# Competition for Private and State School Teachers

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## Executive Summary

Private schools have historically played an important role in the reproduction of the ruling classes in Britain. They continue to do so, but there is surprisingly little modern research as to how these schools impinge on the economy. In this paper we analyse the role of independent schools in the teachers' labour market. Teacher shortages in maintained schools are a recurring problem. A potentially relevant factor that has arisen in recent years is rising competition in the teachers' labour market from independent schools. There has been a huge increase in the demand for education and in particular a rising willingness of the better-off to pay for academic credentials. The fees that better-off parents are prepared to pay for private educational advantage have more than doubled in real terms over the last twenty years, and the average cost of a full private education for a child in day school now reaches six figures, and approximately a quarter of a million pounds for a boarder. The nominal fees have risen by 6% or more every year since 2000. These incomes have given independent schools the means to deploy ever more teaching staff per pupil.

We examine the changing quantity and quality of teaching staff in the independent sector, relative to that in the state sector, over the past two decades of rising demand for education. We find that independent schools are employing a disproportionate share of teachers in Britain, relative to the number of pupils they educate, and that the gap between the independent and state sector has been increasing. Independent school teachers are more likely than state school teachers to possess post-graduate qualifications, and to be specialists in shortage subjects.

Recruitment from the state sector is an especially important source of new teaching staff for independent schools which has been growing over the medium term. The flows into the independent sector of both newly qualified and experienced teachers, trained at the state's expense, constitute a small though increasing deduction from the supply of new teachers available to state schools.

Inter-sectoral flows depend on the attractions of jobs and accordingly we also investigate how working conditions and wages vary between the sectors and over time. Independent school teachers work with fewer pupils and enjoy longer holidays and, in the case of women, shorter weekly hours. The level of job satisfaction over hours and the work itself was higher in private schools in the early to mid 1990s, but there is evidence of some convergence in job satisfaction since then. Among women, pay is lower in the private sector, which we interpret as a compensating differential. For men, there is no significant inter-sectoral difference in pay. However, for both men and women there is evidence of a substantial pay premium for independent-school teachers trained in shortage subjects.

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## 1 Introduction

Private schools have historically played an important role in the reproduction of the ruling classes in Britain. They continue to do so, but there is surprisingly little modern research as to how these schools impinge on the economy. This paper looks at the labour market for private school teachers, an area we know surprisingly little about. For example, many believe that private school teachers are paid more than their state school counterparts and that their working conditions are vastly superior. Yet looking in the literature one cannot find evidence confirming or refuting even these simple hypotheses. Similarly it is often stated that private schools 'poach' teachers from the state sector and again this is something we have little hard evidence about (although see Smithers and Robinson, 2005, for some descriptive evidence).

In this paper we consider these questions, presenting empirical evidence from large scale micro-data sources on teachers and using administrative data on the labour market for private and state school teachers. We present evidence on two key areas. First, we study differences in pay, working conditions and job satisfaction between private and state school teachers. Second, we analyse where private schools get their teachers from, with particular emphasis on the question of poaching from the state sector.

Why are these issues interesting, and in need of social science research? One very obvious starting point is the perennial obligation for government to secure a supply of qualified teachers for Britain's state schools, and to match this supply to the educational needs of successive cohorts of children and to the public purse. Teacher shortages relative to targets have become a regular problem, induced from time to time by failures to recruit or to retain sufficient numbers in the teaching profession. Accordingly, a number of studies have examined the importance of pay and other factors in affecting teacher supply (Smithers and Robinson, 2003; Chevalier and Dolton, 2005). There is some evidence that declining relative pay for teachers has led to a small decline in the average ability of those practising in the teaching profession in recent decades (Nickell and Quintini, 2002).

A potentially relevant factor that has arisen in recent years (for a number of reasons we discuss below) is rising competition in the teachers' labour market from independent schools. Historically, the independent education sector has always been relatively small in terms of the numbers of students taught privately, even though its graduands have had a disproportionate influence in British society. In the last thirty years, however, it has become increasingly difficult to ignore the potential impact of the independent sector's thirst for human capital. Economic developments have altered the material bases of privilege and power and with it the public demand for education. The source of competitive advantage in global and national markets has shifted more to gaining and maintaining a lead over rivals in terms of knowledge and innovation, which in turn has stimulated a relatively rapid growth in the demand for skills. Education has come to be seen as an increasingly important factor influencing economic growth, and at the same time as the prime route to private economic success.

Because of this, individuals from all classes of society have increased their demand for education, but in particular there has been a rising willingness of the better-off to pay for academic credentials. The fees they are prepared to pay for private educational advantage have more than doubled in real terms over twenty years (see Figure 1). The average cost of a full private education for a child in day school now reaches six figures, and approximately a quarter of a million pounds for a boarder. The nominal fees have consistently risen by 6% or more every year since 2000; and within the sector there is also considerable heterogeneity. With these increased financial resources flowing into the independent sector of education the implications for state education, as well as for the independent schools themselves, are important issues that need to be considered. Yet there is to date very little research on this small but wealthy sector of education.

A related question is whether the expansion of resources in the independent schools sector has significant consequences for the rest of education in Britain, and in particular for the staffing of the state sector? The predicted social effects of private education are ambiguous. On the positive side, it has been argued (typically by industry advocates) that independent schools provide direct benefits for other schools and for other local community organisations (ISC, 2003), often at subsidised rates. These benefits have become part of the public defence of the charitable status (and

associated tax benefits) which independent schools in Britain enjoy. In some countries there is also debate as to whether private schools can improve local state school performance through the pressure of increased competition for pupils (e.g. Dee, 1998; Hoxby, 1994). Whether increased competition improves performance is an important question for the evaluation of policies to raise parental choice in schooling. However, private schools in other countries are often religion-based, and in any case are part of substantively different institutional systems from the dual system operating in Britain. In Australia, for example, "private" schools are recipients of substantive amounts of public funds. It is unclear, therefore, how far evidence from other countries can be relevant without heavy qualification for Britain. We are aware of no evidence that sheds light on whether and if so how private school availability affects state school performance in Britain.

On the negative side, potential spillovers include an effect on the teachers' labour market, whereby good teachers are enticed to leave the state sector by offers of better pay and benefits. Poor working conditions are cited informally as a more important reason than pay for teachers leaving the profession (Smithers and Robinson, 2003), so these would also be expected to figure importantly in any inter-sectoral transitions. Spillovers may be more significant in particular subject areas such as Maths where typically the supply of teachers is scarce. Very surprisingly to us, we could find neither any systematic descriptions of differences in pay and conditions between the sectors, nor whether the differences have grown more acute in the recent era of expanding demand for education, nor analyses of how pay and conditions might be associated with inter-sectoral mobility.

More difficult to gauge are the multiple effects of the loss from the state sector of potential peer effects from highly-committed pupils, and the criticism that there has been a comparatively low historical level of commitment to improvement in academic education in state schools partly because governments have been dominated by independent-school-educated politicians.[1] It has also been argued that education is in some respects a positional good, conferring a higher rank in the social and economic hierarchy, rather than additional productivity in the workplace. To the extent that

[1] This criticism was part of the Labour Party's charge against private schools, made at the height of its zeal for securing eventual abolition of privated education in Britain (Rae, 1981).

education is a signal, private education enables pupils to jump up the hierarchy, without improving overall productivity.[2]

The implications of these changing demands for teachers leads to a final set of research questions we consider. Namely what are the incentives on offer for individuals choosing between working in private or state schools? To look at this we investigate how wages, working conditions and job satisfaction vary between the two sectors. Do private schools pay more and provide more satisfying jobs and superior working conditions and, if so, does this enable them to attract better teachers? How have the sectoral differences been changing over time, given the influx of resources into the independent sector? What has been the degree of within-career mobility of staff between sectors? Are independent schools attracting a "disproportionate" number of trained teachers out of the universities and colleges, or inducing substantial numbers of experienced teachers to quit the state sector?

We address these questions using a mix of large scale survey and administrative data. Section 2 sets out the historical and theoretical context in which the changing demand for teachers has taken place, and develops hypotheses concerning the private/public teachers' labour market. Included here is a brief review of the institutional context for pay determination and skill acquisition which pertains in the two sectors. Section 3 describes our data sources. Section 4 presents findings on the labour market comparisons of the two sectors, and examines how far these findings are consistent with the theoretical and historical discussion. Section 5 concludes.

[2] That said, there is no strong evidence in favour of the signalling interpretation of education (Chevalier et al, 2004).

## 2 History and Theory: Why the Rich Are Demanding More and Better Education

### Historical background

Historically, the independent schools in Britain had become by the 1960s the symbols and pillars of a class system, through which the children of upper middle class and more wealthy families could acquire a good education. The leading institutions of both public life and the private economy had tended to be populated disproportionately by "public school" educated men.[3] Children educated in the public schools generally did well in the labour market, especially males who benefited from the networks to which the schools opened the relevant doors. Dolton and Vignoles (2000), for example, found that independent school male graduates in the 1980s received a wage premium of 6.5% compared to their state school counterparts. Interestingly, they did not find any impact of school sector at that time on women's wages. At the upper end of the scale, the dominance of ex-private-school children in positions of influence and leadership within British society has been well-documented (Sutton Trust; 2005a, 2005b, 2006)

This historical supremacy of the public schools is normally attributed to a combination of network effects and the capacity of the public schools to deliver a broad moral, physical and academic education suited for leadership posts in imperial and post-imperial British society. Yet the small size of the independent school sector, and the relatively muted demand for teaching staff meant that competition from this sector was traditionally of only minor significance in the education labour market and in particular for recruitment strategies in state schools.

Yet the economic environment in which private school graduands come to work was to change profoundly in the three decades following the 1960s. Not only was the British economy to continue on its path of de-industrialisation, it was to become

[3] "Public school" is the confusing term for most fee-paying secondary schools in Britain, though not in Northern Ireland; the phrase was used at the time of their foundation, in some cases many centuries ago, and has persisted.

increasingly linked in to a European and later global economy, in which competitive forces rather than imperial domain were to be the driving forces of investment. At the same time, profound technological changes were being introduced, not least the mainframe and later the personal computer, which came to pervade virtually all lines of business in both private and public sectors. In parallel with this wave of skill-biased technological change, the main source of competitive advantage shifted more to gaining and maintaining a lead over rivals in terms of knowledge and innovation, in what is often described as a transformation into a "knowledge economy".

These changes brought with them an immensely expanded demand for educated workers, capable of utilising the new technologies to carve out quasi-rents in the new economy. For governments, education came to be seen as an important factor influencing economic growth, rather than merely a social expense. For individuals the benefits of post-compulsory education were visible in the labour market, as the acquisition of credentials came more than ever to be seen as the route to personal success. The pent-up demand for education in Britain was revealed during the mid-1980s when the university system was finally given the go-ahead to open its doors to a wider public that had been keen to take advantage. The proportions of successive cohorts of young people participating in higher education roughly doubled between 1988 and 1995. This influx of students may have surprised many, but in hindsight should not have done so.

The private schools in Britain have plied their trade all through this ongoing period of educational renewal. The sector had survived during the transformation of the state secondary schools in the 1960s, and in one respect had gained, since many grammar schools had opted to become independent rather than join the mass of comprehensive schools. However, it became evident that, if the better-off classes were to maintain their positions in the economic hierarchy, they would need to acquire the credentials necessary for differential success, in the face of an increasingly well-educated general public (Rae, 1981). The private schools were well-positioned to supply the high-quality education that became necessary, but to do so they would have to alter the emphasis of what they delivered. To stay in business they would have to meet the increasingly academic-oriented demands of their market. They were later boosted in this objective during the 1980s by the Conservative governments' decision to begin

subsidising places in private schools for bright children from poor family backgrounds. In recent years a yet-further boost has been added by globalisation trends that have led to expanded foreign demand for a high-quality English-language education product: just as universities have benefited so private schools have increasingly entered export markets and now provide over 20,000 places for non-British children.[4]

The rising demand did not result in any major increase in the relative size of the independent education sector – about 8 percent of schools are nowadays independent, as was the case in the mid-1970s; these independent schools now take just over 7 percent of pupils, up from 6 percent in the mid-1970s. Prices, however, rose very substantially. Between 1982 and 2005 fees for both day and boarding schools more than doubled in real terms (see Figure 1). The rising revenues of these schools have not, of course, been pocketed by profit-seeking owners -- for the most part the independent schools are non-profit organisations. Part of the new wealth has gone to support immense improvements in facilities for pupils, often in an overt process of inter-school competition: capital spending in the independent sector was £1387 in 2006 [5], roughly twice that in the state sector. The independent schools used their new wealth to deliver an immensely successful academic product: in 2006 57% of their GCSE entries were graded A or A*, and 76% of their A-level entries were graded A or B; nine out of ten independent school students go on to university,[6] and the independent schools are disproportionately represented in the top universities (Naylor et al. (2002). These achievements are far in excess of those of the general population, and in academic terms represent a very substantial improvement on typical success rates several decades ago, when less than one in five independent school pupils graduated from university. Ceteris paribus, going to an independent school in the modern era generates better A-level scores, even though once at university independent school graduates perform less well than their state-school counterparts (Blundell et al., 1997; Smith and Naylor, 2001), and an earnings premium in the labour market (Naylor et al., 2002; Dearden et al., 2002; Green et al., 2007).

[4] Independent Schools Council Census 2007, available at www.isc.co.uk.
[5] Data from Independent Schools Council Census 2007, available at www.isc.co.uk.
[6] These figures are taken from the Independent Schools Council (ISC) website (www.isc.co.uk).

**The demand for private school teachers**

It is in this context that the derived demand for teachers in independent schools needs to be understood. It has always been expected that independent schools provide more staff per pupil than in the state sector, so that they are able both to teach in smaller classes, and to deliver a wider range of activities. (Otherwise, the rationale for payment of fees would be questionable, limited only to possibly illusory peer effects). The growing requirement to deliver better academic credentials, as well as to maintain provision of the wider components of education, leads one to predict a demand for more, and better qualified, teaching staff. Though evidence of links between class size and pupils' academic performance has been mixed (Hoxby, 2000; Krueger, 2004; Dobbelsteen et al., 2002; Blatchford et al., 2002; Blatchford et al., 2004), recent evidence using a cross-section of Britain's independent schools finds clear support for the view that more resources generate superior academic results in this sector (Graddy and Stevens, 2003). One can infer that rising average performance in the independent sector calls for greater resources, including falling class sizes.

Meanwhile if there is a rising latent demand for education among those traditionally using the state sector, the increased demand only becomes manifest through its impact in politics, a much slower process. Following the 1980s it was to be a decade before the new Labour government of 1997 was elected, with its promise of "education, education, education", and even longer before extra resources followed. Thus it is likely that any general expansion of demand for high-quality education will be manifested in a relative rise in demand for private education. We maintain that this is precisely what occurred.

The overall teachers' labour market in Britain is, like elsewhere, governed by supply and demand factors, but these factors are structured by institutional constraints including a system of centralised pay bargaining (Santiago, 2004). The state is a near-monopsonistic employer of teaching staff, though hiring is now mostly decentralised to schools; and the state is also the sole supplier of teaching credentials. The independent schools have historically occupied a small, partially segmented, sector of this labour market. Their teachers tend to be differentiated from those of the state schools by sector-specific skills. Typically, the ability to maintain discipline and

interest in pupils is seen as especially needed in certain parts of the state sector, and less so in the independent schools which tend to have more committed pupils. To some degree there is also subject specificity. The independent schools are not bound to keep to the same rigid national curriculum imposed on all state schools, and while just about all choose to teach the same core curriculum the independent schools continue to teach traditional subjects such as classics that are largely absent from most state schools; the independent schools also place greater emphasis on teaching sports and music. In addition to having somewhat differentiated skills, the ideologies and values of independent school teachers often differ. To some extent differential attitudes between teachers are likely to be sustained internally: according to data from the 2001 and 2006 Skills Surveys, nearly a third of independent school teachers (as against only 8% of state school teachers) had themselves been educated in independent schools.[7] Furthermore, there is more central regulatory control over who is allowed to teach in state schools; whereas in independent schools the limitations are formally far fewer, though in practice most schools require the same credentials as state schools when recruiting their teachers.

## Theory

If there are short-run barriers to mobility between sectors of the teachers' labour market, a straight-forward application of Marshallian supply-demand theory predicts that a period of rapid expansion in the demand for independent school teachers will result in the appearance of quasi-rents in their salaries and conditions. Yet despite these forms of differentiation, the barriers between the sectors are eminently surmountable, and *a priori* one might expect a reasonable degree of between-sector substitutability in the demand for labour, and hence a long-run convergence of the overall conditions of employment for equally capable teachers. Thus, even with expanded demand in the private sector, quasi-rents for independent-school teachers can be held down by inter-sectoral mobility for established teachers and by increased recruitment direct from universities or from non-teaching occupations. The impact of the independent schools on the state school labour market depends on how large these

[7] Authors' calculations; see Felstead et al. (2007) for details about these surveys.

flows are compared to the overall stocks and flows in and out of the state school teachers sector.

The rising relative demand in the independent sector also suggests that increasing quantities of independent-school teachers would be complemented by a rise in their average teaching skills. If that occurs, part of any increase in the salaries paid to independent-school teachers could be a return to that improving quality, rather than a quasi-rent. It will thus be important to control for teacher skill as far as possible in the subsequent analysis. The only feasible way of doing so is through the qualifications achieved by teachers, but it must be recognised that some skills that are unobserved by the researcher may be observable by their employing schools and rewardable through promotions and pay rises.

Because working conditions differ, we may expect to see compensating differentials for teachers in the independent sector. Teaching in smaller classes allows teachers to concentrate more on subject matter, less on discipline, which is presumably valued by most teachers. Independent schools typically have superior facilities, sometimes provide accommodation and reduced fees for teachers' own children, and offer a different package of working hours (see below). In a competitive labour market, these differences in working conditions will be reflected in a relative pay premium or deficit that is sufficient to offset the value that the marginal teacher attaches to the conditions, where the "marginal teacher" is that person who is indifferent between working in either of the two sectors.

As in the state sector, the pay and conditions of teachers in the independent schools are affected by regulations and customs (over and above the generic legal constraints facing all employers). Relatively few limitations apply formally, and governing bodies have generally adopted a standard clause that enables them to set pay without constraint. Nevertheless, most independent schools follow similar practices to those found in the state sector. Independent schools are not obliged to employ only qualified teachers, but increasingly do so. Moreover, an experience of teaching in an independent school is normally eligible to count towards acquiring Qualified Teacher Status for newly graduated teachers. Independent schools have neither to comply with national pay scales nor to recognise trade unions, but more than a half of independent-

school teachers are trade union members.[8] Each of the five independent school associations conduct some form of negotiations with the Association of Teachers and Lecturers (ATL), and the large majority of schools which belong to one of these associations are expected to use the state sector pay scales as a benchmark. A small number of schools recognise a union (the main one being the ATL) for formal bargaining through a joint consultative committee over both pay and conditions; agreements by the committee are incorporated into individual teachers' contracts. Unsurprisingly one can expect more pay flexibility within the independent than in the state sector, especially over regional variations. In the US there is some evidence that greater pay variability in the private sector arises because schools are more able to match pay with teacher quality given local supply and demand conditions (Ballou and Podgursky, 1998). But even with fixed pay scales some flexibility is available in the state sector to attract scarce teachers, whether through initial placement on the scales or through promotions and extra scale increments. In the state sector, flexibility was added in 2000 through a "golden hello" scheme to attract new teachers, and in 2005 the value of this introductory bonus was differentiated to give an extra incentive in scarce subject areas (Maths and Science).

**Summary and key hypotheses**

To sum up the above discussion, which treats the demand for teachers in the independent schools as a derived demand, a number of predictions and testable hypotheses about the teachers' labour market follow from the proposition that there has, over recent decades, been a relative expansion in the demand for educational credentials by the richest section of British society:

i) The independent schools demand and employ more teachers per pupil than state schools
ii) The pupil-teacher ratio in independent schools will have fallen over these decades, in advance of any fall in the pupil-teacher ratio of the state sector; thus, with either constant or *a fortiori* increasing proportions of pupils attending independent

[8] Using the QLFS data described below, union density among teachers in the private sector, averaged over 1996 to 2005, was 56%.

schools, the sector will demand an in increasing share of the stock of the employed teachers.

iii) Compared with the state sector the independent schools would be expected to be employing better academically-qualified staff now than the state schools; this may not have been so in the past.

iv) There will be a convergence towards equality of overall job quality in the long-run. To the extent that their working conditions are better, independent school teachers will receive a pay penalty, conditional on teacher skill. However, during a period of rising demand independent school teachers will have enjoyed a quasi-rent over the short period involving improved relative pay and conditions, conditional on skill. There is therefore an ambiguous prediction about whether pay would be expected to be higher in the independent than in the state sector. The changes are also ambiguous. The relative pay and conditions in the independent sector will be rising (falling) to the extent that relative labour demand in that sector is increasing faster (slower) than supply is replenished by new recruits into the teaching profession and transfers from the state sector (given less than perfect substitutability between the sectors).

v) The independent schools' call on the supply of teachers will have been increasing during the past decades. Though the sector is small, in terms of the number of pupils taught, its importance in the teachers' labour market will be greater; moreover, at a time of expansion the increased demand may draw particularly highly on the flow of newly qualified teachers. These considerations raise the question as to the magnitude and significance of inter-sectoral flows of teaching staff.

## 3 Data

To address these hypotheses we use aggregate data from the government and the annual census taken by the Independent School Council, and micro-data on teachers extracted from two large nationally representative micro-data surveys -- the Quarterly Labour Force Survey (QLFS) and the British Household Panel Survey (BHPS).

The QLFS has a panel design where each cohort is interviewed for 5 consecutive quarters. In any one quarter there are five different cohorts, each from a different wave of the panel. Approximately 11,800 addresses in each quarter can be attributed to a given wave, resulting in a total of about 138,000 respondents. Prior to autumn 1997, earnings information was only available in the fifth wave. After autumn 1997 individuals were asked their wages in the first wave as well. The main advantage of the QLFS is the large sample size (over 12,000 distinct teachers between 1993 and 2005) which allows us to break down by sector, gender, type of school and type of qualifications of teachers including their degree subjects.

The BHPS is a nationally representative sample of some 5,500 households recruited in 1991, with around 10,000 original sample members (OSMs). These OSMs and their children, who also become OSMs after reaching 16, are interviewed each successive year, together with all adult members of their families, even if the OSMs split off from their original households to form new families and/or relocate to other areas of the UK. Additionally, new families are added regularly to maintain the representativeness of the sample over time. Despite its relatively small sample size (only around 600 distinct teachers were identified), BHPS has the advantage of being a much longer panel (14 waves) than the QLFS. Moreover, it also contains information from all employees in each wave on their satisfaction with the various job domains such as total pay, job security, work itself and working hours as well as overall job satisfaction.

Our preferred definition of teacher is based on the Standard Occupation Classification (SOC), and includes all secondary, primary and special education teaching professionals. We exclude “other teaching professionals”, and the small minority of teachers (about 9.4% in the QLFS data) who work outside the secondary, primary and special education sector according to the Standard Industrial Classification (SIC92).

We use the ONS official definition of public sector to distinguish between state school and independent school teachers. Essentially any organisation owned, funded or run by central or local government is classified as the “public sector” and everything else as the “private sector”. Independent schools are typically classified as non-profit organisations.

Aggregate data on independent schools was gleaned in part from official publications of the Department for Education and Skills and its predecessors, and in part obtained from successive editions of the Independent Schools Council (ISC) census. The ISC is an umbrella organisation comprising up to 8 associations of independent school governing bodies[9]. The census is conducted in the January of each year, providing information at an association level on a wide and detailed range of variables including school fees, origin and destination of teachers, and demographics of the pupil populations. Aggregate data for the UK are obtained by summation over association-level data, taking care to avoid double counting of schools that are members of multiple associations. ISC census coverage of the pupils in the independent sector is approximately 87% and coverage of schools of around 60%. Thus the sample of schools in the census consistently under-represents small independent schools.

## 4 Testing the Hypotheses

We now consider in turn the hypotheses and questions stated in section 2.

### More teachers in independent schools?

As can be seen in Figure 3, the pupil-teacher ratio has been lower in independent schools for as far back as data is available. More novel is the observation that, as predicted above, there has been a substantial rise since the late 1970s in the relative quantity of private school teachers (Figure 2). Prior to that date, and especially during the 1960s at the dawn of the era of comprehensive education, the relative size of the independent sector had been slowly diminishing. An observer in the early 1970s might be forgiven for having envisaged the eventual demise of private education altogether. The decline was halted during the latter part of the decade, when the

[9] These are; HMC-Headmasters' and Headmistresses' Conference; SHMIS-Society of Headmasters and Headmistresses of Independent Schools; GBA-Governing Bodies Association; GSA-Girls' Schools Association; GBGSA-Governing Bodies of Girls' School Association; IAPS-Incorporated Association of Preparatory Schools; ISA- Independent Schools Association; ISBA-Independent Schools' Bursars Association.

proportion of independent schools bottomed out at just over 8%, and was reversed by the arrival of the Thatcher government. By 2004 the independent schools were absorbing 14% of the teaching staff in England. There has been a concomitant steady decline since before 1980 in the independent sector's pupil-teacher ratio, dipping below 1 in 10 by 2004. Moreover, since over the same period the state school sector has not been substantively raising its per-pupil teacher resources, the gap between the sectors has widened. By 2004 the pupil-teacher ratio in the independent sector had dropped to just over half that in the state sector.

These findings reflect the increased resources that have been ploughed into education by the wealthy classes in Britain over recent years, relative to the comparatively meagre rises in resources that have been devoted to education by the state. We return below to consider whether this level of increased staffing in the independent sector is likely to have had a significant impact on the labour market for teachers in state schools.

**A better class of teacher?**

In addition to the rising relative quantity of independent-school teachers, we also expected the academic-related skills of those teachers to be increasing, given that these teachers are charged with delivering increasingly higher levels of academic credentials for their pupils. This was our third prediction. Unfortunately the "quality" of teachers, though widely regarded as of considerable importance for affecting pupil outcomes, is hard to measure, and the effectiveness of individual teachers depends on many contextual factors including the composition of the school population (Day et al., 2006).

One loose indicator of teachers' quality is the level of their educational qualifications. Accordingly, we present some comparative data on qualifications held by teachers in the two sectors, but it should be born in mind that other factors such as individual aptitudes and uncertified skills are likely to be easier for potential employers than for researchers to measure; some inter-sectoral differences will therefore go unobserved by us.

Figure 4 shows that the private schools have, compared with the state schools, a higher share of teachers with higher degrees; and this is true for both men and women. Between 1996-2000 and 2001-2005 there has been an increase in the quality of teachers as measured by the proportion holding a higher degree in both sectors. The private sector has maintained its lead over the state sector, but the gap has not widened in the current decade.

An alternative indication of quality is the ability to teach in shortage subjects. Faced with a shortage of teachers in Maths, Science or Engineering, classes may have to be larger, there may be more frequent periods of temporary cover, and head teachers may have to accept less experienced teachers than with other subjects. The comparative difficulty of recruiting shortage-subject teachers can thereby affect the overall quality of teaching in a school. Figure 5 shows the share of secondary school teachers with a degree in Science, Maths or Engineering by sector and time period. The independent schools were apparently more successful in attracting teachers into these scarce subject areas; yet the gap seemed to be narrowing over time, even before the government's "golden hello" scheme for new teachers was slanted especially towards shortage-subject teachers in 2000.

A third indication of quality is class of degree. The 1995 graduate survey shows the percentages with at least an upper second as: Private, 71%; State, 59%. The 12 percentage point gap, whilst sizable, is not significant (p-value = 0.15), probably because the sample sizes are small.

**Do Quasi-Rents and Quality Premia exceed compensating pay penalties in independent schools?**

Some of the main differences in working conditions between the independent and state sectors have already been discussed and alluded to above. Teachers in independent schools enjoy the benefits of teaching in smaller classes and using better facilities; the pupils are likely to be less disruptive, more committed to education, and in selective schools more able. Working hours are another important indication of

working conditions, and we use our survey data to compare average hours between sectors. Other relevant factors might include hours flexibility and intensity of work effort, for which we have no suitable data at present.

Table 1 shows the sectoral differences in paid holidays and in hours worked. The statistics are split into two time periods, 1996-2000 and 2001-2005, so we can study point in time differences and any changes occurring across these two five year periods. There appears to be very little change in either paid holidays or weekly hours for both men and women in the state sector. In contrast, independent school teachers enjoyed better working conditions on average at the beginning of the sample period. But the gap has been narrowed quite significantly over time, leading to an overall picture of convergence in working hours across the two sectors.

Before 2000 male independent-school teachers enjoyed 10 more days holiday than their state-school counterparts (equivalent to about 2½ hours a week). The gap was reduced to 7 days after 2001. These longer holidays for the independent sector are set off against having to work about 3 more hours per week, prior to 2000, and about 5 hours more after 2000. The proximate reason for longer weekly hours is that they work substantially longer contractual hours, which is only partially mitigated by the fact that the number of unpaid hours is somewhat less in the independent than in the state sector. Taken over the year, the hours of independent-school teachers appear to have been similar to those of state school teachers prior to 2000, but after 2000 male independent school teachers found themselves working longer.

In the case of women, teachers in the independent sector do best on both counts: in addition to the shorter holidays the state school teachers work longer hours per week once unpaid hours are included. Even though the gaps for both holidays and weekly hours have narrowed over time, this element of working conditions is unambiguously in favour of the independent sector.

The next question is whether this superiority in terms of working conditions is matched by a pay penalty, or whether the rising share of the independent sector has led to a quasi-rent for teachers in that sector. Therefore, we compare pay across sectors and carry out formal statistical tests in Table 1. As can be seen, there was no

hourly pay penalty at all in the independent sector for men. The difference is indeed slightly in favour of the independent sector but never statistically significant. There was also a lead in real gross weekly pay for male independent school teachers, which increased from a marginally significant 6% in the base period (1996-2000) to a highly significant 11% in the end period (2001-2005). By contrast, for women there was a pay penalty for working in the independent sector in the base period, with a 4% gap in hourly pay and a more significant 10% gap in gross weekly pay. However, on each measure the gap has been more than halved in the end period, rendering any remaining difference statistically insignificant.

The comparison of average pay levels across sectors is useful to the extent that teachers with similar skills are being compared. If independent sector teaching skills are greater than those in the state sector, and if the teaching skills are rewarded by employers, the real pay penalty for independent sector workers will be greater than the raw figures indicate. We therefore next control for skill differences, by regressing wages on qualifications, also controlling for age and for region.

Table 2 presents the findings. Two sets of models are reported, a basic set of specifications showing average differences, and a set of specifications that interact the private sector variable with time and whether or not teachers teach in a shortage subject. Models are reported separately for men and women and for gross and hourly wages. The basic specifications show a strong negative private sector wage differential for female teachers. For men, it depends on whether one looks at hourly or weekly wages. There is no difference between private and state teachers for the former, and a small positive gap (significant at the 10% level) for weekly earnings.

The interactions considered in the final four specifications are important. In terms of the models that interact with time and shortage subject it is evident that the significant pay penalty during the base period for women is diminished in magnitude in subsequent periods. However, both measures of pay penalties remain significant in the end period. Our conclusion, therefore, is that for women during 1996-2000 there is sufficient substitutability in the teachers' labour market to ensure that any quasi-rent associated with expanding demand in the independent sector is being more than offset by the negative compensating differential associated with the better working

conditions in independent schools. Nevertheless, the expansion since that period appears to have been generating a quasi-rent in the independent sector, manifested in rising pay, which partially offset the superior working conditions. Should the expansion of demand for high-quality private education reach a plateau in coming years, it might be expected that the penalty for women working in that sector would return to being somewhat greater.

For men, by contrast, there is no evidence of a significant private sector pay penalty or premium (either before or after 2000), once qualifications, age and region are controlled for, for those not involved with shortage subjects. The baseline estimate in the interacted models is insignificantly different from zero

However, there is a positive premium in the private sector for those trained in shortage subjects for both men and women. Table 2 shows that, in the private sector, there is a substantial premium on weekly earnings above teachers qualified in other subjects. The premium amounts to 16% for men and 18% for women. Men also have a substantial hourly earnings premium. In the state sector, by contrast, there is no difference in pay between male shortage-subject teachers and other teachers; while female shortage-subject teachers appear to suffer a pay penalty. Taken together, it is evident that the independent schools are using their greater pay flexibility to help attract scarce-subject teachers.

In sum, since working conditions are clearly better in the independent sector (whether or not teaching a shortage subject) while wages are not significantly worse, we conclude that male independent-school teachers in shortage subjects are receiving a quasi-rent associated with the expansion of the sector. Whether women also are receiving a quasi-rent cannot be inferred from these findings, since their better working conditions are partially balanced by a pay penalty, especially for those not trained in shortage subjects.

**Is it more satisfying to teach in the independent sector?**

We began the previous section with the *a priori* statement that certain working conditions – those to do with the work itself – were generally better in the independent than in the state sector. One implication of that proposition is that independent-school teachers are likely to be more satisfied with that domain of their jobs. Moreover, if as is the case with men there is no significant pay penalty, one would expect that overall job satisfaction would also be greater in the independent sector. The qualification to these two predictions is that job satisfaction also reflects workers' expectations, and if independent-school teachers become habituated to better conditions their expressed job satisfaction is likely to be reduced. To investigate these implications empirically we used data on reported job satisfaction from the BHPS. Figure 6 shows the average levels of job satisfaction in several domains, and overall, in two time periods. Table 3 presents ordered logit estimates of the determinants of job satisfaction. Two sets of specifications are reported, the first (in the upper panel) showing average gaps controlling for gender, human capital and region and the second (in the lower panel) interacting end period (1998-2004) dummy with the sectoral dummy.

Both the raw data in Figure 6 and the ordered logit estimates show that, as predicted, before 1998 the mean level of overall job satisfaction is higher in the independent sector. Satisfaction with the work itself, and with hours worked, is also greater in that sector. There were no significant sectoral differences for satisfaction with pay or security.

In subsequent periods, as shown in the interacted models, the picture changed somewhat. Satisfaction with total pay and job security rose significantly in the state sector, while there was a fall in the independent sector. Satisfaction with the work itself fell, but by significantly more in the private than in the public sector; and these falls were reflected in overall job satisfaction. The result was convergence between the two sectors. Also, in parallel with the reported rise in the number of unpaid overtime hours the hours-satisfaction of independent-school teachers converged downwards towards that of the state-school teachers. It is difficult to say whether this convergence occurred because of market processes, but it seems unlikely given that

pay was rising at least as fast in the independent as in the state sector. One factor that may have sustained job satisfaction for state sector workers was the workload agreement negotiated by unions in January 2003 (with additional benefits occurring in September 2004 and 2005).

**Where do the independent schools get their teachers from?**

Given the steadily increasing call for teachers in independent schools, it is natural to ask: what are the sources of supply to feed this expansion? And what are the effects on the supply of teachers in the state schools? The latter obtain their primary source of supply of new teachers through the state's investment in initial teacher training in specialist colleges and in higher education supplemented by post-graduate teacher training. Independent schools take up a portion of that inflow of new teachers, but they also recruit directly from other schools often in the state sector, and from among others not currently in schools. Economic incentives, including better working conditions, are likely to be important factors in stimulating transfers from other schools as well as initial placement in an independent school.

Table 4 gives a picture of recent flows in 2006 of full-time teaching staff to and from the independent schools included in the census of the Independent Schools Council. Independent schools hired 1125 staff straight out of the universities and training centres. It is notable, however, that they hired many more teachers, altogether 2009, who had previously been working in state schools. Figure 7 plots these gross flows since 1982: apart from a spell in the mid 1990s the transfers always exceeded the hires from universities and training colleges after 1983. The transfers from the state schools have been especially high during the current decade.

There is also a flow the other way (from independent to state sector) but, given the independent sector's expansion, unsurprisingly the counter-flows are smaller. In net terms, the independent sector gained approximately 1400 experienced teachers in 2006 from the state sector. Experienced teachers are expected on average to be more effective than newly qualified teachers both because of the skills gained in the classroom and because less productive teachers are more likely to have left the

profession. We have no figures to show how many years' experience is transferred but unconfirmed anecdotal evidence suggests that independent school heads prefer to hire teachers with a few years' experience rather than newly-qualified teachers.[10]

When a teacher is trained at the expense of the state, and moreover gains working experience in one of its schools, it is a significant loss on its investment when that teacher leaves the state system, and a concomitant gain to the independent school that is able to hire that worker without having born any of the expense of the training. This is a familiar issue in the economics of training: job mobility generates external benefits for the trainee's new employer, since trained employees' productivity will be higher than their wage costs (Stephens, 1994). This externality can lead to underinvestment by private training providers, but the externality can be remedied by certain forms of social intervention. In the case here, the state itself is both the trainer and a potential employer, with competition from private schools. The transfer of a teacher from a state school to an independent school is not an efficiency loss from the perspective of the whole society, but the surplus productivity of the transferring teacher is nevertheless an additional re-distribution towards the independent school that hires the qualified and experienced teacher, and hence a redistribution also to the pupils of that school.

The transfer of experienced teachers from state schools, together with the selection of newly qualified teachers or graduates, thus represents a substantial bonus for independent schools. Alongside other sources of new labour, the inflows appear from their magnitude to be indispensable for sustaining the fall in the pupil-teacher ratio observed above in Figure 3. After taking into account retirements and other quits out of teaching altogether, the independent sector grew its full-time teaching staff by 824 in 2006, a net gain of 1.8% on its stock of 45,841 teachers.

What is the magnitude of the impact of these transfers on the state sector? In relation to the overall stock of full-time teachers in the state sector across the UK, the impact

[10] Unfortunately, the data at our disposal are not adequate for carrying out an analysis of the factors driving transitions between the independent and state sectors of education. The numbers of identifiable transitions are too small in both the QLFS and the BHPS data.

is unsurprisingly small. In proportion to the number of newly qualified teachers, some 33,190 persons in 2006, recruitment into the independent school sector (from universities, training centres or transfers from state schools) amounted to just 7.8%.[11] It does not appear, then, that in terms of magnitude the numbers have yet reached such proportions as to seriously dent the total number of new teachers available to the state sector; rather, that sector has its continuing concerns deriving from high attrition from the profession altogether.[12]

## 5 Concluding Remarks

The impact of independent schools on educational attainments, and more broadly on British society, is far greater than its regular 8% share of pupil cohorts suggests. In recent decades, as higher skills have become more important for economic success in modern societies, there has been a substantive rise in the demand for education, including from the wealthier classes in British society, many of whom choose independent, fee-paying schools. The consequence has been a rising demand for teachers to staff the independent schools, and we have documented this rise using census-derived data from the independent schools associations. The expansion has raised the question as to the special place of independent schools in the teachers' labour market, about which there appears to have been little research hitherto.

Independent schools more than doubled their fees over the two decades following the 1980s, and used the increased resources to lower the pupil-teacher ratio and to invest in facilities. Given that pupil-teacher ratios in state schools changed little over this time, the independent schools increased their share of the stock of teachers to approximately 14% by 2004, while still educating less than 8% of the nations' pupils. Along with taking a disproportionate and increasing share of teachers, independent

[11] This flow is an underestimate owing to incomplete (87%) coverage by the ISC census of all independent schools. Source: private communication, Department from Children, Schools and Families.

[12] The large and increasing proportion of techers working in the private sector is probably sustained through maintaining a higher retention rate within the sector than within the state sector; though there is no direct evidence on this issue, it follows from the greter job satisfaction enjoyed in the private sector.

schools also employ, on average, somewhat better qualified teachers (as measured by the possession of post-graduate qualifications), and are able to recruit a significantly greater share of shortage-subject teachers than can the state sector. Taken together, there is no doubt that the rising resources flowing to independent schools have raised the quality of the education input in these schools.

Given the expanded demand for teachers in the independent sector, the somewhat differentiated skills required in the two sectors, and the contrasting institutional structures for pay determination, we posed the question as to whether there had arisen any substantive differences between the pay conditions of teachers in the two sectors. We found that female teachers during the 1990s received a pay penalty for working in the independent sector, which we interpret as a compensating differential for the experience of better working conditions. However, in recent years the sectoral gap has fallen, and this might be interpreted as reflecting growing demand.

For male workers, there has been no significant private sector pay penalty. Given the superiority of working conditions in the independent sector, we conclude that teachers who choose to work in that sector are better off. This gap in job quality has been reflected in a higher level of job satisfaction, especially with working hours and with the work itself.

A further significant difference between the sectors was that shortage-subject teachers were being offered in the independent sector a substantial weekly earnings premium (approximately 16% for men, 18% for women) over otherwise similar workers qualified in other subjects, while no such premium operated in the state sector.

The final objective of this paper has been to examine the sources of supply of the new teachers needed to staff the classrooms of the independent schools as the teacher-pupil ratio tracked ever upwards. The new teachers have to number enough to outweigh normal retirements and other quits if the sector is to expand. We have seen that new graduands from the teacher training colleges and universities constituted approximately 1120 to the increase in teachers in 2006, but net hires from the maintained sector were more important at 1400, a pattern that is similar to much of the last decade. Although these amount in any one year to only a small proportion of

the approximately 440,000 teachers overall, they represent a deduction from the annual flows of new teachers trained at the state's expense. The figures show, in effect, that the private sector is quite dependent on the state for the staffing of its expanded provision, not only through the provision of initial training but also through the provision of early work experience. After netting out retirements and other destinations/sources, the sector was able to grow its full-time staff by nearly 2% in 2006. Nevertheless, the magnitude of these flows has not yet reached such a level that they very substantially reduce the supply of new recruits available to the state sector. These considerations would appear to be increasingly relevant, in addition to the level of community contributions made by independent schools, to the political debate over the charitable status (for tax purposes) currently afforded to most independent schools.

More generally, our findings imply that the rising importance of independent schools needs to be considered as a relevant factor among educational policymakers, not just as a model for the improvement of state schools but as a significant player in the market for scarce teaching resources. Ongoing shortages in Maths and Science departments are of particular concern, and here the impact of the independent sector appears even stronger. To what extent the intersectoral transfers are disproportionately Maths and Science teachers is not currently documented, or at least not in the public domain. Such lacuna only serve to highlight further the shortage of research on these issues. The role of the independent schools deserves, we believe, more serious attention from policy-makers and from the research community than it has hitherto been given.

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effect of changes in class composition." Oxford Bulletin of Economics and Statistics **64**(1): 17-+.

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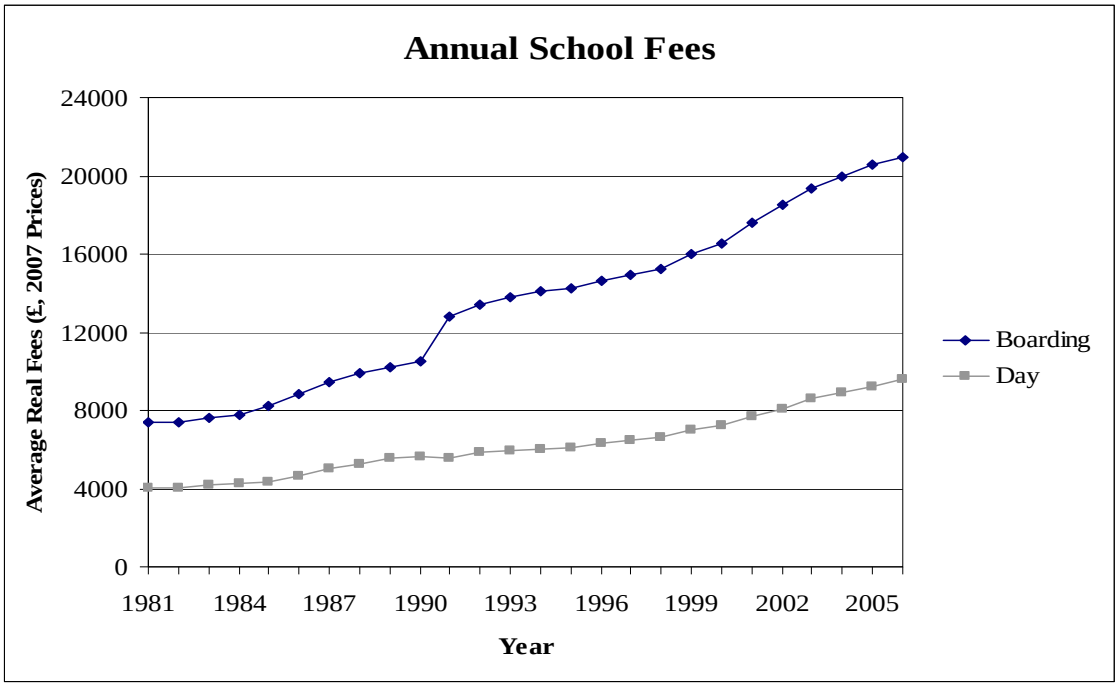
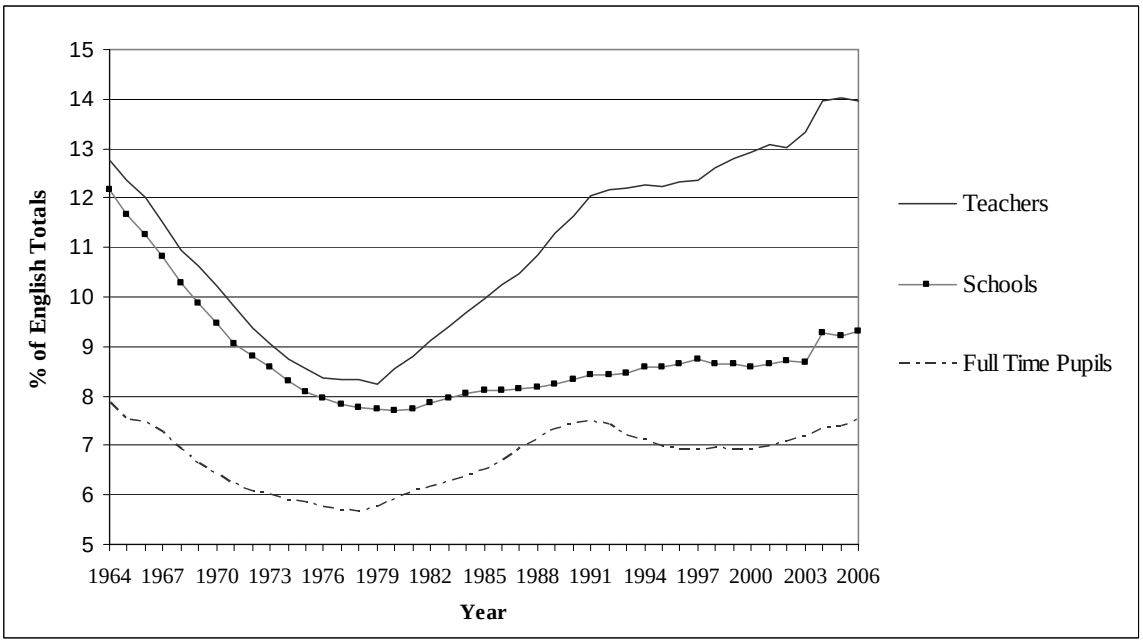
**Figure 1. The Price of Independent Education.**



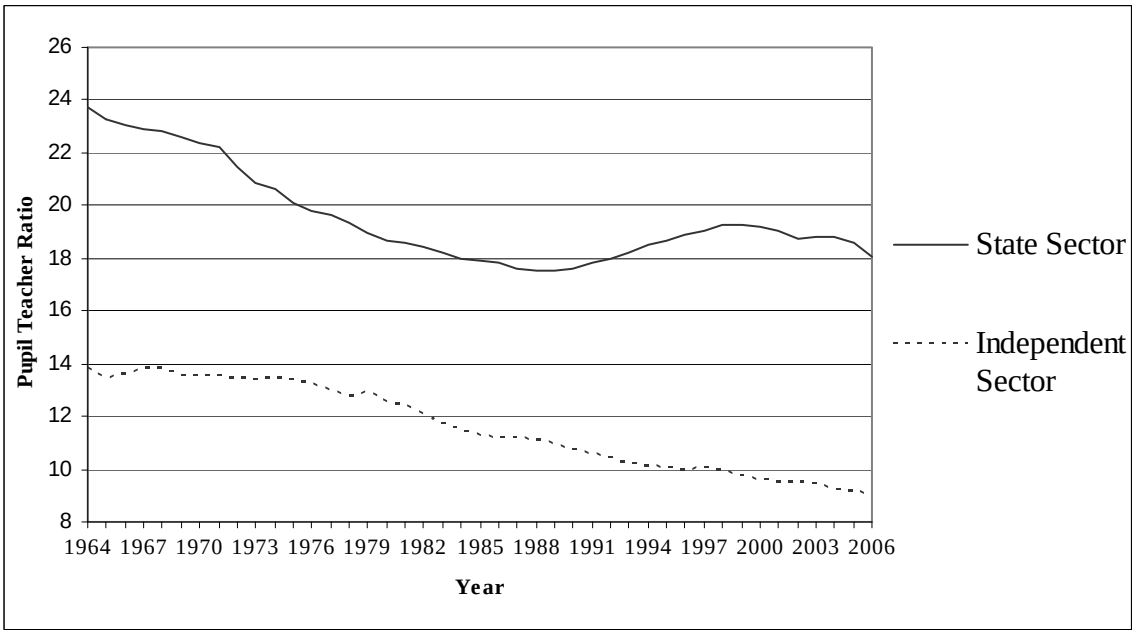

Notes: Source – Independent Schools Council Census Data, 1982-2007; Authors' calculations; RPI, ONS 2006; Prior to 1992 the average fee is not weighted by school size.

**Figure 2. The Relative Quantity of Independent Education, England 1964-2006**



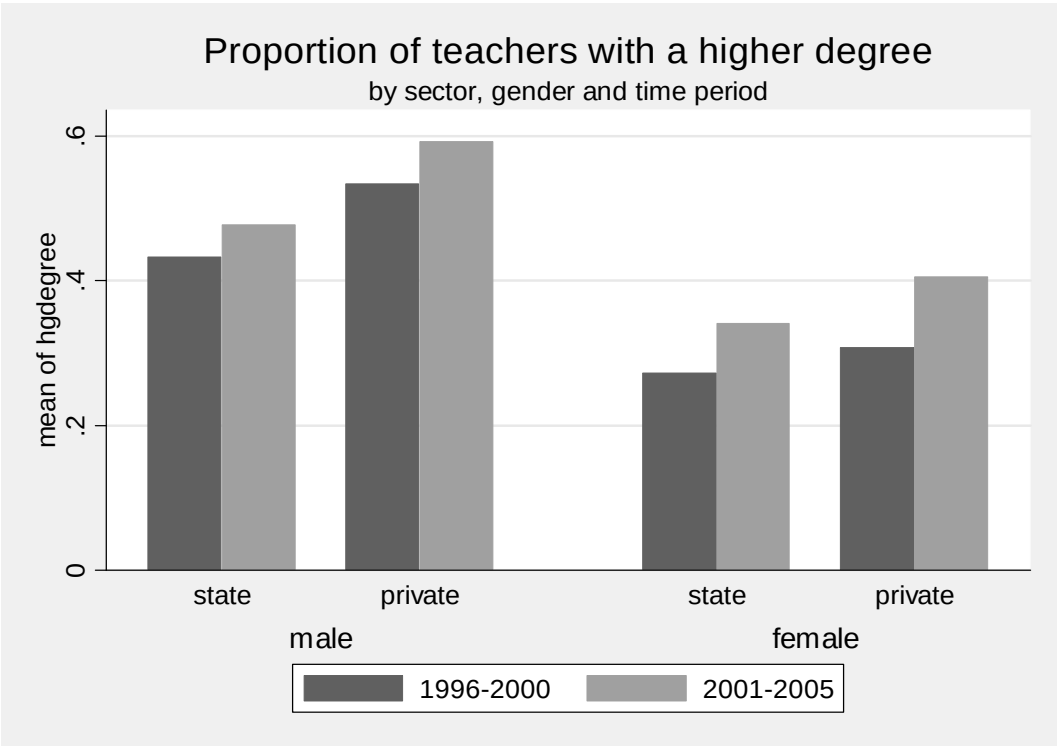

Notes: Source-DSCF 2007; i) Full Time Pupils Only; ii) State Sector Includes; Primary, Secondary, Nursery & Special Schools; iii) Includes both the full-time and the full-time equivalent of part-time teachers; iv) From 1971 onwards, state sector only includes qualified teachers; v) Independent Sector includes Direct Grant Grammar Schools up to and including 1980; vi) From 1990 Independent Sector includes City Technology Colleges; vii) From 2004 Independent Sector includes City Academies.

**Figure 3. The Pupil-Teacher Ratio, England, 1964-2006.**



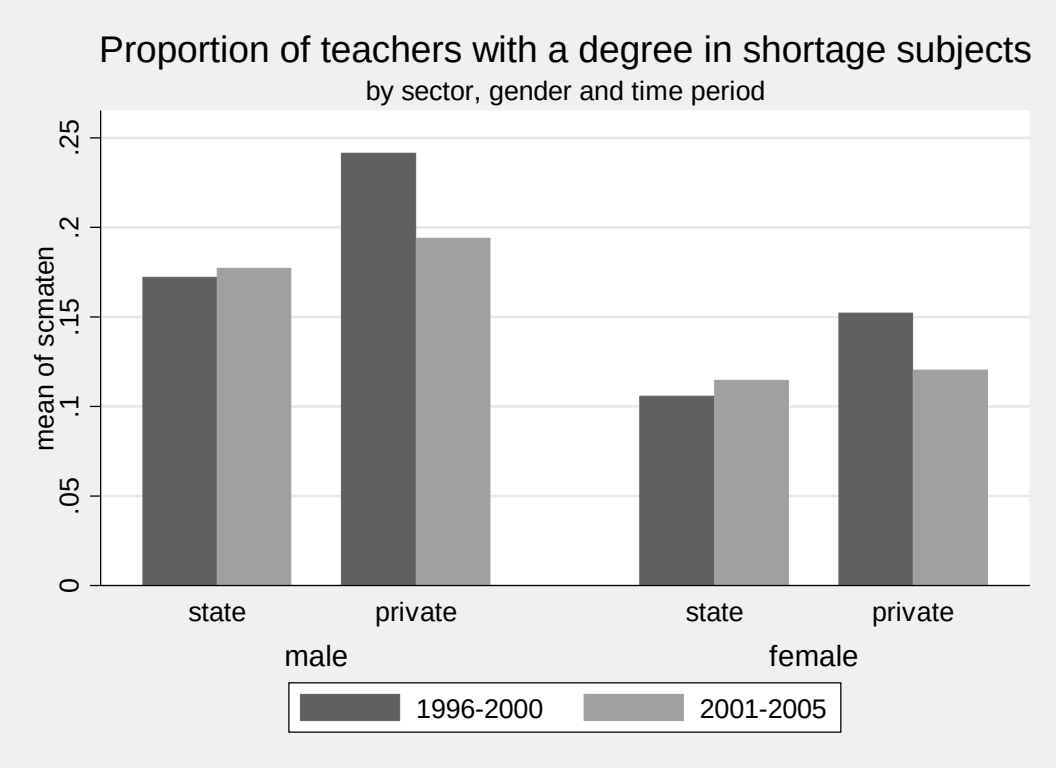

Notes: i) Full Time Pupils Only; ii) State Sector Includes; Primary, Secondary, Nursery & Special Schools; iii) Includes both the full-time and the full-time equivalent of part-time teachers; iv) From 1971 onwards, state sector only includes qualified teachers; v) Independent Sector includes Direct Grant Grammar Schools up to and including 1980; vi) From 1990 Independent Sector includes City Technology Colleges; vii) From 2004 Independent Sector includes City Academies

**Figure 4. Share of Teachers with a Higher Degree.**




Note: Source: Quarterly Labour Force Survey.

**Figure 5. Share of Secondary School Teachers with Degrees in Shortage Subjects.**




Note: Source: Quarterly Labour Force Survey.; shortage subject means Maths, Science or Engineering.

**Figure 6 Job Satisfaction by Domain and Time Period**

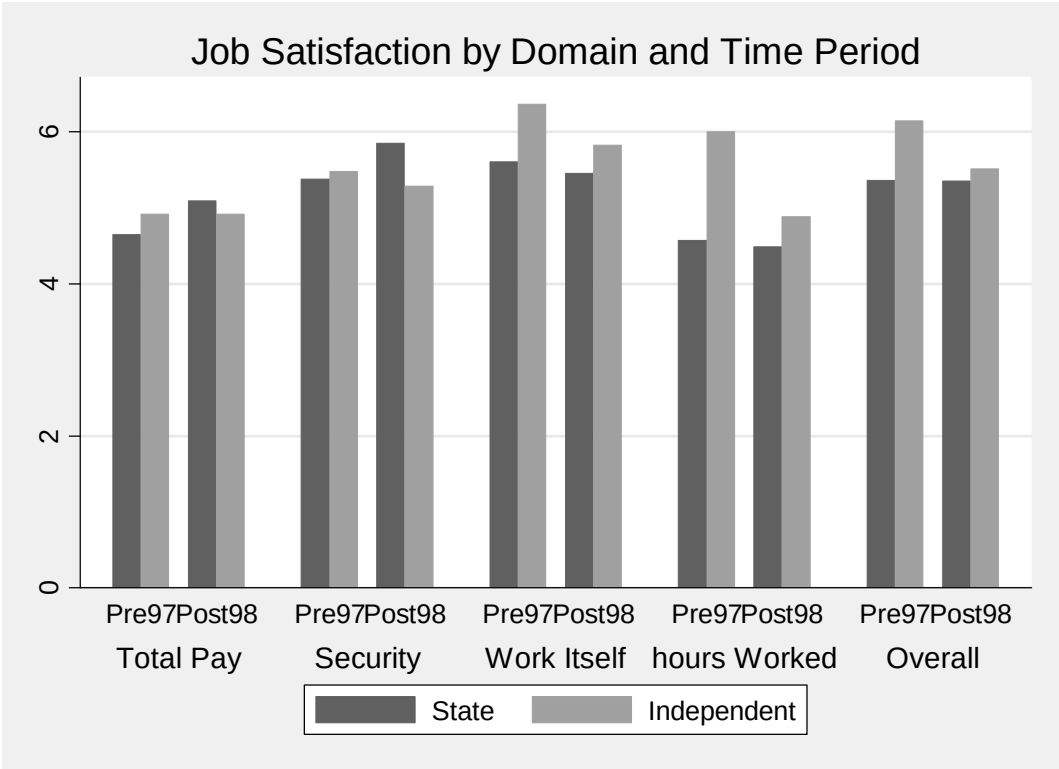
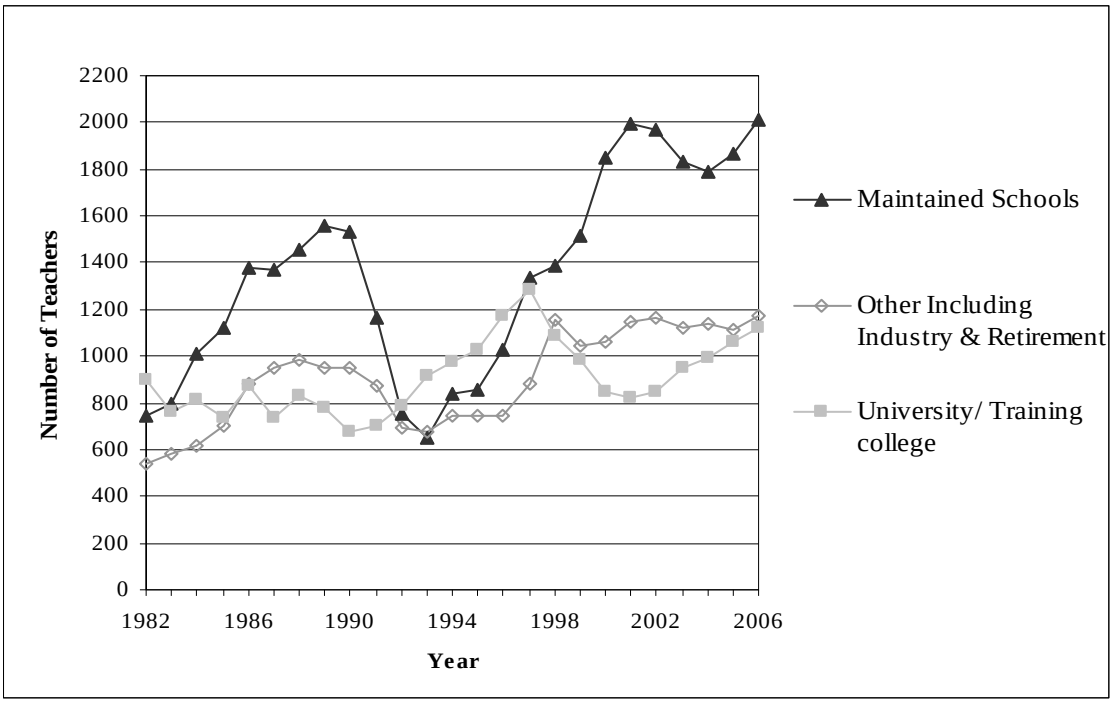
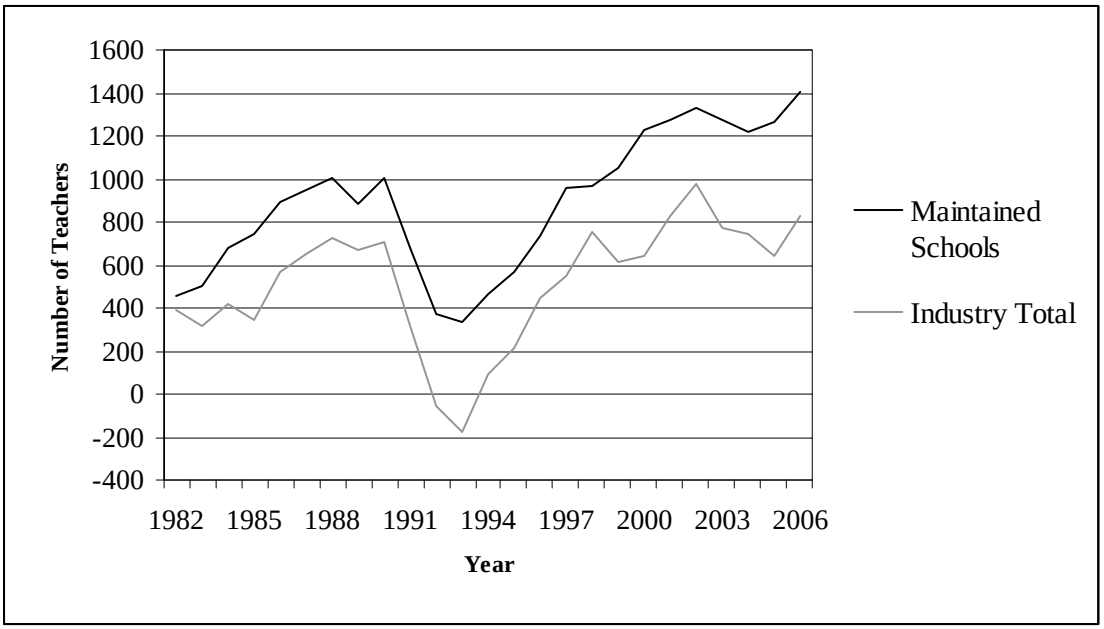


**Figure 7 Annual Inflow of Full-Time Teachers at Independent Schools in the UK.**




Notes: Source – Independent Schools Council Census Data, 1983-2007; Authors' calculations.

**Figure 8 Annual Net Gain of Full-Time Teachers at Independent Schools in the UK.**




Notes: Source – Independent Schools Council Census Data, 1983-2007; Authors' calculations.

**Table 1: Pay, Weekly Hours and Holidays by Education Sector.**

| | 1996-2000 | | 2001-2005 | |
|---|---|---|---|---|
| | State | Independent | State | Independent |
| Male | | | | |
| Holidays (days/year) | 57.4 | 67.3 | 59.2 | 65.8 |
| Unpaid overtime hours/week | 10.2 | 5.7 | 10.2 | 8.3 |
| Total usual hours / week | 45.3 | 48.2 | 45.9 | 50.7 |
| Real gross hourly wage* | 13.0 | 13.1 | 13.9 | 14.2 |
| Prob(Equal hourly wage) | 0.922 | | 0.544 | |
| Real gross weekly pay* | 573.9 | 610.0 | 634.7 | 704.1 |
| Prob(Equal weekly pay) | 0.070 | | 0.001 | |
| Female | | | | |
| Holidays (days/year) | 56.6 | 63.1 | 57.3 | 58.6 |
| Unpaid overtime hours/week | 10.2 | 6.4 | 10.3 | 6.8 |
| Total usual hours / week | 41.5 | 38.2 | 41.6 | 40.1 |
| Real gross hourly wage* | 11.8 | 11.3 | 12.7 | 12.5 |
| Prob(Equal hourly wage) | 0.099 | | 0.435 | |
| Real gross weekly pay* | 469.0 | 421.0 | 517.9 | 503.0 |
| Prob(Equal weekly pay) | 0.000 | | 0.254 | |

Notes: * January 2006 prices. Source: QLFS.

**Table 2: Teacher Wage Equations, 1996-2005**

| | Basic Models | | | | Plus Interactions With Time and Shortage Subject | | | |
|---|---|---|---|---|---|---|---|---|
| | Log real gross hourly wage | | Log real gross weekly earnings | | Log real gross hourly wage | | Log real gross weekly earnings | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| Private | 0.024 | **-0.118** | *0.049* | **-0.182** | 0.024 | **-0.132** | -0.002 | **-0.230** |
| | (0.048) | (0.025) | (0.025) | (0.022) | (0.048) | (0.033) | (0.033) | (0.029) |
| Private*(2001-2005) | | | | | -0.085 | 0.022 | 0.064 | *0.082* |
| | | | | | (0.073) | (0.049) | (0.051) | (0.044) |
| Private*Shortage Subject | | | | | **0.207** | 0.056 | **0.152** | **0.168** |
| | | | | | (0.089) | (0.090) | (0.063) | (0.082) |
| Adj R-sq | 0.093 | 0.084 | 0.159 | 0.057 | 0.095 | 0.082 | 0.160 | 0.058 |
| Sample Size | 2284 | 5500 | 2962 | 7357 | 2284 | 5500 | 2962 | 7357 |

Notes: Standard errors in parentheses. Bold and italic cases indicate statistical significance at the 5% and 10% level respectively. Other controls include age, age squared, type of qualifications, type of schools, shortage subject and region and year dummies.

**Table 3: Ordered Logit Estimates for Changes in Teachers' Job Satisfaction (Men and Women Pooled)**

| | Total Pay | Job Security | Work Itself | Hours Worked | Overall |
|---|---|---|---|---|---|
| *A. Basic Specification* | | | | | |
| Private | 0.099 | -0.416 | **1.017** | **1.075** | **0.808** |
| | (0.270) | (0.262) | (0.239) | (0.258) | (0.275) |
| *B. Plus Interaction With Time* | | | | | |
| Private | 0.415 | 0.025 | **1.490** | **1.661** | **1.635** |
| | (0.442) | (0.425) | (0.305) | (0.345) | (0.373) |
| Private times (1998-2004) | -0.514 | -0.700 | **-0.844** | **-1.043** | **-1.389** |
| | (0.498) | (0.465) | (0.360) | (0.451) | (0.416) |
| Log likelihood | -4171.6 | -3762.8 | -3509.3 | -4540.6 | -3575.7 |
| Sample Size | 2571 | 2541 | 2570 | 2569 | 2570 |

Notes: Robust standard errors in parentheses. Bold and italic cases indicate statistical significance at the 5% and 1% level respectively. Other controls include gender, age, age squared, type of qualifications, type of schools, region dummies for the Southeast, Wales and Scotland, and a period dummy for 1998-2004 (i.e. reference time period is 1991-1997).

**Table 4: Sources and Destinations of Full-Time Teaching Staff in Independent School during 2006**

| | **In** | **Out** | **Net Transfers** |
|---|---|---|---|
| Other Independent Schools | 2033 | 1565 | 468 |
| Maintained Schools | 2009 | 606 | 1403 |
| ITT | 593 | 0 | 593 |
| New graduates | 532 | 0 | 532 |
| Industry | 187 | 203 | -16 |
| Other, including retirement | 990 | 3146 | -2156 |
| TOTAL | | | 824 |

Notes: Total full-time teaching staff in independent schools included in the Independent Schools Council: 45,841.
Source: ISC Census 2007.