found limited evidence of a direct relationship between GDP and teacher attrition in England. They reported a negative relationship between GDP growth and male teacher attrition (i.e. male teachers are *more* likely to leave teaching when the economy is not doing well), but were able to show

through econometric modelling that the effect of this was small. There was no relationship between GDP growth and female teacher attrition.

Dolton et al. did identify relationships between attrition and other economic factors. They found that male graduate unemployment has a significant but low impact on male teacher attrition. However, this relationship is counter-intuitive; the male teacher attrition rate *increases* as graduate unemployment increases. For females, a negative relationship is prevalent between aggregate unemployment and female teacher attrition; thus women are less likely to leave teaching as unemployment increases (which accords with economic theory).

The economic factor impacting most strongly on teacher attrition is wage levels relative to comparable occupations. As Section 3 explained, pay levels for teachers are set nationally and are adjusted in the light of levels of teacher shortage; thus relative wage levels for teachers are not necessarily related to the economic cycle.

Dolton and van der Klaauw (1995, 1999) found a significant relationship between relative wages and likelihood of leaving teaching; the higher the relative earnings in teaching, the less likely teachers are to leave the profession. However, men are much more likely to be influenced by pay levels than women. Based on a sample of 1980 graduates in the first seven years of their careers, they set up a model through which they could distinguish between departures for other employment and for non-employment, and used econometric analysis to relate the rate of leaving to characteristics such as the individual's potential earnings in the teaching and non-teaching sectors, regional labour market conditions, and the teachers' education and family. Their results showed the importance of relative earnings in the decisions of teachers leaving for other employment. The higher the relative wages *outside* teaching at any particular time, the more likely teachers in the early stages of their careers are to leave teaching for an alternative career. In addition, the higher the wage *within* teaching, the less likely the teacher is to quit a teaching job to move into 'non-employment' (generally assumed to be maternity and childcare).

However, Dolton et al. (2003a), using econometric modelling, found that when male relative wages in teaching were higher, so was male attrition. They comment that this result 'seems to contradict economic theory and logical reasoning' (2003a: 54), but speculate that there are other factors that affect male attrition in addition to wages. The difference between their findings and those from the Dolton and van der Klaauw study may result from the different samples used; Dolton et al. were using all male teachers, while Dolton and van der Klaauw's sample were those in the first seven years of their careers.

Labour economists (e.g. Dolton, 2005) acknowledge that non-pecuniary factors such as workload and unruly pupil behaviour are of key importance. Research about teachers' reasons for leaving the profession identifies such factors as the key reasons for leaving. Smithers and Robinson (2001) reported that 85 per cent of their sample of teachers leaving the profession (other than for retirement or maternity) identified negative aspects of teaching (push factors) as the main reason for leaving, compared with just 15 per cent referring to attractions of other occupations. Borman and Dowling's (2008) meta-analysis of research about teacher retention and attrition in the USA shows that teachers are more likely to leave schools with specific characteristics (urban, low social class entry, high free school meals etc). One factor in this may be that such schools are often characterised by poorer pupil behaviour. Hanushek et al. (2004) reported from a study in Texas that school characteristics were more important than salary levels in teacher exits from the profession.

One reason for these findings may be that many of those leaving teaching are not moving into other employment. Thus Dolton and van der Klaauw (1999) explained that a limitation of many studies that seek to investigate the economic factors in teachers' decisions to leave the profession is a failure to distinguish between the different destinations and reasons for leaving. Level of salary may not be relevant for those who exit teaching to a non-employment state (which is the case for many women who leave to have children).

Smithers and Robinson (2005) found that of all teachers going out of service (i.e. excluding retirements and maternity), some 40 per cent were taking jobs in education (including supply teaching, teaching abroad or in FE or HE or the independent sector, or working for an local authority). In most cases, such opportunities offer similar pay arrangements to teaching. Only about ten per cent were moving to other employment sectors. Similar findings about teacher destinations were reported by the NFER/LGA (2008, 2010). Hutchings et al. (2000) reported that moving to other employment (whether in education or another sector) accounted for a higher proportion of those leaving schools in London during 1998-9; this may relate the younger age distribution of teachers in this sample, or the greater employment opportunities available in the capital, and illustrates the importance of considering local markets as well as the national picture.

However, even those teachers that say they are moving into other employment sectors may not be affected by relative wages, since several studies have found that teachers are more likely to move into self-employment than to employment. Smithers and Robinson (2003) commented that the majority of the teachers they had identified as moving into other employment were in fact becoming self-employed by, for example, setting up consultancy or advice services, becoming freelance musicians or writers, or running hotels or pubs. In such cases, job satisfaction would appear to be a more important motivator than level of pay.

While push factors were most often cited by teachers leaving the profession (other than for retirement or maternity) in Smithers and Robinson's research, some leavers identified pull factors as important; 22 per cent selected 'attracted by another job'; 14 per cent 'better career prospects', 11 per cent 'school salary too low', and just seven per cent selected 'offered higher salary'². Research has found that salary is rarely the key attraction of moves into other employment. Hutchings et al. (2000) asked those who were moving to jobs outside teaching about the attractions of the new job; the most frequently selected responses were 'room for initiative' (selected by 64 per cent) and 'scope for creativity' (60 per cent) – factors that are often seen as characteristics of teaching. Similar findings come from research that has surveyed teachers in post and asked them what factors might encourage them to leave (e.g. Dalgety et al., 2003; Barmby and Coe, 2004; Barmby, 2006). There is evidence from the United States that only a very small minority of those who had left teaching in Georgia had moved into jobs that paid more than the minimum teaching wage (Scafidi et al., 2006).

While research among those teachers leaving found salary to be a relatively unimportant factor, it rated much higher in studies that have collected teachers' views about the most appropriate policy responses to encourage retention in the profession. Dalgety et al. (2003), drawing on data from London and the North West, reported that the most highly rated factor was an increase in pay (selected by 73 per cent of the sample). Barmby and Coe (2004), evaluating the Repayment of Teachers Loans Scheme, similarly found that financial incentives were considered to be important, but that they were not rated as highly as support with pupil discipline and reduction in teacher workload.

The influence of these factors will all vary depending on the gender and qualifications of the potential teacher and local labour markets. Dolton and van der Klaauw (1999: 547) point out that there are 'differential turnover propensities' for teachers of different educational backgrounds, gender, social class etc. Overall women are more likely to leave teaching than men because many leave for maternity and child-care. Teachers in London have rated salary as more

² Factor analysis was used to summarise these data: among both primary and secondary teachers, workload (encompassing workload, stress and initiatives) was the most frequently identified factor and was ranked as the most important. It was followed by personal circumstances (opportunity to travel, personal circumstances, wanting change); wanting a new challenge (new challenge, change, attracted by another job); and the school situation (the way school is run, feeling undervalued, poor resources/facilities). Salary (school salary too low, offered higher salary elsewhere, better career prospects elsewhere) was the least important factor. (Smithers and Robinson, 2003).

important than teachers elsewhere, whether as an incentive to stay or a factor in decisions to leave (Dalgety et al. 2003; Smithers and Robinson, 2003; Barmby, 2006). Other variations are related to the opportunities available outside teaching for different groups. Thus in a study of a cohort who graduated in 1980, Dolton and van der Klaauw reported that those with an education degree (Bed) were less likely to quit teaching to move into non-teaching jobs, while those with professional postgraduate qualifications (PGCE) were more likely to leave teaching, irrespective of destination or reason. Cooper and Alvarado (2006) report that international evidence shows that teachers with higher educational qualifications are more likely to leave the profession, and similar evidence is reported in Borman and Dowling's (2008) meta-analysis of research about teacher attrition in the USA. Dolton and van der Klaauw (1999) also found that women from higher social classes and privileged school backgrounds were more likely to leave teaching.

Overall then, research findings suggest that there are limited links between the economic cycle and teacher attrition, with some suggestions that teachers are more willing to leave the profession during a recession. The increase in teachers going out of service in England during 2008-9 appears to support this (see Section 2.3, Figure 4). There is evidence that relative wage levels are a factor in some decisions to leave, but this is clearly not the case for the majority.

4.3 Returning to teaching

Another aspect of teacher supply that has been examined by labour economics research is the likelihood of returning to teaching, having once left. Dolton et al. (2003a) reported that the relationship between GDP and number of re-entrants to the teaching profession was unclear over period 1959-2000; it was sometimes positive and sometimes negative. However, there was a positive and significant relationship between aggregate unemployment and the number of female re-entrants; as unemployment increases, so does the number of women re-entering teaching, suggesting that when employment conditions deteriorate, female teachers value their teaching positions.

There is some evidence of greater interest in returning to teach in the recent recession; in July 2009, Tony Cook, director of EM Direct which runs return-to-teaching courses, reported a much higher level of interest than in previous years (TES, 3 July 2009).

4.4 Retirement

The trend to stay in teaching longer can be related partly to various changes to the Teachers' Pension Scheme. From 1997, early retirement packages became less common because local authorities, rather than central government, had to pay the additional costs for retirement before the age of 60. Also in 1997, the ill-health retirement regulations were changed such that teachers had to prove they were 'permanently unable to teach' rather than that the incapacity should last for the foreseeable future; this has resulted in a substantial decrease in the number of ill-health retirements. Further revisions in 2007 made it possible for teachers to reduce their hours or responsibilities towards the end of their careers without suffering a substantial reduction in their final salary pensions; the immediate impact of these changes was limited because research showed that teachers in their fifties generally had a very limited understanding of the pension scheme and little awareness of the changes (Peters et al., 2008). However, the same research suggested that other factors had also had an impact on retirement plans; for example, many of the older teachers interviewed said that they were unable to retire early because of financial commitments such as paying fees for their children's higher education following the introduction of HE tuition fees in 1998 and top-up fees in 2006.

There have been suggestions that some teachers deferred their retirement plans as a result of the 2008-9 recession. The convenor of the GTC Scotland claimed that some teachers had put off retiring because they were having to support grown-up children who were unable to find work

(TESS, 21 August 2009). Similarly, John Howson of Education Data Surveys suggested that headteachers in England were postponing retirement (TES, 5 June 2009).

Thus teachers appear to be more reluctant to retire when they have ongoing financial commitments, and such commitments may increase during a recession.

4.5 Teacher supply

Thus far the focus of this review has been on teachers' decisions to enter or leave the profession. However, some research about the relationship of teacher supply to the wider economic context has focused on the total supply of teachers, or of specific indicators of shortage, without specifying whether the shortage is caused by attracting too few people to enter the profession, or by premature exits. Such studies are less useful in relation to concerns about teacher behaviour, but nevertheless have a bearing on the issues.

In Norway, Falch et al. (2008) researched the relationship between teacher shortages (as measured by the number of non-certified teachers in post) and the business cycle (as measured by levels of unemployment and relative pay). They report that there is a relationship between regional levels of unemployment and teacher shortage; a reduction in unemployment increases teacher shortage. This was stronger for women than for men. However, they found no relationship between teacher shortages and pay levels outside teaching. They suggested that this might be because pay is set nationally to address teacher shortages.

In the USA, Berman and Pflieger (1997) could not find any relationship between real GDP growth and teacher supply as measured using teacher-pupil ratios. Dolton et al. (2003a) reported the same results in their analysis of US data; they also reported that they could not find any link between graduate unemployment and teacher supply. However, they did find that the higher teachers' relative wages, the lower the teacher-pupil ratio (i.e. the fewer teachers there were). They comment that this finding does not accord with economic theory, but that it may result from the fact that the teacher market is heterogeneous, with each state and school district making decisions about teacher pay. Thus analysis of figures aggregated for the whole country may not have been able to capture the complexity of the situation.

Similarly, in England, Dolton et al. (2003a) report that they found no significant relationships between teacher supply as measured by teacher pupil ratio and the economic cycle measured by real GDP growth. Another measure which they used was the size of the pool of inactive teachers; this reflects decisions not to enter teaching made after qualification; decisions to leave teaching; and decisions to re-enter. They found that male graduate unemployment and male relative wages were negatively related to change in the male pool of inactive teachers, but for female teachers, only relative wages was significantly related to the size of the female pool of inactive teachers.

5 Summary

Overall, research in labour economics concludes that there is a relationship between teacher supply and the economic cycle, but that this works through changes in unemployment and relative wages rather than through GDP changes.

The strongest relationships found are those concerned with entry to teaching; applications rise during a recession because teaching is seen as offering secure employment at a time of rising unemployment. Researchers have also found that when pay in teaching is higher than in alternative occupations, numbers entering teaching increase. This effect of relative pay is stronger among male entrants, but affects both men and women. However, the economy being in recession does not necessarily imply that teachers' pay will be higher than that in alternative occupations, although this has been the case in recent UK recessions as a result of increases in

teachers' pay following the Houghton and Clegg reports. Moreover, research about what attracts people into teaching shows that pay levels are generally identified as a deterrent rather than an attraction.

While a higher than normal number of applications may result in better teachers (because the best candidates can be picked), it has been found that this is not necessarily the case, and that even if it is, those with higher qualifications are more likely to leave the profession prematurely.

There are also some links between the economic cycle and teacher attrition, though these are less strong than the patterns relating to entry. Dolton (1990) found that is considerable inertia to remain in teaching, once established. Male teachers are slightly more likely to leave teaching when the economy is not doing well, and are slightly more likely to leave when male graduate unemployment is higher. GDP growth has no impact on female attrition. However, women are less likely to leave when female graduate employment is high, and those who have left are more likely to return at such times.

The economic factor impacting most strongly on teacher attrition is relative wages; the lower the relative wages within teaching, the more likely teachers in the early stages of their careers are to leave, with men more strongly influenced by pay levels than women. However, the evidence concerning overall attrition rates is less clear, with one study finding that male attrition is higher when relative wages in teaching are higher. Evidence about the reasons teachers give for leaving shows that only a small percentage identify salary as a factor in their decision; conditions of work (workload, pupil behaviour etc.) within teaching are much more often identified.

There is some evidence that some teachers may delay retirement in times of recession, because of concerns about their ability to fulfil financial commitments.

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Ref: DFE-RR136

ISBN: 978-1-84775-949-8

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June 2011