A review of school teachers' pay in Wales compared with other graduate professions

A report for NASUWT

by

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1. Overview

1.1. Background and what the report covers

For many years now, successive School Teachers' Review Body (STRB) reports have outlined numerous problems facing the teaching profession in England and Wales. In particular, pay and recruitment and retention have been highlighted as major challenges but despite building evidence in favour of pay increases and other measures, the overarching policy of financial restraint in the public sector has meant that recent STRB pay recommendations have always had to be moderated. As a result, not enough has been done to address the associated pay and staffing challenges currently facing the profession in Wales.

The latest STRB report represented a break from the past, having recommended a larger headline increase than for many years. The recommended award of 3.5% was only partially implemented by the Government, however, and as such may not be enough to positively impact current pressures. As the STRB report stated in 2017, action was required to make the teachers' pay framework more competitive while this year it added that: 'the overall position of teaching in the graduate labour market has deteriorated since our last report (2017). This exacerbates the challenges faced in attracting good graduates to become teachers and retaining teachers in the profession.' It is against this background that we have produced this latest report for the NASUWT. This year's report builds on our earlier work in this area. In 2015, our report covered the UK as a whole but in the last few years we have produced reports on the devolved administrations, including Wales. As in previous reports, this latest study presents a detailed picture of how earnings for teachers have varied in relation to those for other graduate occupations.

This year's study includes a change in the period under focus compared to previous reports, examining the years since 2007 rather than 1998. One reason for the change is that the economic and working environments have altered markedly since 1998, so a 20-year period of comparison is no longer such a useful barometer of change. Additionally, since 1998, some of the job categories defined by the Office for National Statistics (ONS) have undergone numerous changes making cross-year comparisons over the longer period less valid.

As a result, this report focuses on the more recent period from just before the economic crisis that began in 2008 and the years since then. As in the past, this latest report examines pay data drawn from the ONS Annual Survey of Hours and Earnings (ASHE) for school

teachers and a basket of selected comparator graduate occupations but the period examined is the 12-year span from 2007 to 2018. More specifically, the report focuses on basic and gross weekly full-time earnings in Wales from ASHE for 10 non-teaching graduate occupations, making it possible to examine how their earnings compare to those for school teachers – both secondary teachers and those in primary and nursery schools – over the same period.

The graduate occupations used for comparisons are:

- Chemical scientists
- Biological scientists and biochemists
- Physical scientists
- Engineering professionals
- Health professionals
- Pharmacists
- Legal professionals
- Chartered and certified accountants
- Management consultants and business analysts
- Chartered surveyors.

In addition to comparisons of earnings, the report analyses the annual percentage changes in median and average basic weekly earnings for teachers in Wales and each of the selected comparator occupations in relation to the average annual RPI and CPI rates of inflation from 2007 to 2018.

The report also sets out developments in teachers' pay in Wales in the wider context of changes in the graduate labour market in the UK as a whole. In particular it outlines how the salaries of teachers in Wales in the early stages of their careers compare with pay levels found in other major graduate professions. This analysis uses information collected by the latest IDR 'Pay and progression for graduates' survey and other sources of data on graduate salaries.

When reflecting on the results shown throughout the report, certain caveats need to be borne in mind. In particular, sample size limitations in some years for some of the occupations mean variations in pay levels across years can appear quite volatile. Two in particular stand out – chemical and physical scientists – because the number of these roles is relatively low and sometimes zero in the ASHE sample in some years.

Moreover, changes to some of the job definitions occurred in 2010 as part of the ONS' regular review process that recognises that jobs are not static entities. There have been numerous changes over the years and in 2010 the ONS tightened the definitions of managerial occupations and ensured recognition of relatively new areas of work such as call centres. In addition in 2010, the ONS also created a new 3-digit 'health professionals' subgroup which excluded general medical practitioners (GPs). Prior to this the 2-digit major group named 'health professionals' included both GPs and other health professionals. As a result of this change, all the earnings figures for aggregate health professional fell between 2010 and 2011.

The final caveat is that while the job groups examined have been chosen specifically because they are tightly defined professions, because of the changing sample sizes and shifting job definitions all the cross-year comparisons are unmatched and need to be treated with the appropriate degree of caution.

1.2. Structure of the report

Chapter 2 provides a brief context for the research, highlighting the STRB's main findings, while in Chapter 3 we look more closely at how pay awards for school teachers in England and Wales have compared with whole-economy pay increases since 2007.

Chapter 4 provides an overview of the graduate labour market in Wales and analyses results from the IDR's research on graduate pay (and other sources) and reviews how starting salaries for graduates compare with those for school teachers in Wales.

Chapter 5 focuses on the ASHE analysis and reviews the median and average earnings differentials between school teachers and other comparator graduate professions for three of the 12 years – 2007, 2012 and 2018 – to establish earnings trends at the start, middle and end of the review period. We also wanted to conduct an extended analysis focusing on lower and upper earnings quartiles for all the professions to determine how differentials vary beyond midpoint levels as measured by median and average statistics but the ONS sample sizes for Wales were insufficient to include quartile figures.

Chapter 6 examines the annual percentage un-matched changes in median and average basic earnings for school teachers and each of the main comparator graduate professions, tracked against average annual RPI and CPI inflation.

Full details of indexed median and average earnings differentials for the graduate and teaching occupations reviewed are presented in the appendices, together with median and average actual full-time earnings data contained in ASHE for all of the occupations over the 12 years. Our methodology for using ASHE data in this research is shown in Appendix 9.

1.3. Recent pay deals

From September 2019, control over teachers' pay and conditions will be devolved to the Welsh Government. Up to now, however, teachers in Wales have been subject to the same pay scales and rises as their counterparts in England with data on pay movements clearly demonstrating a lack of significant real-terms pay increases since before the recession a decade ago.

Under the latest (2018) award some teachers received a real-terms increase. But while teachers on the main pay range received 3.5%, at a point when the RPI was 3.3% and the CPI 2.2%, teachers on the upper pay range received just 2%, below both measures of inflation. The latest workforce census indicates that some 43% of teachers are on the main pay range, while the proportion on the upper pay range is 42.4%. The remainder (some 14%) are on the leadership ranges, where the pay award was just 1.5%.

As well as an overall real-terms erosion of pay, increases for teachers in Wales have mostly trailed those received by other occupational groups since 2011. At that time, the teaching profession was subject to the two-year public sector pay freeze, followed by the 1% pay cap. In 2017, the cap was raised a little with a 2% rise for teachers on the main range (though teachers on the upper range only received 1%).

Up until 2014, the impact of low or no pay rises may have been mitigated to some extent for eligible staff by automatic salary progression increases. However, schools in Wales currently have discretion over how and whether to pay progression increases to individual teachers unless they are at the bottom of the salary range. This is a significant departure from the previous pay system meaning that some teachers may no longer receive a pay rise at all although with teachers' pay being devolved to the Welsh Government this year it is not clear yet whether this approach will continue subsequently. The independent review body set up in Wales has recommended that this type of flexibility ends in favour of a system of incremental progression points related to professional development. The Welsh Government has yet to decide its approach to this and other issues relating to teachers' pay.

However, in the Welsh Government's supplementary submission in the latest STRB report it outlined its opposition to school-level flexibility on pay decisions and suggested that any uplift should be allocated equally to all pay and allowance ranges. Despite this, in its oral representations, it was not supportive of the larger pay uplift argued for by the teaching unions so it is unclear whether the devolution of decision-making to the Welsh Government will lead to higher wage rises for Welsh teachers in the future.

Although it is still too early to determine the long-term effect of the end of automatic incremental progression, the teaching unions have argued that performance-related progression has been used to hold down pay for financial reasons rather than reward exceptional performance. This echoes findings from the Institute for Employment Research at the University of Warwick outlined in the previous year's STRB report.

While pay flexibilities will continue to be an issue in England, the Welsh Government's supplementary submission in the latest STRB report signalled that this may no longer be the case in the future in Wales. In its submission, the Welsh Government outlined it opposition to school-level flexibility on pay decisions and suggested that any uplift should be allocated equally to all pay and allowance ranges. Despite this, in its oral representations, it was not supportive of the larger pay uplift argued for by the teaching unions so it is unclear whether the devolvement of decision making to the Welsh Government will lead to higher wage rises for teachers in Wales in the future.

1.4. Pay rankings

In its latest submission to the STRB, the Welsh Government stated that pay was not a key factor in the recruitment and retention of teachers in Wales. However, this contrasts with the views of teachers and their representatives. For example, the latest available NASUWT survey of Welsh members' views from 2017 showed that 77% of teachers in Wales believe that their salaries are not competitive when compared with those of other professions. Moreover, 64% of those surveyed believe that people are put off teaching because of uncompetitive levels of pay.

With such contrasting views, it is important to examine the actual data to help determine where teachers' earnings in Wales are actually positioned relative to earnings for other professions. Below, we compare the latest evidence on median and average gross earnings of teachers with those of 10 other graduate professions to create a ranked table of earnings.

Table 1 below, for example, illustrates that when measured by median gross earnings the two Welsh teaching groups were ranked at around midpoint level when compared to the

other graduate professions. Comparisons with the two earlier years are complicated by the fact that data is available for only five non-teaching professions in 2007, as against seven in 2012 and eight in 2018.

Table 2 shows average earnings, and measured in this way teachers' rankings were even lower. In 2018, for instance, secondary teachers were placed fifth out of ten professions while primary and nursery school teachers were positioned eighth. As well as teachers, some other professions show comparatively low average earnings in Wales. Most notable among this group were chartered surveyors, accountants and management consultants, earnings for whom were consistently at or near the bottom when based on both median and average figures.

Table 1: Ranking of median gross earnings levels of selected graduate professions in Wales 2007, 2012 and 2018*

Group	2007 rank	2012 rank	2018 rank
Secondary education teachers	3	3	4
Primary and nursery education teachers	4	4	5

Source: ASHE

**Based on available data for five non-teaching professions in 2012, seven in 2012 and eight in 2018*

Differences between the median and average figures occur because medians, since they register the middle value within a distribution, tend to measure 'typical' earnings. In contrast, averages factor in the whole distribution to a greater extent and so are more strongly affected by very high or low values.

Table 2: Ranking of average gross earnings levels of 12 graduate professions in Wales 2007 to 2018*

Group	2007 rank	2012 rank	2018 rank
Secondary education teachers	6	3	5
Primary and nursery education teachers	7	9	8

Source: ASHE

**Based on available data for seven non-teaching professions in 2007 and six in 2012 and eight in 2018*

For most professional and managerial occupations, average pay figures usually exceed medians because such groups often contain a higher proportion (compared to non-professionals) of senior employees with longer job tenure and therefore comparatively higher pay levels. For the two teaching groups in Wales, however, both average gross pay figures

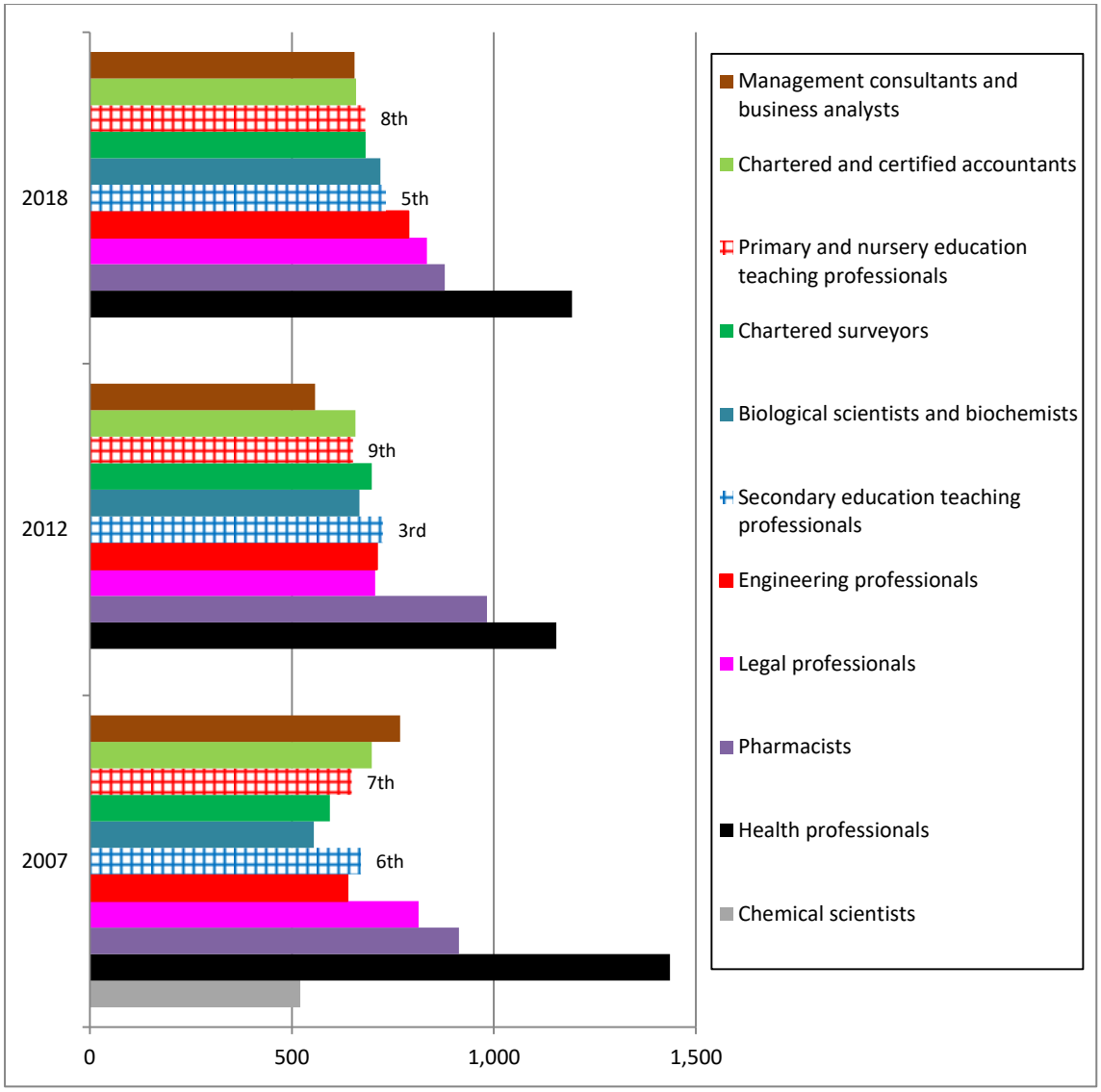
in 2018 were below the equivalent medians. For example, the primary teacher average stood at £681.40 per week compared to a median of £728.80. The corresponding amounts for secondary school teachers were £732.60 and £740.40 respectively. By contrast, the average-median differentials for the other eight professions ranged from 4.7% for engineers to over 30% for health and legal professionals.

Due to these differences, median earnings for teachers in Wales are placed around the middle of the rankings at fourth and fifth places compared to six other graduate professions. When we use averages the picture is even less favourable for teachers as table 2 illustrates – fifth and eighth positions compared to eight non-teaching graduate jobs.

1.5. Magnitude of pay gaps

Rankings like the ones above, however, do not provide any insight into the *magnitude* of gaps that currently exist between earnings for teachers and those for other professions. Comparing the earnings figures for each of the comparator groups with those of the two teacher groups shows whether any differentials are significant, as in Graph 1. (Unfortunately, not all of the occupations had insufficient sample sizes, so some bars are missing for some years.)

Graph 1: Comparison of average gross earnings (£pw) of all comparator graduate professions including school teachers in Wales: 2007, 2012 and 2018*



Source: ASHE.
**Based on available data for nine non-teaching professions in 2007 and eight in 2012 and eight in 2018.*

As with the rankings above, the graph shows that secondary teachers in Wales were positioned around the middle of the pay table in 2018 whereas the primary school figure was near the bottom. What the graph shows that the earlier tables do not though is that some of the pay gaps are substantial.

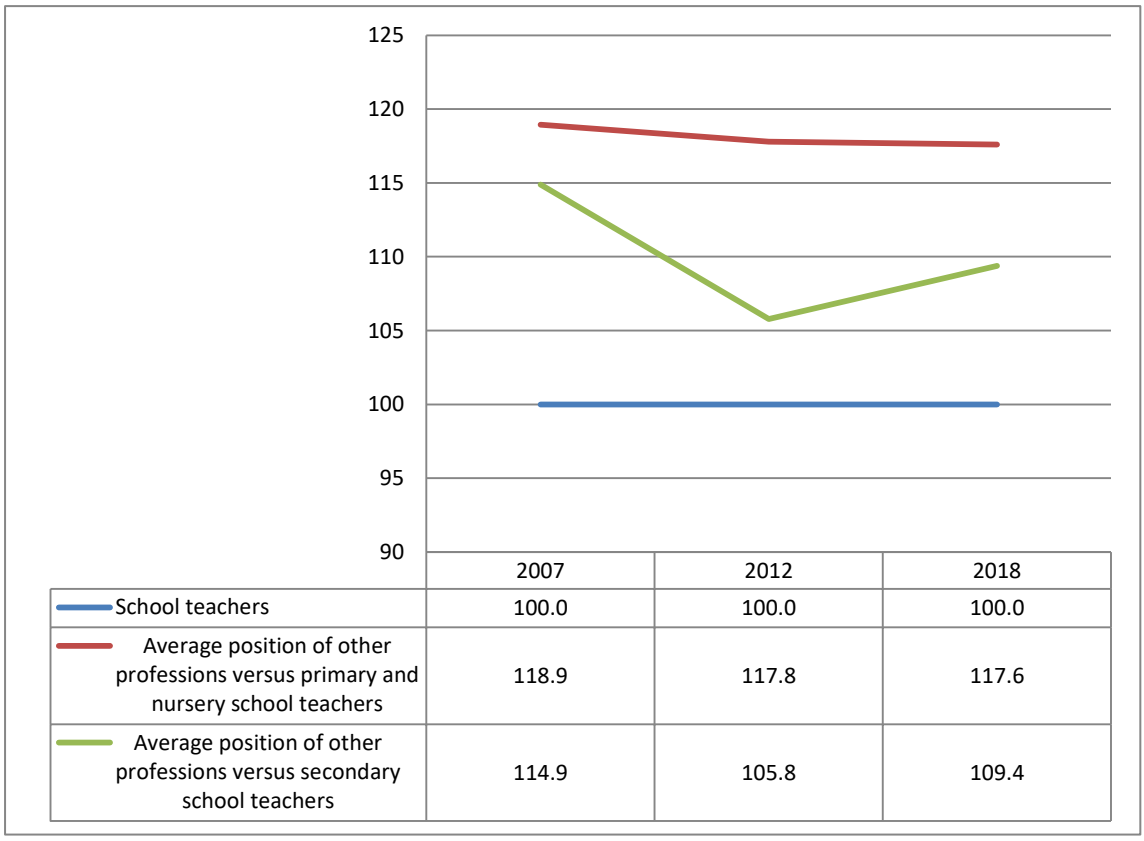
For instance, in the latest year, health professionals' average gross earnings far exceeded those of the other groups. This group was followed by pharmacists, legal professionals and then engineers. Secondary teachers' average gross earnings were the fifth largest although they differed very little from those of biological scientists. In contrast, the corresponding average amount for primary teachers was the third lowest and differed only marginally from the equivalent figures for chartered surveyors, accountants and management consultants, the three other relatively low-paying groups.

1.6. Teachers' earnings persistently lag behind

Another way to examine the differentials between teachers and non-teachers is to aggregate the data for non-teaching professions and compare this with earnings for each of the teaching groups. The results are presented in Graph 2 on an indexed basis, using school teachers' gross earnings as the base (=100) for each year.

The graph shows significant differentials between earnings for both teaching groups and those for the combined profession group. In 2018, for example, average gross earnings for all comparator professions were 9.4% above those for secondary school teachers and 17.6% ahead of average earnings for primary school teachers. The chart also exhibits a narrowing of the earnings differentials between the non-teaching figure and secondary teachers from 2007 to 2012 but a widening between 2012 and 2018. In contrast, for primary and nursery teachers, the gap was relatively stable over the whole period. As mentioned above, however, a degree of caution needs to be exercised when drawing conclusions from cross-year comparisons due to the unmatched samples.

Graph 2: Indexed average gross earnings lead of all comparator graduate professions over school teachers in Wales: 2007, 2012 and 2018*



	2007	2012	2018
School teachers	100.0	100.0	100.0
Average position of other professions versus primary and nursery school teachers	118.9	117.8	117.6
Average position of other professions versus secondary school teachers	114.9	105.8	109.4

Source: ASHE.

**Based on available data for nine non-teaching professions in 2007 and eight in 2012 and eight in 2018.*

It might be argued that combining all the earnings data for the other occupations into one aggregate figure is an oversimplification because the overall figure may be heavily influenced by particularly high or low amounts. For example, health professionals stand out as a group that earns significantly more than most other professional occupations and as such is likely to exert upward pressure on the combined figure.

To address this, Table 3 below provides an even clearer illustration of the magnitude of pay disparities between teachers and each individual graduate profession in 2018. It shows that median and average gross weekly earnings for teachers in Wales trailed those for half of the other graduate professions.

For greater clarity, the table is colour-coded with differentials shaded blue where teachers' earnings are **lower** than those for the other professions and red where they are **higher**. It is clear that the table is split 50/50 between the two colours although where non-teaching

professions were higher paid, the differentials were larger than in the cases where the teaching groups' gross earnings levels led those of the other professions.

For example, the highest differential in favour of a teaching group was 17.3% which was the median gross earnings lead of secondary teachers over chartered surveyors. In contrast, the highest non-teaching lead was significantly higher, at 75.1%, which was the differential in favour of the average gross earnings for health professionals over primary and nursery teachers.

Table 3: Median and average gross weekly earnings differentials of 10 graduate professions versus teachers in Wales 2018

Group	Average gross weekly pay £pw	% differential with secondary teachers	% differential with primary and nursery teachers	Median gross weekly pay £pw	% differential with secondary teachers	% differential with primary and nursery teachers
Secondary education teaching professionals	732.6			740.4		
Primary and nursery education teaching professionals	681.4			728.8		
Chemical scientists	**No data**			**No data**		
Biological scientists & biochemists	719.1	-1.8	5.5	633.0	-14.5	-13.1
Physical scientists	**No data**			**No data**		
Engineering professionals	788.3	7.6	15.7	753.1	1.7	3.3
Health professionals	1,193.3	62.9	75.1	913.4	23.4	25.3
Pharmacists	878.4	19.9	28.9	800.7	8.1	9.9
Legal professionals	834.3	13.9	22.4	670.7	-9.4	-8.0
Chartered and certified accountants	659.2	-10.0	-3.3	633.5	-14.4	-13.1
Management consultants and business analysts	655.3	-10.6	-3.8	627.1	-15.3	-14.0
Chartered surveyors	682.8	-6.8	0.2	612.3	-17.3	-16.0

Source: ASHE.

The table illustrates another seven instances where the earnings of non-teaching occupations, at both the median and the average, exceeded the equivalent teaching figures by magnitudes that were greater than the highest teaching lead of 17.3%. These ranged from a gap of 19.9%, which was the difference between pharmacists' average gross earnings and those of secondary teachers, up to 62.9%, which was the differential between health professionals and secondary teachers based on the same measure of earnings.

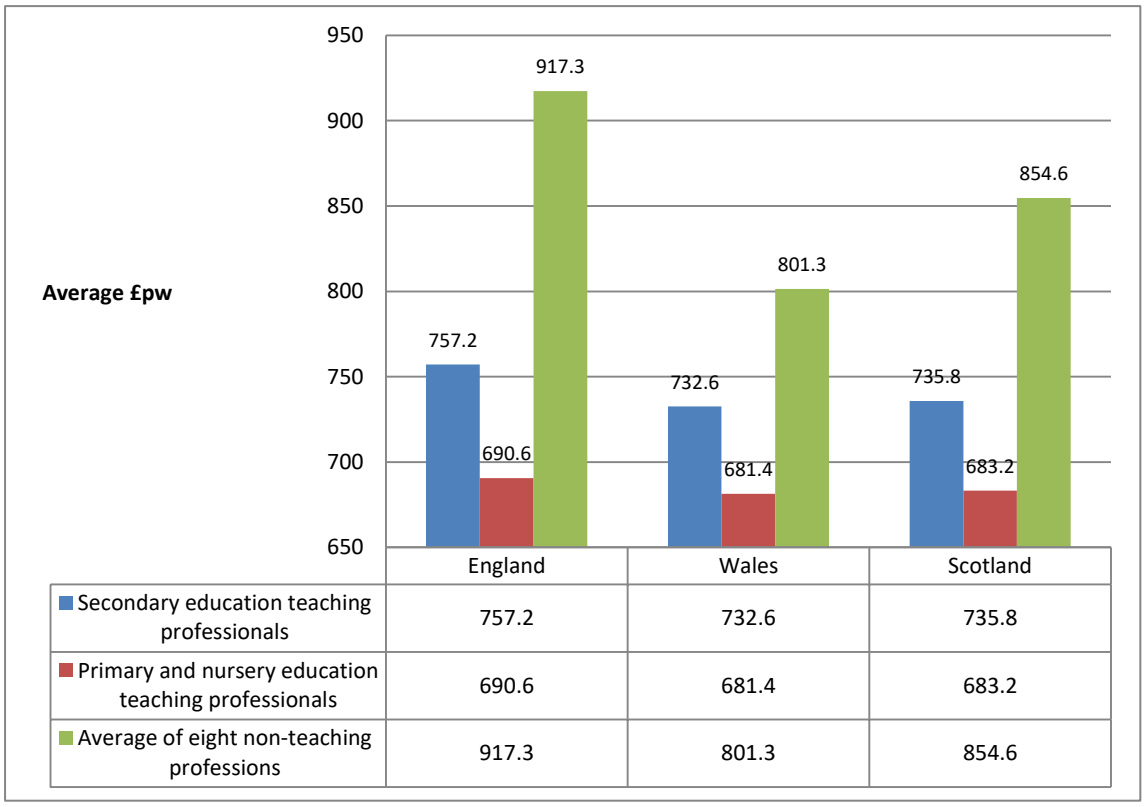
1.8. Wales compared to England and Scotland

As in last year's report, this year we took a broader perspective by examining how the average gross earnings of teachers in Wales, England and Scotland compared to the other professions in each respective country. This is because teachers, like other graduate professions, are more mobile geographically than most non-graduate occupations.

Graph 3 shows average gross earnings for secondary and primary teachers in comparison to the average of a group of the same eight non-teaching professions for each of Wales, England and Scotland – biological scientists, engineering professionals, health professionals, pharmacists, legal professionals, chartered surveyors, chartered accountants and management consultants. Only eight non-teaching occupations are used because data was not available for all 10 groups in Scotland and Wales in 2018.

The graph illustrates that the average gross earnings of both teaching groups are significantly below those of the non-teaching groups in England, Scotland and Wales. In addition, the figures for secondary and primary teachers in Wales were lower than the corresponding amounts for England and Scotland. However, the earnings for non-teaching groups are lower in Wales than in England and Scotland so the gap between teachers' and non-teachers' earnings is narrower in Wales than for the other two countries.

Graph 3: Relative average gross earnings of teachers and selected professional groups in the UK 2018



	England	Wales	Scotland
Secondary education teaching professionals	757.2	732.6	735.8
Primary and nursery education teaching professionals	690.6	681.4	683.2
Average of eight non-teaching professions	917.3	801.3	854.6

Source: ASHE.

1.9. Key findings

School teachers' earnings

- Official data on pay movements demonstrates clearly that teachers in Wales have not had significant real-terms pay increases since before the recession.
- Average gross earnings for teachers in Wales compare unfavourably with those for other graduate occupations in the country.
- When measured by median levels, the position is not so stark with both teaching groups positioned around the middle when compared with comparable non-teaching professions.
- In terms of average gross earnings, secondary teachers were positioned fifth out of ten occupations whereas the primary and nursery school teacher ranking was eighth.
- For the median gross figures, rankings were fourth and fifth out of ten job groups.
- In terms of median basic earnings, secondary school teachers were placed in third place out of nine professions whereas primary and nursery teachers were ranked fourth. The

rankings here reflect the fact that teachers are not so reliant on the additions to pay found in many other professions' earnings.

- As measured by average basic earnings the respective positions were lower at fifth and sixth place within a sample of 10 job groups.
- A focus on the magnitude of differentials shows that where the teaching groups' pay levels exceeded those for other non-teaching professions, the differentials were generally marginal.
- In contrast, where teachers' pay levels trailed some of the higher-paying professions, the differentials were more significant.

Recruitment and retention

- The Welsh Government told the STRB that the situation in Wales had not changed significantly in recent years and that it saw no particular difficulties in recruiting and retaining the required number of teachers and school leaders.
- Despite this, a more recently commissioned independent review of the situation in Wales stated that the recruitment of teachers to some areas of the curriculum is proving difficult.
- Further, the STRB reported that in Wales, there has been a substantial increase in the proportion of recruitment exercises for secondary school leadership posts that did not result in an appointment.

Number of teachers and pupils

- The number of secondary and primary and nursery teachers in Wales has been falling since 2012. For primary and nursery teachers the fall was under 1% whereas it was 11.9% for secondary teachers.
- At the same time, the number of primary and nursery teachers has followed an upward trend for most of the period while there was a 13% drop in the number of secondary teachers.
- This pattern is set to change in the coming years as the primary school pupils start entering secondary education.
- In fact, secondary school pupil numbers are expected to rise by 10.8% between 2017 and 2026.
- Despite this, while initial teacher training targets were generally met between 2009 and 2014, in the years since then they have been just missed for primary and nursery teachers and missed by a long way for secondary teachers.
- The overall effect on pupil-teacher ratios has been an upward trend in primary and nursery standing at 22:1 in 2018

- In secondary schools there was greater stability standing at 16.7:1 in 2005 with little variation up to 2018 when the corresponding ratio was 16:1.

Financial situation

- The overall level of reserves held by schools in Wales was £46 million, or 2.1% of total delegated schools' expenditure.
- Despite this, the overall level of financial reserves held by schools in Wales decreased by around 28% between March 2016 and March 2017.
- Moreover, the proportion of schools with negative reserves has increased in the past four years from 10.8% in 2013 to 17.9% in 2016.
- Over a longer period, there has been a decrease in schools carrying reserves worth more than 10% of their delegated annual expenditure.

Looking to the future

- Looking ahead, decisions on pay are now devolved to the Welsh Government which commissioned an independent review in late 2018 titled 'Teaching: a valued profession – the report of the independent review'. This change could represent a significant break from recent practice in respect of the structure of teachers' pay in Wales.

2. Pay for school teachers in Wales in context

Decisions on teachers' pay are shaped by numerous factors so it is worth reflecting on some of the wider aspects of the current environment to fully understand the challenges faced by the profession. This chapter brings together information from various other sources that highlight the present situation in terms of recruitment and retention, pupil numbers, funding and supply and demand.

A primary source of information is the STRB which, each year, is tasked with looking at all the evidence available before making its pay recommendations for England and, until 2019, Wales. In support of its most recent recommendation, the latest STRB report presented substantial evidence from numerous sources including the NASUWT covering pay, recruitment and retention and many other factors that affect the teaching profession. Most of the findings presented in the latest July 2018 report concern issues that have persisted for many years as outlined in the previous chapter.

2.1 Latest pay deal and current pay levels

Based on the evidence it reviewed, the STRB recommended that all pay and allowance ranges for teachers and school leaders in England and Wales be uplifted by 3.5% from September 2018. This represented a break from the recent past when recommendations had to bear in mind the Government proviso that any proposed pay deal stay within its 1% public sector pay cap. In September 2017, the Chief Secretary to the Treasury partially lifted this cap in cases where public sector professions faced particularly pronounced skills shortages. This opened the door to the higher pay recommendation from the STRB. In the event, however, the Government decided that the increase of 3.5% should only be applied to the 43% of teachers on the main pay range with lower increases of 2% for those on the upper range and 1.5% for leaders.

Prior to the increase, evidence to the STRB from the Welsh Government suggested that, as a consequence of lower average earnings in Wales, salaries for teachers are more comparable with those of other graduate occupations in Wales than England. Most of the analysis found in the STRB report was UK-based but the Welsh Government stated that its analysis of the 2017 ASHE survey suggests that, in Wales, primary and secondary teachers' median pay is within the top half of pay for graduate professions and that leadership occupations within education are amongst the highest-paid graduate occupations. It added though that this evidence did not take into account differences in average levels of

experience, qualifications or detailed working conditions, which includes important benefits such as the value of pensions.

Evidence from the union side tended to focus more generally on England and Wales emphasising that teachers' pay has been falling relative to that for comparable non-teaching professions while the NASUWT provided evidence specific to Wales from our report from the previous year which portrayed a picture that differed from the one presented by the Welsh Government.

2.2 Recruitment and retention

The Welsh Government's submission to the STRB maintained that the recruitment climate in Wales had not changed significantly in the last three years, reporting that targets for recruitment to Initial Teacher Education (ITE) were being kept at a 'steady state'. This followed a reduction in the targets of around one third between 2004/05 and 2016/17 which it said was, in part, a response to evidence of an oversupply of qualified teachers in Wales.

Looking to the future, the Welsh Government also said that the forecasts for its Teacher Planning and Supply Model (TPSM) indicate that current recruitment plans will be sufficient to respond to changes in teacher demand in Wales up to 2026/27. Despite this, it added the caveat that to achieve these targets will involve a 'sustained reliance' on re-entrants to the primary sector and an 'increasing reliance' on secondary sector re-entrants to fill vacancies.

In terms of teacher supply, the Welsh Government told the STRB that the situation in Wales had not changed significantly in recent years and that it saw no particular difficulties in recruiting and retaining the required number of teachers and school leaders. In contrast however, a more recent independent report carried out by academics and commissioned by the Welsh Government examining the situation in Wales stated that 'The recruitment of teachers to some areas of the curriculum is proving difficult. Shortage subjects include mathematics, the sciences, geography, the Welsh language, and digital technology.' As the STRB reported, the proportion of classroom teacher posts advertised in Wales where no appointment was made was 7% in primary schools and 6% in secondary schools based on the latest data available in 2016.

In addition, in 2018, the STRB reported that in Wales, there has been a substantial increase in the proportion of recruitment exercises for secondary school leadership posts that did not result in an appointment. Over the last four years, there has been a large increase in failures

to appoint to leadership posts in secondary schools with over 25% of posts remaining unfilled in 2016.

Examining the data for the number of applicants per post in Wales shows that 14 applications were received per post for primary school positions in 2016, the latest year with available data, and eight per post for secondary sector jobs. Taking a longer-term perspective, however, illustrates that there has been a decrease over the past five years in the average number of applicants per post across both the primary and secondary sectors. For example, the number of applicants per post in the primary sector stood at over 25 in 2011 while the figure in secondary schools in the same year was around 15. For secondary leaders, the fall was even greater with over 25 applicants per post in 2011 compared to just 6 in 2016.

2.3 Current numbers of teachers

Table 4 below shows that the number of full-time equivalent teachers in Wales has been falling since 2014 while, at the same time, the total number of pupils has been rising. For example, it shows that the number of full-time equivalent teachers fell by around 950 while the number of pupils rose by just under 1,000, with the respective figures diverging rather than converging as would be preferable.

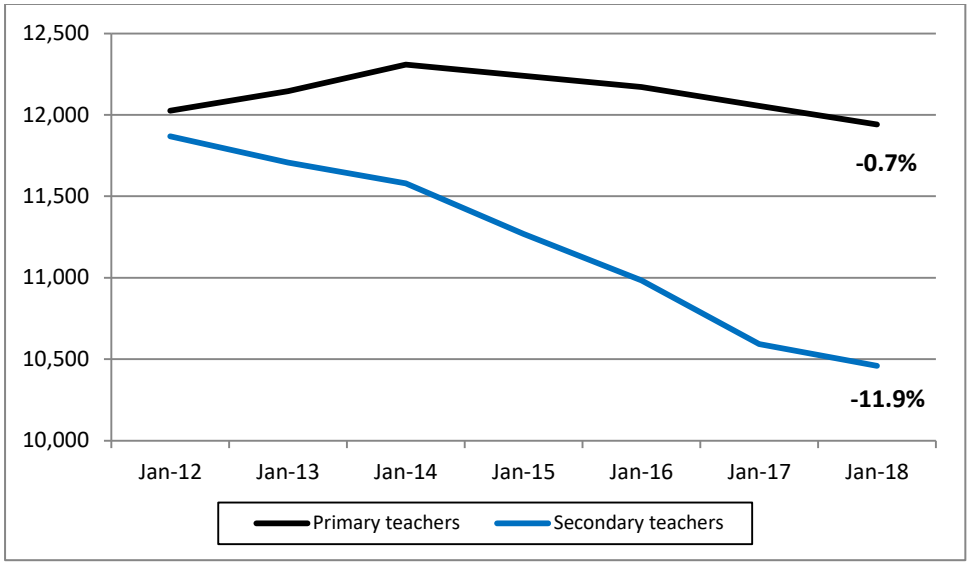
Table 4: Number of full-time equivalent teachers and pupils in Welsh local authority-maintained schools 2012 to 2018

	January 2018	**January 2017**	**January 2016**	**January 2015**	**January 2014**	**January 2013**	**January 2012**
Nursery teachers	38.9	33.5	42.3	43.4	52.8	58.3	63.6
Primary teachers	11941	12,056	12,171	12,240	12,308	12,144	12,026
Primary pupils	262,844.5	276,940	276,954	273,400	269,421	264,186	262,144
Middle teachers	713.7	532.7	345.2	290.0	221.7	222.7	No data
Secondary teachers	10,459	10,594	10,984	11,269	11,579	11,707	11,868
Secondary pupils	172,218	174,812	178,669	182,408	186,427	191,279	198,015
Special teachers	719	694	694	668	661	638	643
Total teachers (FTE)	**23,871**	**23,910**	**24,236**	**24,511**	**24,823**	**24,771**	**24,601**
Total pupils (FTE)	**452,256**	**451,844**	**451,682**	**451,259**	**450,711**	**450,833**	**451,790**

Source: Welsh School Census Results, July 2018.

Graph 4 shows the trends in teacher numbers more clearly, illustrating that since 2012 both have followed a downward trend. For primary teachers, the decrease of 0.7% was relatively small whereas for those in secondary schools the fall was more significant at nearly 12%.

Graph 4: Full-time equivalent number of primary and secondary school teachers in Wales 2012 and 2018



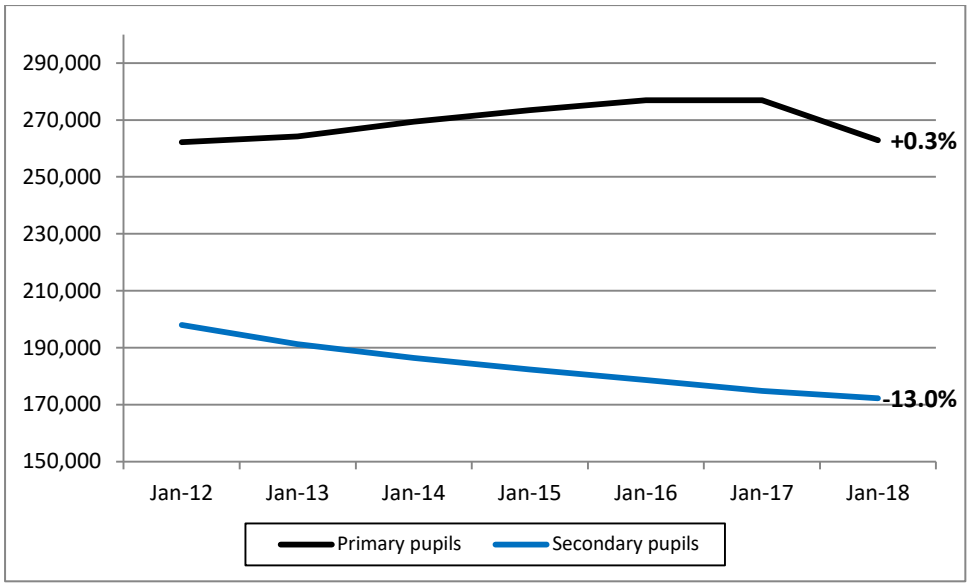
Source: Welsh School Census Results, July 2018.

2.4 Pupil numbers

Graph 5 presents data from the Welsh School Census illustrating that since 2012 the number of primary school pupils had been increasing before falling between 2017 and 2018. In contrast, the trend for secondary pupils has been downwards, decreasing by 13% over the period.

However, these trends look set to reverse in the future with secondary school pupil numbers in Wales expected to increase by 10.8% between 2017 and 2026 and the number of primary pupils set to fall. The reversal is due to the large increase in primary numbers seen in preceding years feeding through to secondary schools.

Graph 5: Number of primary and secondary school pupils in Wales 2012 and 2018



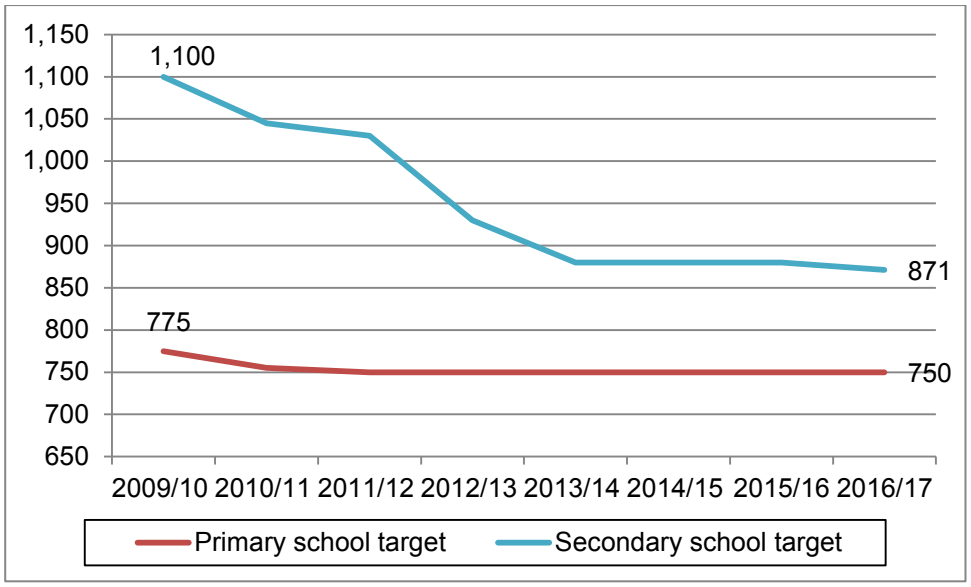
Source: Welsh School Census Results, July 2018**.**

2.5. Teaching entrants

In Wales, qualified teaching status can be achieved via initial teacher education (ITE) or employment-based routes, although the latter method accounts for only around 5% of overall places. Between 2009/10 and 2016/17 the targets for student numbers on ITE courses fell from 1,100 to 871 for secondary education and from just under 775 to 750 for primary schools. These falls were planned as the Welsh Government aimed to reduce the number of people taking ITE courses to better match the needs of schools in Wales between 2005/06 and 2013/14. Since 2013/14, the targets have remained relatively constant as the graph below demonstrates.

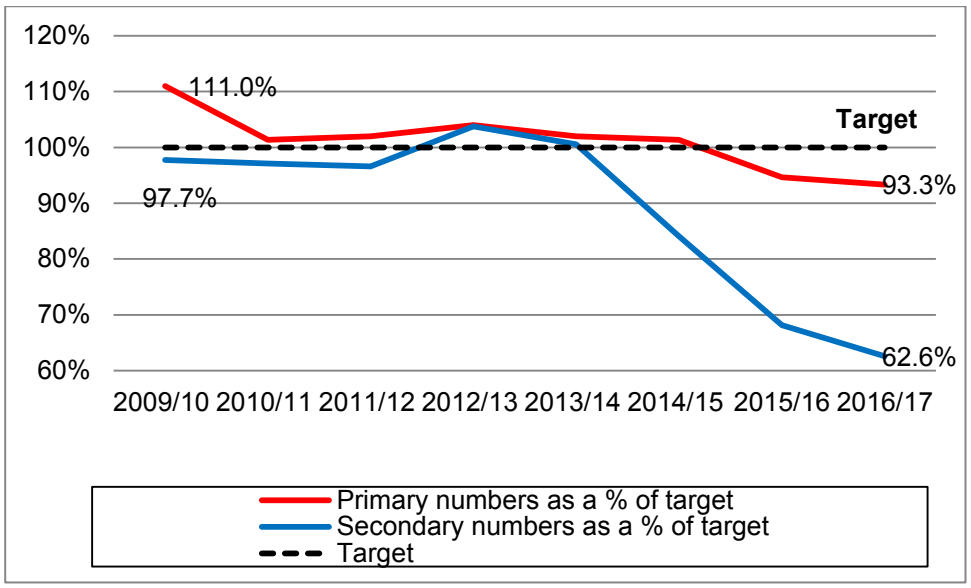
An examination of the actual enrolments illustrates that numbers entering primary school courses exceeded or mirrored the planned targets with the only exception being the last two years when there were slight shortfalls. In contrast, numbers enrolling on secondary courses trailed the stated target for most years. The deficit varied over these periods, but the largest shortfall was in 2016/17, the latest year for which data is available when the secondary course target was missed by 37.4%.

Graph 6: Initial teacher training intake targets in Wales 2009 to 2017



Source: Welsh Government Schools' Census results.

Graph 7: Proportion of initial teacher training intake targets in Wales met 2009 to 2017



Source: Welsh Government Schools' Census results.

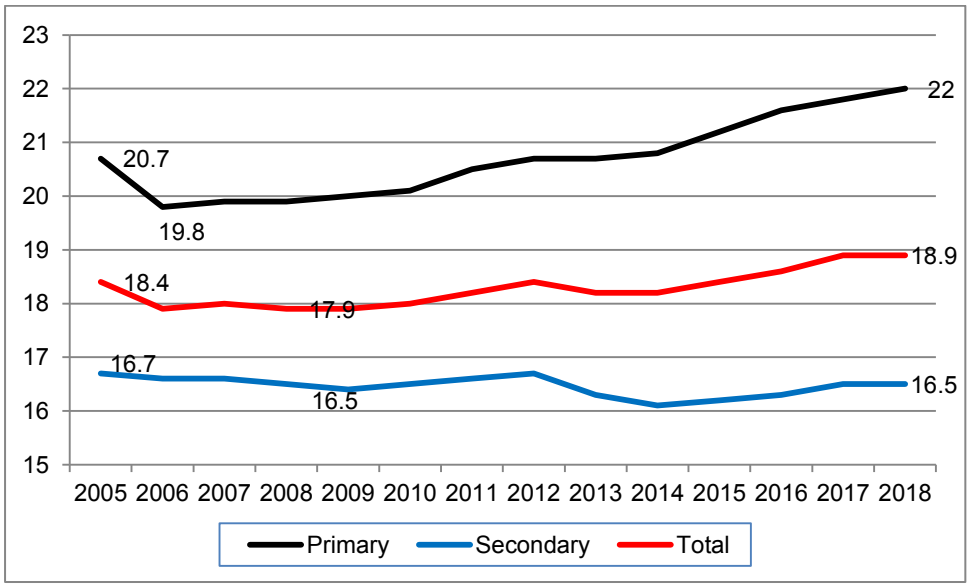
2.6. Data on the number of pupils per teacher

Looking at changes in the numbers of pupils and teachers in isolation is only of limited use because we need to understand the pattern of both in order to calculate a more important statistic – the pupil per teacher ratio. This ratio is important because it is widely considered a good indicator of educational quality.

Graph 8 presents the pattern of pupil-teacher ratios since 2005, demonstrating that the trends in secondary and primary schools differed somewhat. In primary schools, the ratio

started the period at 20.7 pupils per teacher before falling to 19.8 and ending at 22 in 2018, its highest point. In contrast, the ratio in secondary schools was stable for the whole period, never falling below 16 pupils per teacher and not exceeding 17. Because the number of secondary pupils is set to rise significantly, maintaining the ratio at this level will require more teacher recruitment.

Graph 8: Pupil to teacher ratios in Welsh primary and secondary schools 2005 to 2018



Source: Welsh Government Schools' Census results, July 2018.

To place the current situation into a wider perspective, the *Times Education Supplement* (TES) reported in 2016 that England has the highest ratio of pupils to teachers among EU member nations when the ratio was 21.1 in primary schools and 16.1 in secondary schools. The TES did not provide figures for Wales but the levels shown in the graph above are higher than the corresponding English figures, indicating that the relative position of Welsh schools is also likely to be at or near the bottom in 2018.

2.7 School funding

Bringing about change and improvement within Welsh schools may require additional funding so it is important to understand the current financial situation faced by the Welsh education system. One way of doing so is to examine reserves held by schools. Last year, the STRB report stated that 82% of Welsh schools held positive financial reserves at 31 March 2017. The overall level of reserves held by schools in Wales was £46 million, or 2.1% of total delegated schools' expenditure. However, this figure represented a decrease of around 28% on the previous year.

Moreover, the proportion of schools with negative reserves has increased in the past four years, from 10.8% in 2013 to 17.9% in 2016. Over a longer period, there has been a decrease in schools holding large reserves (worth more than 10% of their delegated annual expenditure). Scope for significant changes could become narrower if this trend continues.

2.8 Looking to the future

Decisions on pay are now devolved to the Welsh Government which commissioned an independent review in late 2018 titled *Teaching: a valued profession – the report of the independent review.* This change could produce variations from the STRB for England in respect of the approach to pay and conditions. Some of the key recommendations set out in the report include:

Proposals

- Development of a new: 'made-in-Wales pay and conditions framework, enshrining a national approach to professional learning and standards, and the freedom for teachers to use their professionalism and knowledge'
- For individual teachers and head teachers there should be agreed standardised national teaching and leadership pay scales with no regional or local variance. A new nine-point national pay scale for all teachers should comprise eight annual increments based on the teacher professional growth. This new national pay scale would combine the current main and upper pay scales which would be a significant break from the current system that will continue to operate in England.
- With immediate effect, the flexibility exercised by Governing Bodies over the salary levels of head teachers should cease. Where a positive flexibility has already been applied, the head teacher's current salary shall be pegged until such time as cost of living increases equalise their pay point with the salary they are receiving
- There should be an adjustment in the starting point on the main pay scale for those entering teaching with relevant prior work experience in other occupations.

'Guarantees'

- Any change will result in no detriment in pay and conditions
- Pay ranges should remain unchanged relative to the School Teachers' Pay and Conditions Document (2018) for the purposes of recruitment to the profession
- Pay ranges for teachers and leadership for Wales should initially retain direct comparability with England as set out in the School Teachers' Pay and Conditions document

- Pay portability – teachers moving between schools in Wales or who, after a career break, continue to work in Wales should be paid according to their last pay point when working
- The panel recommends that the new pay progression arrangements are implemented from September 2019 and that the distinction between the Main and Upper Pay Ranges be discontinued from that point and the concept of the threshold removed.

Pay review process

- The new framework will be based on a reasoned comparison, particularly in relation to other employment sectors and England
- Processes should be put in place to continually monitor teachers' pay in Wales relative to that for other graduate occupations as part of future pay setting arrangements
- Detailed consideration should be given to the feasibility of establishing an independent board to determine the initial head teacher salary level for each individual school that seeks to appoint a head teacher to a vacancy.

3. School teachers' pay awards compared with the wider economy

An examination of how pay awards for school teachers in Wales have compared with increases across the economy as a whole since 2007 demonstrates that the teaching profession in Wales tended to receive lower pay awards than those for other groups, except during the depths of the recession in 2009 and 2010. In those two years, teachers received pay awards under a previously negotiated long-term deal so their increases were 2.3%, ahead of the median pay awards for the whole economy taken from the IDR Databank that stood at 1.8% (2009) and 2% (2010).

Since then, the median whole economy pay award was 2% in each of 2011, 2012 and 2013, and 2.5% in 2014, while the figure for 2015 was 2.2%. By contrast, teachers received no general salary increase in either 2011 or 2012, 1% between 2013 and 2014, while in 2015, the headline increase was again 1% with a 2% increase to the maximum of the pay range.

More recently, in 2016, 2017 and 2018, the median whole economy figures stood at 1.78%, 2% and 2.5% respectively. Over the same period, pay increases for teachers were applied to pay ranges rather than across the board, and appraisal-related pay introduced, so not all teachers were guaranteed to receive a rise. Statutory range minima and maxima were increased by 1% in 2016, 2% in 2017 and 3.5% in 2018. In the last two years the uplifts to the upper pay range have been lower than the increases for the main range, with the former at 1% in 2017 and 2% in the latest year, while the latter were 2% and 3.5% respectively. Moreover, in 2018, the increase to the leadership pay range was even lower at 1.5%. As a result, just 43% of teachers received the latest 3.5% headline rise.

Now that pay is devolved to the Welsh Government it is difficult to forecast the likely pay outcomes of the new system in the coming year. Despite this, what is clear is that any decisions made will need to balance the pressure to raise teachers' pay and address related problems with the financial constraints to which the Welsh Government will be subject.

3.1. Measuring pay awards

General salary increases for school teachers approved by government ministers from 2007 onwards are detailed in Table 5. The increases cover teachers in both Wales and England and exclude other elements of earnings which might have affected overall pay bills. In most of the 12 years covered, all teachers received the headline salary rise and were also entitled to incremental pay progression based on time in post and experience. Since then, with the introduction of appraisal-related progression most schools continue to apply the awarded

increase to all pay points (in spite of an attempt to replace these with ranges) but not all teachers have received progression in addition to the basic rise.

The table also shows the lower quartile, median and upper quartile figures for pay settlements generally. These cover the three-month period ending September as an appropriate point for comparison with the school teachers' pay review. The percentage figures used in the table measure the headline increases in basic pay levels, excluding bonuses or lump sum payments. For settlements and awards where the percentage rise varies for different employees (for example, increases based on individual performance), the figure used is the average increase where this is known, the increase received by the largest number of employees, or the pay bill increase. The cost of other improvements, such as any increase in holiday entitlement or in the value of allowances, for example, is excluded.

3.2. Pay trends over the period

In the past it was relatively simple to draw comparisons between the pay rises received by teachers and those in the whole economy. Since 2015, however, because the award has differed between the main and upper pay ranges it is more difficult to apply a single figure to the award.

Table 5 presents the difference between teachers' pay increases and those elsewhere. The only period in which teachers enjoyed higher annualised awards was between 2009 and 2010. This was during the economic downturn when a three-year deal, starting in 2008 and concluded before the burgeoning financial crisis deteriorated significantly, protected teachers' pay in relative terms.

From 2015 onwards, formal comparisons for teachers are difficult to make because increases to pay ranges have differed for different teaching groups. For example, in 2015 there was a 1% uplift to the minima of all pay ranges and allowances, a 2% uplift applied to the maxima of the main pay range which both trailed the all-economy median of 2.2%.

In 2016, almost all teachers received a 1% increase which trailed the all-economy median which stood at 1.78%. In 2017, the all-economy figure was 2% and that year the minimum and maximum of the main pay range were both uplifted by 2%. Despite this, a similar proportion of teachers on the upper pay range received increases of 1% so, at best, pay for only some in the teaching profession in Wales kept pace with pay for employees in the wider economy.

Last year, there was a 3.5% uplift to the minimum and maximum of the unqualified and main pay range while the minimum and maximum of the upper pay range, leading practitioner pay range and all allowances were increased by 2%. In contrast, the minimum and maximum of the leadership pay ranges were only uplifted by 1.5%. At the same time, the all-economy median pay rise stood at 2.5%, ahead of the increases for the majority of teachers.

During the period when teachers in Wales and England received a pay rise while other public sector workers' pay was frozen, from 2009 to 2010, the fact that wages continued to rise in the private sector (albeit at a lower level than previously) means that the differential with the whole economy median was worth a half a percentage point at most. By contrast, in other years, when teaching pay rises lagged behind the whole economy median they were often between 1 and 2 percentage points lower.

As a result, it is clearly visible that the overall pattern illustrates a sustained deterioration in the earnings levels of school teachers relative to other groups over the period 2007 to 2014. From 2015, increases varied according to range or position in the range but with the exception of a subset of teachers in 2018, the figures show that pay increases trailed those found in the whole economy over this more recent period too.

Table 5: School teachers' pay awards compared with those in the wider economy, 2007-2018

	School teachers England & Wales		**Pay settlements – whole economy**			**Comparison with median**
	% general award		**Lower quartile %**	**Median %**	**Upper quartile %**	**Percentage point difference**
2007	Salary increase of 2.5%	Q3	3.0	3.5	4.1	-1.0
2008	General salary increase of 2.45%	Q3	3.0	3.7	4.0	-1.25
2009	General salary increase of 2.3%	Q3	0.0	1.8	2.5	0.5
2010	General salary increase of 2.3%	Q3	0.3	2.0	2.4	0.3
2011	No general salary increase	Q3	0.0	2.0	3.0	-2.0
2012	No general salary increase	Q3	1.0	2.0	3.0	-2.0
2013	General salary increase of 1%	Q3	1.0	2.0	2.5	-1.0
2014	1% increase in range minima, maxima and reference points within ranges	Q3	2.0	2.5	2.8	-1.5
2015	1% uplift to the minima of all pay ranges and allowances, 2% uplift applied to the maxima of the main pay range	Q3	1.8	2.2	2.5	-1.2
2016	1% increase to the statutory minima and maxima of all pay ranges and allowances in the national pay framework from September 2016, including allowances. Schools have discretion over how to apply the increase unless the teacher is on the minimum pay-point	Q3	1.0	1.78	2.5	-0.78

	School teachers England & Wales		**Pay settlements – whole economy**			**Comparison with median**
	% general award		**Lower quartile %**	**Median %**	**Upper quartile %**	**Percentage point difference**
2017	2% uplift to the minimum and maximum of the main pay range; a 1% uplift to the minima and maxima of the upper pay range, the unqualified teacher pay range and the leading practitioner pay range. Schools have discretion over how to apply the increase unless teacher is on the minimum pay-point but must be within the overall 1% public sector pay cap	Q3	1.7	2.0	2.74	-1.0
2018	3.5% to the minimum and maximum of the unqualified pay range and main pay range; 2% to the minimum and maximum of the upper pay range, leading practitioner pay range and all allowances; 1.5% to the minimum and maximum of the leadership pay ranges.	Q3	2.0*	2.5*	3.0*	1.0, -0.5 or -1.0 depending on range

**Provisional and subject to revision.*

Note: we have analysed whole-economy pay awards for the third quarter of the year (Q3), to align with the teachers' pay review in September.

Source: IDR.

4. Graduates' pay in Wales

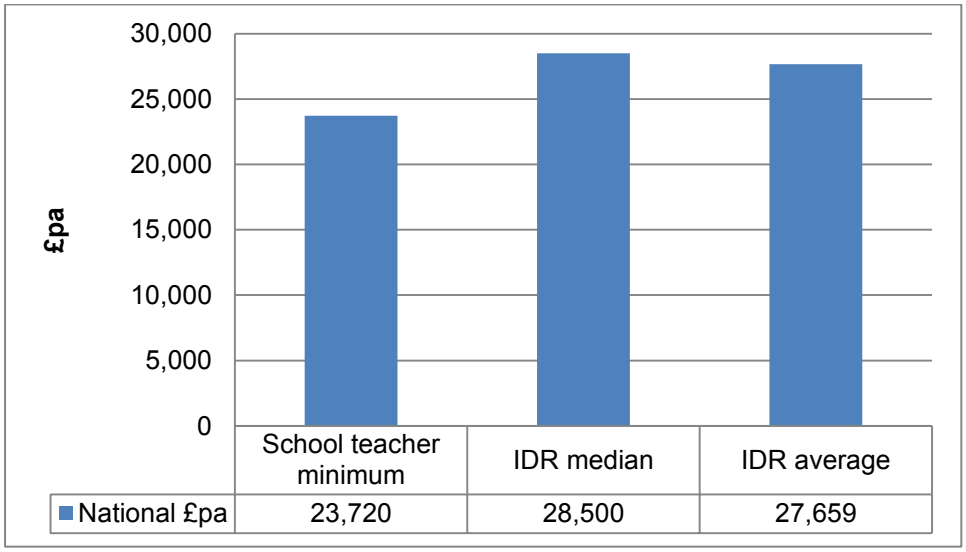
In this section we compare the aggregate salaries for graduates in mostly private sector organisations with the current salaries on the school teachers' main pay scale. The analysis focusses on data collected on anticipated graduate starting salaries for 2018 from an IDR survey of pay and progression for graduates. We analyse how this compares to the minimum salaries for teachers on the main pay ranges set by the STRB.

The IDR survey captured data from graduate recruiters on starting salaries for their graduate intake for 2017 and anticipated salaries for new graduates in 2018. The whole survey sample showed that two-fifths of companies (44%) expected to maintain their 2017 starting salaries for graduates at the same level in 2018. Specifically looking at organisations with locations/sites in Wales, half of companies had not made a change to the starting salaries for graduates between 2017 and 2018. Excluding those companies who did not expect to uprate graduate starting salaries in 2018, the anticipated median percentage uplift for salaries in 2018 in Wales was 2.0%.

4.1 Starting salaries

The data in Graph 9 shows that the IDR median graduate starting salary in Wales is £28,500, 20.2% higher than the current national minimum point on the school teachers' main pay range. The average graduate starting salary is slightly lower than the median at £27,659, but still significantly ahead (16.6%) of the current minimum salary for teachers.

Graph 9: Median starting salaries for graduates compared with teachers' minimums 2018



Source: IDR.

On the median, this is a wider gap than reported by the IDR survey in 2017 when the difference was 18.9%. However, the gap between the average graduate starting salary and the teachers' minimum point showed a slightly narrower gap of 16.6% compared to 18.8% in 2017.

Table 6 below shows salary data from the latest XpertHR survey on graduate starting salaries in Wales. Both median and average graduate starting salaries as reported by the XpertHR survey are lower than the minimum point of the teachers' main pay range, with a gap of -0.9% and -2.9% respectively. This is likely to be a result of both sample size and sampling variability. The XpertHR survey collected data from a larger sample of companies, predominantly from the private services sector. The IDR survey, meanwhile, collected data from a large proportion of manufacturing companies (48% of companies in the survey are in the manufacturing sector). Pay in this sector is usually higher compared to other sectors and higher graduate salaries in manufacturing are perhaps a reflection of more technical qualification or skills requirements.

Table 6: UK graduate starting salaries 2018/2019

Country	**Median (£pa)**	**Average (£pa)**
Wales	23,500	23,214
UK	24,000	24,647

Source: 'Graduate recruitment and starting salaries survey 2018', XpertHR.

5. ASHE earnings analysis

In this chapter we draw on data from the Annual Survey of Hours and Earnings (ASHE), produced by the Office for National Statistics (ONS). More specifically, the chapter uses the separate breakdown for Wales, making it possible to examine how the earnings of school teachers in the country have changed over time compared to a basket of other comparator graduate occupations in the same country.

Covering the years 2007 to 2018, the analysis focuses on three years in particular – 2007, 2012 and 2018. We have chosen 2007 because this is the point just before the economic crisis while 2012 represented the beginning of the period of pay freezes and restraint faced by the teaching profession. The latest year, 2018, is relevant because it is the point for which the most recent data is available, but it also represents a time when the pay policy had been moderated to some extent as a result of recruitment and retention pressures.

When considering the findings some caveats need to be borne in mind. Firstly, the samples for each year are not based on matched data. In addition, because Wales has a significantly smaller population than the United Kingdom as a whole, some of the sample sizes are limited. In addition, in some years there are gaps in the information where the ONS deemed the data collected as not reliable, statistically-speaking.

One other point to bear in mind is that in some years the ONS redefined certain jobs, which affects comparisons between years. In 2010, for example, changes meant that a new 3-digit 'health professionals' subgroup was created which excluded general medical practitioners (GPs). Prior to this the 2-digit major group, also called 'health professionals', included both GPs and other health groups. As a result, changing job definitions and unmatched samples mean that cross-year comparisons need to be treated with an appropriate degree of caution.

For a full explanation of the factors to bear in mind when interpreting the data see Appendix 9. The box below provides an indication of the reliability of the figures for each of the chosen job groups in 2018. The ONS sets four levels of data reliability for all its data, as follows:

- Precise;
- Reasonably precise;
- Estimates acceptable;
- Unreliable or no data.

As Table 7 illustrates, the reliability of the occupational pay data for Wales is mixed. It illustrates that the most precise data relates to the teaching groups along with engineering professionals followed by health and legal professionals and chartered accountants and surveyors.

In contrast, figures for physical and chemical scientists were deemed insufficient to provide reliable pay estimates while data for many of the other groups is only 'acceptable' or 'reasonably precise'. Despite these weaknesses, where the ONS has deemed the reliability of the data to be acceptable or better we have carried out an analysis although the level of precision of the data needs to be borne in mind when interpreting the results.

Table 7: Assessment of reliability of Welsh earnings data 2018

Job group	**2018 average basic earnings figure £pm**	**Level of precision**	**2018 average gross earnings figure £pm**	**Level of precision**
Secondary education teaching professionals	729.9	Precise	732.6	Precise
Primary and nursery education teaching professionals	681.2	Precise	681.4	Precise
Chemical scientists	No data	Imprecise or no data	No data	Imprecise or no data
Biological scientists and biochemists	681.1	Acceptable	719.1	Acceptable
Physical scientists	No data	Imprecise or no data	No data	Imprecise or no data
Engineering professionals	737	Precise	788.3	Precise
Health professionals	1,070.50	Reasonably precise	1,193.30	Reasonably precise
Pharmacists	850.9	Acceptable	878.4	Reasonably precise
Legal professionals	828.6	Reasonably precise	834.3	Reasonably precise
Chartered and certified accountants	655.5	Reasonably precise	659.2	Reasonably precise
Management consultants and business analysts	630.7	Reasonably precise	655.3	Reasonably precise
Chartered surveyors	653.9	Acceptable	682.8	Acceptable

Source: ONS.

5.1. Overview

ASHE provides information about the amounts, distribution and make-up of earnings and hours worked by employees in all industries and occupations. In addition, the annual ASHE datasets enable earnings for occupations to be analysed on the basis of four-digit occupational codes, where relevant, and by region/country, which permits the ONS to produce figures for the whole of Wales. For the purposes of our analysis, we have used weekly earnings figures from ASHE for 10 non-teaching graduate occupations as listed in Table 8, on the basis that these 'professional' occupations (i.e. Standard Occupational Classification major group '2') are reasonable comparators with school teaching on the basis that they are all professional roles, with employers competing for potential staff from a single pool of graduates. These occupations have been identified and used as suitable earnings comparators in previous research reports for the NASUWT. It should be noted that ASHE does not provide sample counts so the 'number of jobs' column below is actually an estimate based on information taken from another ONS study – the Labour Force Survey.

Table 8: Comparator graduate occupations in ASHE and SOC codes

ASHE main occupational groups	**Occupational groups used in analysis**	**SOC codes**	**No. of jobs in Wales***
Science, research, engineering and technology professionals	Chemical scientists	2111	Disclosive**
	Biological scientists and biochemists	2112	Unreliable estimate
	Physical scientists	2113	Disclosive**
Engineering professionals	Engineering professionals	212	14,000
Health professionals	Health professionals	221	15,000
	Pharmacists	2213	Unreliable estimate
Business, media and public service professionals	Legal professionals	241	Unreliable estimate
Business, research and administrative professionals	Chartered and certified accountants	2421	Unreliable estimate
	Management consultants and business analysts	2423	Unreliable estimate
Architects, town planners and surveying professionals	Chartered surveyors	2434	Unreliable estimate
Teaching and educational professionals	A. Secondary education teaching professionals	2314	17,000
	B. Primary and nursery education	2315	17,000

	teaching professionals		

**Full-time jobs. Estimates in 2018.*
*** 'Disclosive' means that the sample size is so small that an individual could be identified if the data was published. Therefore, the ONS exclude the results from its data.*
Source: ASHE.

In the appendices, we include tables showing full median and average indexed earnings from ASHE, accompanied by graphs that make the overall trends clearer. In addition, similar information is shown for the median and average basic weekly and gross earnings on which the indices are based for all the occupations covered and all the years under review.

5.2. Basic earnings of comparator graduate professions relative to school teachers

The following section of the report shows how median and average earnings differentials between the two teaching groups and a selection of comparator graduate occupations vary over time. For the purpose of our analysis, the years 2007, 2012 and 2018 have been selected for detailed examination. This allows comparisons of earnings differentials to be made in each of these three years as well as indicating how differentials have changed over the full 12-year period.

The section begins with an examination of the overall findings for all the jobs covered followed by a calculation of the combined median and average differentials between earnings from the 10 comparator graduate occupations (where data is available) and those for the two teaching groups. We then present a more detailed analysis of indexed median and average basic earnings for each of the occupational groups, relative to those for secondary and primary education school teachers in each of the same three years.

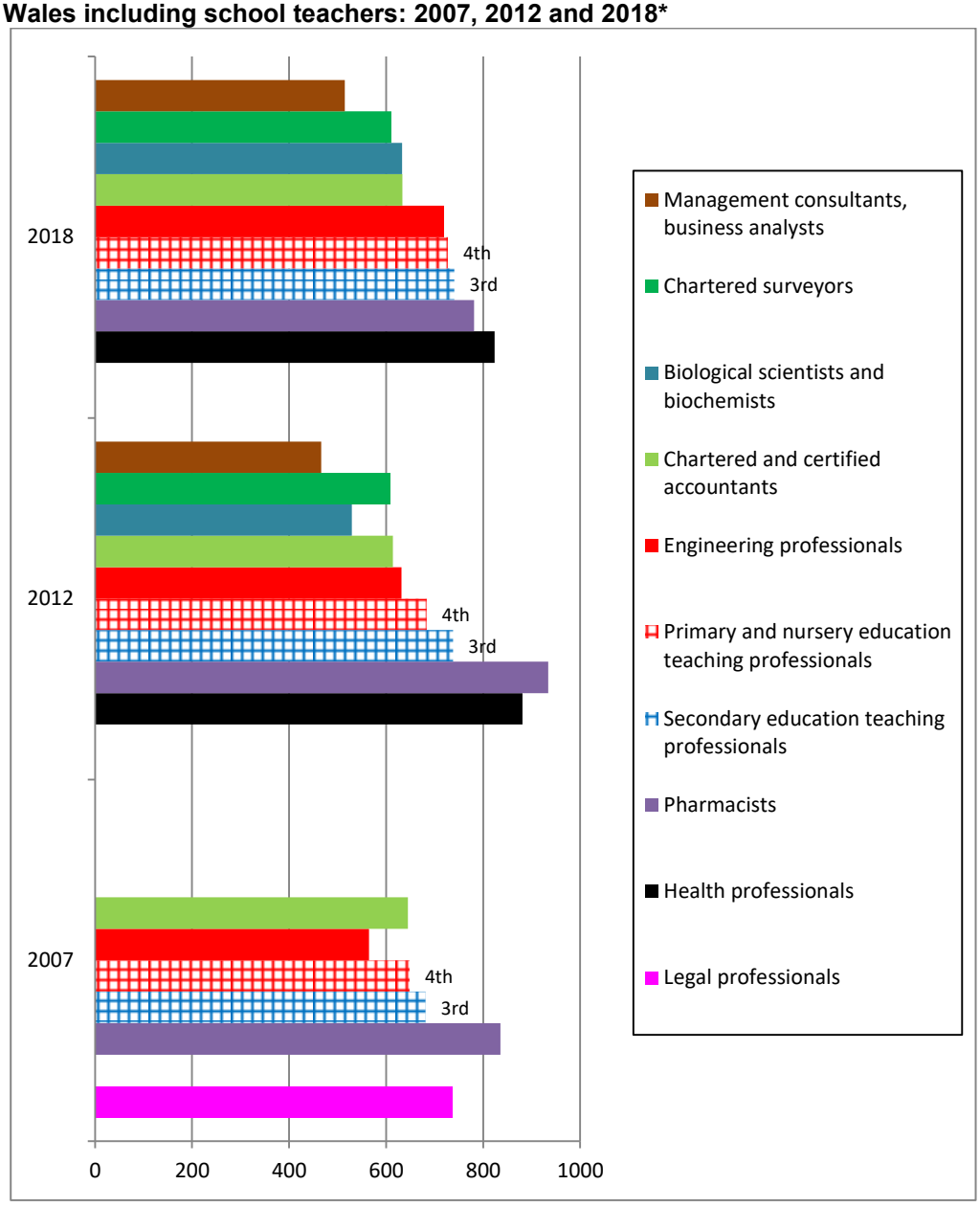
Teachers' pay is predominantly made up of basic salary but for other professions other elements such as shift pay (or in the case of some health professionals, clinical excellence awards) can account for a significant proportion of earnings. For this reason, the section concludes with a look at the median and average **gross** earnings of the selected graduate occupations compared to the corresponding figures for teachers.

Graphs 10 and 11 provide details of the median and average rankings of earnings for all the professions we examined in Wales, including both teaching groups, across the three years in focus. The graphs illustrate that secondary teachers in Wales are generally slightly higher-paid than those who teach younger children. The two graph bars for the teaching professions are shaded with a crossed pattern and labelled with their ranking position so they stand out from the other non-teaching occupations.

Not all of the chosen professions are shown in each year because the data was not available in some periods due to sample size limitations. Moreover, even where data is disclosed, some sample sizes are relatively small and, as a result, the figures for most non-teaching professions are not as precise as those relating to the two teaching professions.

Bearing these factors in mind, the graph illustrates that in terms of median basic earnings secondary and primary teaching professions were positioned third and fourth respectively in all three years. Dominating the earnings table in the latest two years were health professionals and pharmacists. Health professionals did not have median basic pay data available in 2007 illustrating how sample sizes for some groups are inconsistent across the three years. This variability in sample sizes together with changes in job definitions across the period means that the rankings can change across the three years. Such comparisons based on un-matched samples across the different years therefore need to be treated with a certain measure of caution.

Graph 10: Comparison of median basic earnings of all comparator graduate professions in Wales including school teachers: 2007, 2012 and 2018*



**Based on available data for four non-teaching professions in 2007, eight in 2012 and seven in 2018.*
Source: ASHE.

One limitation of using median statistics is that they represent typical values and are not strongly affected by the highest and lowest figures found in a particular sample. For remuneration data, outliers are important because they provide a more complete picture of the whole range of earnings found in different occupations. This is particularly relevant for teachers in Wales and England where concerns have been expressed about pay at more experienced levels.

Table 9: Ranking of median basic earnings levels of selected graduate professions in Wales 2007, 2012 and 2018

Group	2007 rank	2012 rank	2018 rank
Secondary education teachers	3	3	3
Primary and nursery education teachers	4	4	4

Source: ASHE.

**Based on available data for four non-teaching professions in 2007, eight in 2012 and seven in 2018.*

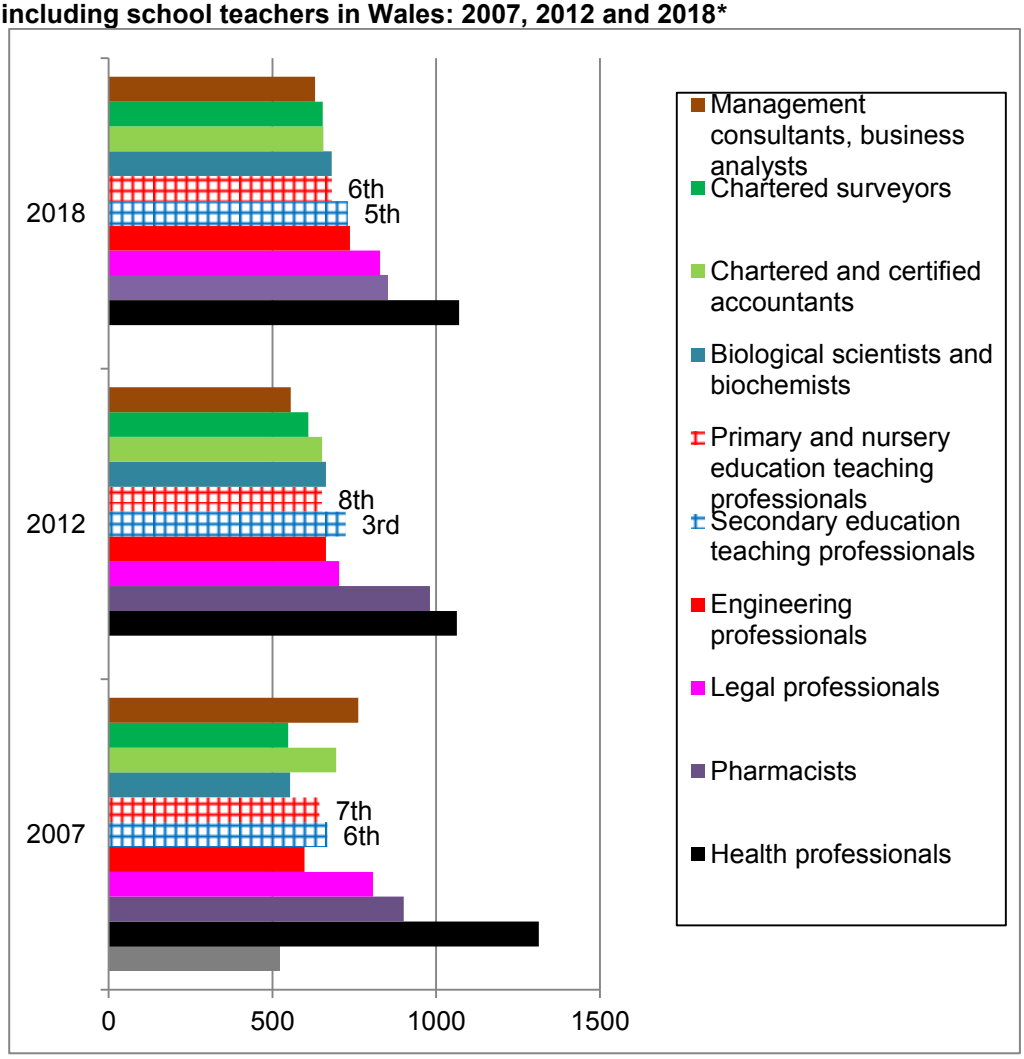
By contrast, average figures take more account of the whole distribution of earnings, including both the highest and the lowest. Therefore, to gain a fuller picture, Graph 11 provides comparative details based on average basic earnings for the professional groups examined. It is clear that the overall distribution in Graph 11 is broader than that for median earnings in all three years. For example, whereas Graph 10 showed that the highest median salary level for a non-teaching job is around 13.2% greater than the figure for primary and nursery teachers, the highest average figure shown in Graph 11 is over 57.1% greater. Another consequence of using different statistics is that the ranking of both teaching groups falls somewhat when measured by the average figures as opposed to medians. For example, secondary school teachers fall from third to fifth place in the move from medians to averages in 2018, while the pay of primary teachers fell from fourth to sixth. The drop in rankings is explained by the fact that while the average figures for all the comparator groups have increased compared to the corresponding medians, the average levels for both teaching groups in Wales were actually lower than the corresponding median levels. For example, non-teaching profession average amounts were between 2.4% and 30% higher than the equivalent median whereas the secondary average basic pay figure was £729.90 per week which was lower than the median of £740.40. Similarly, the primary and nursery teacher average of £681.20 trailed the median that stood at £727.10.

The fact that average basic pay levels in the non-teaching professions were much higher than the corresponding medians means that either: there are a greater proportion of higher-paid staff in non-teaching sectors; the pay levels of more experienced/senior staff in non-teaching professions are relatively higher; or both are true.

In contrast, the fact that median pay levels are higher than average amounts for teachers in Wales means that the opposite is true. There is either a higher proportion of lower-paid staff and/or those in the higher-paying are on salaries that are only marginally greater and therefore causing the distribution to be skewed towards the lower end. As a result, as the tables and graphs above demonstrate, when measured by median basic earnings, that teachers in Wales are positioned just above the midpoint of the rankings when compared to amounts earned by other graduate professions. In contrast, when ranked by average basic

earnings the two teaching groups fall just below middle of the rankings with secondary teachers placed fifth and their primary counterparts in sixth.

Graph 11: Comparison of average basic earnings of all comparator graduate professions including school teachers in Wales: 2007, 2012 and 2018*



Source: ASHE.

**Based on available data for nine non-teaching professions in 2007, eight in 2012 and eight in 2018.*

Table 10: Ranking of average basic earnings levels of 12 graduate professions 2007 to 2018*

Group	2007 rank	2012 rank	2018 rank
Secondary education teachers	6	3	5
Primary and nursery education teachers	7	8	6

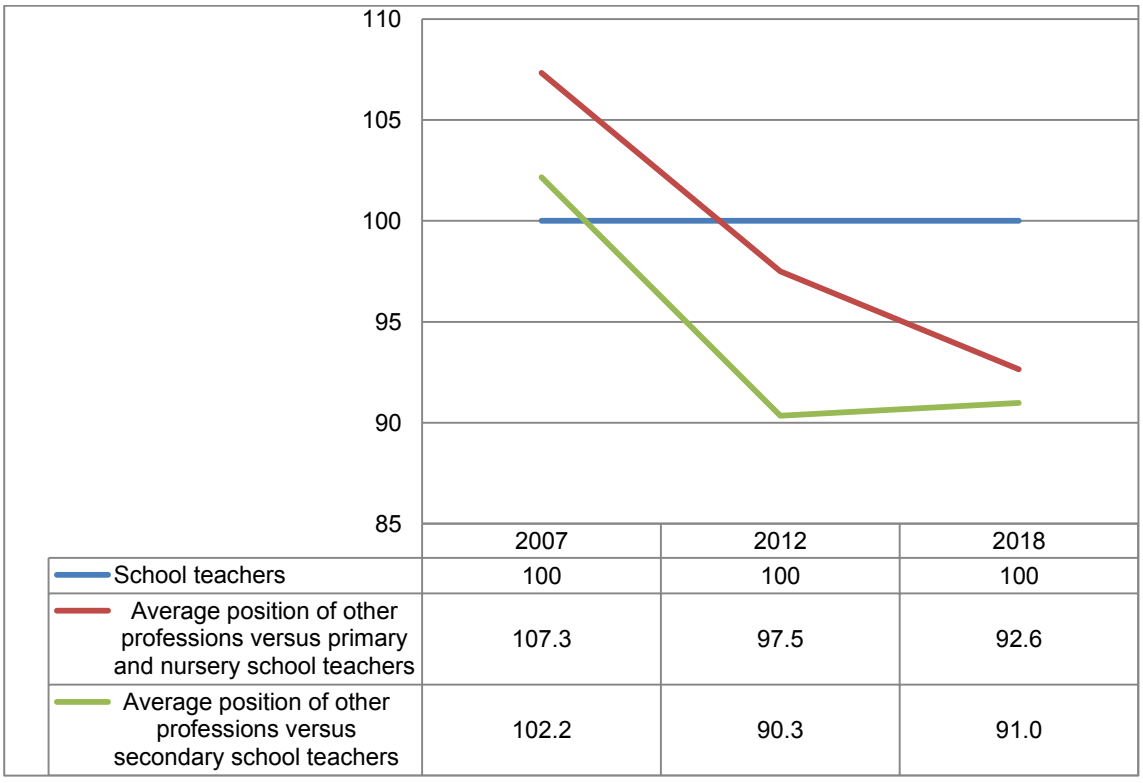
Source: ASHE.

**Based on available data for nine non-teaching professions in 2007, eight in 2012 and 2018.*

5.3. Basic earnings of combined comparator group of professions relative to school teachers

Another way of comparing teaching and non-teaching pay is to combine the earnings data for the non-teaching professions in Wales into one unweighted aggregate salary figure. This provides another indication of how differentials have varied over the period. Using median basic earnings for teachers in Wales in 2007 as the base for each year (=100), Graph 12 shows the relative position of the combined median basic earnings for the selected graduate professions. It shows that when all the earnings figures are combined, both teaching groups in Wales started the period relatively lower-paid than the combined figure whereas they finished the period with median basic earnings that were higher.

Graph 12: Indexed median basic earnings of all-comparator graduate professions relative to school teachers in Wales: 2007, 2012 and 2018*



	2007	2012	2018
School teachers	100	100	100
Average position of other professions versus primary and nursery school teachers	107.3	97.5	92.6
Average position of other professions versus secondary school teachers	102.2	90.3	91.0

Source: ASHE.

**Based on available data for four non-teaching professions in 2007 and eight in 2012 and seven in 2018.*

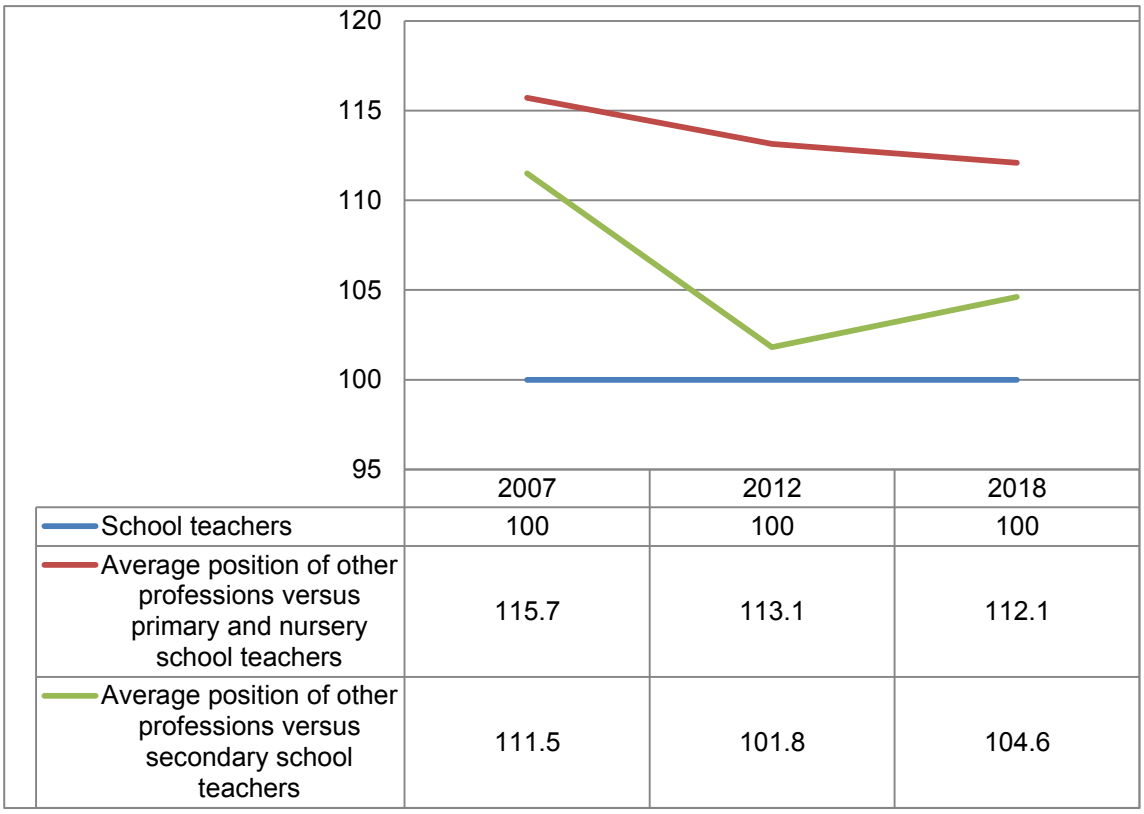
The graph shows that earnings for Welsh primary and nursery teachers started the period 7.3% below the combined figure before edging above in 2012 and pulling further ahead in 2018. The same pattern was exhibited by secondary school teachers' median basic earnings, which started the period 2.2% behind the non-teaching professional combined amount before exceeding it by around 10% in both 2012 and 2018.

One caveat to the findings here is that the data for non-teaching groups in Wales is inconsistent. For example, the 2007 calculation covers just four of the non-teaching professions whereas in 2012 it included eight and in the final year seven. In addition, while the data for both teaching groups displayed a clear upward trend across the three years as might be expected with relatively large samples, the pattern of non-teaching median salaries was more erratic, in line with the changes in the data.

Taking pharmacists as an example, the 2007 median basic earnings figure stood at £835.90 per week before rising to £934.10 in 2012 and perhaps surprisingly falling substantially to £781.10 in 2018. Health professionals only showed figures for 2012 and 2018 but as in the case of pharmacists, the median basic earnings figures fell over the period from £880.80 per week to £823.50.

Large shifts in median figures can occur when sample sizes are small which could be a reason behind these fluctuations but they could also be because of changes in the composition of samples in different years. Another point worth noting when interpreting the results is that the 2018 analysis does not include the legal professional group which tends to be one of the higher-paying non-teaching professions.

Graph 13: Indexed average basic earnings all-comparator graduate professions relative to school teachers in Wales: 2007, 2012 and 2018*



	2007	2012	2018
School teachers	100	100	100
Average position of other professions versus primary and nursery school teachers	115.7	113.1	112.1
Average position of other professions versus secondary school teachers	111.5	101.8	104.6

Source: ASHE.

**Based on available data for nine non-teaching professions in 2007 and eight in 2012 and eight in 2018.*

An examination of the average basic earnings data from ASHE, as shown in Graph 13, illustrates a very different pattern. Throughout the period between 2007 and 2018 teachers' average basic earnings trailed those of the aggregated non-teaching group. In the case of secondary education teachers, the differential was 4.6% in 2018 while the corresponding gap for primary teachers was much greater at 12.1%.

In the case of all of these findings though, because of variations in the size and compositions of the different samples across the period together with the two instances when the ONS made changes to the definitions of all the job categories, some caution needs to be exercised when interpreting the results.

5.4. Occupational findings on basic earnings in detail

To complement the various comparisons shown above, using weekly earnings figures for each of the 10 non-teaching professions that had available data, we have indexed all the amounts against the two Welsh teaching groups. We have carried out four comparisons for

each of the 10 non-teaching professions where possible: median and average earnings versus the same measures for each of secondary and primary teachers.

Unfortunately, this year the data for some of the occupations covered in Wales was not disclosed by the ONS due to insufficient sample sizes. This was particularly true for the median figures explaining why some of the tables have no data for some years.

a) Science, Research, Engineering and Technology professionals

Indexed differentials of median basic earnings, 2007, 2012 and 2018

Table 11 summarises the basic earnings figures for occupations within the ASHE occupational group 'Science, research, engineering and technology professionals', compared to earnings for secondary education teachers in Wales. The science occupations have some of the smallest indicative sample sizes in our analysis and there was only data for the biological scientists in 2012 and 2018 when this group's median basic earnings trailed secondary education teachers in both years.

Table 11: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*681.1*	***100.0***	*737.7*	***100.0***	*740.4*	***100.0***
Chemical scientists		**No data**		**No data**		**No data**
Biological scientists and biochemists		**No data**	529.4	**71.8**	633.0	**85.5**
Physical scientists		**No data**		**No data**		**No data**

Source: ASHE/ONS.

Table 12 compares the science occupations' basic earnings with those of primary and nursery school teachers illustrating that the biological scientists' median basic earnings were well behind in 2012 before the gap narrowed a little by 2018.

Table 12: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.3*	***100.0***	*683.5*	***100.0***	*727.1*	***100.0***
Chemical scientists		**No data**		**No data**		**No data**
Biological scientists and biochemists		**No data**	529.4	**77.5**	633.0	**87.1**
Physical scientists		**No data**		**No data**		**No data**

Source: ASHE/ONS.

Indexed differentials of average basic earnings, 2007, 2012 and 2018

Average basic earnings data was also limited for the science groups with figures only available for biological scientists. As in the previous table, average basic earnings trailed those of secondary school teachers but the differentials were smaller than those for median basic earnings. In 2018, for example, biological scientists' average basic earnings were 6.7% lower compared to a 14.5% shortfall when analysed by the equivalent median values.

Table 13: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*667.6*	***100.0***	*723.5*	***100.0***	*729.9*	***100.0***
Chemical scientists	*521.7*	**78.1**		**No data**		**No data**
Biological scientists and biochemists	554.1	**83.0**	664.0	**91.8**	681.1	**93.3**
Physical scientists		**No data**		**No data**		**No data**

Source: ASHE/ONS.

Table 14 below presents the comparison with the primary and nursery education group showing that the two groups were similarly paid in terms of median basic earnings. In 2012, the biological science group median was marginally higher whereas the figures were almost identical in 2018.

Table 14: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*643.4*	***100.0***	*651.0*	***100.0***	*681.2*	***100.0***
Chemical scientists	*521.7*	**81.1**		**No data**		**No data**
Biological scientists and biochemists	554.1	**86.1**	664.0	**102.0**	681.1	**100.0**
Physical scientists		**No data**		**No data**		**No data**

Source: ASHE/ONS.

b) Engineering professionals

Indexed differentials of median basic earnings, 2007, 2012 and 2018

Table 15 provides details of median basic earnings for engineering professionals demonstrating that their earnings started the period around 17% behind those of secondary education teachers before rising throughout the period to 2018. In 2012, for instance, the differential narrowed slightly to 14.4% before ending the period with a 2.9% shortfall in 2018.

Table 15: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Secondary education teaching professionals	*681.1*	***100.0***	*737.7*	***100.0***	*740.4*	***100.0***
Engineering professionals	*564.8*	**82.9**	631.8	**85.6**	719.1	**97.1**

Source: ASHE/ONS.

The comparison with primary and nursery education teachers portrays a slightly different picture with engineering professionals' median basic earnings some way behind those for primary teachers in 2007 and 2012 before hovering around the same level as the teaching group in 2018.

Table 16: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Primary and nursery education teaching professionals	*648.3*	***100.0***	*683.5*	***100.0***	*727.1*	***100.0***
Engineering professionals	*564.8*	**87.1**	631.8	**92.4**	719.1	**98.9**

Source: ASHE/ONS.

Indexed differentials of average basic earnings, 2007, 2012 and 2018

An analysis of average earnings demonstrates a similar pattern to the median pay findings although the differentials were narrower and engineers finished the period with marginally higher average basic earnings. Average earnings for engineers were around 10.5% lower than the equivalent figure for secondary teachers in 2007 while the differential narrowed to 8.3% in 2012. In contrast, the engineering figure ended the period with a 1% lead in 2018.

Table 17: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Secondary education teaching professionals	*667.6*	***100.0***	*723.5*	***100.0***	*729.9*	***100.0***
Engineering professionals	*597.8*	**89.5**	663.4	**91.7**	737.0	**101.0**

Source: ASHE/ONS.

Table 18 illustrates a similar pattern with the comparison to primary and nursery teachers demonstrating a similar trend. In 2007, engineers' average basic earnings were somewhat

lower than those of primary teachers but by 2012 there was a 1.9% lead and this grew to 8.2% in 2018.

Table 18: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*643.4*	***100.0***	*651.0*	***100.0***	*681.2*	***100.0***
Engineering professionals	*597.8*	**92.9**	663.4	**101.9**	737.0	**108.2**

Source: ASHE/ONS.

c) Health professionals and pharmacists

Indexed differentials of median basic earnings, 2007, 2012 and 2018

Table 19 shows the relationship between the median basic earnings of the two health-related professions and secondary education teachers. It shows that for both health groups the figures were quite volatile, reflecting changes in sample compositions in the three years. For example, health professionals had a 19.4% lead in 2012 before this fell to 11.2% in 2018. For pharmacists, the differential was 22.7% in favour of the health group in 2007 before rising to 26.6% in 2012 and then falling significantly to just 5.5% in 2018.

Table 19: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*681.1*	***100.0***	*737.7*	***100.0***	*740.4*	***100.0***
Health professionals		**No data**	880.8	**119.4**	823.5	**111.2**
Pharmacists	835.9	**122.7**	934.1	**126.6**	781.1	**105.5**

Source: ASHE/ONS.

Earnings leads for health professionals and pharmacists exhibited the same pattern when compared with earnings for primary and nursery education teachers but the differentials were even greater as shown in Table 20.

Table 20: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.3*	***100.0***	*683.50*	***100.0***	*727.1*	***100.0***
Health professionals		**No data**	880.8	**128.9**	823.5	**113.3**
Pharmacists	835.9	**128.9**	934.1	**136.7**	781.1	**107.4**

Source: ASHE/ONS.

Indexed differentials of average basic earnings, 2007, 2012 and 2018

Table 21 illustrates that when average basic earnings were analysed the health groups' figures were significantly higher. For example, the average earnings lead of health professionals over secondary education teachers ranged between 46% and 96.7%. In the case of pharmacists, the gap was smaller but still substantial with this health group's average basic earnings exceeding those for secondary school teachers by around 35% in 2007 and 2012 before dropping off to 16.6% in 2018.

Table 21: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*667.6*	***100.0***	*723.5*	***100.0***	*729.9*	***100.0***
Health professionals	*1313.4*	**196.7**	1063.5	**147.0**	1070.5	**146.7**
Pharmacists	901.0	**135.0**	981.4	**135.6**	850.9	**116.6**

Source: ASHE/ONS.

The pattern was similar when primary and nursery education teachers' basic earnings were examined although differentials were larger, reflecting the fact that primary school teachers tend to earn lower amounts than their secondary school counterparts as shown in the table below.

Table 22: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*643.4*	***100.0***	*651.0*	***100.0***	*681.2*	***100.0***
Health professionals	*1313.4*	**204.1**	1063.5	**163.4**	1070.5	**157.1**
Pharmacists	901.0	**140.0**	981.4	**150.8**	850.9	**124.9**

Source: ASHE/ONS.

d) Legal professionals

Indexed differentials of median basic earnings, 2007, 2012 and 2018

Table 23 shows how the median basic earnings of legal professionals compared to secondary teachers across the period. In 2007, for instance, the legal professional figure was 8.3% ahead of the teaching group. In 2012 and 2018, there was insufficient data available for the ONS to disclose figures.

Table 23: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*681.1*	***100.0***	*737.7*	***100.0***	*740.4*	***100.0***
Legal professionals	*737.5*	**108.3**		**No data**		**No data**

Source: ASHE/ONS.

A comparison with primary and nursery education teachers' median earnings indicates that in 2007 legal professionals' earnings were ahead of those for the teaching group.

Table 24: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.3*	***100.0***	*683.5*	***100.0***	*727.1*	***100.0***
Legal professionals	*737.5*	**113.8**		**No data**		**No data**

Source: ASHE/ONS.

Indexed differentials of average basic earnings, 2007, 2012 and 2018

Unlike for medians, average figures for legal professionals were disclosed in every year as seen in Table 25. It shows that legal professionals had a lead in average basic earnings over secondary school teachers of 20.9% in 2007 but fell behind by 2.8% in 2012 before finishing the period with a 13.5% lead. Again, the volatile findings are probably due to changing sample compositions across the different years.

Table 25: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*667.6*	***100.0***	*723.5*	***100.0***	*729.9*	***100.0***
Legal professionals	*807.0*	**120.9**	703.3	**97.2**	828.6	**113.5**

Source: ASHE/ONS.

In contrast, the average basic earnings of legal professionals were ahead of those for primary and nursery teachers in all three years by between 8% and 25.4%.

Table 26: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*643.4*	***100.0***	*651.0*	***100.0***	*681.2*	***100.0***
Legal professionals	*807.0*	**125.4**	703.3	**108.0**	828.6	**121.6**

Source: ASHE/ONS.

e) Business, research and administrative professionals

Indexed differentials of median basic earnings, 2007, 2012 and 2018

Business, research and administrative professional roles are usually relatively well-paid but this is not the case in Wales according to ONS data. As Table 27 shows, median basic earnings of both teaching groups were actually greater in all years although there was no data available in 2007 for the management consultant group.

In 2007, the median basic earnings of chartered accountants were worth 94.7% of the equivalent secondary education teacher figure and 99.5% of the primary school equivalent. In 2012, the equivalent differentials stood at 83.2% and 89.8% before finishing the period well behind with levels 85.6% and 87.1% of the equivalent teaching amounts.

Table 27: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*681.1*	***100.0***	*737.7*	***100.0***	*740.4*	***100.0***
Management consultants, business analysts		**No data**	466.4	**63.2**	514.6	**69.5**
Chartered and certified accountants	645.0	**94.7**	613.8	**83.2**	633.5	**85.6**

Source: ASHE/ONS.

Data was available for the management consultant group in 2012 and 2018 when the median basic earnings figures were significantly lower than those for the secondary teacher group. Differentials were 36.8% lower in 2012 and 30.5% behind in 2018. Similarly, figures trailed those of primary and nursery teachers by 31.8% in 2012 and 29.2% in 2018 but as in some of the cases above, limited sample sizes may be influencing the findings which is likely to explain the large movements across different years.

Table 28: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.3*	***100.0***	*683.5*	***100.0***	*727.1*	***100.0***
Management consultants, business analysts		**No data**	466.4	**68.2**	514.6	**70.8**
Chartered and certified accountants	645.0	**99.5**	613.8	**89.8**	633.5	**87.1**

Source: ASHE/ONS.

Figures for average basic earnings were available for the two business groups in all years and for both groups the figures started the period ahead of secondary school teachers before falling behind in 2012 and 2018. By 2018, the managing consultant group's figure was 13.6% behind while the chartered accountant amount trailed by 10.2%.

Indexed differentials of average basic earnings, 2007, 2012 and 2018

Table 29: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*667.6*	***100.0***	*723.5*	***100.0***	*729.9*	***100.0***
Management consultants, business analysts	*762.3*	**114.2**	556.1	**76.9**	630.7	**86.4**
Chartered and certified accountants	694.5	**104.0**	651.8	**90.1**	655.5	**89.8**

Source: ASHE/ONS.

The pattern was the same when the figures were compared with those for primary and nursery teachers with the average basic earnings figure for management consultants finishing the period at a level worth 92.6% of the equivalent primary and nursery school level. In contrast, the differential with chartered accountants was narrower with the figure worth 96.2% of the corresponding teaching amount.

Table 30: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*643.4*	***100.0***	*651.0*	***100.0***	*681.2*	***100.0***
Management consultants, business analysts	*762.3*	**118.5**	556.1	**85.4**	630.7	**92.6**
Chartered and certified accountants	694.5	**107.9**	651.8	**100.1**	655.5	**96.2**

Source: ASHE/ONS.

f) Chartered surveyors

Indexed differentials of median basic earnings, 2007, 2012 and 2018

In Table 31, it is clear that chartered surveyors' median basic earnings were relatively low compared to teachers in the two years for which data was available. In 2012, for example, the median basic earnings of chartered surveyors were 17.5% behind those of secondary education teachers in both 2012 and 2018.

Table 31: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*681.1*	***100.0***	*737.7*	***100.0***	*740.4*	***100.0***
Chartered surveyors		**No data**	608.9	**82.5**	610.6	**82.5**

Source: ASHE/ONS.

Table 32 presents a similar picture although the differential between the median basic earnings of chartered surveyors and those of primary and nursery education teachers in 2012 was smaller, while it widened again at the end of the period to a 16% differential in favour of the teaching group.

Table 32: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.3*	***100.0***	*683.5*	***100.0***	*727.1*	***100.0***
Chartered surveyors		**No data**	608.9	**89.1**	610.6	**84.0**

Source: ASHE/ONS.

Indexed differentials of average basic earnings, 2007, 2012 and 2018

When measured by average basic earnings, the pattern was similar with the earnings for chartered surveyors all lower than the equivalent figures for both teaching groups. However, the differentials were narrower. For example, chartered surveyors' average basic earnings were around 10% lower than the secondary school equivalent in 2018 compared to 17.5% for the median analysis.

Table 33: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Secondary education teaching professionals	*667.6*	***100.0***	*723.5*	***100.0***	*729.9*	***100.0***
Chartered surveyors	*548.1*	**82.1**	609.3	**84.2**	653.9	**89.6**

Source: ASHE/ONS.

Similarly, the chartered surveyor average basic earnings differential with primary and nursery school teachers presented a shortfall of 4% in 2018 as shown in the table below. This compared to an equivalent difference of 16% when the median figures were compared.

Table 34: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Primary and nursery education teaching professionals	*643.4*	***100.0***	*651.0*	***100.0***	*681.2*	***100.0***
Chartered surveyors	*548.1*	**85.2**	609.3	**93.6**	653.9	**96.0**

Source: ASHE/ONS.

5.5. Gross earnings of comparator graduate professions relative to school teachers

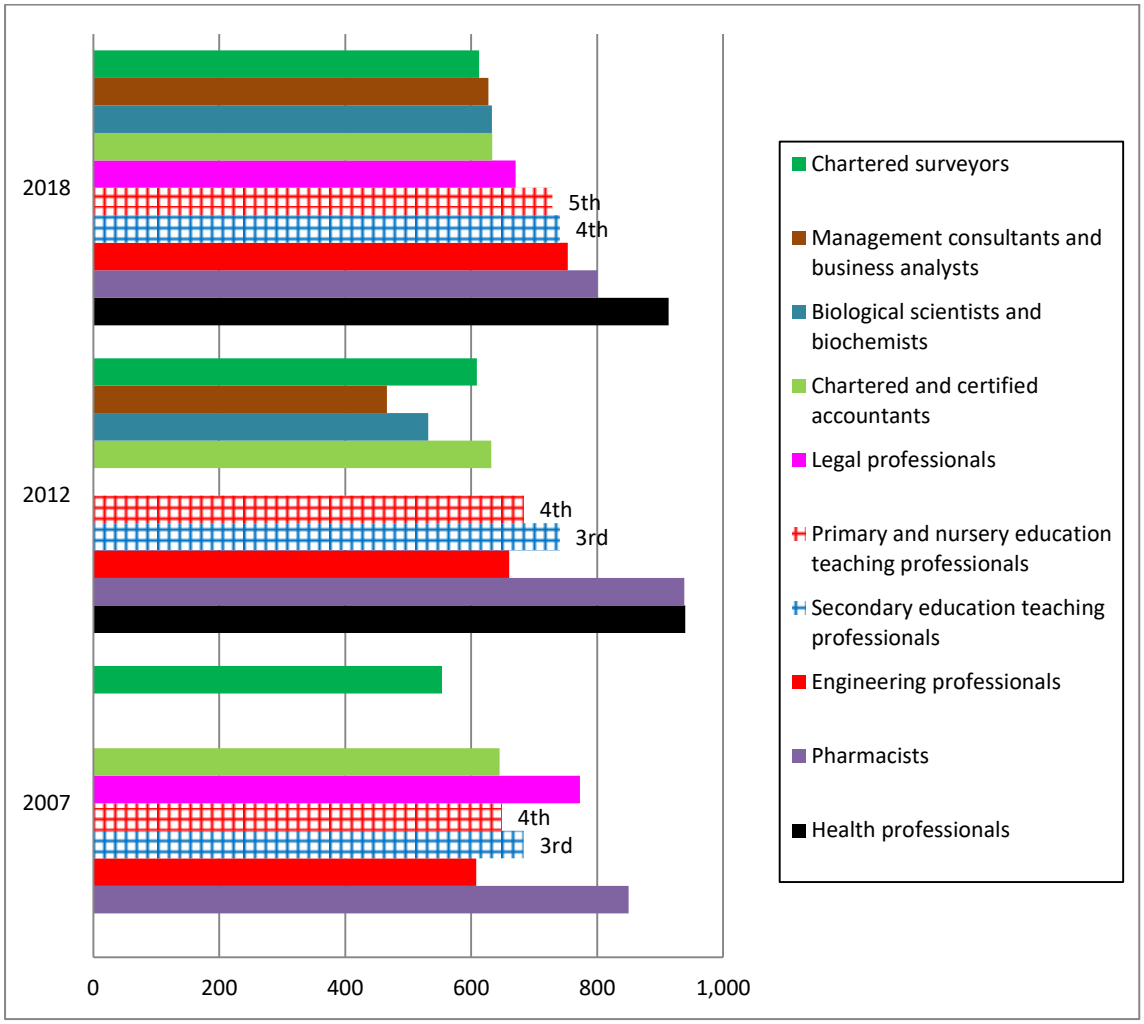
While incentive pay and other amounts additional to basic pay, such as overtime or shift pay, do not play an important part in teachers' earnings, those employed in other sectors often receive significant amounts from bonuses and/or other sources.* For this reason, to provide a more complete picture of overall pay relativities across the 12 professions it is important to examine gross as well as basic earnings.

For this reason, the section that follows focuses on comparisons of median and average gross earnings that incorporate additional elements of remuneration such as bonuses and overtime on top of salary. Because these additions tend to be more significant for non-teaching professions, the relative positions of the two teaching groups tends to be lower than the equivalent rankings associated with basic earnings as shown in the preceding section.

Graph 14 below presents the relationship between the levels of median gross earnings for each of the selected professions across the three years. As the footnote to the graph explains, data was not available for all of the groups in every year and this needs to be borne in mind when evaluating the results. (It is important to note, however, that because of the timing of the ASHE survey, which is normally conducted in April each year, bonuses do

not receive adequate coverage. This is because the earnings season in most sectors runs from December to March. As a result, the earnings leads described in this section are likely to be an understatement.)

Graph 14: Comparison of median gross earnings of all comparator graduate professions including school teachers in Wales: 2007, 2012 and 2018*



Source: ASHE.

**Based on available data for five non-teaching professions in 2007 and seven in 2012 and eight in 2018.*

The other forms of remuneration included within gross earnings mean that the rankings have changed slightly in comparison to those for the median basic pay position. For example, the primary teaching group ranking fell from fourth as measured by median basic earnings to fifth for median gross earnings. Similarly, the secondary teacher group position fell from third to fourth.

It should be noted that for the median basic earnings data there were figures for seven non-teaching professions while there were eight with median gross earnings data available in the same year.

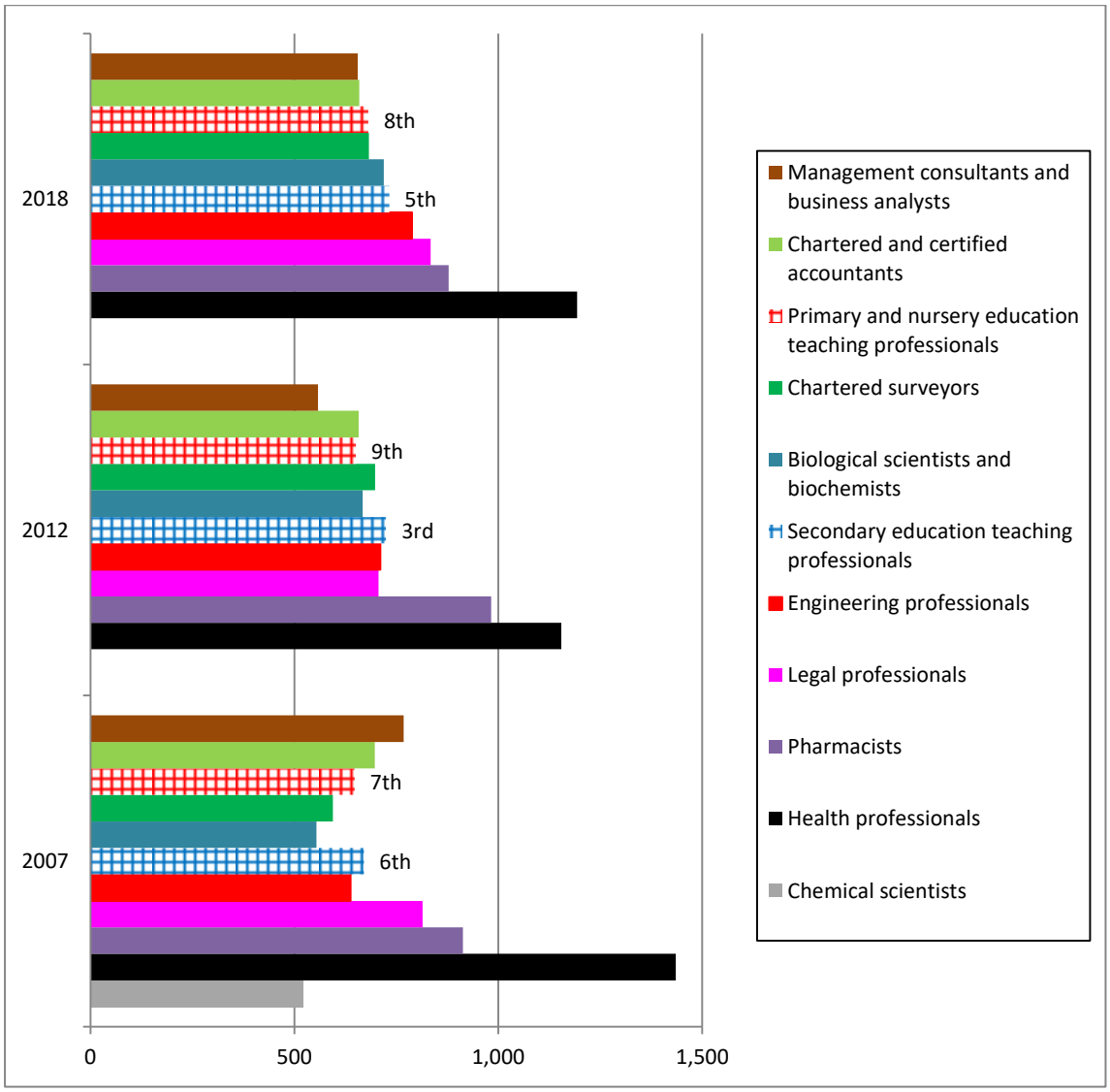
Table 35: Ranking of median gross earnings levels of 12 graduate professions 2007 to 2018*

Group	2007 rank	2012 rank	2018 rank
Secondary education teachers	3	3	4
Primary and nursery education teachers	4	4	5

Source: ASHE.

**Based on available data for five non-teaching professions in 2007 and seven in 2012 and eight in 2018.*

Graph 15: Comparison of average gross earnings of all comparator graduate professions including school teachers in Wales: 2007, 2012 and 2018*



Source: ASHE.

**Based on available data for five non-teaching professions in 2007 and seven in 2012 and eight in 2018.*

Graph 15 above presents the same relationships but this time using average rather than median gross earnings. In comparison with the graph presenting the median gross earnings findings, what is most notable are the stark differences between the rankings with the positions of the two teaching profession, as measured by average figures, significantly lower.

As the graph shows, secondary school teachers started the period ranked sixth before rising to third and ending in fifth place in 2018. For primary and nursery school teachers, the equivalent positions were seventh, ninth and eighth respectively. Some caution needs to be exercised when evaluating these differences, however, because more averages than medians were disclosed in 2007 and 2012 although 2018 did feature the same number of non-teaching jobs.

Table 36: Ranking of average gross earnings levels of 12 graduate professions in Wales 2007 to 2018*

Group	2007 rank	2012 rank	2018 rank
Secondary education teachers	6	3	5
Primary and nursery education teachers	7	9	8

Source: ASHE.

**Based on available data for five non-teaching professions in 2007, seven in 2012 and eight in 2018.*

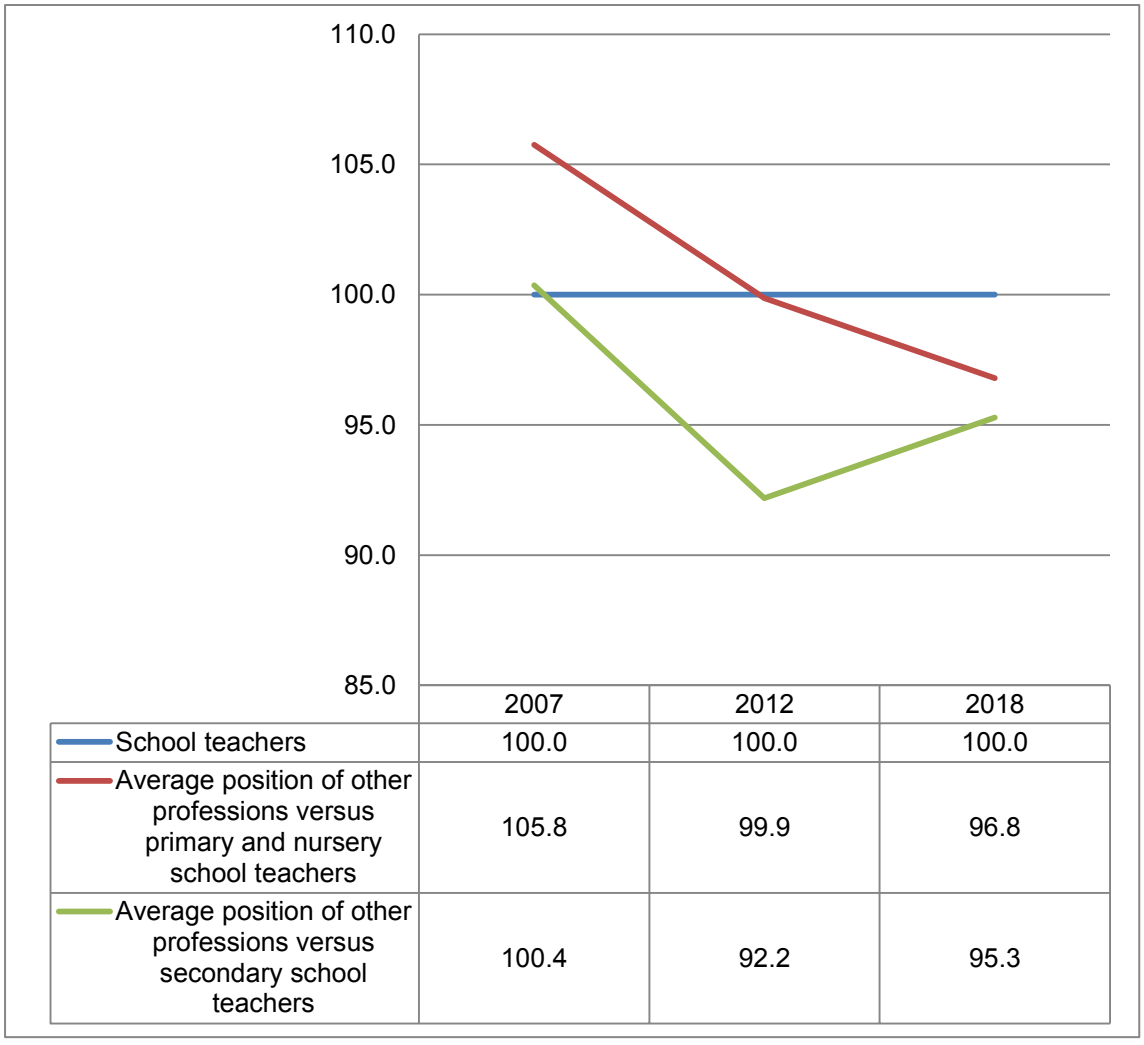
5.6. Gross earnings of combined comparator graduate professions relative to school teachers

In the same way as for median basic earnings, we have created an unweighted combined figure for the median gross earnings of the non-teaching professions. The patterns for the two graphs are very similar with both teaching professions starting the period in 2007 behind the combined group before moving ahead in both 2012 and 2018.

As Graph 16 illustrates, both teaching groups started the period in 2007 slightly behind the selected unweighted basket of graduate professions. By 2012, the primary and nursery school teacher figure was in line with the combined figure whereas the secondary school figure was almost 8% higher. By 2018, the secondary school differential narrowed to 4.7% in favour of the teaching group. In contrast, the primary school teacher figure moved ahead of the combined amount with a differential of 3.2%.

A caveat mentioned earlier, that should be borne in mind when reviewing these findings, is that the combined figure may be influenced by particular professions that are either very high or very low-paid. For example, health professionals were by far the highest-paid in all three years. Moreover, because of the change in job definition, the health professional figure was higher in 2007 than in 2012 and 2018. In addition, another caveat mentioned earlier is that unmatched samples across the three years, with some jobs not featuring in some years due to small sample sizes, will also affect the results.

Graph 16: Indexed median gross earnings lead of all-comparator graduate professions over school teachers: 2007, 2012 and 2018*



	2007	2012	2018
School teachers	100.0	100.0	100.0
Average position of other professions versus primary and nursery school teachers	105.8	99.9	96.8
Average position of other professions versus secondary school teachers	100.4	92.2	95.3

Source: ASHE.

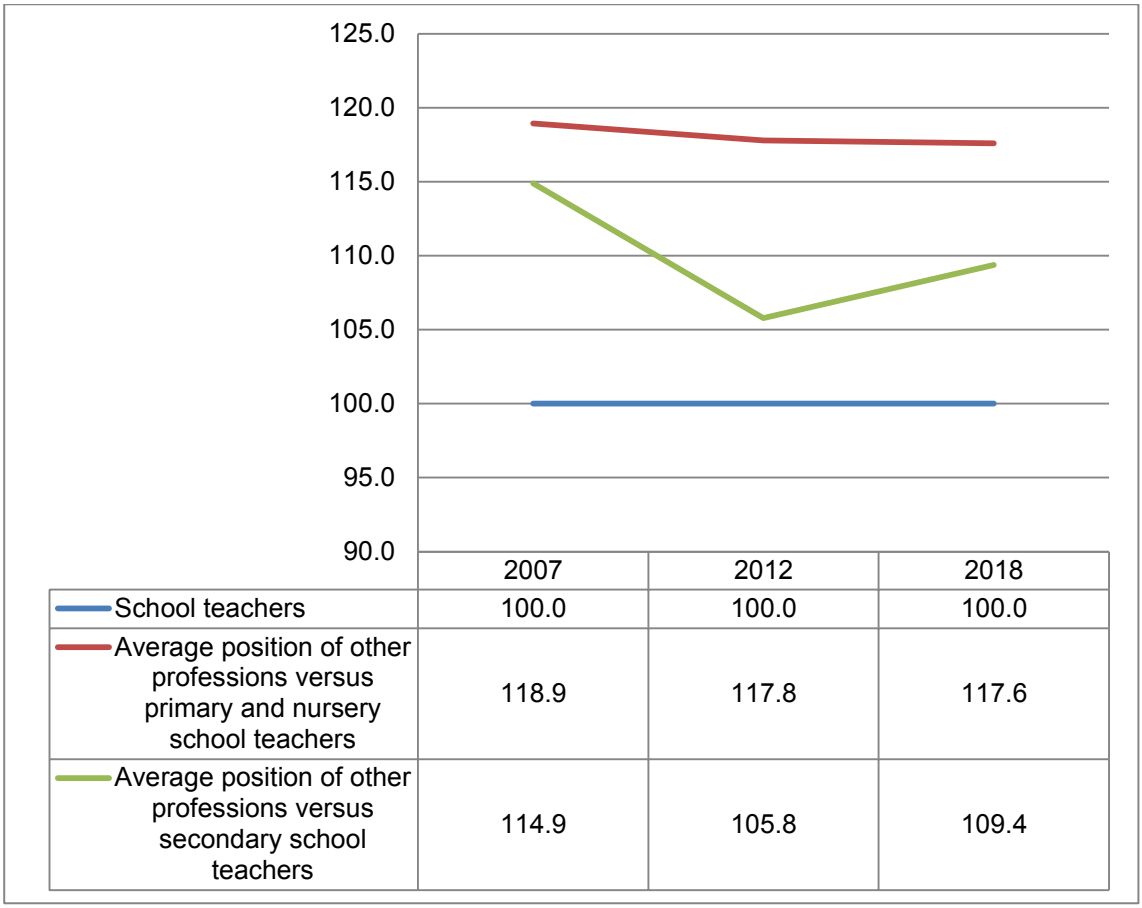
**Based on available data for five non-teaching professions in 2007 and seven in 2012 and eight in 2018.*

As with the other results throughout this report, when using average measures, the earnings differentials between teachers and other graduate professions are often greater than the corresponding median differentials which is also the case in Graph 17 below. This

demonstrates a similar pattern to the previous one but the two teaching groups' pay levels have shifted lower relative to the combined figures. So whereas the teaching groups' median gross earnings were ahead of those of the non-teaching combined figures in two of the three years, they trail the non-teaching professions in all three years when measured by average gross earnings.

For example, as the graph demonstrates, the combined non-teaching group figure was 9.4% greater than the corresponding secondary school amount in 2018 and 17.6% ahead of the corresponding primary and nursery school figure.

Graph 17: Indexed average gross earnings lead of all-comparator graduate professions over school teachers: 2007, 2012 and 2018*



	2007	2012	2018
School teachers	100.0	100.0	100.0
Average position of other professions versus primary and nursery school teachers	118.9	117.8	117.6
Average position of other professions versus secondary school teachers	114.9	105.8	109.4

Source: ASHE.

**Based on available data for five non-teaching professions in 2007 and seven in 2012 and eight in 2018.*

5.7. Occupational findings on gross pay in detail

In the following pages, we summarise the main findings from the indexation analysis as shown in tables 37 to 61.

a) Science, research, engineering and technology professionals

Indexed differentials of median gross earnings, 2007, 2012 and 2018

Median gross earnings data for some of the scientific professions was not available in some years as evident from Table 37. In fact, the only profession that produced data was biological scientists and this was only the case in 2012 and 2018. In these two years, median gross earnings for the group were worth 71.8% and 85.5% respectively of the secondary school teachers' figure.

Table 37: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*683.4*	***100.0***	*740.4*	***100.0***	*740.4*	***100.0***
Chemical scientists		**No data**		**No data**		**No data**
Biological scientists and biochemists		**No data**	531.9	**71.8**	633.0	**85.5**
Physical scientists		**No data**		**No data**		**No data**

The pattern of median gross earnings with respect to primary and nursery school teachers was similar although again, the differentials were slightly narrower reflecting lower earnings for this teaching group. In the years for which there was data, 2012 and 2018, biological scientists' median gross earnings were worth 77.8% and 86.9% of the equivalent primary teacher amounts.

Table 38: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.5*	***100.0***	*683.5*	***100.0***	*728.8*	***100.0***
Chemical scientists		**No data**		**No data**		**No data**
Biological scientists and biochemists		**No data**	531.9	**77.8**	633.0	**86.9**
Physical scientists		**No data**		**No data**		**No data**

Indexed differentials of average gross earnings, 2007, 2012 and 2018

Average gross earnings for science professions were also affected by limited sample sizes although not to the same extent. There was no data available for physical scientists in any of the three years and information for the chemical group was only available for 2007. By contrast, data on biological scientists' earnings was available for all three years.

For the chemical scientist group, the average gross earnings figure was worth just 77.8% of the corresponding secondary education teacher figure in 2007, the only year with data

available. For biological scientists, the differential narrowed from a 17.4% shortfall in 2007 to 6.9% in 2012 before ending the period with average gross earnings worth 98.2% of the equivalent secondary education figure.

Table 39: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Secondary education teaching professionals	*670.8*	***100.0***	*724.9*	***100.0***	*732.6*	***100.0***
Chemical scientists	*521.7*	**77.8**		**No data**		**No data**
Biological scientists and biochemists	554.1	**82.6**	667.3	**92.1**	719.1	**98.2**
Physical scientists		**No data**		**No data**		**No data**

The pattern was similar for primary and nursery teachers except that the differentials were greater and the biological group's figures ended the period higher than the teachers' figure, reflecting the relatively lower average gross earnings of primary teachers.

Table 40: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Primary and nursery education teaching professionals	*647.9*	***100.0***	*651.0*	***100.0***	*681.4*	***100.0***
Chemical scientists	*521.7*	**80.5**		**No data**		**No data**
Biological scientists and biochemists	554.1	**85.5**	667.3	**102.5**	719.1	**105.5**
Physical scientists		**No data**		**No data**		**No data**

b) Engineering professionals

Indexed differentials of median gross earnings, 2007, 2012 and 2018

Table 41 demonstrates that median gross earnings for engineering professionals were ahead of those for secondary education teachers in 2018 but only by 1.7%. In contrast, basic earnings were worth 89% of the teaching figure in 2007 and 89.2% in 2012.

Table 41: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	Index	£pw	Index	£pw	Index
Secondary education teaching professionals	*683.4*	***100.0***	*740.4*	***100.0***	*740.4*	***100.0***
Engineering professionals	*608.0*	**89.0**	660.5	**89.2**	753.1	**101.7**

An examination of engineering professionals' median gross earnings compared to those for primary and nursery school teachers as illustrated in Table 42 showed a similar pattern. The engineering figures started the period behind those for primary school teachers by 6.2% in 2007 and 3.4% in 2012. By 2018, earnings pulled ahead a little, standing at 3.3% above the corresponding primary and nursery school figure.

Table 42: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.5*	***100.0***	*683.5*	***100.0***	*728.8*	***100.0***
Engineering professionals	*608.0*	**93.8**	660.5	**96.6**	753.1	**103.3**

Indexed differentials of average gross earnings, 2007, 2012 and 2018

Tables 43 and 44 demonstrate that the average figures for engineering professionals were ahead of those for both secondary and primary school teachers in 2018 with differentials of 7.6% and 15.7% respectively. The pattern varied prior to this with the engineering amount trailing those of both teaching groups in 2007 while being marginally behind secondary teachers in 2012 but ahead of primary and nursery teachers in the same year.

Table 43: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*670.8*	***100.0***	*724.9*	***100.0***	*732.6*	***100.0***
Engineering professionals	*637.7*	**95.1**	710.5	**98.0**	788.3	**107.6**

Table 44: Comparison with primary and nursery education teachers

	2007		2012		2018	
Primary and nursery education teaching professionals	*647.9*	***100.0***	*651.0*	***100.0***	*681.4*	***100.0***
Engineering professionals	*637.7*	**98.4**	710.5	**109.1**	788.3	**115.7**

c) Health professionals

Indexed differentials of median gross earnings, 2007, 2012 and 2018

Of all the occupational groups examined, health professionals are the highest-paid with median gross earnings significantly ahead of those for both teaching groups in all years as shown in Tables 45 and 46. In 2018, for example, median gross earnings of health professionals were around 25% higher than those for both the secondary and primary teaching groups.

Pharmacists also earned more but the differentials were slightly narrower at 8.1% above the figure for secondary teachers and 9.9% above that for primary school teachers in 2018.

Table 45: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*683.4*	***100.0***	*740.4*	***100.0***	*740.4*	***100.0***
Health professionals		**No data**	939.9	**126.9**	913.4	**123.4**
Pharmacists	849.9	**124.4**	938.4	**126.7**	800.7	**108.1**

Table 46: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.5*	***100.0***	*683.5*	***100.0***	*728.8*	***100.0***
Health professionals		**No data**	939.9	**137.5**	913.4	**125.3**
Pharmacists	849.9	**131.1**	938.4	**137.3**	800.7	**109.9**

Indexed differentials of average gross earnings, 2007, 2012 and 2018

The data in tables 47 and 48 illustrates that the earnings leads of health professionals and pharmacists over secondary and primary and nursery education teachers were significant. Health professionals, for example, had average gross earnings that were 62.9% greater than the equivalent secondary school figure while the differential was 19.9% in favour of pharmacists.

Table 47: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*670.8*	***100.0***	*724.9*	***100.0***	*732.6*	***100.0***
Health professionals	*1435.6*	**214.0**	1154.5	**159.3**	1193.3	**162.9**
Pharmacists	913.4	**136.2**	982.9	**135.6**	878.4	**119.9**

When compared to primary and nursery school teachers the differentials were even greater standing at 75.1% and 28.9% respectively.

Table 48: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*647.9*	***100.0***	*651.0*	***100.0***	*681.4*	***100.0***
Health professionals	*1435.6*	**221.6**	1154.5	**177.3**	1193.3	**175.1**
Pharmacists	913.4	**141.0**	982.9	**151.0**	878.4	**128.9**

d) Legal professionals

Indexed differentials of median gross earnings, 2007, 2012 and 2018

The data relating to median gross earnings for legal professionals was rather limited with no figure available in 2012. In 2007, however, legal professionals' median gross earnings were ahead of those for both teaching groups but by 2018 had fallen back to 91% of the corresponding secondary school teacher figure and 92% of the equivalent primary and nursery teacher amount. Given the gap in data though, the large swing might be indicative of a changing sample size rather than wholly reflecting actual relative pay movements.

Table 49: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*683.4*	***100.0***	*740.4*	***100.0***	*740.4*	***100.0***
Legal professionals	*772.8*	**113.1**		**No data**	670.7	**90.6**

Table 50: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.5*	***100.0***	*683.5*	***100.0***	*728.8*	***100.0***
Legal professionals	*772.8*	**119.2**		**No data**	670.7	**92.0**

Data on average gross earnings for legal professionals was more readily available with figures in all three years for both groups. Legal professionals' average gross earnings were ahead at the start and the end of the period in focus, finishing the period 13.9% ahead of the figure for secondary school teachers and 22.4% of the average gross earnings of primary and nursery school teachers.

Indexed differentials of average gross earnings, 2007, 2012 and 2018

Table 51: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*670.8*	***100.0***	*724.9*	***100.0***	*732.6*	***100.0***
Legal professionals	*814.0*	**121.3**	706.5	**97.5**	834.3	**113.9**

Table 52: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*647.9*	***100.0***	*651.0*	***100.0***	*681.4*	***100.0***
Legal professionals	*814.0*	**125.6**	706.5	**108.5**	834.3	**122.4**

e) Business, research and administrative professionals

Indexed differentials of median gross earnings, 2007, 2012 and 2018

Like their legal sector counterparts, occupations within the business, research and administrative professional group are usually considered to be relatively well-paid. Unfortunately, median data was not disclosed for all the years for management consultants with none available in 2007. In 2018 though, both groups' median gross earnings trailed those of secondary school teachers with figures worth around 85% of the teaching amount in each case.

Table 53: Comparison with secondary education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*683.4*	***100.0***	*740.4*	***100.0***	*740.4*	***100.0***
Management consultants, business analysts		**No data**	466.4	**63.0**	627.1	**84.7**
Chartered and certified accountants	645.0	**94.4**	632.0	**85.4**	633.5	**85.6**

Table 54 shows that the differentials were similar when comparisons with primary and nursery education teachers were made although the the data was again sporadic.

Table 54: Comparison with primary and nursery education teachers

	2007		2012		2018	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.5*	***100.0***	*683.5*	***100.0***	*728.8*	***100.0***
Management consultants, business analysts		**No data**	466.4	**68.2**	627.1	**86.0**
Chartered and certified accountants	645.0	**92.5**	632.0		633.5	**86.9**

Indexed differentials of average gross earnings, 2007, 2012 and 2018

Average gross earnings for the two business-related professions were also lower than those of secondary school teachers although the differentials were not as wide as in the median

analysis. For both of the non-teaching professions, the average gross earnings figures trailed the corresponding secondary teaching amount by just over 10% in 2018.

Table 56: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*670.8*	***100.0***	*724.9*	***100.0***	*732.6*	***100.0***
Management consultants, business analysts	*767.6*	**114.4**	557.8	**76.9**	655.3	**89.4**
Chartered and certified accountants	697.4	**104.0**	657.6	**90.7**	659.2	**90.0**

Tables 57 shows that both accountants and management consultants started the period with higher average gross earnings than the corresponding figure for primary school teachers. The picture changed somewhat in 2012 with chartered accountants enjoying a slight earnings lead but a substantial shortfall for management consultants. By 2018, average gross earnings were more aligned with both non-teaching groups trailing primary and nursery teachers by around 4%.

Table 57: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*647.9*	***100.0***	*651.0*	***100.0***	*681.4*	***100.0***
Management consultants, business analysts	*767.6*	**118.5**	557.8	**85.7**	655.3	**96.2**
Chartered and certified accountants	697.4	**107.6**	657.6	**101.0**	659.2	**96.7**

f) Chartered surveyors

Indexed differentials of median gross earnings, 2007, 2012 and 2018

Median gross earnings for chartered surveyors were lower than those for secondary school teachers throughout the period, ending in 2018 with a differential of 17.3%.

Table 58: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*683.4*	***100.0***	*740.4*	***100.0***	*740.4*	***100.0***
Chartered surveyors	*553.6*	**81.0**	608.9	**82.2**	612.3	**82.7**

The pattern was similar when compared to primary and nursery school teachers although the differentials were smaller, finishing in 2018 at 84% of the teaching equivalent.

Table 59: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*648.5*	***100.0***	*683.5*	***100.0***	*728.8*	***100.0***
Chartered surveyors	*553.6*	**85.4**	608.9	**89.1**	612.3	**84.0**

An analysis of average gross earnings showed that the chartered surveyor figures were also behind those for primary and nursery school teachers in all three years. The differential was 11.4% in 2007 before narrowing to 3.7% in 2012 and finishing the period with a shortfall of 6.8%.

Indexed differentials of average gross earnings, 2007, 2012 and 2018

Table 60: Comparison with secondary education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Secondary education teaching professionals	*670.8*	***100.0***	*724.9*	***100.0***	*732.6*	***100.0***
Chartered surveyors	*594.2*	**88.6**	697.9	**96.3**	682.8	**93.2**

A comparison with the average gross earnings of primary and nursery school teachers exhibited a similar pattern with the two groups' earnings ending the period in 2018 almost on a par.

Table 61: Comparison with primary and nursery education teachers

	2007		**2012**		**2018**	
	£pw	**Index**	**£pw**	**Index**	**£pw**	**Index**
Primary and nursery education teaching professionals	*647.9*	***100.0***	*651.0*	***100.0***	*681.4*	***100.0***
Chartered surveyors	*594.2*	**91.7**	697.9	**107.2**	682.8	**100.2**

6. ASHE earnings growth, RPI and CPI inflation

In this section of the report we examine the annual percentage change in median and average basic earnings for teachers and the comparator graduate occupations in Wales tracked against average annual RPI and CPI inflation for each of the years from 2007 to 2018.

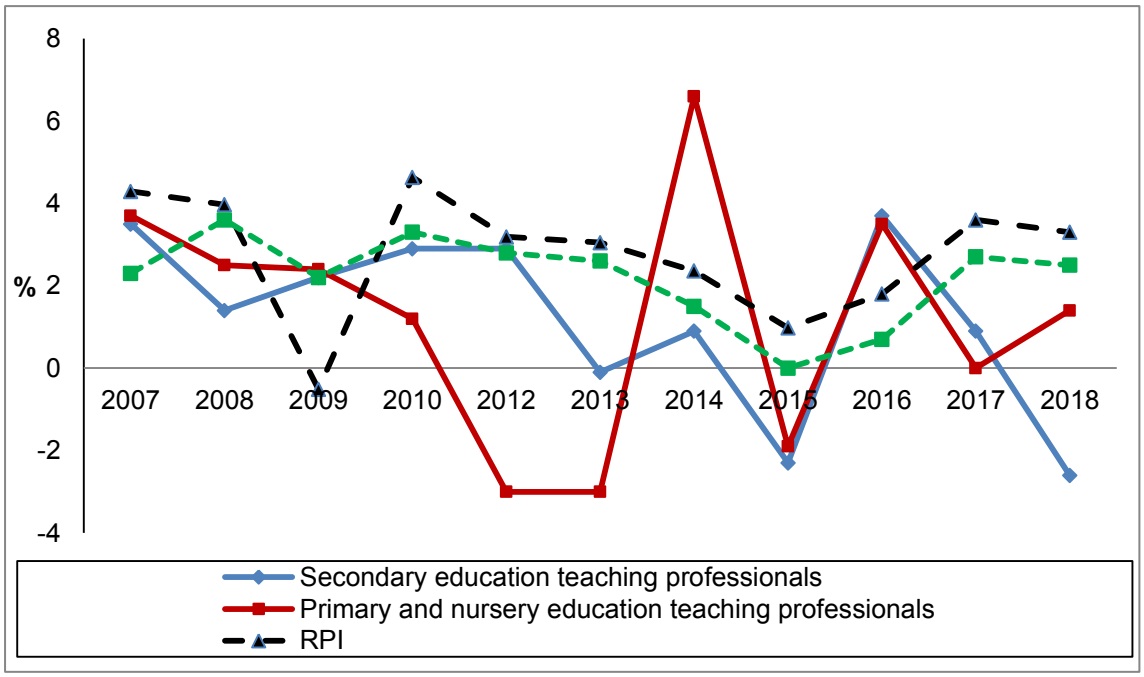
It is important to note that the movements are not actual salary rises received. Instead they represent changes in the medians and averages of unmatched samples across the various years. Therefore, if a particular sample for a specific profession changes, the median and average could represent results for quite different groups of employees across the two years.

For example, some of the professions with relatively small sample sizes, such as those from the science professions, may be more prone to large variations. In fact, many of the graphs do demonstrate large fluctuations, including negative movements in certain years. This does not mean that employees were necessarily subject to salary decreases. More likely it is a result of the sample compositions changing. For example, an influx of more junior and therefore lower-paid employees into a particular group may cause both the average and median salaries to fall when compared to the previous year. In addition, because of ONS changes in job definitions in 2002, 2006 and 2011 there is no increase data available from ASHE in those years.

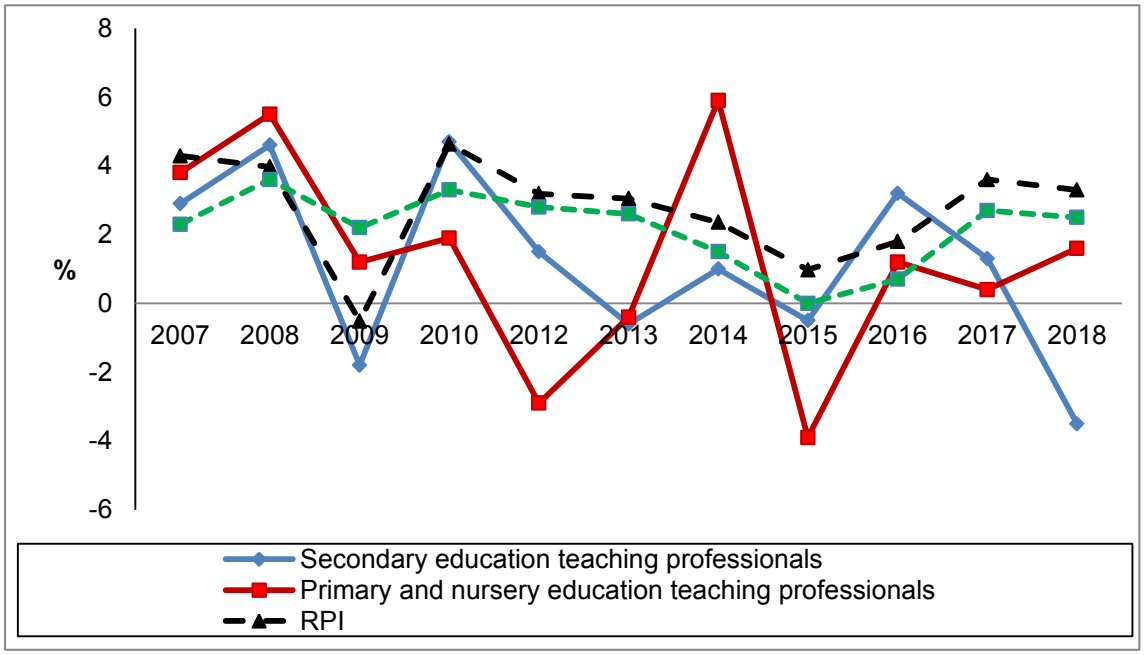
6.1. Teachers' pay changes

Graphs 18 and 19 illustrate that both Welsh teaching groups' movements in median and average basic earnings tended to trail both CPI and RPI. There were a couple of exceptions where figures spiked such as 2014 and 2016 but given what we know about the actual pay deals in those years this is down to changes in sample compositions rather than significant pay rises.

Graph 18: Percentage change in median earnings for teachers in Wales against RPI and CPI 2007 to 2018

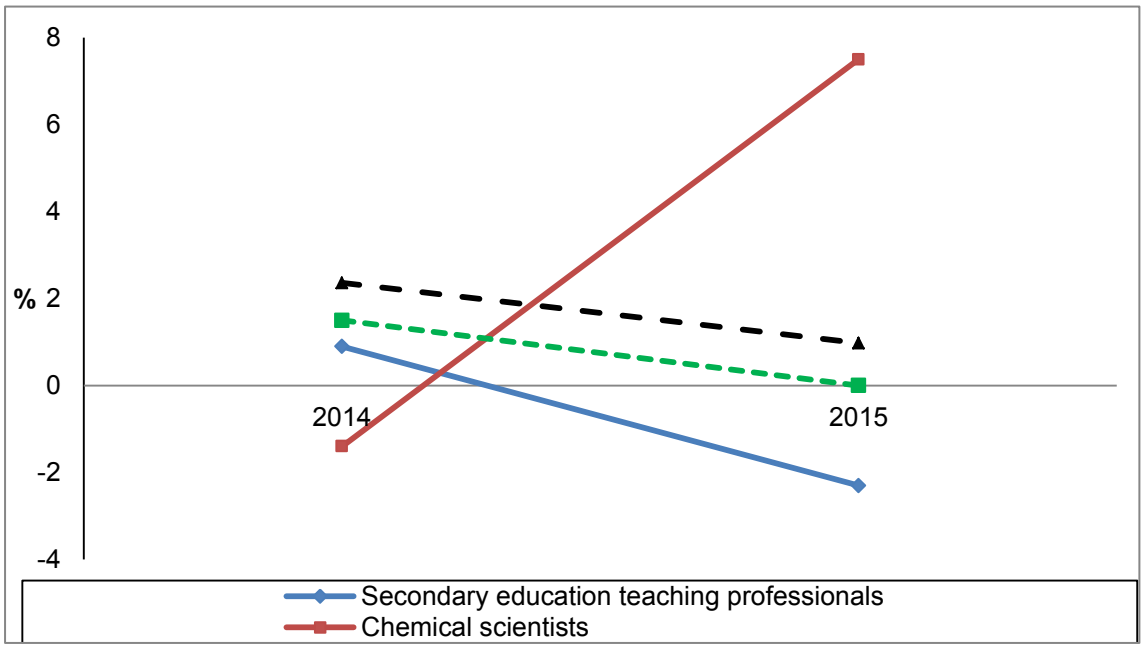


Graph 19: Percentage change in average earnings for teachers in Wales against RPI and CPI 2007 to 2018

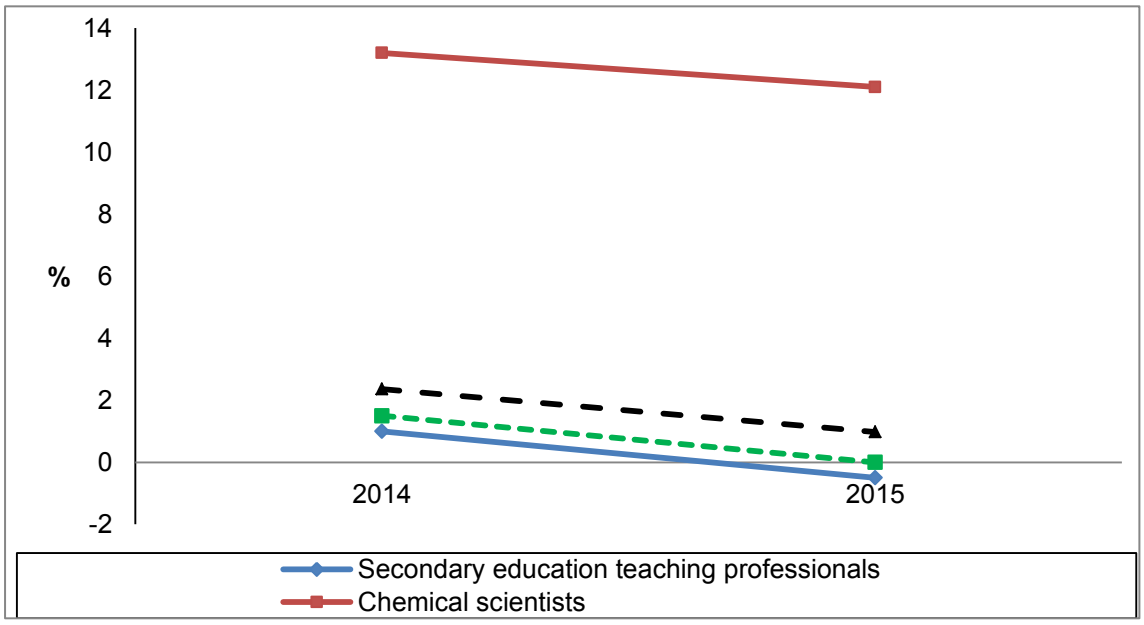


Details for graphs relating to all of the non-teaching professions relative to the two teaching groups and RPI follow. Due to data limitations, not all years are shown in these graphs as illustrated below.

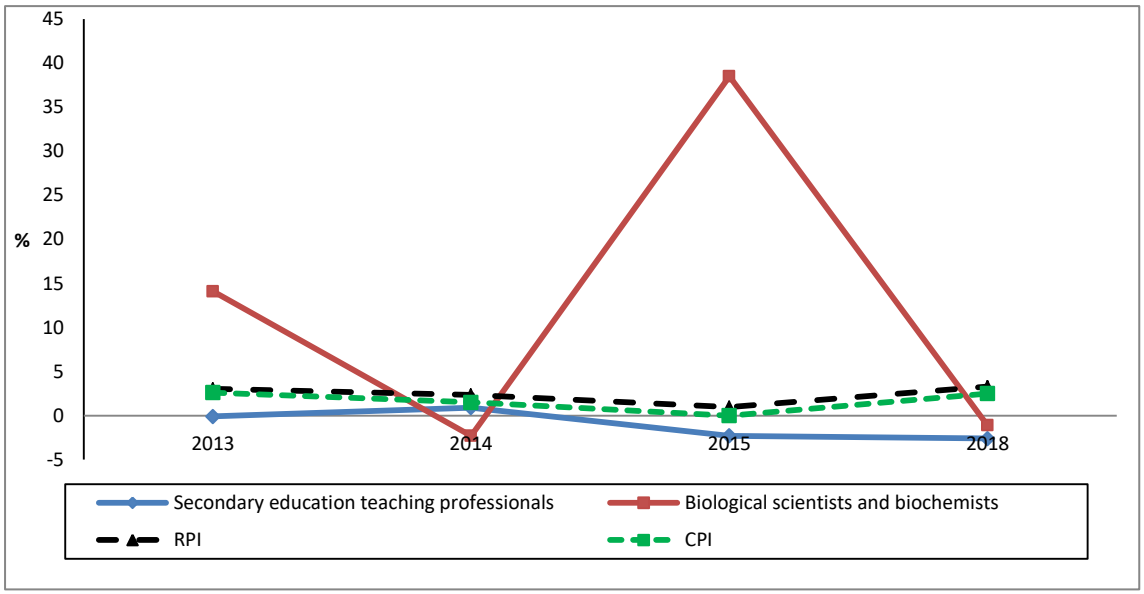
Graph 20: Percentage change in median earnings for chemical scientists and secondary school teachers in Wales against RPI and CPI 2007 to 2018



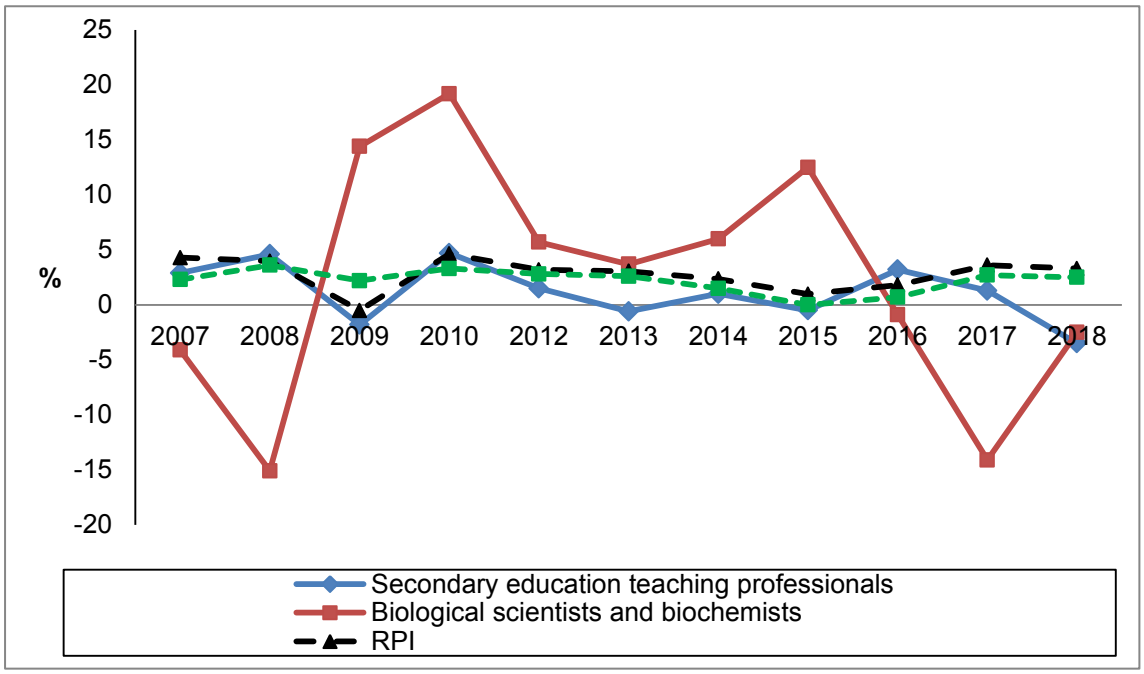
Graph 21: Percentage change in average earnings for chemical scientists and secondary school teachers in Wales against RPI and CPI 2007 to 2018



Graph 22: Percentage change in median earnings for biological scientists and biochemists and secondary school teachers in Wales against RPI and CPI 2007 to 2018



Graph 23: Percentage change in average earnings for biological scientists and secondary school teachers in Wales against RPI and CPI 2007 to 2018



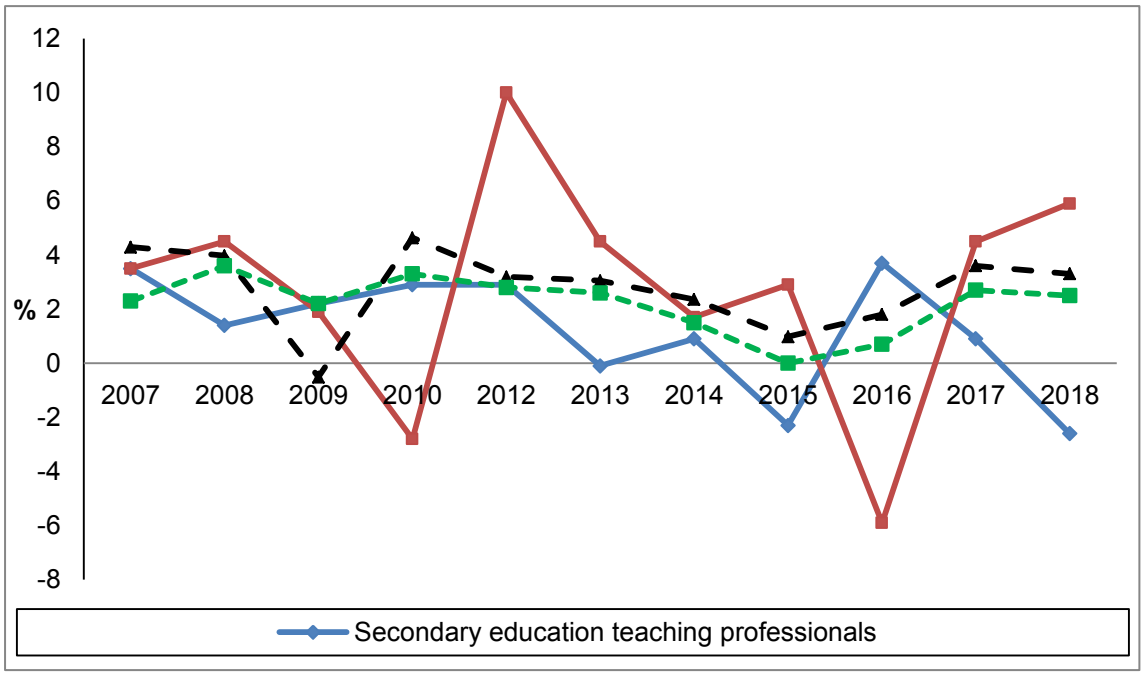
Graph 24: Percentage change in median in earnings for physical scientists and secondary school teachers in Wales against RPI and CPI 2007 to 2018

No data.

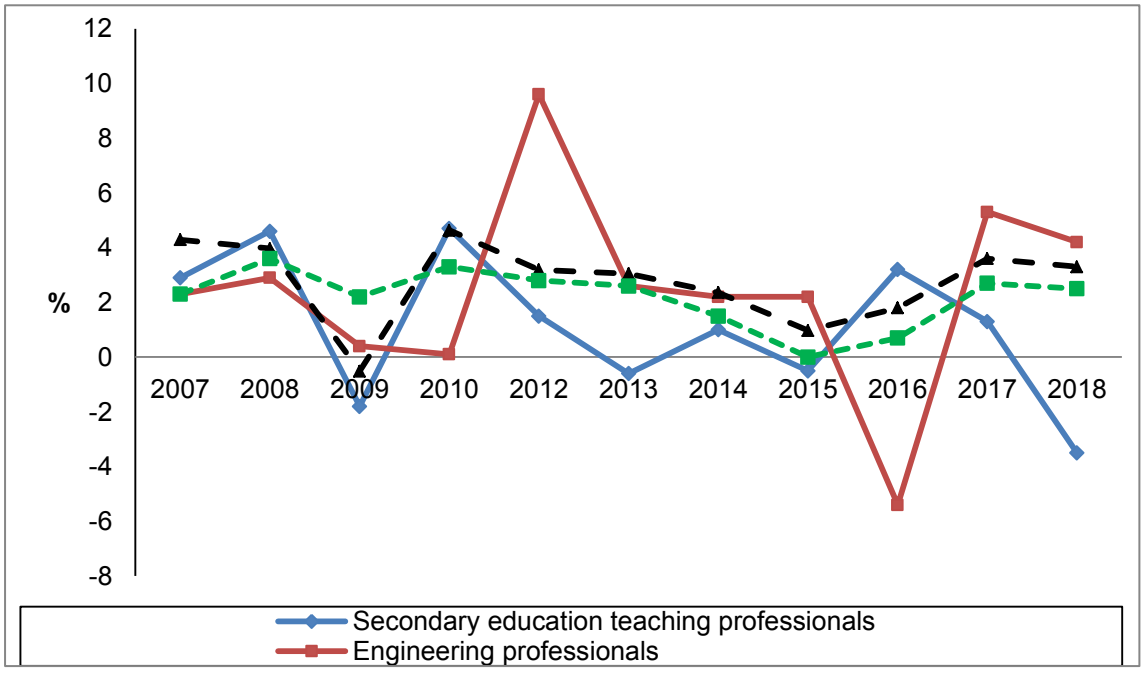
Graph 25: Percentage change in average earnings for physical scientists and secondary school teachers in Wales against RPI and CPI 2007 to 2018

No data.

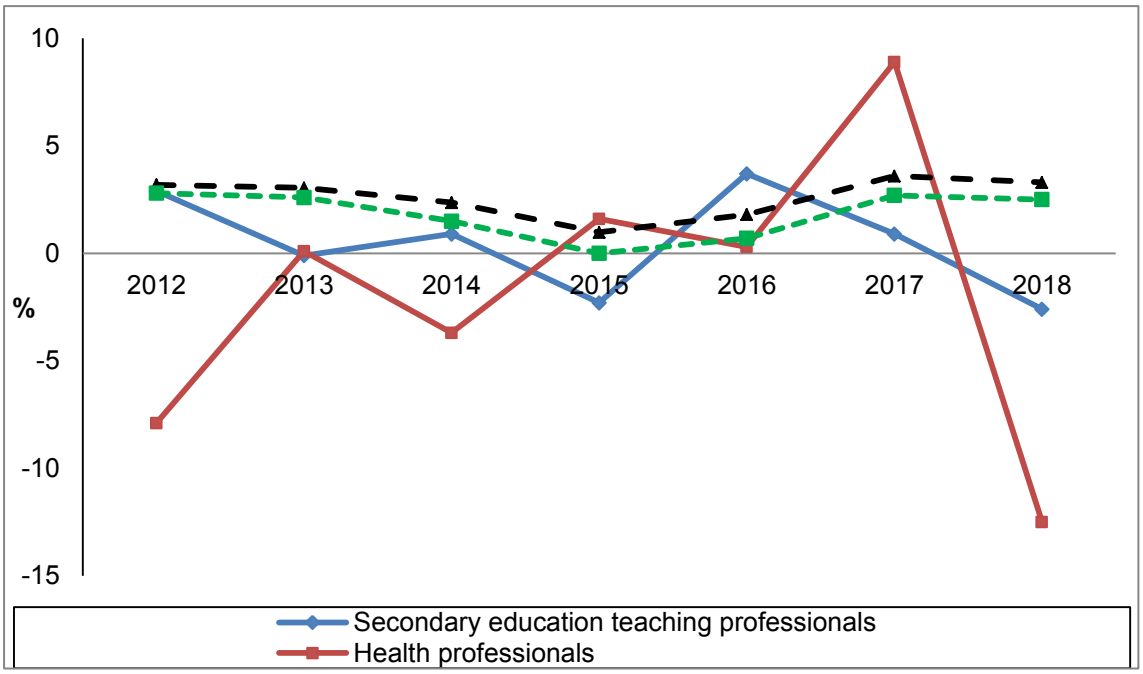
Graph 26: Percentage change in median earnings for engineering professional and secondary school teachers in Wales against RPI and CPI 2007 to 2018



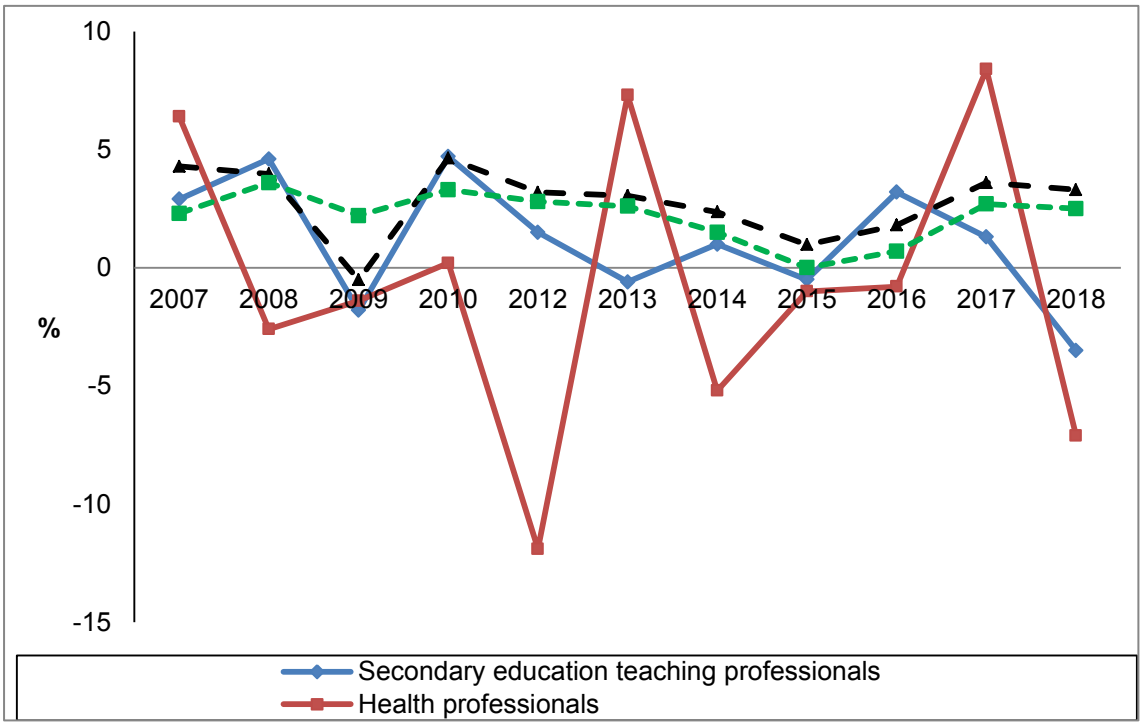
Graph 27: Percentage change in average earnings for engineering professional and secondary school teachers in Wales against RPI and CPI 2007 to 2018



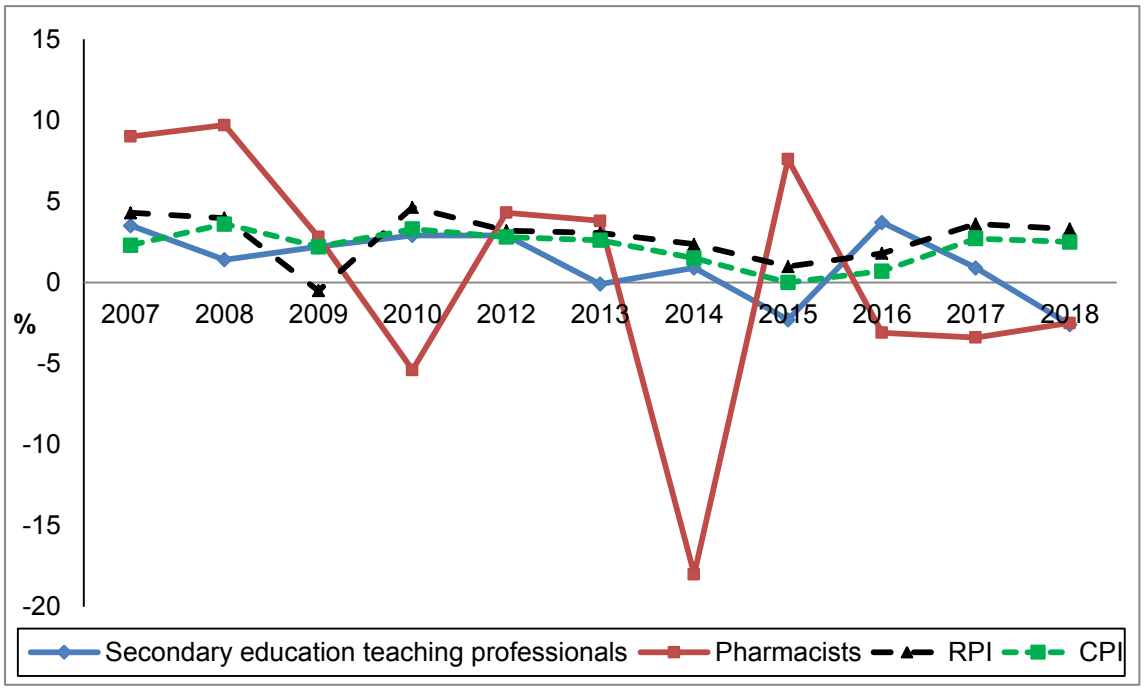
Graph 28: Percentage change in median earnings for health professionals and secondary school teachers in Wales against RPI and CPI 2007 to 2018



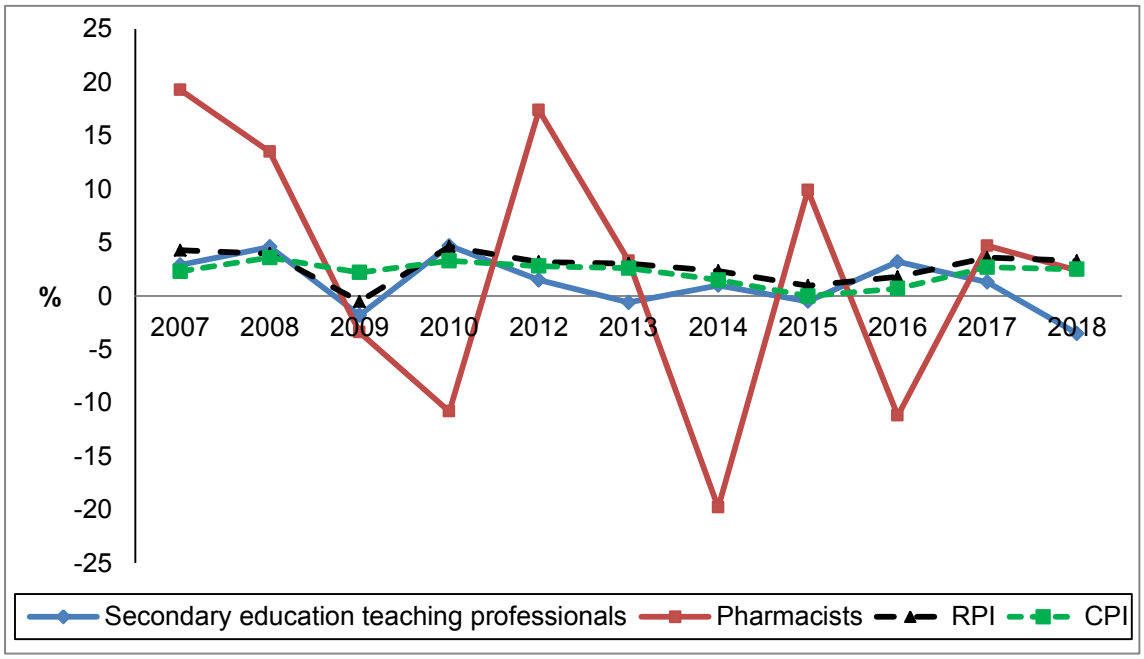
Graph 29: Percentage change in average earnings for health professionals and secondary school teachers in Wales against RPI and CPI 2007 to 2018



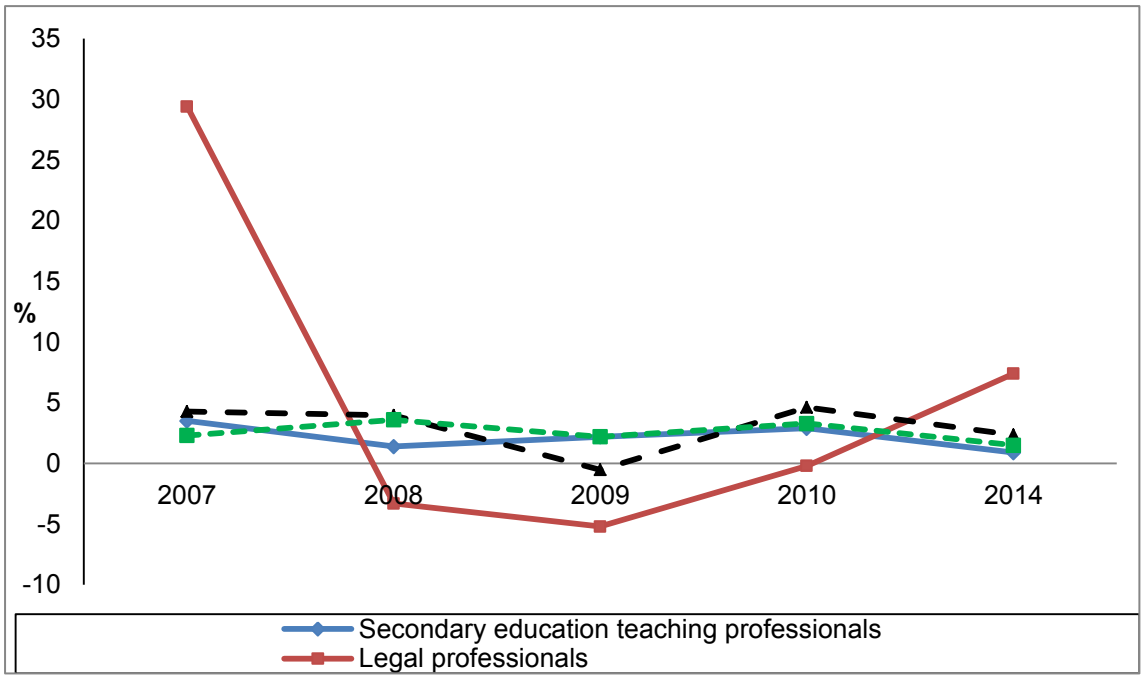
Graph 30: Percentage change in median earnings for pharmacists and secondary school teachers in Wales against RPI and CPI 2007 to 2018



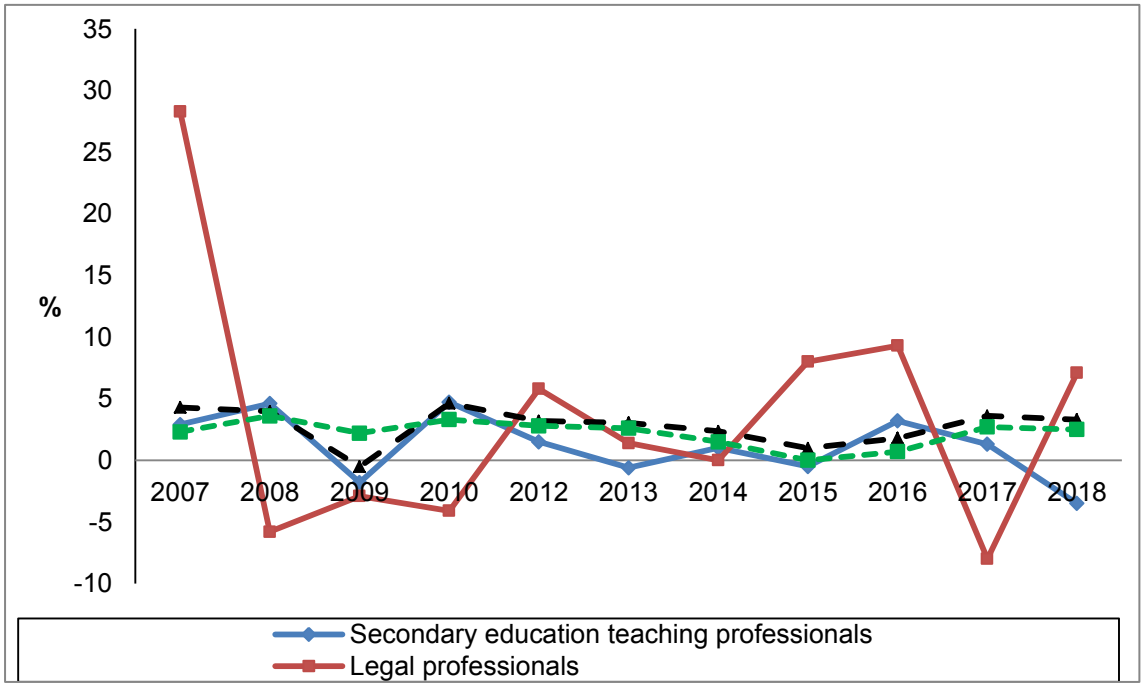
Graph 31: Percentage change in average earnings for pharmacists and secondary school teachers in Wales against RPI and CPI 2007 to 2018



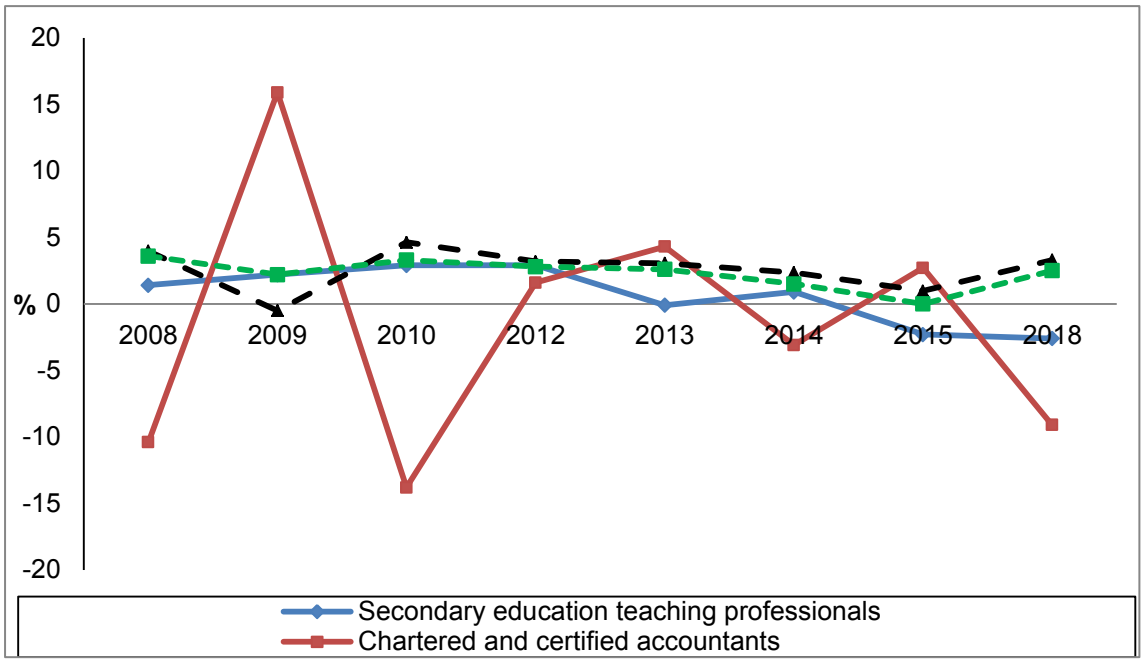
Graph 32: Percentage change in median earnings for legal professionals and teachers in Wales against RPI and CPI 2007 to 2018



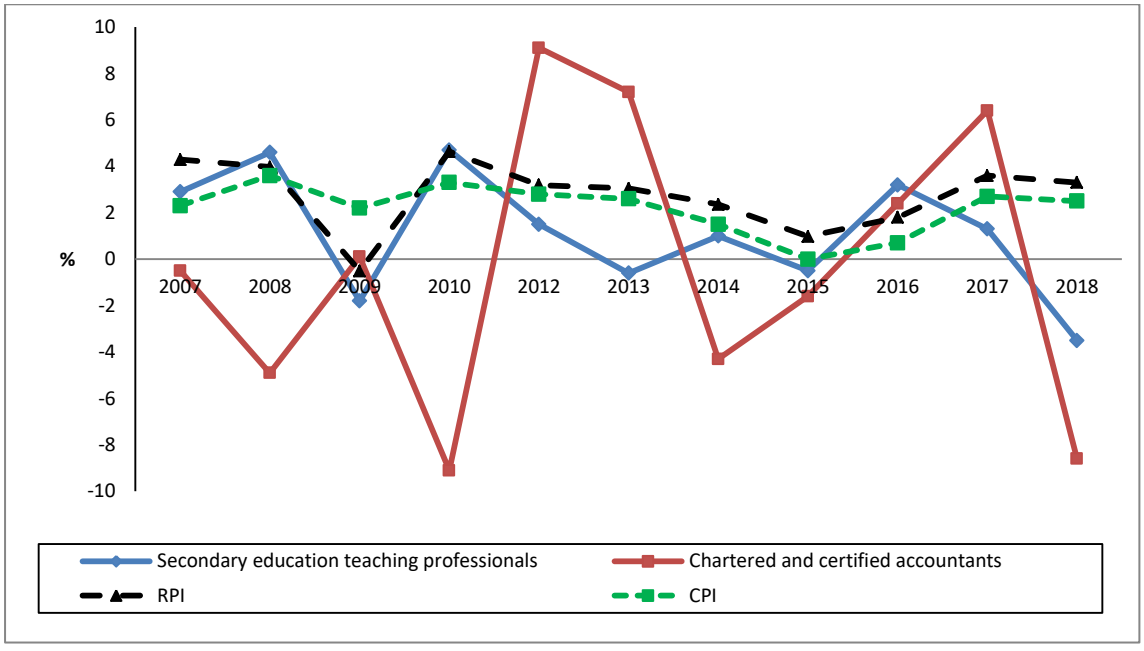
Graph 33: Percentage change in average earnings for legal professionals and teachers in Wales against RPI and CPI 2007 to 2018



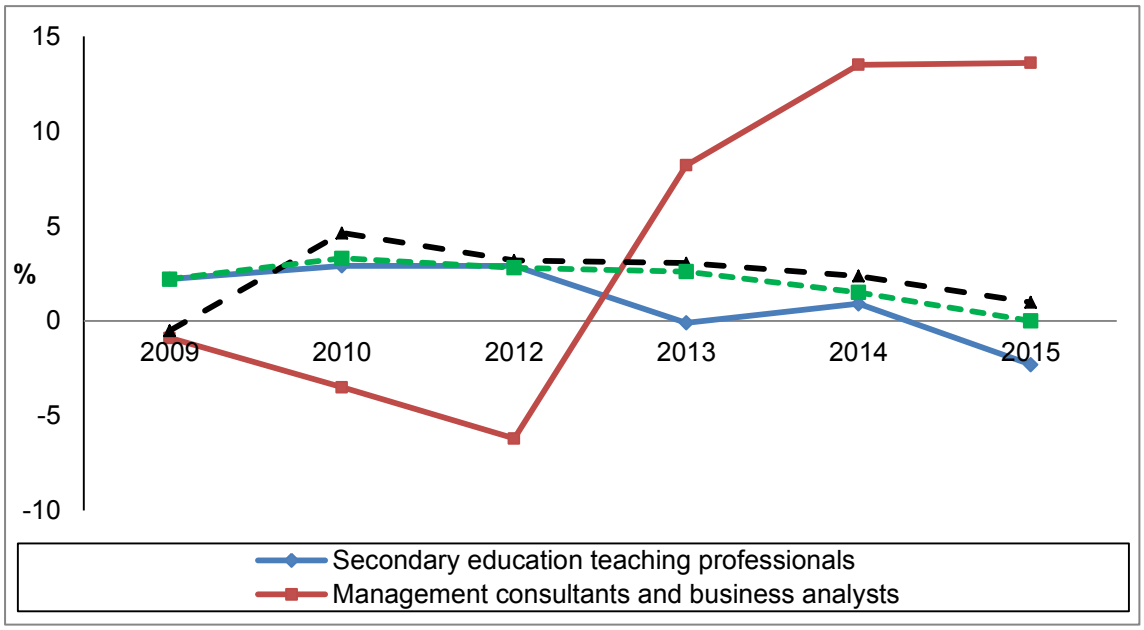
Graph 34: Percentage change in median earnings for chartered and certified accountants and teachers in Wales against RPI and CPI 2007 to 2018



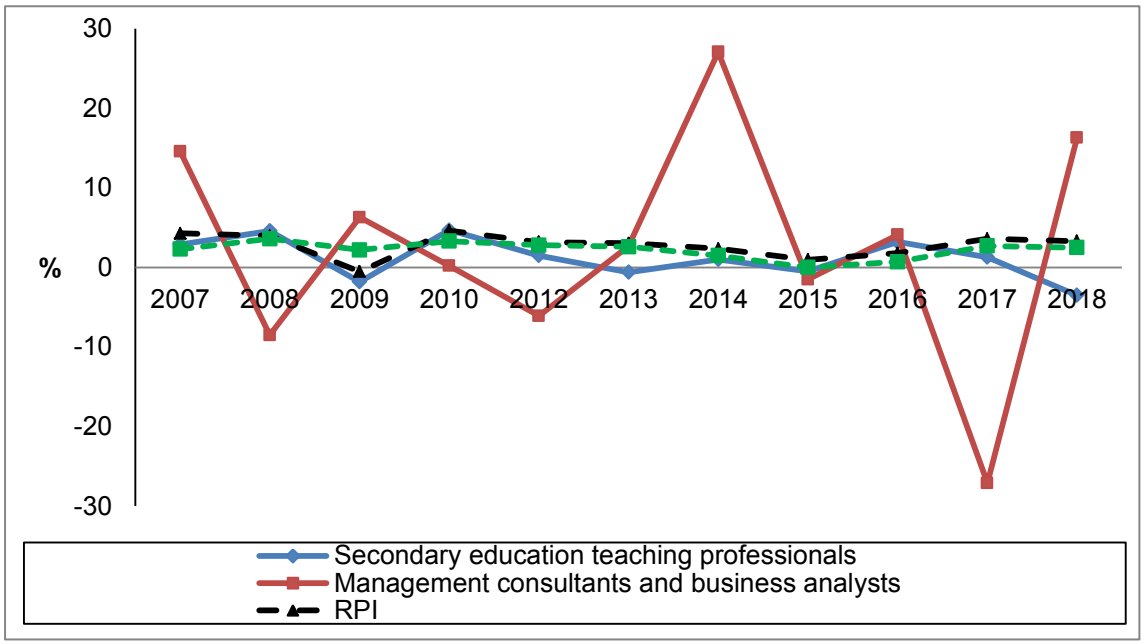
Graph 35: Percentage change in average earnings for chartered and certified accountants and teachers in Wales against RPI and CPI 2007 to 2018



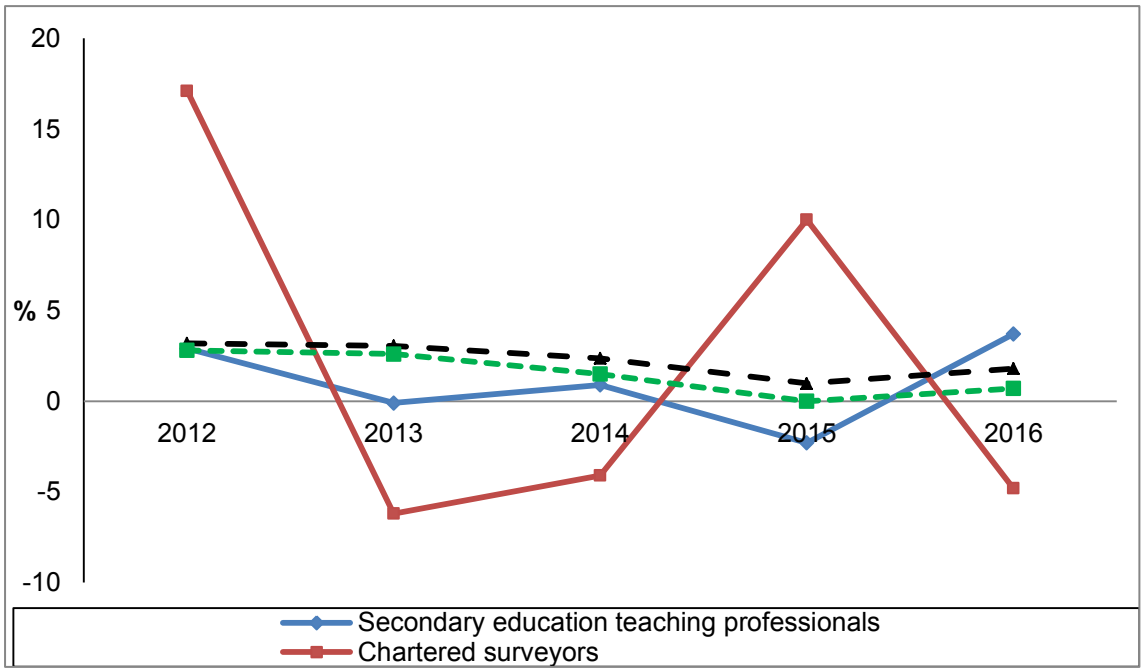
Graph 36: Percentage change in median earnings for management consultants and business analysts and teachers in Wales against RPI and CPI 2007 to 2018



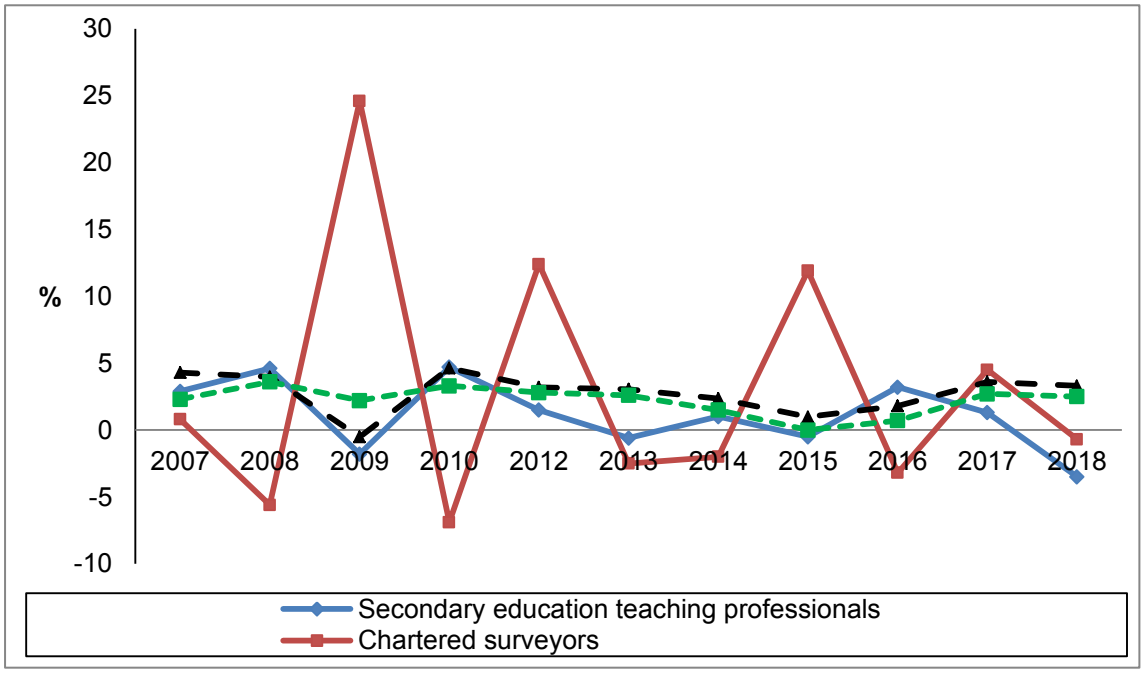
Graph 37: Percentage change in average earnings for management consultants and business analysts and teachers in Wales against RPI and CPI 2007 to 2018



Graph 38: Percentage change in median earnings for chartered surveyors and teachers in Wales against RPI and CPI 2007 to 2018



Graph 39: Percentage change in average earnings for chartered surveyors and teachers in Wales against RPI and CPI 2007 to 2018



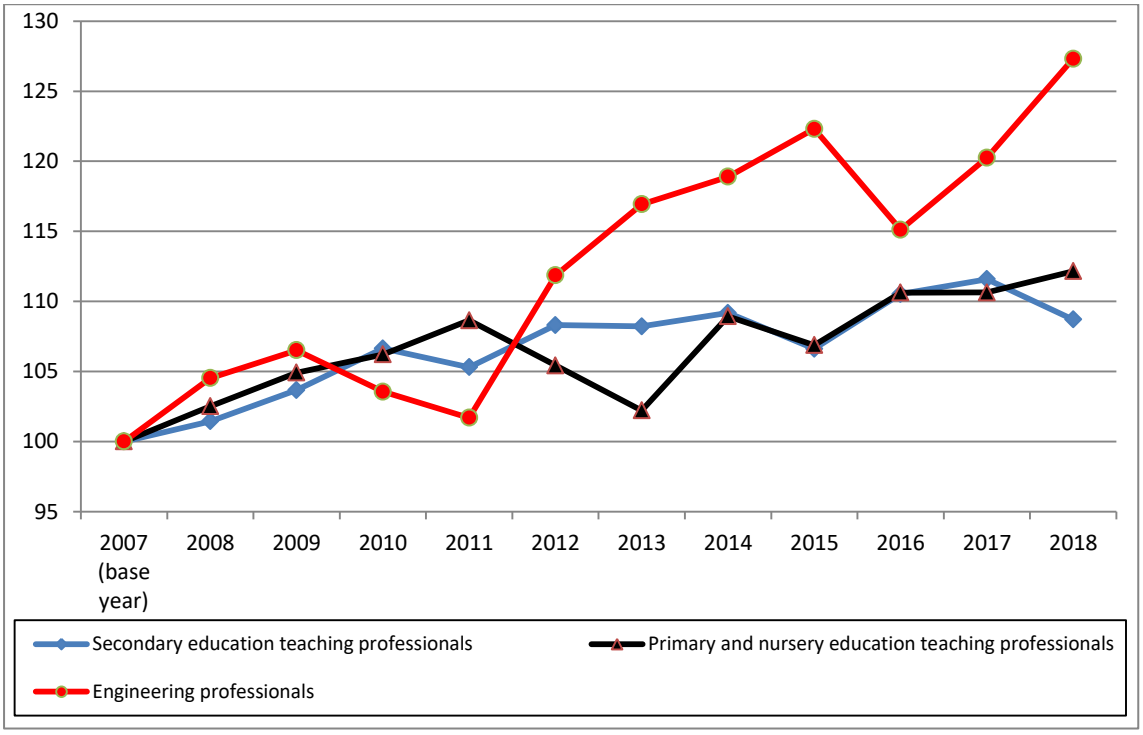
Appendix 1: Indexed median basic weekly earnings 2007-2018

A Science, Research, Engineering and Technology professionals

There was no base year data in 2007 for any of the scientific professions.

B Engineering professionals

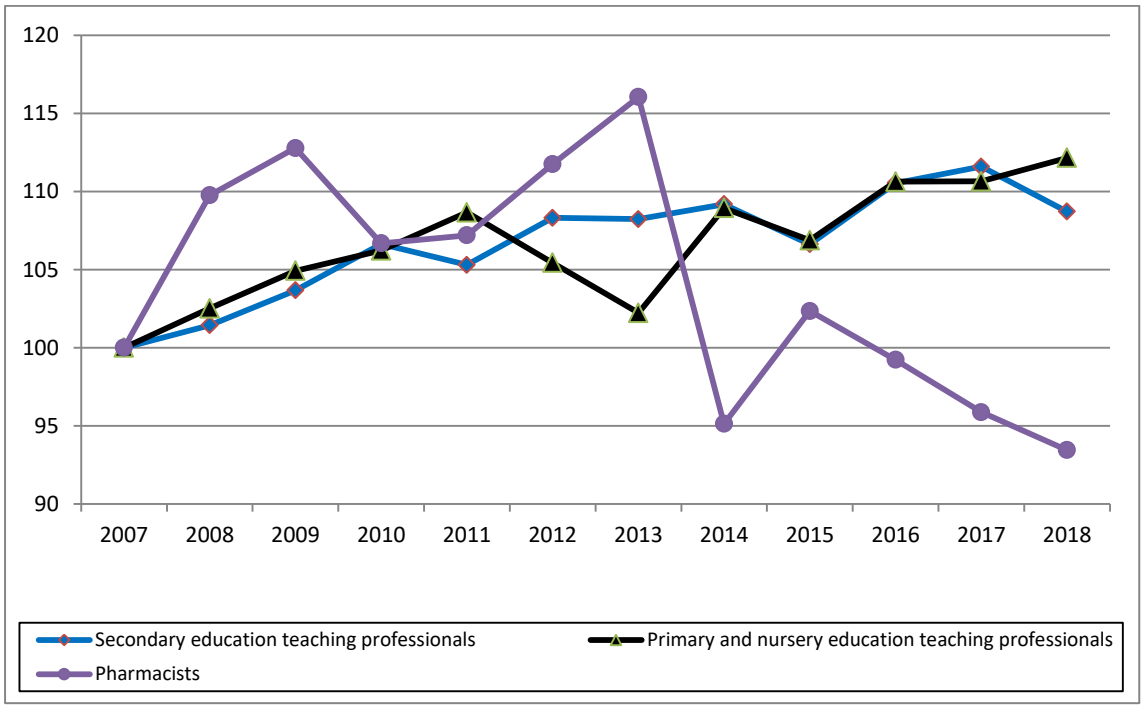
	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering Professionals
2007 (base year)	100.0	100.0	100.0
2008	101.4	102.5	104.5
2009	103.7	104.9	106.5
2010	106.6	106.2	103.6
2011	105.3	108.7	101.7
2012	108.3	105.4	111.9
2013	108.2	102.2	116.9
2014	109.2	108.9	118.9
2015	106.6	106.9	122.3
2016	110.5	110.6	115.1
2017	111.6	110.6	120.3
2018	108.7	112.2	127.3



C Health professionals

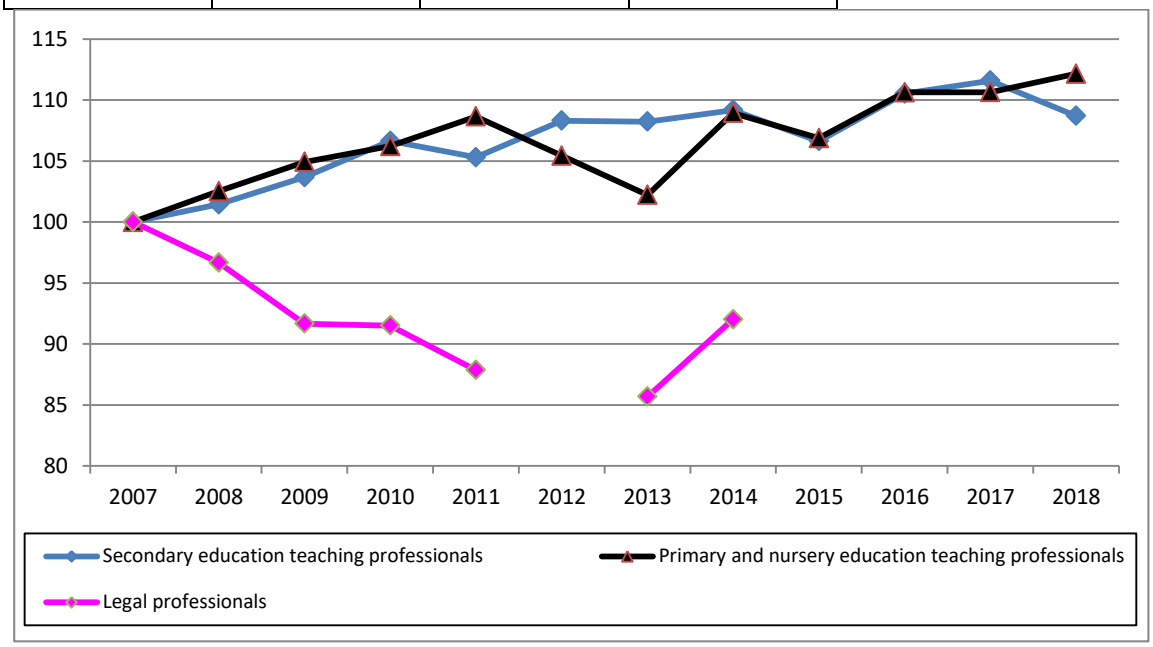
There was no base year data in 2007 for the health professional group in Wales.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Pharmacists	Health professionals
2007 (base year)	100.0	100.0	100.0	
2008	101.4	102.5	109.7	
2009	103.7	104.9	112.8	
2010	106.6	106.2	106.7	
2011	105.3	108.7	107.2	
2012	108.3	105.4	111.7	
2013	108.2	102.2	116.0	
2014	109.2	108.9	95.1	
2015	106.6	106.9	102.3	
2016	110.5	110.6	99.2	
2017	111.6	110.6	95.9	
2018	108.7	112.2	93.4	



D Legal professionals

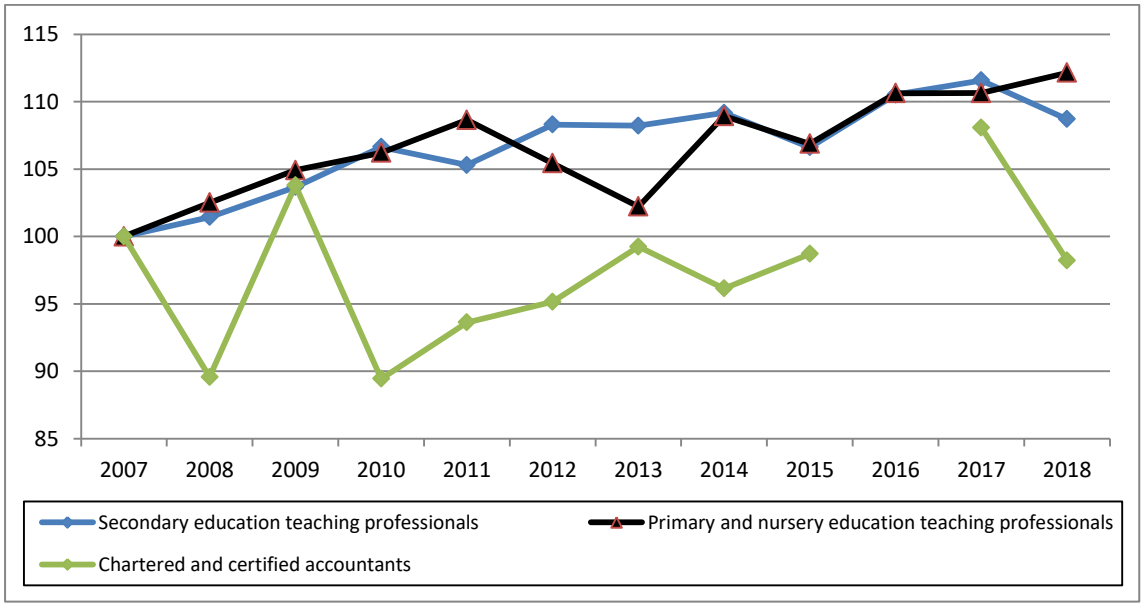
	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal Professionals
2007 (base year)	100.0	100.0	100.0
2008	101.4	102.5	96.7
2009	103.7	104.9	91.7
2010	106.6	106.2	91.5
2011	105.3	108.7	87.9
2012	108.3	105.4	
2013	108.2	102.2	85.7
2014	109.2	108.9	92.0
2015	106.6	106.9	
2016	110.5	110.6	
2017	111.6	110.6	
2018	108.7	112.2	



E Business, Research and Administrative Professionals

There was no base year data in 2007 for management consultants and business analysts.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007 (base year)	100.0	100.0	100.0	
2008	101.4	102.5	89.6	
2009	103.7	104.9	103.8	
2010	106.6	106.2	89.4	
2011	105.3	108.7	93.6	
2012	108.3	105.4	95.2	
2013	108.2	102.2	99.2	
2014	109.2	108.9	96.1	
2015	106.6	106.9	98.7	
2016	110.5	110.6		
2017	111.6	110.6	108.1	
2018	108.7	112.2	98.2	



F Chartered surveyors

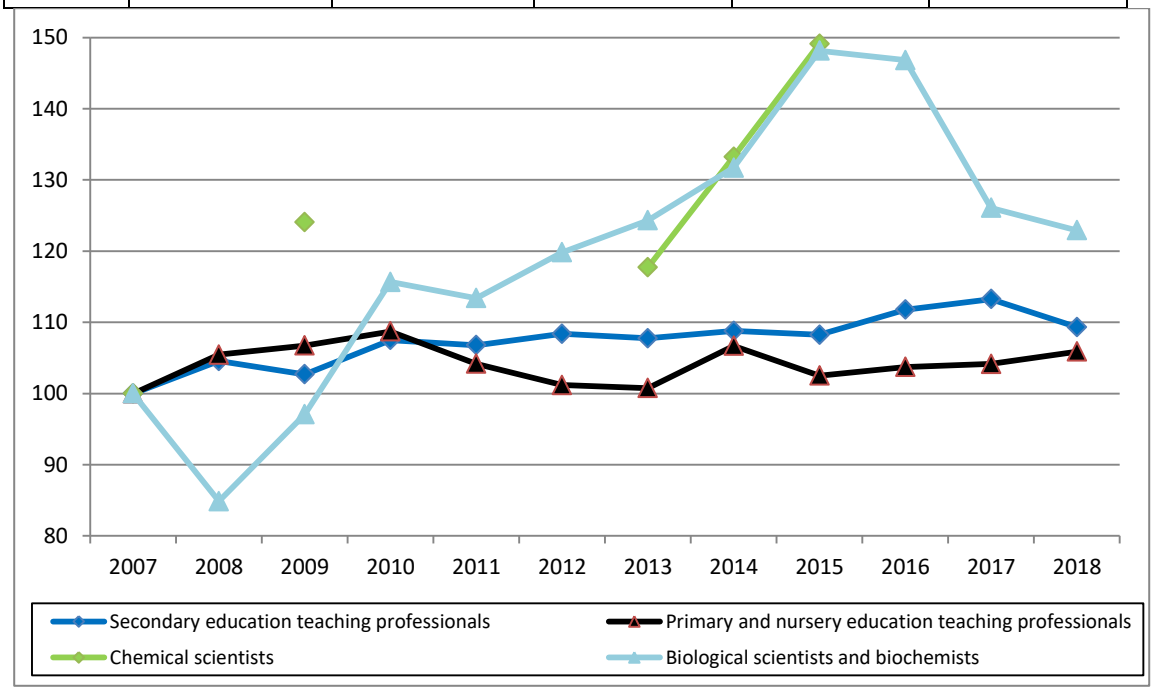
There was no base year data in 2007 for chartered surveyors.

Appendix 2: Indexed average basic weekly earnings 2007 to 2018

A Science, Research, Engineering and Technology professionals

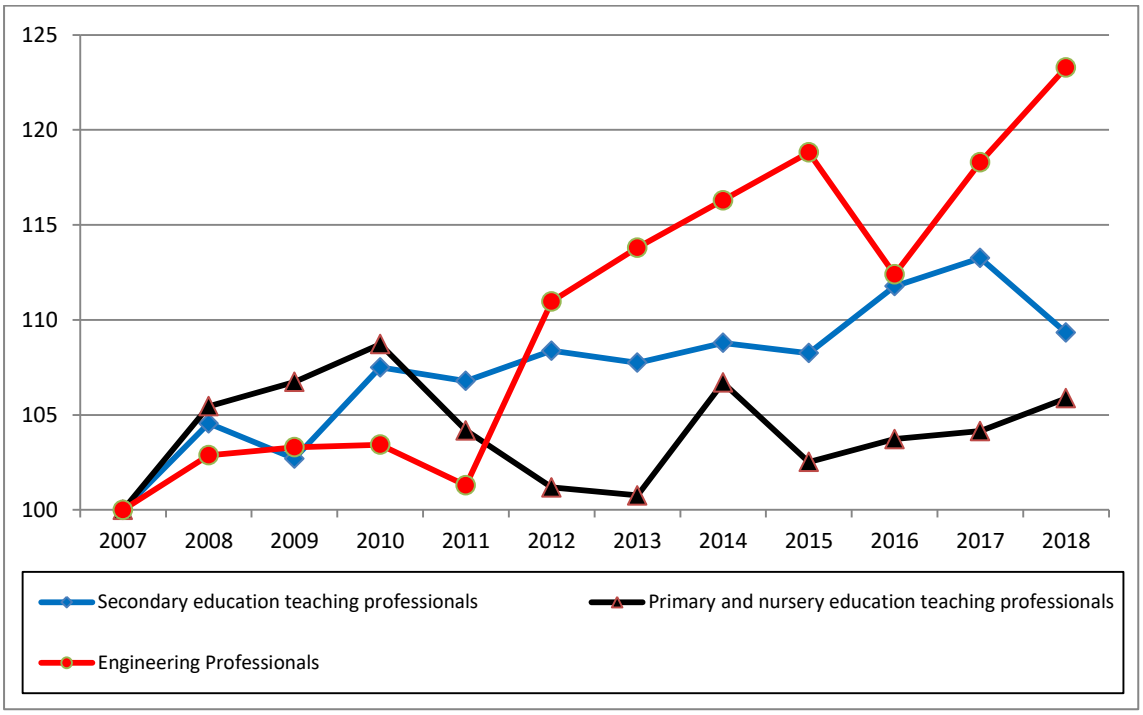
There was no base year data in 2007 for physical scientists.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chemical scientists	Biological scientists and biochemists	Physical scientists
2007 (base year)	100.0	100.0	100.0	100.0	
2008	104.6	105.5		84.9	
2009	102.7	106.7	124.1	97.1	
2010	107.5	108.7		115.7	
2011	106.8	104.2		113.4	
2012	108.4	101.2		119.8	
2013	107.7	100.8	117.7	124.3	
2014	108.8	106.7	133.2	131.7	
2015	108.3	102.5	149.1	148.2	
2016	111.8	103.7		146.8	
2017	113.3	104.1		126.1	
2018	109.3	105.9		122.9	



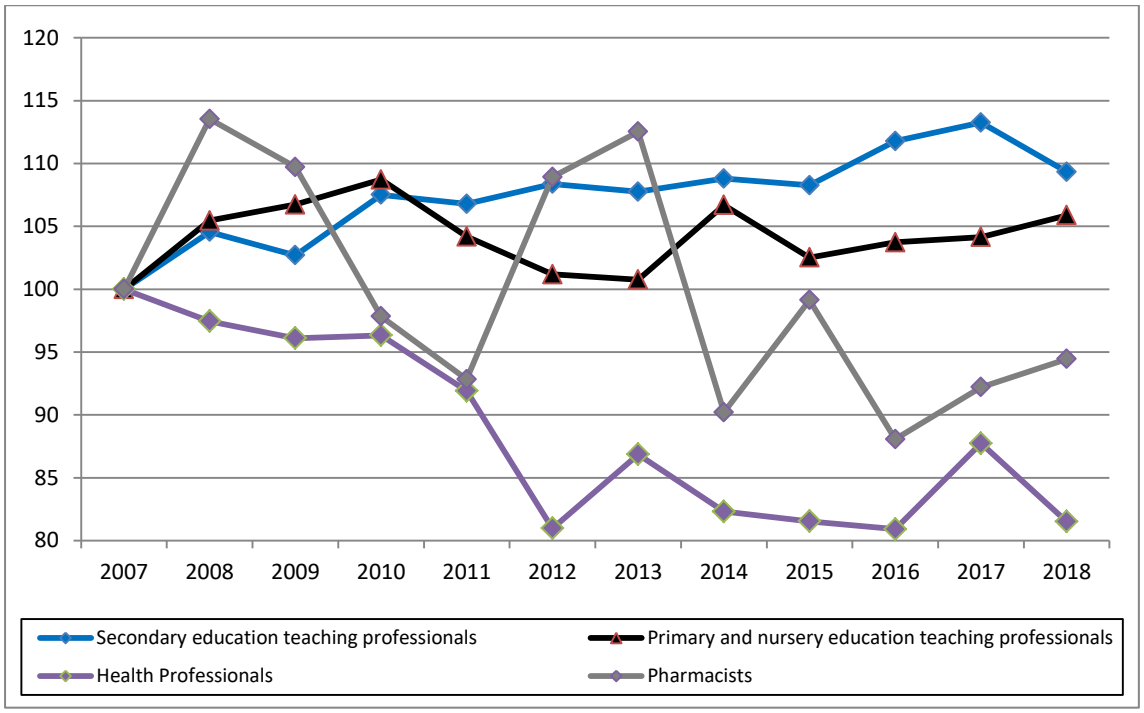
B Engineering professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering Professionals
2007 (base year)	100.0	100.0	100.0
2008	104.6	105.5	102.9
2009	102.7	106.7	103.3
2010	107.5	108.7	103.4
2011	106.8	104.2	101.3
2012	108.4	101.2	111.0
2013	107.7	100.8	113.8
2014	108.8	106.7	116.3
2015	108.3	102.5	118.8
2016	111.8	103.7	112.4
2017	113.3	104.1	118.3
2018	109.3	105.9	123.3



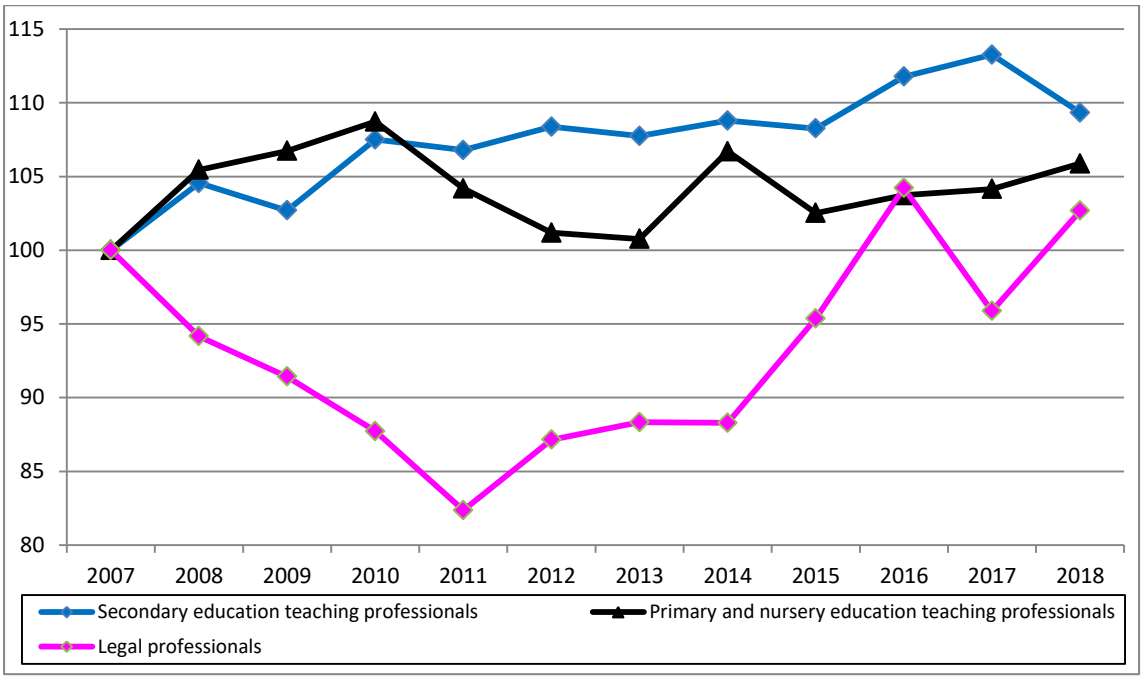
C Health professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Health professionals	Pharmacists
2007 (base year)	100.0	100.0	100.0	100.0
2008	104.6	105.5	97.4	113.5
2009	102.7	106.7	96.1	109.7
2010	107.5	108.7	96.3	97.8
2011	106.8	104.2	91.9	92.8
2012	108.4	101.2	81.0	108.9
2013	107.7	100.8	86.9	112.5
2014	108.8	106.7	82.3	90.2
2015	108.3	102.5	81.5	99.1
2016	111.8	103.7	80.9	88.1
2017	113.3	104.1	87.7	92.2
2018	109.3	105.9	81.5	94.4



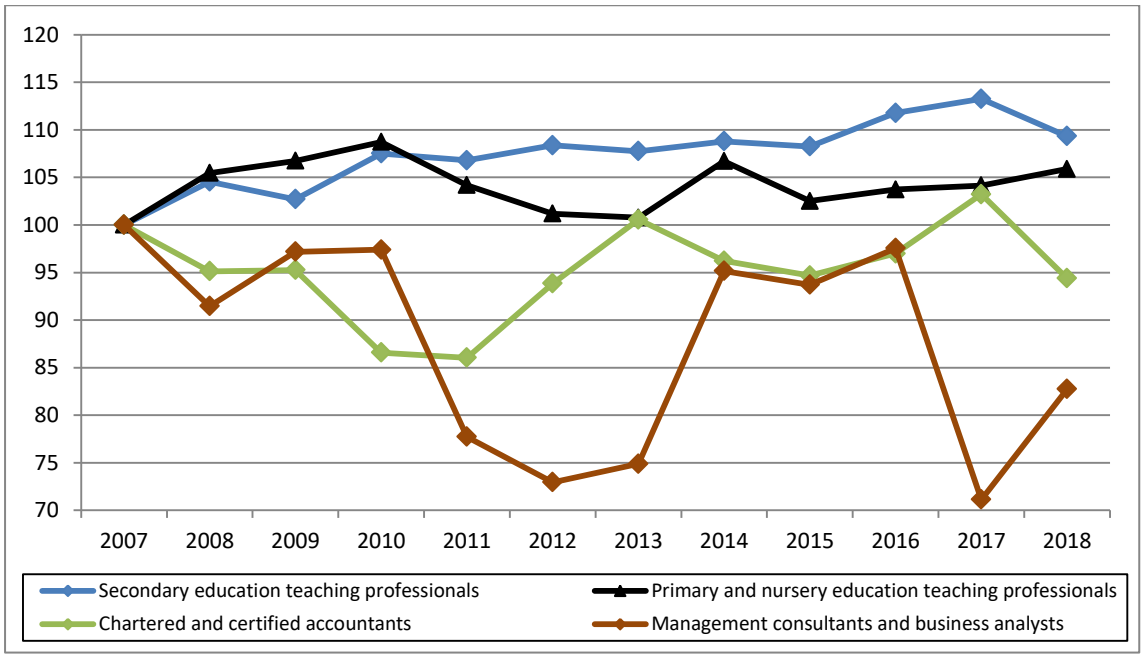
D Legal professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal professionals
2007 (base year)	100.0	100.0	100.0
2008	104.6	105.5	94.2
2009	102.7	106.7	91.4
2010	107.5	108.7	87.7
2011	106.8	104.2	82.4
2012	108.4	101.2	87.1
2013	107.7	100.8	88.3
2014	108.8	106.7	88.3
2015	108.3	102.5	95.4
2016	111.8	103.7	104.2
2017	113.3	104.1	95.9
2018	109.3	105.9	102.7



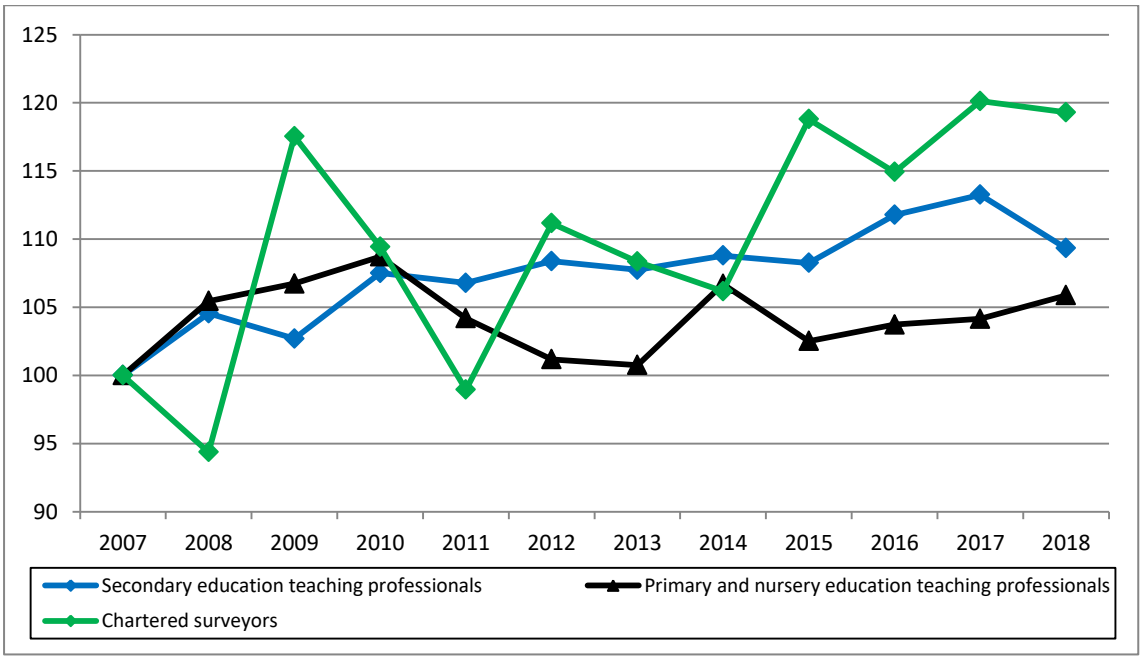
E Business, Research and Administrative professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007 (base year)	100.0	100.0	100.0	100.0
2008	104.6	105.5	95.1	91.5
2009	102.7	106.7	95.3	97.2
2010	107.5	108.7	86.6	97.4
2011	106.8	104.2	86.0	77.7
2012	108.4	101.2	93.9	73.0
2013	107.7	100.8	100.6	74.9
2014	108.8	106.7	96.2	95.2
2015	108.3	102.5	94.7	93.7
2016	111.8	103.7	97.0	97.5
2017	113.3	104.1	103.2	71.1
2018	109.3	105.9	94.4	82.7



F Chartered Surveyors

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered surveyors
2007 (base year)	100.0	100.0	100.0
2008	104.6	105.5	94.4
2009	102.7	106.7	117.5
2010	107.5	108.7	109.4
2011	106.8	104.2	98.9
2012	108.4	101.2	111.2
2013	107.7	100.8	108.3
2014	108.8	106.7	106.2
2015	108.3	102.5	118.8
2016	111.8	103.7	114.9
2017	113.3	104.1	120.1
2018	109.3	105.9	119.3

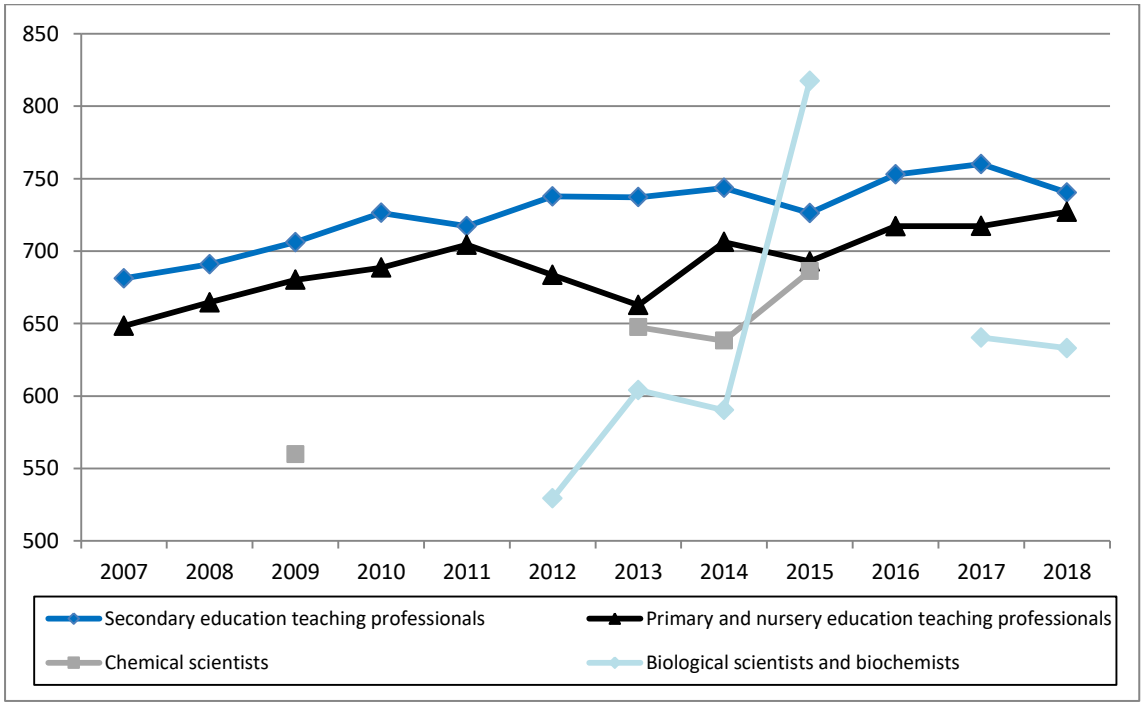


Appendix 3: Median basic weekly earnings (ASHE) 2007 to 2018

A Science, Research, Engineering and Technology professionals (median basic pay £pw)

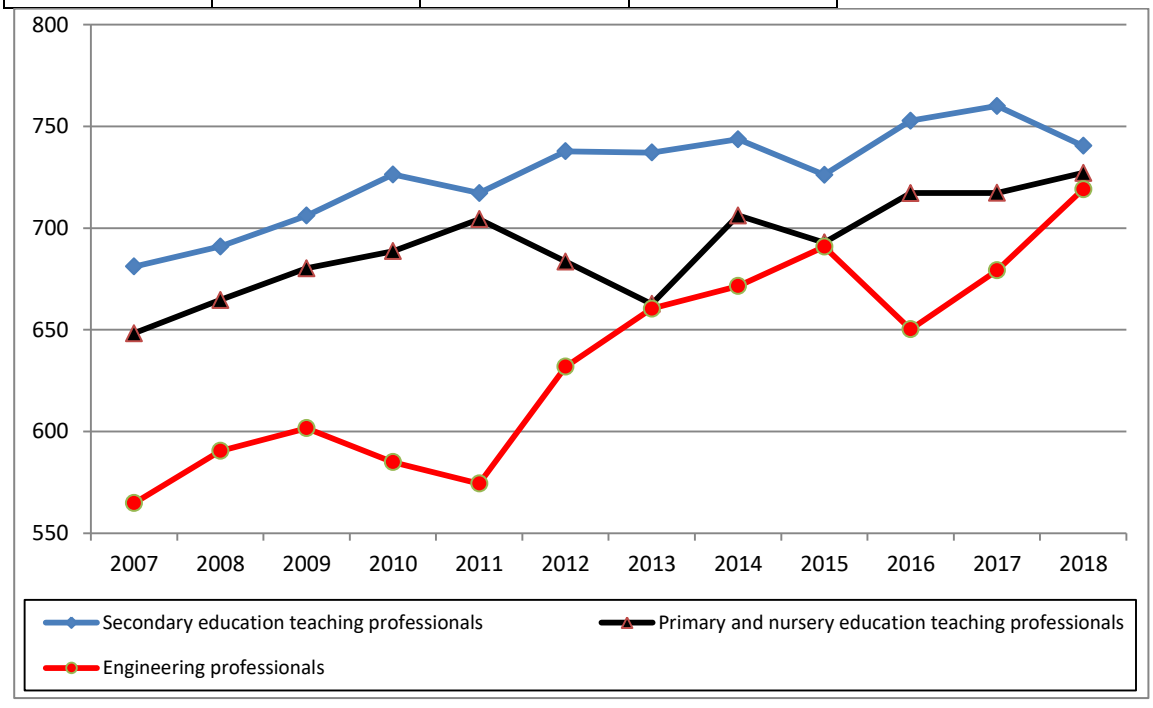
There was no data for physical scientist group.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chemical scientists	Biological scientists and biochemists	Physical scientists
2007	681.1	648.3			
2008	690.9	664.6			
2009	706.1	680.2	559.9	483.2	
2010	726.3	688.6			
2011	717.2	704.4			
2012	737.7	683.5		529.4	
2013	737.1	662.7	647.5	604.1	
2014	743.6	706.2	638.2	590.3	
2015	726.2	692.9	686.1	817.4	
2016	752.8	717.2			
2017	760.0	717.3		640.3	
2018	740.4	727.1		633.0	



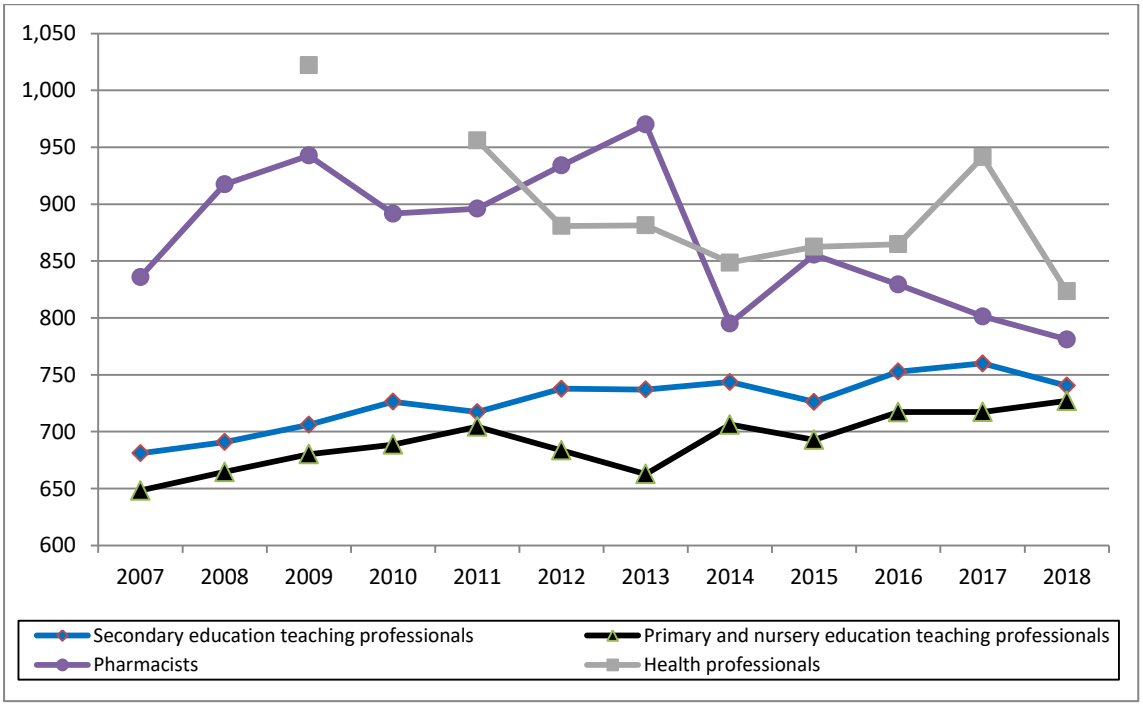
B Engineering professionals (median basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering Professionals
2007	681.1	648.3	564.8
2008	690.9	664.6	590.4
2009	706.1	680.2	601.6
2010	726.3	688.6	584.9
2011	717.2	704.4	574.4
2012	737.7	683.5	631.8
2013	737.1	662.7	660.4
2014	743.6	706.2	671.5
2015	726.2	692.9	690.8
2016	752.8	717.2	650.2
2017	760.0	717.3	679.2
2018	740.4	727.1	719.1



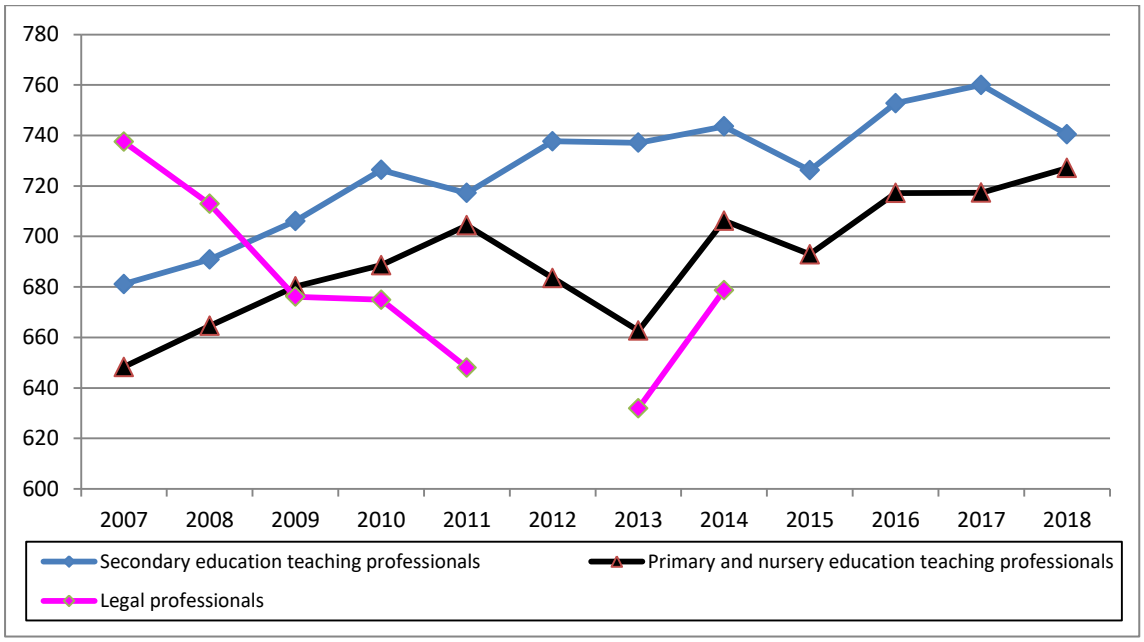
C Health professionals (median basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Health professionals	Pharmacists
2007	681.1	648.3		835.9
2008	690.9	664.6		917.4
2009	706.1	680.2	1,022.2	942.7
2010	726.3	688.6		891.7
2011	717.2	704.4	956.1	896.0
2012	737.7	683.5	880.8	934.1
2013	737.1	662.7	881.4	970.0
2014	743.6	706.2	848.6	795.1
2015	726.2	692.9	862.5	855.5
2016	752.8	717.2	864.8	829.4
2017	760.0	717.3	941.4	801.4
2018	740.4	727.1	823.5	781.1



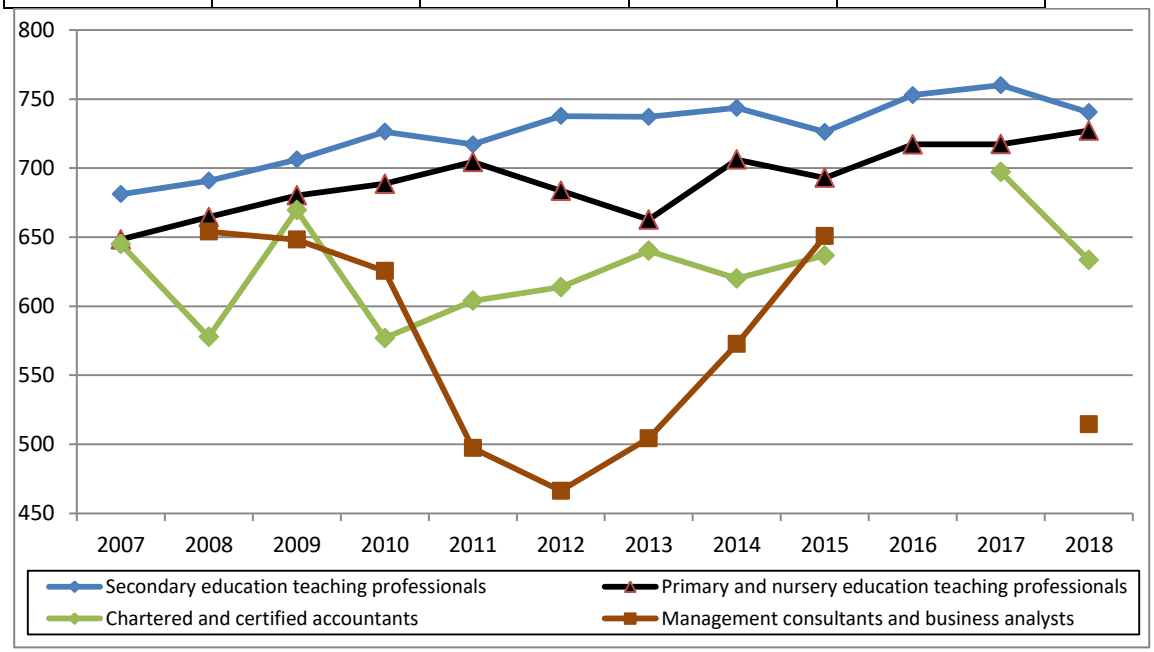
D Legal professionals (median basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal Professionals
2007	681.1	648.3	737.5
2008	690.9	664.6	712.9
2009	706.1	680.2	676.1
2010	726.3	688.6	674.9
2011	717.2	704.4	648.0
2012	737.7	683.5	
2013	737.1	662.7	631.9
2014	743.6	706.2	678.7
2015	726.2	692.9	
2016	752.8	717.2	
2017	760.0	717.3	
2018	740.4	727.1	



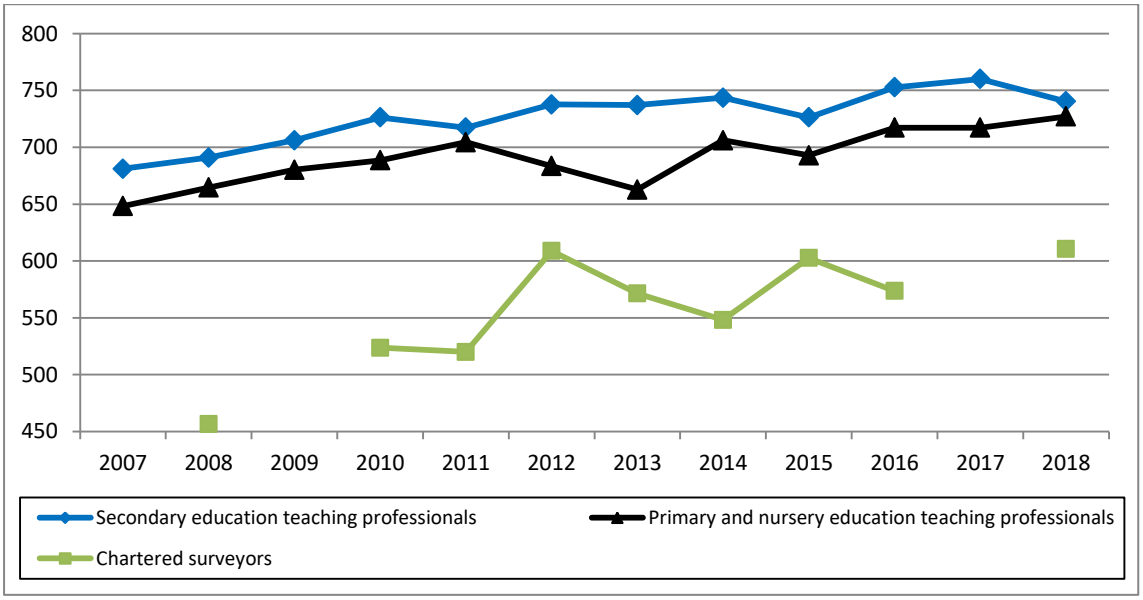
E Business, Research and Administrative professionals (median basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007	681.1	648.3	645.0	
2008	690.9	664.6	577.8	654.0
2009	706.1	680.2	669.5	648.2
2010	726.3	688.6	576.9	625.5
2011	717.2	704.4	603.9	497.3
2012	737.7	683.5	613.8	466.4
2013	737.1	662.7	640.1	504.4
2014	743.6	706.2	620.1	572.7
2015	726.2	692.9	636.7	650.8
2016	752.8	717.2		
2017	760.0	717.3	697.1	
2018	740.4	727.1	633.5	514.6



F Chartered surveyors (median basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered surveyors
2007	681.1	648.3	
2008	690.9	664.6	456.7
2009	706.1	680.2	
2010	726.3	688.6	523.6
2011	717.2	704.4	520.0
2012	737.7	683.5	608.9
2013	737.1	662.7	571.4
2014	743.6	706.2	548.1
2015	726.2	692.9	602.7
2016	752.8	717.2	573.6
2017	760.0	717.3	
2018	740.4	727.1	610.6

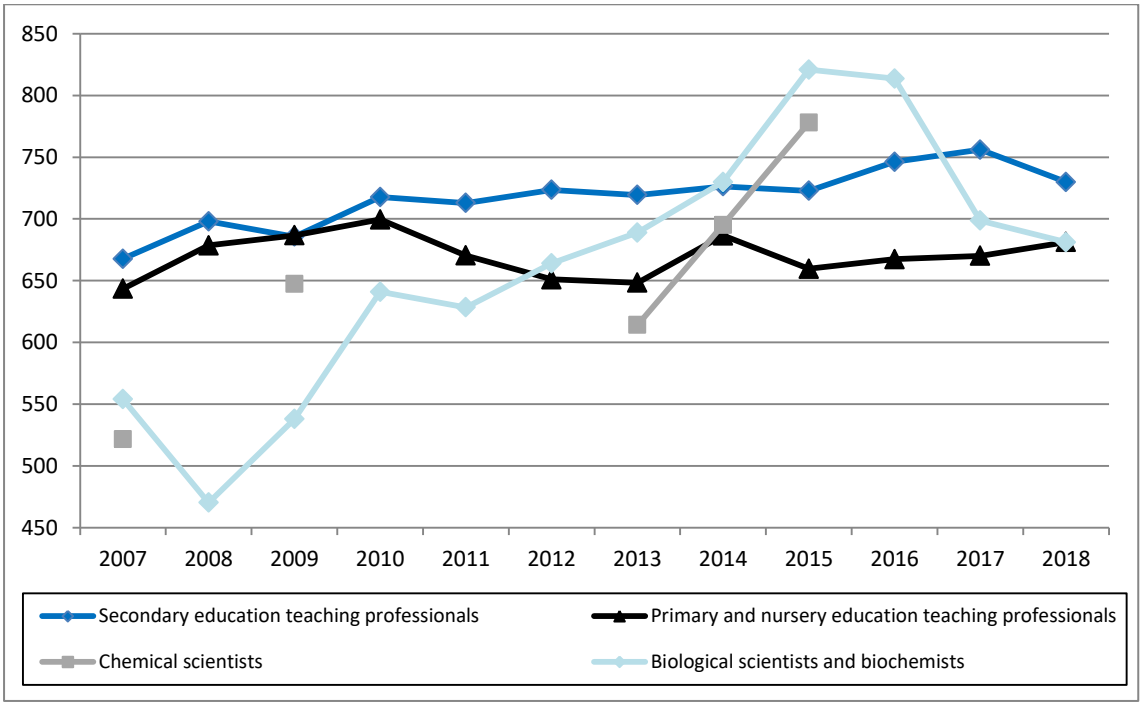


Appendix 4: Average basic weekly earnings (ASHE) 2007 to 2018

A Science, Research, Engineering and Technology professionals (average basic pay £pw)

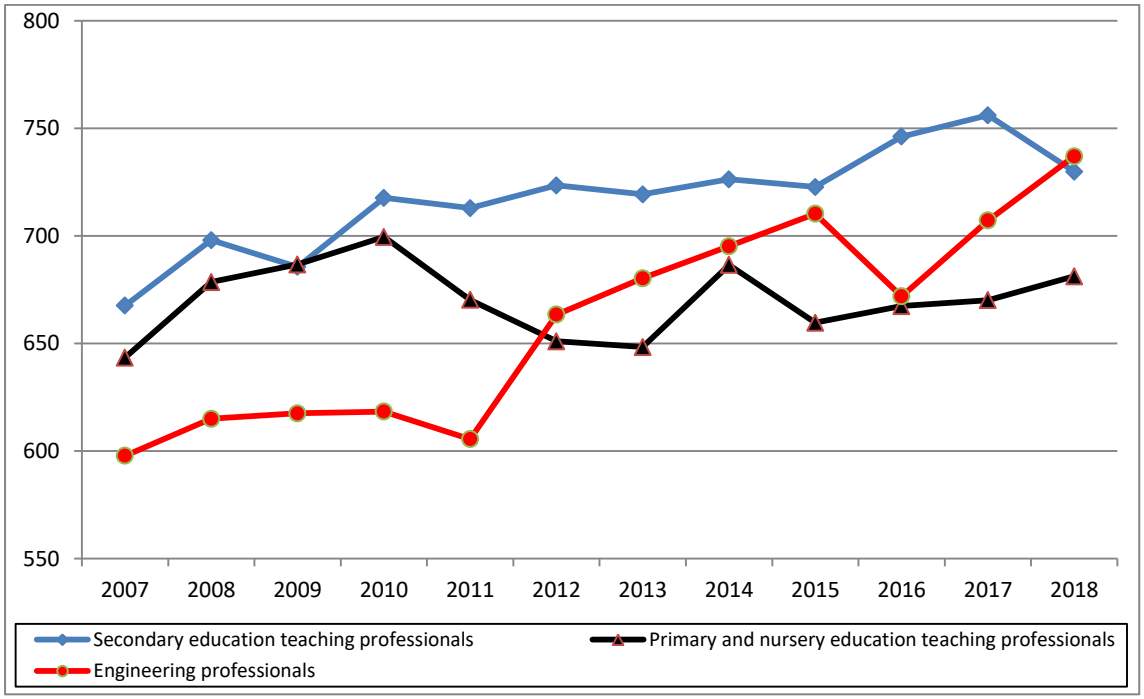
There was no data for physical scientist group.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chemical scientists	Biological scientists and biochemists	Physical scientists
2007	667.6	643.4	521.7	554.1	
2008	698.0	678.5		470.2	
2009	685.6	686.7	647.3	537.9	
2010	717.7	699.5		640.9	
2011	712.9	670.3		628.3	
2012	723.5	651.0		664.0	
2013	719.3	648.3	614.1	688.9	
2014	726.3	686.5	695.1	729.9	
2015	722.7	659.6	777.9	820.9	
2016	746.2	667.4		813.6	
2017	756.1	670.1		698.6	
2018	729.9	681.2		681.1	



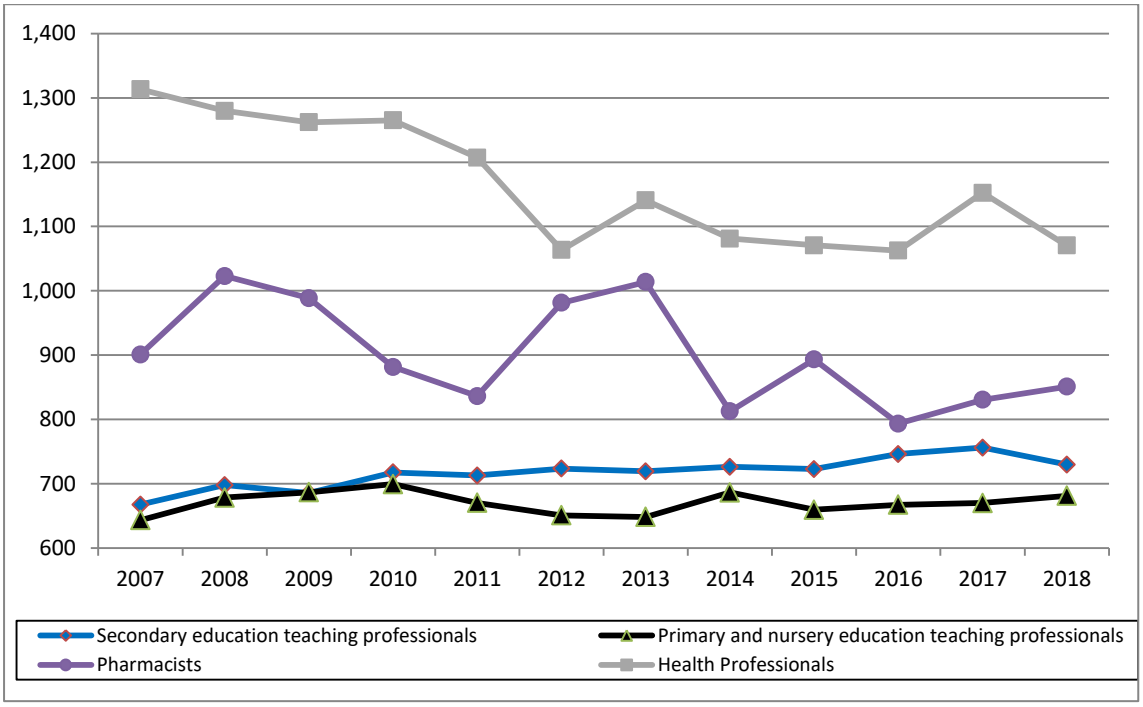
B Engineering professionals (average basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering professionals
2007	667.6	643.4	597.8
2008	698.0	678.5	615.0
2009	685.6	686.7	617.5
2010	717.7	699.5	618.3
2011	712.9	670.3	605.5
2012	723.5	651.0	663.4
2013	719.3	648.3	680.3
2014	726.3	686.5	695.2
2015	722.7	659.6	710.3
2016	746.2	667.4	671.9
2017	756.1	670.1	707.2
2018	729.9	681.2	737.0



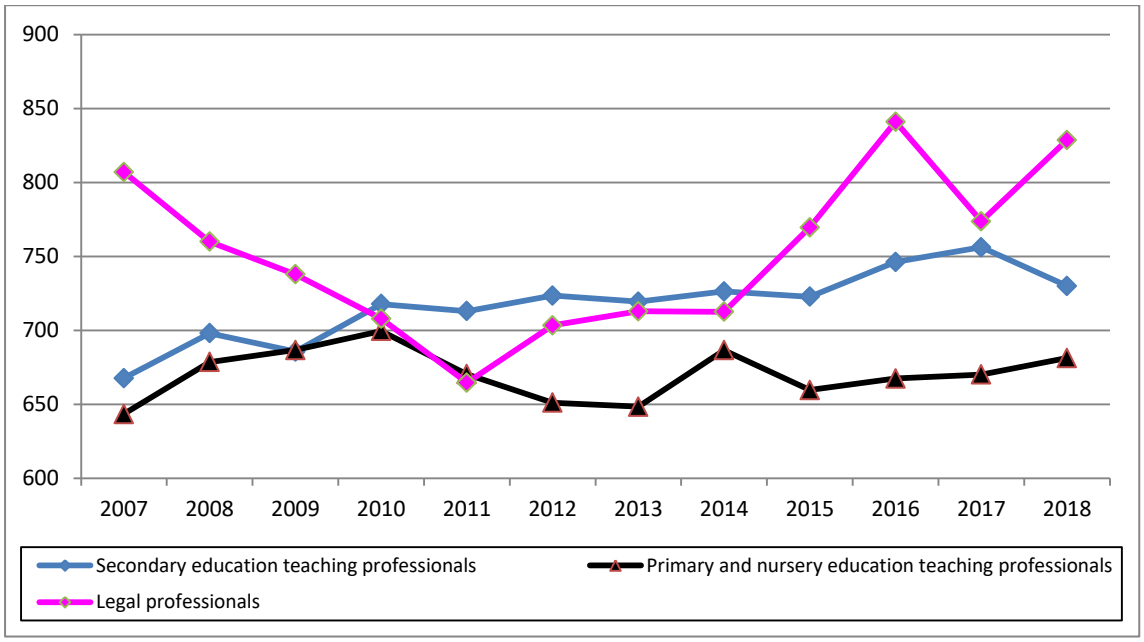
C Health professionals (average basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Health Professionals	Pharmacists
2007	667.6	643.4	1,313.4	901.0
2008	698.0	678.5	1,279.8	1,022.9
2009	685.6	686.7	1,262.2	988.5
2010	717.7	699.5	1,265.1	881.5
2011	712.9	670.3	1,207.1	836.3
2012	723.5	651.0	1,063.5	981.4
2013	719.3	648.3	1,140.7	1,013.8
2014	726.3	686.5	1,081.1	812.7
2015	722.7	659.6	1,070.8	893.2
2016	746.2	667.4	1,062.6	793.5
2017	756.1	670.1	1,152.3	830.7
2018	729.9	681.2	1,070.5	850.9



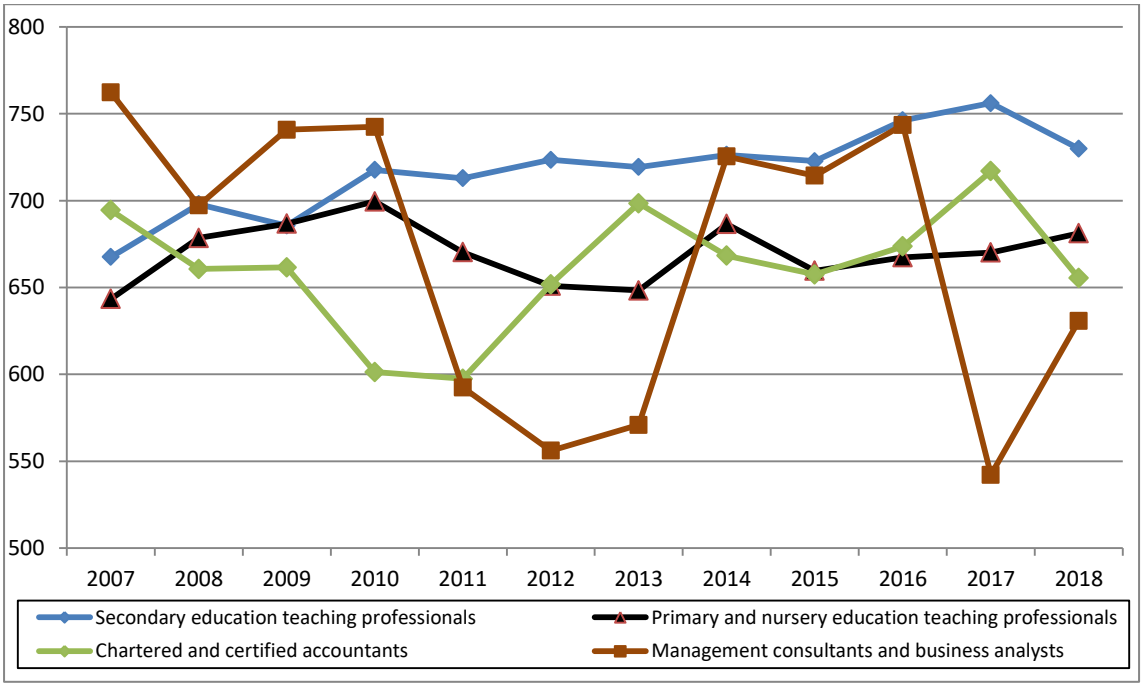
D Legal professionals (average basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal professionals
2007	667.6	643.4	807.0
2008	698.0	678.5	759.9
2009	685.6	686.7	737.8
2010	717.7	699.5	707.9
2011	712.9	670.3	664.6
2012	723.5	651.0	703.3
2013	719.3	648.3	712.8
2014	726.3	686.5	712.5
2015	722.7	659.6	769.6
2016	746.2	667.4	841.0
2017	756.1	670.1	773.7
2018	729.9	681.2	828.6



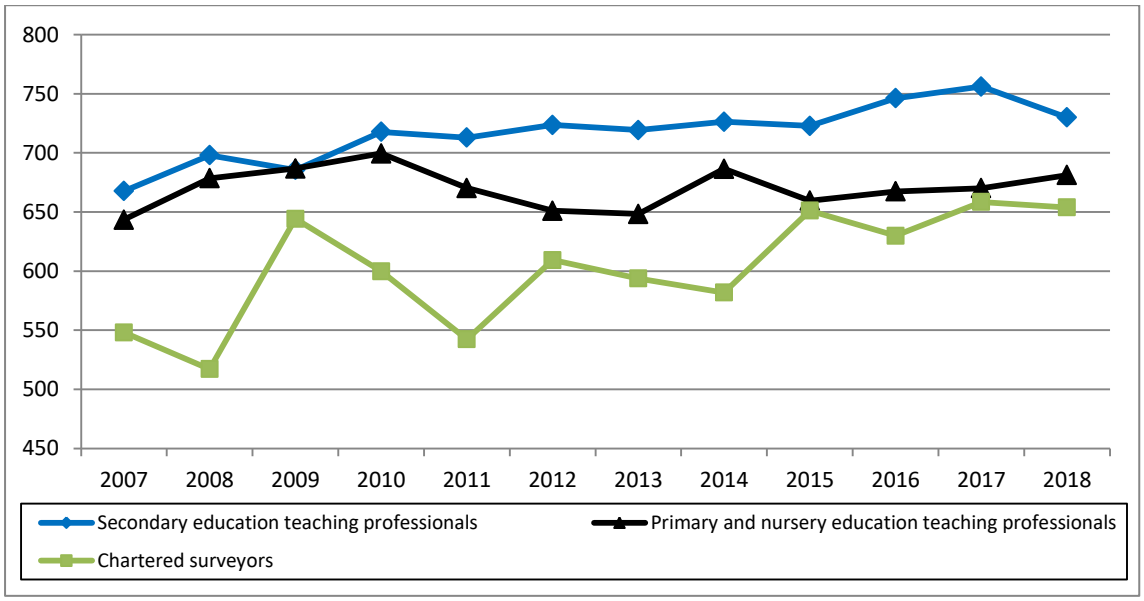
E Business, Research and Administrative professionals ((average basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007	667.6	643.4	694.5	762.3
2008	698.0	678.5	660.7	697.2
2009	685.6	686.7	661.6	740.8
2010	717.7	699.5	601.3	742.5
2011	712.9	670.3	597.5	592.5
2012	723.5	651.0	651.8	556.1
2013	719.3	648.3	698.4	570.9
2014	726.3	686.5	668.3	725.4
2015	722.7	659.6	657.5	714.4
2016	746.2	667.4	673.6	743.6
2017	756.1	670.1	716.9	542.2
2018	729.9	681.2	655.5	630.7



F Chartered Surveyors (average basic pay £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered surveyors
2007	667.6	643.4	548.1
2008	698.0	678.5	517.2
2009	685.6	686.7	644.2
2010	717.7	699.5	599.8
2011	712.9	670.3	542.3
2012	723.5	651.0	609.3
2013	719.3	648.3	593.8
2014	726.3	686.5	581.9
2015	722.7	659.6	651.1
2016	746.2	667.4	629.9
2017	756.1	670.1	658.4
2018	729.9	681.2	653.9



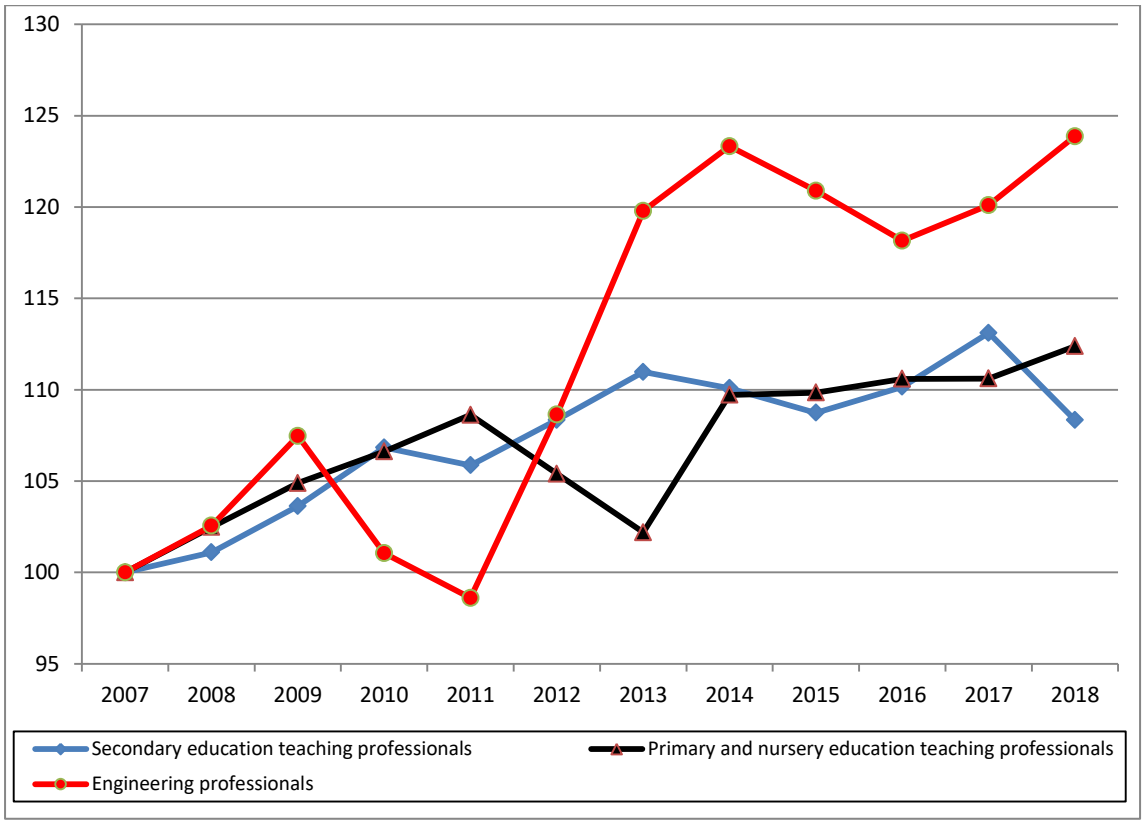
Appendix 5: Indexed median gross weekly earnings 2007 to 2018

A Science, Research, Engineering and Technology professionals

There was no base year data in 2007 for any of the scientific professions.

B Engineering professionals

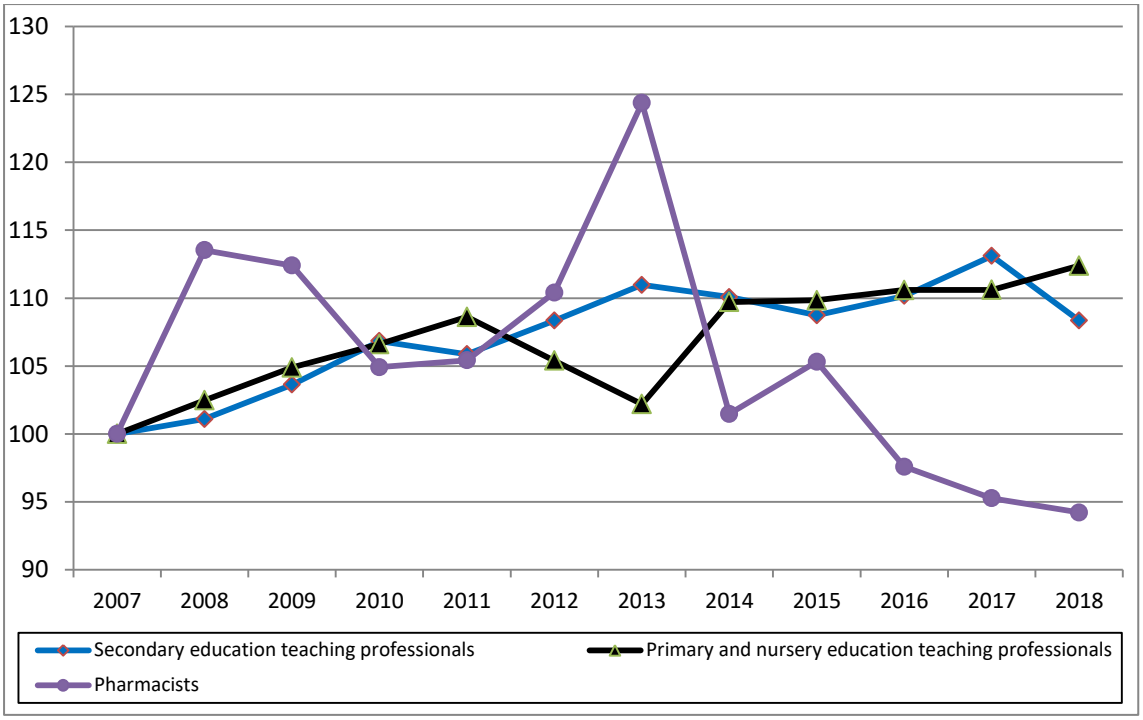
	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering professionals
2007 (base year)	100.0	100.0	100.0
2008	101.1	102.5	102.5
2009	103.6	104.9	107.5
2010	106.8	106.6	101.1
2011	105.9	108.6	98.6
2012	108.3	105.4	108.6
2013	111.0	102.2	119.8
2014	110.1	109.7	123.3
2015	108.7	109.8	120.9
2016	110.2	110.6	118.2
2017	113.1	110.6	120.1
2018	108.3	112.4	123.9



C Health professionals

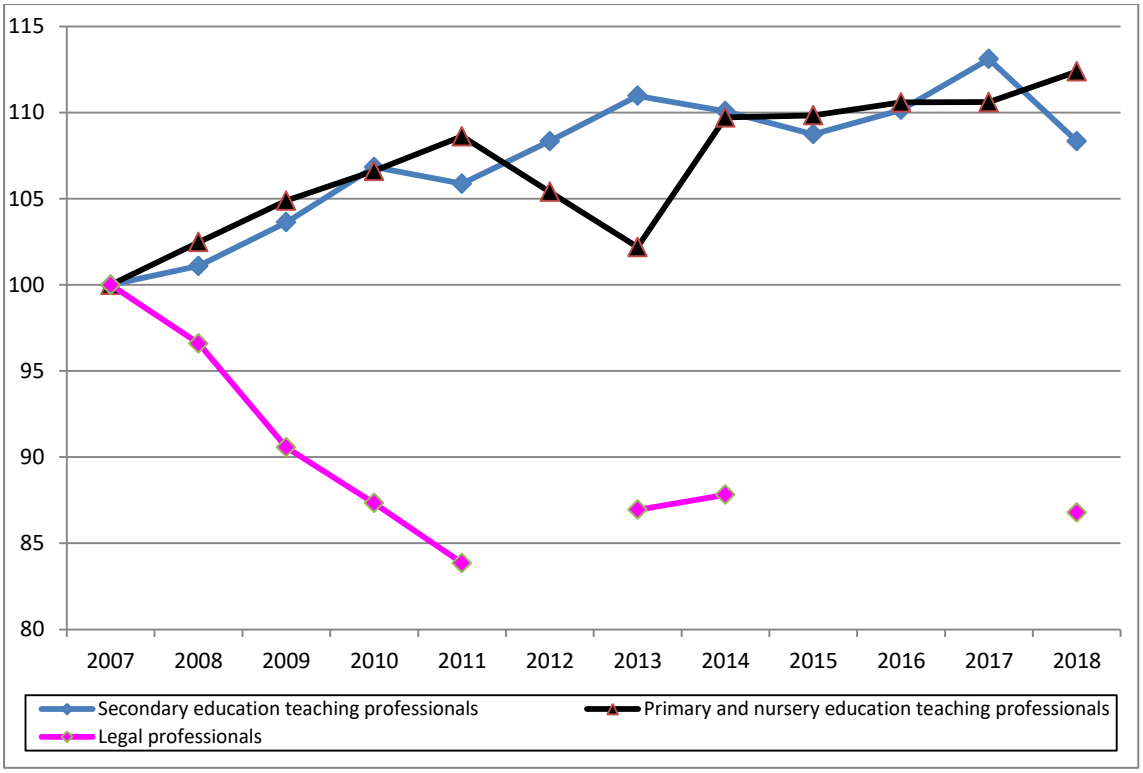
There was no base year data in 2007 for the health professional group.

	Secondary education teaching professionals	**Primary and nursery education teaching professionals**	**Health professionals**	**Pharmacists**
2007 (base year)	100.0	100.0		100.0
2008	101.1	102.5		113.5
2009	103.6	104.9		112.4
2010	106.8	106.6		104.9
2011	105.9	108.6		105.4
2012	108.3	105.4		110.4
2013	111.0	102.2		124.4
2014	110.1	109.7		101.5
2015	108.7	109.8		105.3
2016	110.2	110.6		97.6
2017	113.1	110.6		95.3
2018	108.3	112.4		94.2



D Legal professionals

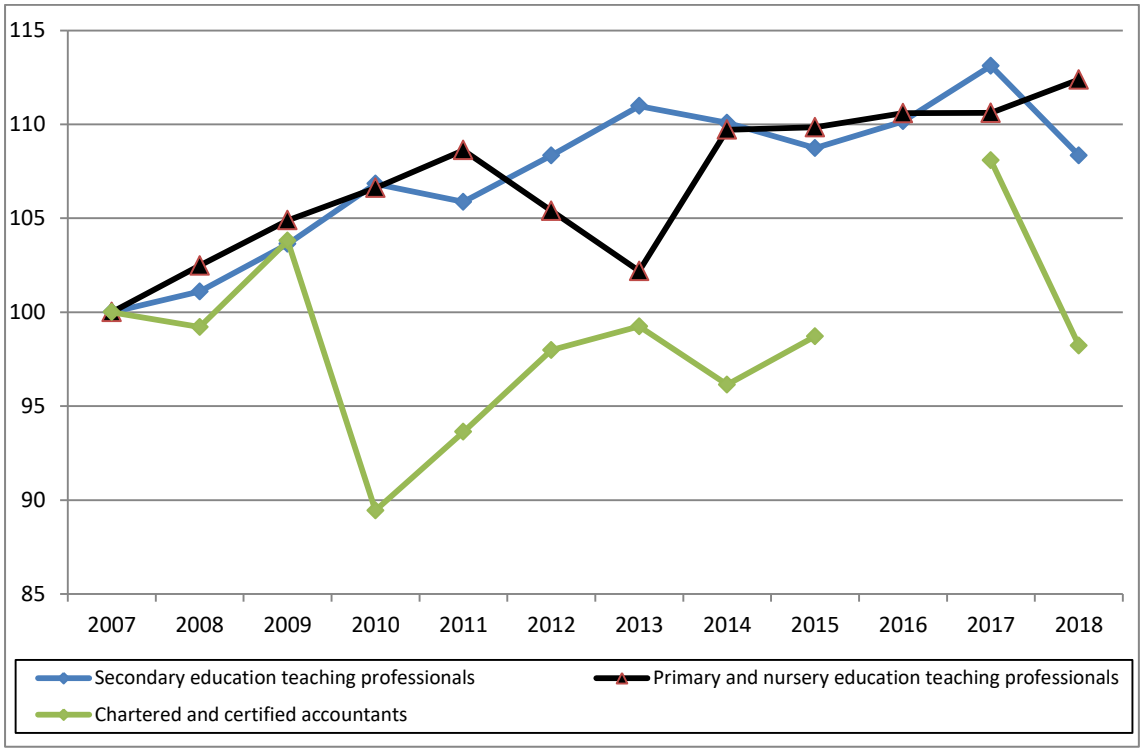
	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal professionals
2007 (base year)	100.0	100.0	100.0
2008	101.1	102.5	96.6
2009	103.6	104.9	90.6
2010	106.8	106.6	87.3
2011	105.9	108.6	83.9
2012	108.3	105.4	
2013	111.0	102.2	86.9
2014	110.1	109.7	87.8
2015	108.7	109.8	
2016	110.2	110.6	
2017	113.1	110.6	
2018	108.3	112.4	86.8


115
110
105
100
95
90
85
80
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Secondary education teaching professionals
Primary and nursery education teaching professionals
Legal professionals

E Business, Research and Administrative professionals

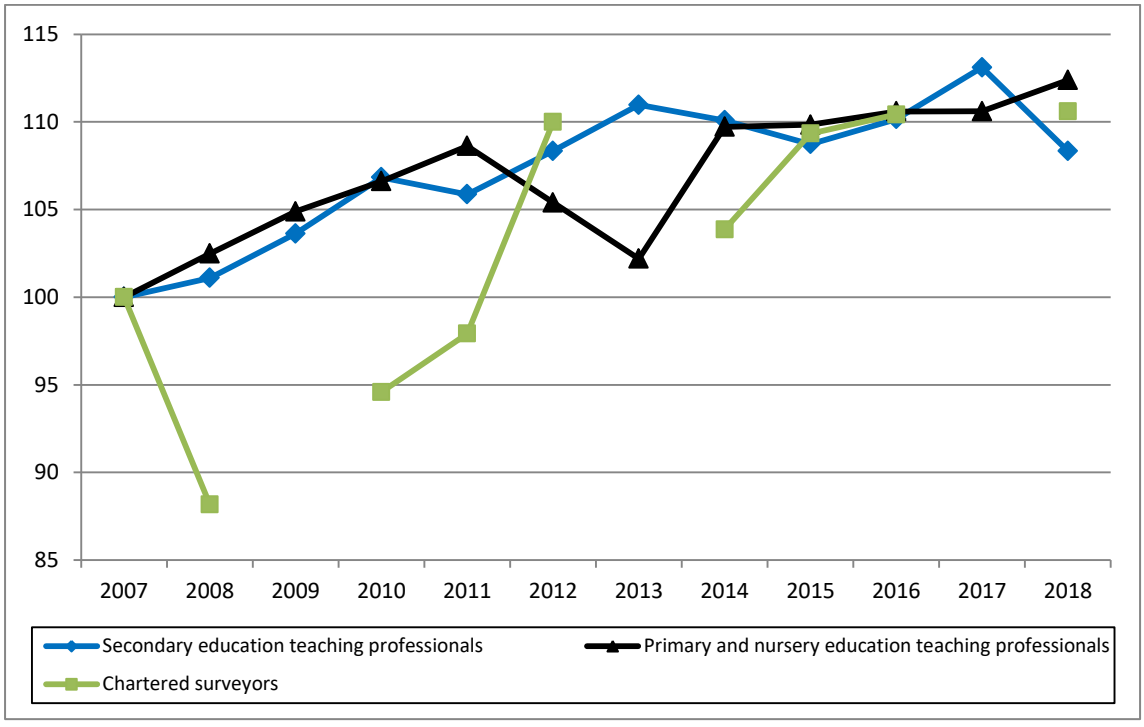
There was no base year data in 2007 for the management consultant group.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007 (base year)	100.0	100.0	100.0	
2008	101.1	102.5	99.2	
2009	103.6	104.9	103.8	
2010	106.8	106.6	89.4	
2011	105.9	108.6	93.6	
2012	108.3	105.4	98.0	
2013	111.0	102.2	99.2	
2014	110.1	109.7	96.1	
2015	108.7	109.8	98.7	
2016	110.2	110.6		
2017	113.1	110.6	108.1	
2018	108.3	112.4	98.2	



F Chartered Surveyors

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered surveyors
2007 (base year)	100.0	100.0	100.0
2008	101.1	102.5	88.2
2009	103.6	104.9	
2010	106.8	106.6	94.6
2011	105.9	108.6	97.9
2012	108.3	105.4	110.0
2013	111.0	102.2	
2014	110.1	109.7	103.9
2015	108.7	109.8	109.3
2016	110.2	110.6	110.4
2017	113.1	110.6	
2018	108.3	112.4	110.6

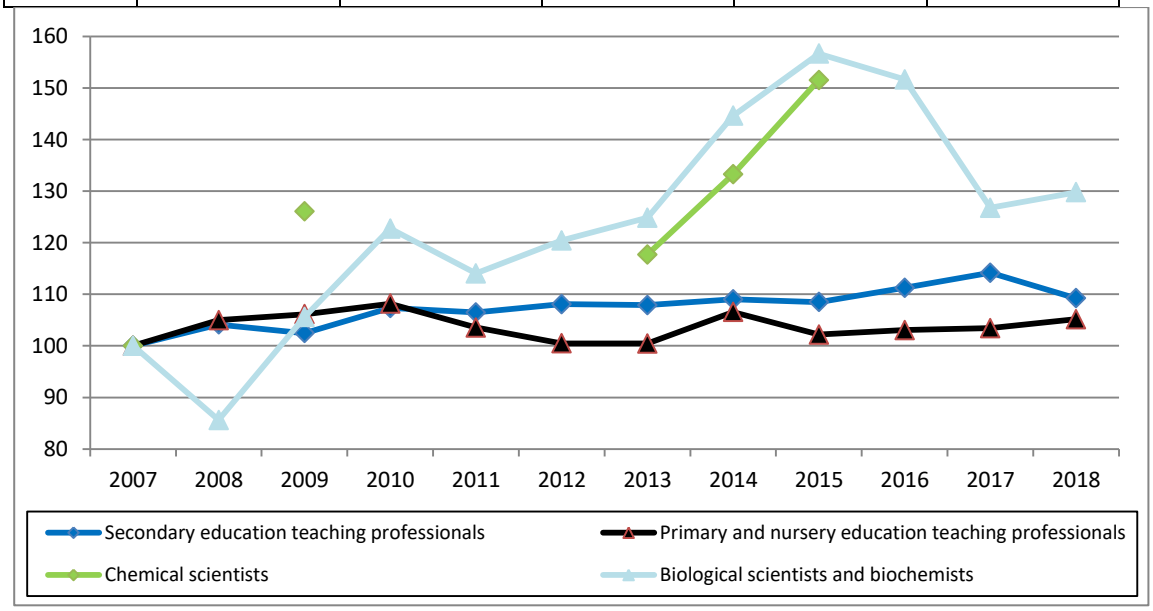


Appendix 6: Indexed average gross weekly earnings 2007 to 2018

A Science, Research, Engineering and Technology professionals

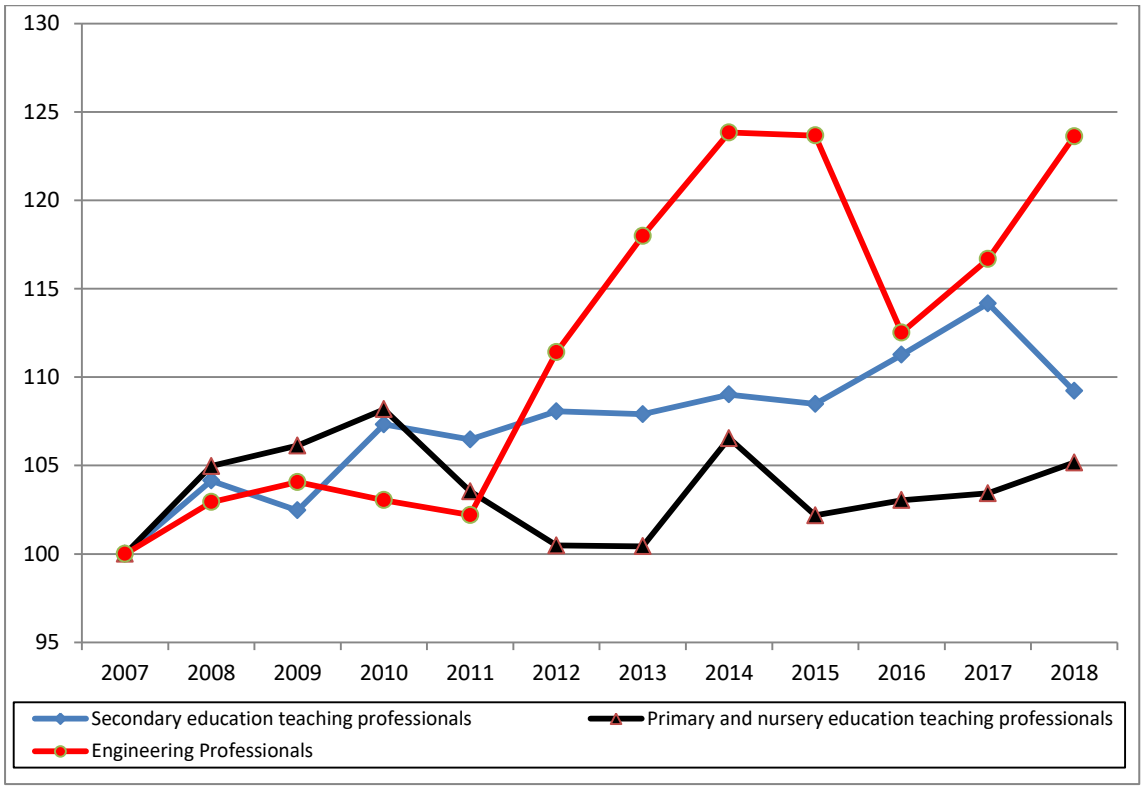
There was no base year data in 2007 for physical scientists.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chemical scientists	Biological scientists and biochemists	Physical scientists
2007 (base year)	100.0	100.0	100.0	100.0	
2008	104.1	105.0		85.6	
2009	102.5	106.1	126.1	105.6	
2010	107.3	108.2		122.7	
2011	106.5	103.5		114.0	
2012	108.1	100.5		120.4	
2013	107.9	100.4	117.7	124.8	
2014	109.0	106.5	133.2	144.6	
2015	108.5	102.2	151.5	156.7	
2016	111.3	103.0		151.7	
2017	114.2	103.4		126.7	
2018	109.2	105.2		129.8	



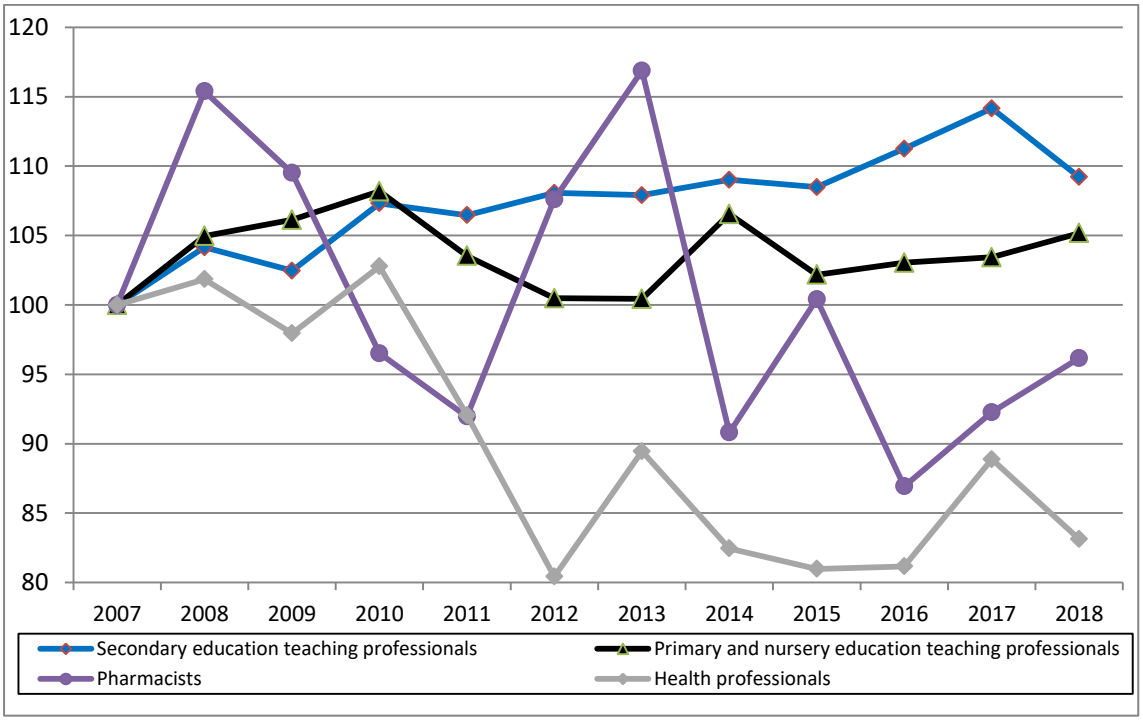
B Engineering professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering professionals
2007 (base year)	100.0	100.0	100.0
2008	104.1	105.0	102.9
2009	102.5	106.1	104.1
2010	107.3	108.2	103.0
2011	106.5	103.5	102.2
2012	108.1	100.5	111.4
2013	107.9	100.4	118.0
2014	109.0	106.5	123.8
2015	108.5	102.2	123.7
2016	111.3	103.0	112.5
2017	114.2	103.4	116.7
2018	109.2	105.2	123.6



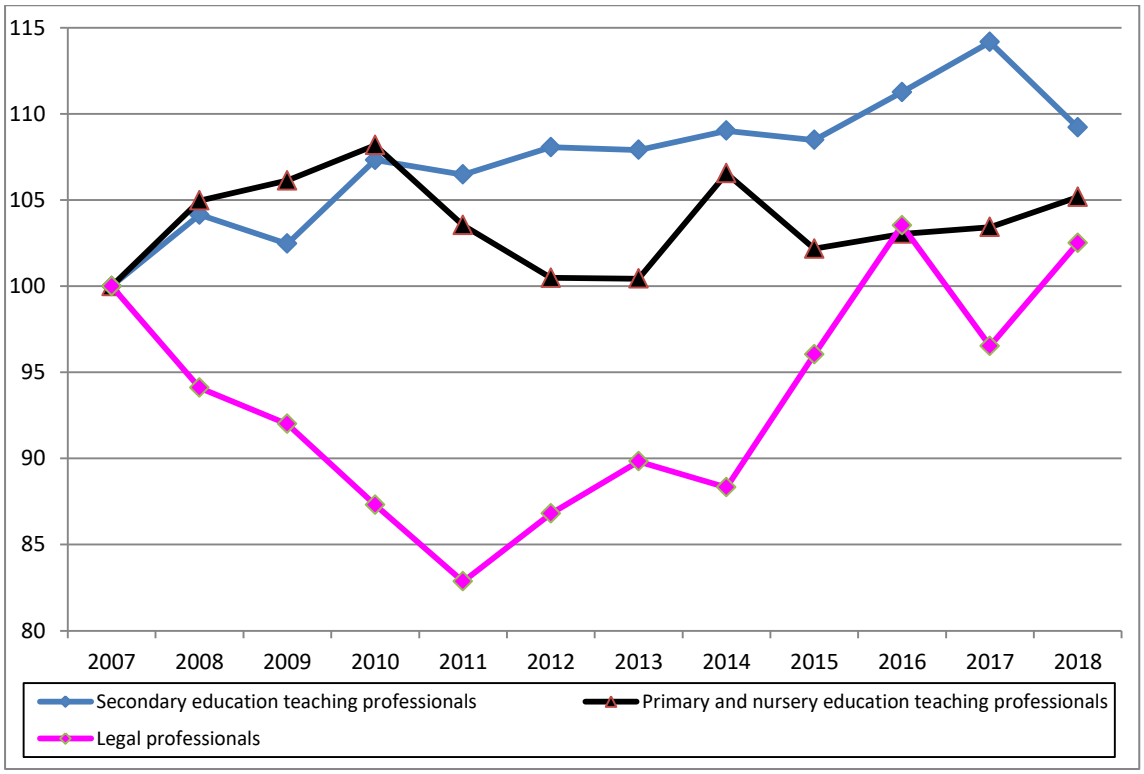
C Health professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Health professionals	Pharmacists
2007 (base year)	100.0	100.0	100.0	100.0
2008	104.1	105.0	101.9	115.4
2009	102.5	106.1	98.0	109.5
2010	107.3	108.2	102.8	96.5
2011	106.5	103.5	92.1	92.0
2012	108.1	100.5	80.4	107.6
2013	107.9	100.4	89.5	116.9
2014	109.0	106.5	82.5	90.8
2015	108.5	102.2	81.0	100.4
2016	111.3	103.0	81.2	86.9
2017	114.2	103.4	88.9	92.3
2018	109.2	105.2	83.1	96.2



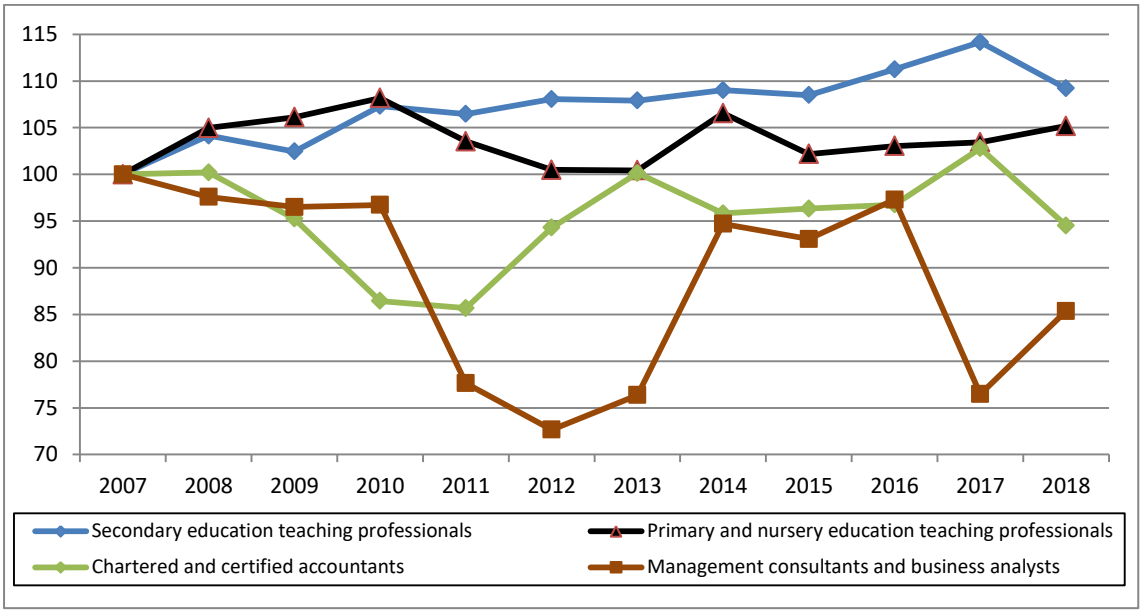
D Legal professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal professionals
2007 (base year)	100.0	100.0	100.0
2008	104.1	105.0	94.1
2009	102.5	106.1	92.0
2010	107.3	108.2	87.3
2011	106.5	103.5	82.9
2012	108.1	100.5	86.8
2013	107.9	100.4	89.8
2014	109.0	106.5	88.3
2015	108.5	102.2	96.0
2016	111.3	103.0	103.5
2017	114.2	103.4	96.5
2018	109.2	105.2	102.5



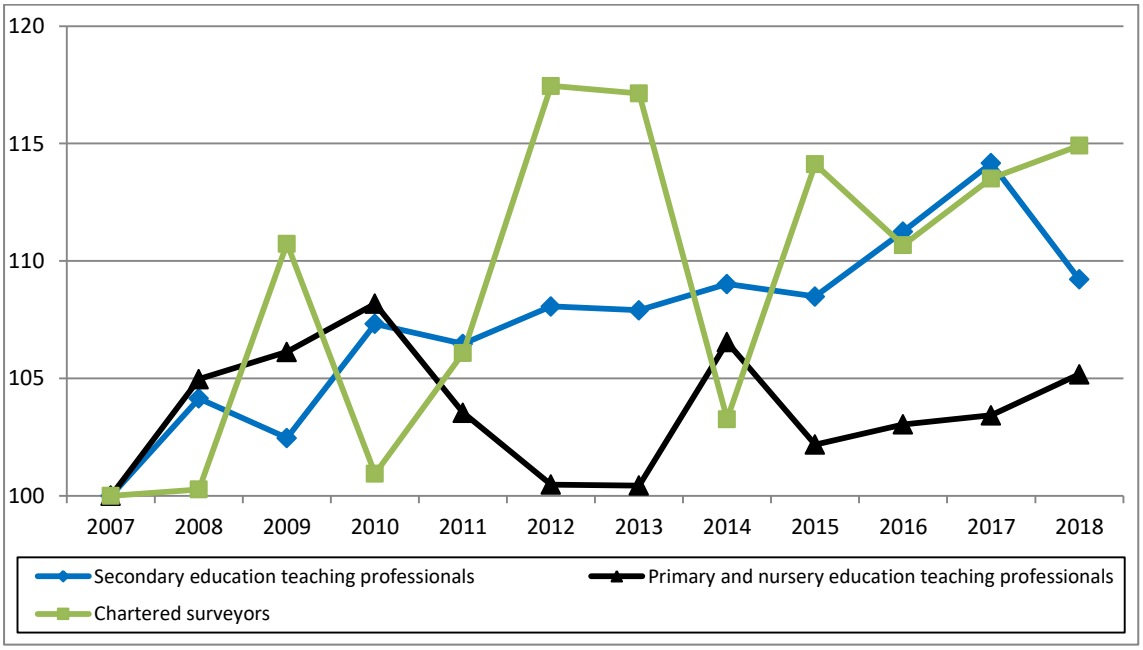
E Business, Research and Administrative professionals

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007 (base year)	100.0	100.0	100.0	100.0
2008	104.1	105.0	100.2	97.6
2009	102.5	106.1	95.3	96.5
2010	107.3	108.2	86.4	96.7
2011	106.5	103.5	85.7	77.6
2012	108.1	100.5	94.3	72.7
2013	107.9	100.4	100.1	76.4
2014	109.0	106.5	95.8	94.7
2015	108.5	102.2	96.3	93.1
2016	111.3	103.0	96.8	97.3
2017	114.2	103.4	102.8	76.5
2018	109.2	105.2	94.5	85.4



F Chartered surveyors

	Secondary education teaching professionals	**Primary and nursery education teaching professionals**	**Chartered surveyors**
2007 (base year)	100.0	100.0	100.0
2008	104.1	105.0	100.3
2009	102.5	106.1	110.7
2010	107.3	108.2	100.9
2011	106.5	103.5	106.1
2012	108.1	100.5	117.5
2013	107.9	100.4	117.1
2014	109.0	106.5	103.3
2015	108.5	102.2	114.1
2016	111.3	103.0	110.7
2017	114.2	103.4	113.5
2018	109.2	105.2	114.9

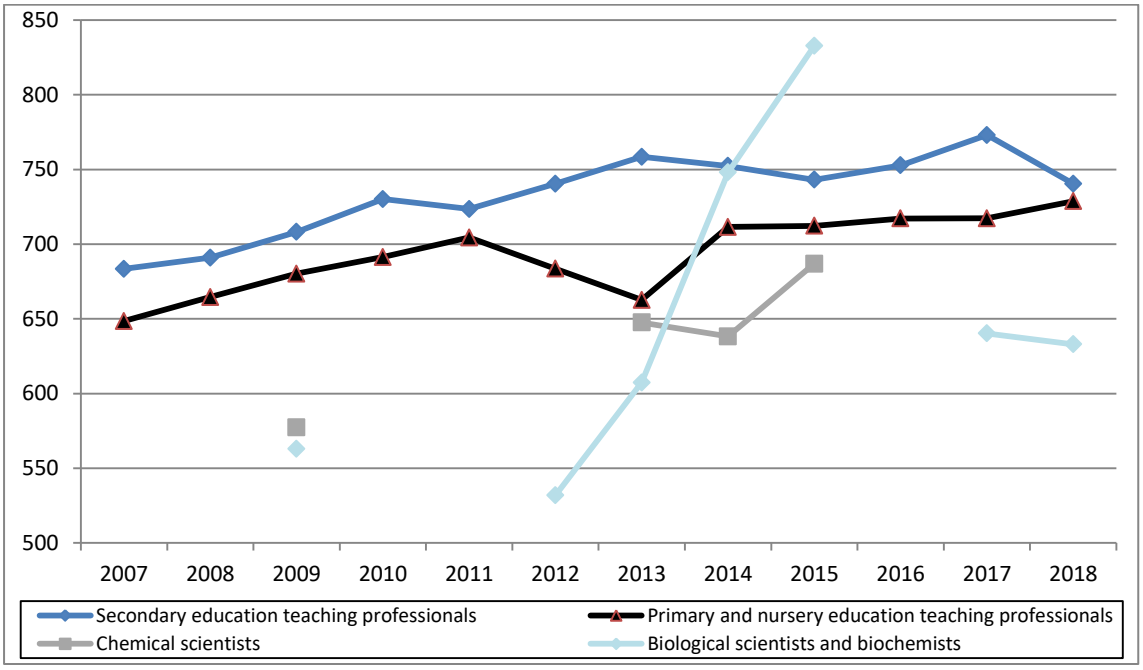


Appendix 7: Median gross weekly earnings 1998 to 2015 (ASHE)

A Science, Research, Engineering and Technology professionals

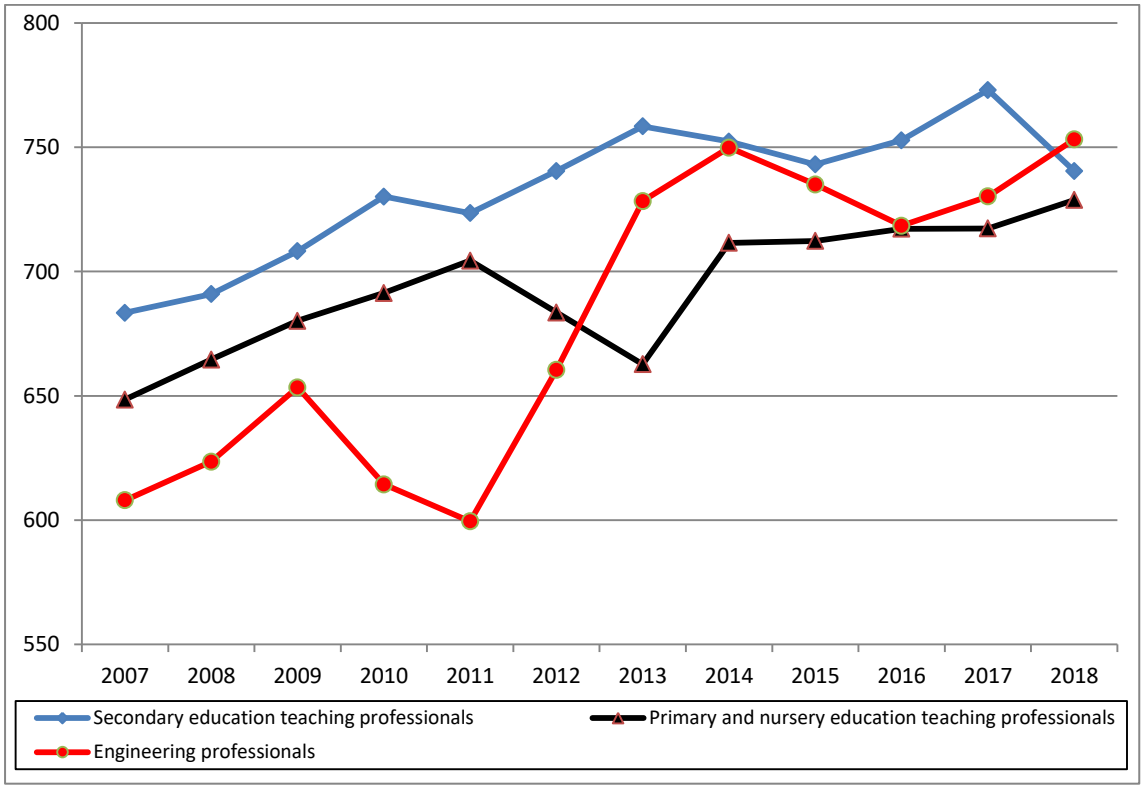
There was no base year data in 2007 for physical scientists.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chemical scientists	Biological scientists and biochemists	Physical scientists
2007	683.4	648.5			
2008	690.9	664.6			
2009	708.2	680.2	577.4	563.0	
2010	730.1	691.4			
2011	723.5	704.4			
2012	740.4	683.5		531.9	
2013	758.4	662.7	647.5	607.4	
2014	752.3	711.5	638.2	748.0	
2015	743.1	712.3	686.9	832.7	
2016	752.8	717.2			
2017	773.0	717.3		640.3	
2018	740.4	728.8		633.0	



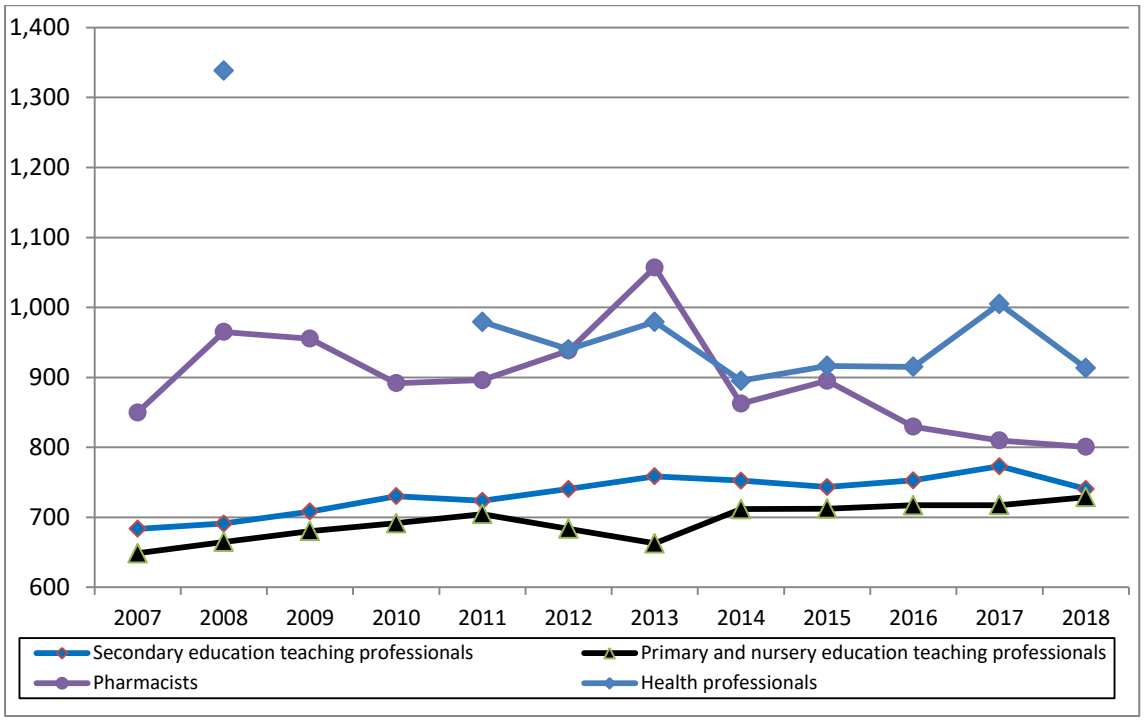
B Engineering professionals (median gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering professionals
2007	683.4	648.5	608.0
2008	690.9	664.6	623.5
2009	708.2	680.2	653.4
2010	730.1	691.4	614.4
2011	723.5	704.4	599.5
2012	740.4	683.5	660.5
2013	758.4	662.7	728.3
2014	752.3	711.5	749.8
2015	743.1	712.3	735.0
2016	752.8	717.2	718.4
2017	773.0	717.3	730.2
2018	740.4	728.8	753.1



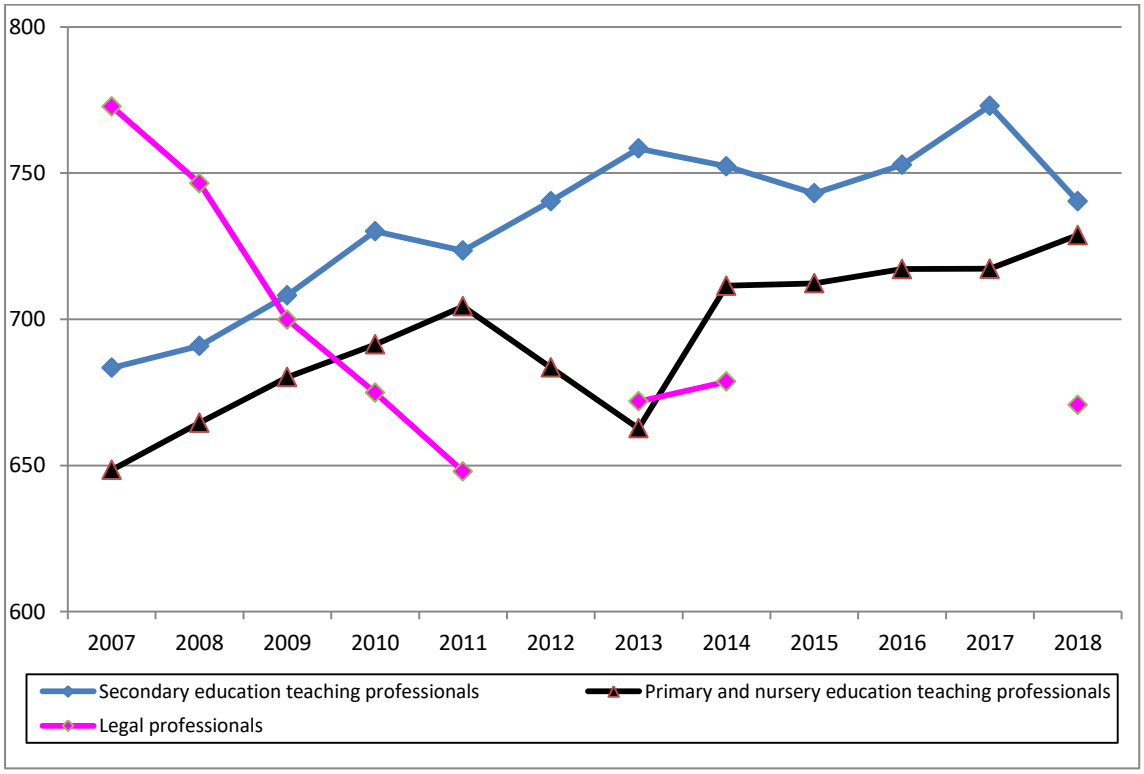
C Health professionals (median gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Health professionals	Pharmacists
2007	683.4	648.5		849.9
2008	690.9	664.6	1,338.3	964.9
2009	708.2	680.2		955.3
2010	730.1	691.4		891.7
2011	723.5	704.4	979.2	896.0
2012	740.4	683.5	939.9	938.4
2013	758.4	662.7	979.2	1,057.0
2014	752.3	711.5	895.0	862.4
2015	743.1	712.3	916.3	895.1
2016	752.8	717.2	915.1	829.4
2017	773.0	717.3	1,005.0	809.7
2018	740.4	728.8	913.4	800.7



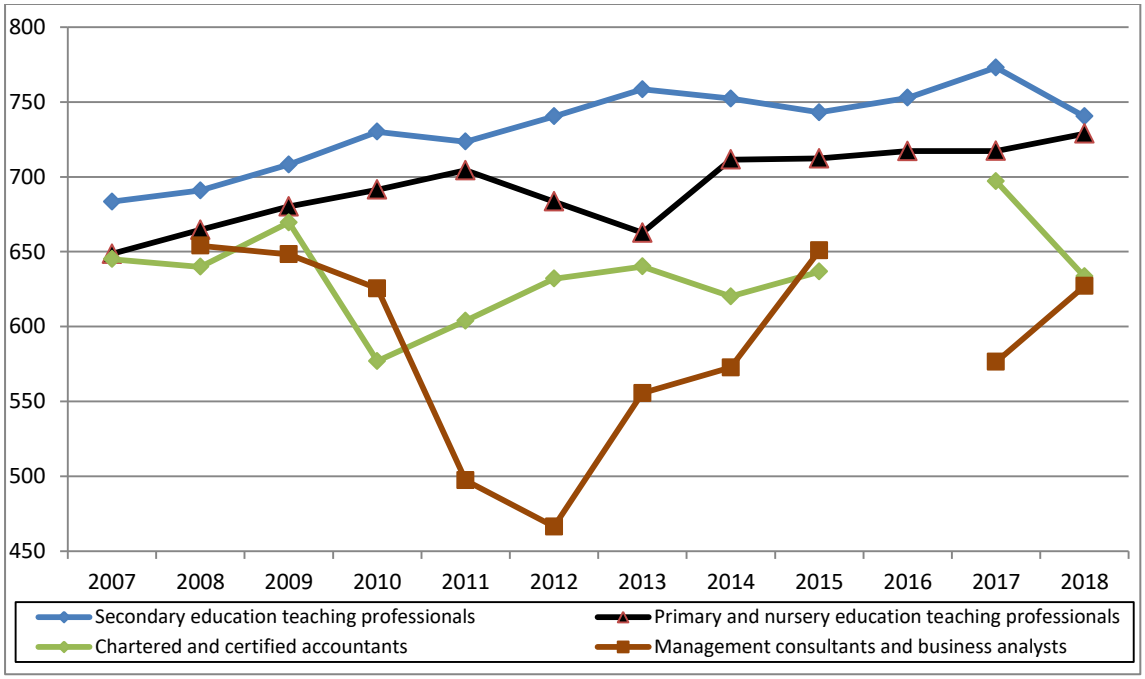
D Legal professionals (median gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal professionals
2007	683.4	648.5	772.8
2008	690.9	664.6	746.5
2009	708.2	680.2	699.9
2010	730.1	691.4	674.9
2011	723.5	704.4	648.0
2012	740.4	683.5	
2013	758.4	662.7	671.9
2014	752.3	711.5	678.7
2015	743.1	712.3	
2016	752.8	717.2	
2017	773.0	717.3	
2018	740.4	728.8	670.7



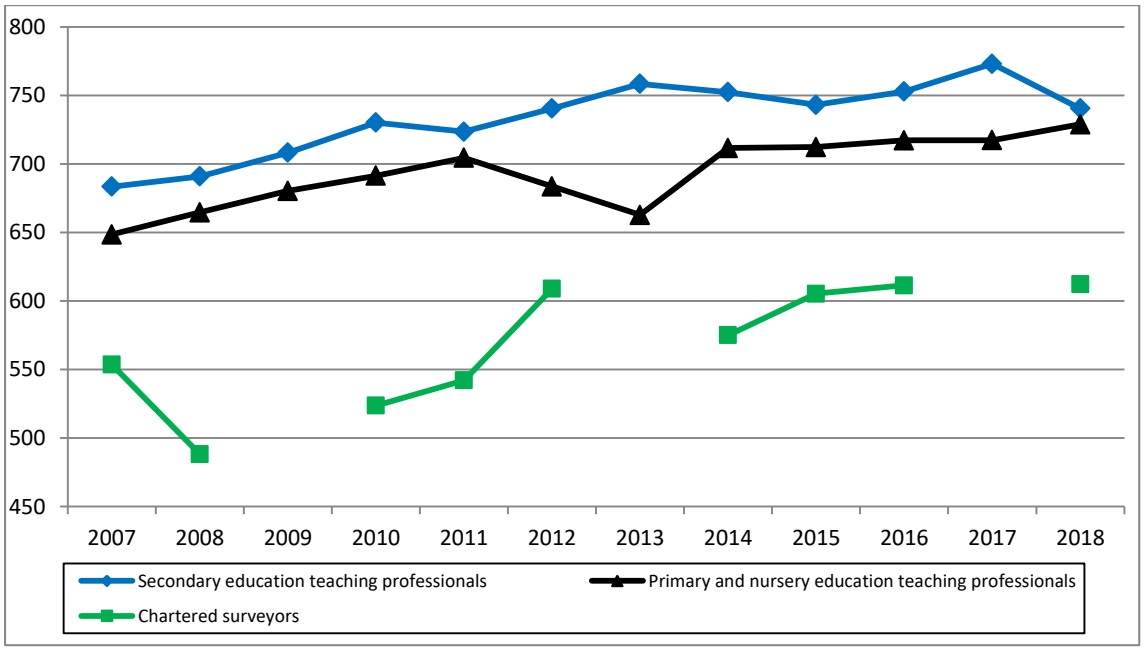
E Business, Research and Administrative professions (median gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007	683.4	648.5	645.0	
2008	690.9	664.6	639.9	654.0
2009	708.2	680.2	669.5	648.2
2010	730.1	691.4	576.9	625.5
2011	723.5	704.4	603.9	497.3
2012	740.4	683.5	632.0	466.4
2013	758.4	662.7	640.1	555.5
2014	752.3	711.5	620.1	572.7
2015	743.1	712.3	636.7	650.8
2016	752.8	717.2		
2017	773.0	717.3	697.1	576.4
2018	740.4	728.8	633.5	627.1



F Chartered Surveyors (median gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered surveyors
2007	683.4	648.5	553.6
2008	690.9	664.6	488.1
2009	708.2	680.2	
2010	730.1	691.4	523.6
2011	723.5	704.4	542.1
2012	740.4	683.5	608.9
2013	758.4	662.7	
2014	752.3	711.5	575.0
2015	743.1	712.3	605.3
2016	752.8	717.2	611.3
2017	773.0	717.3	
2018	740.4	728.8	612.3

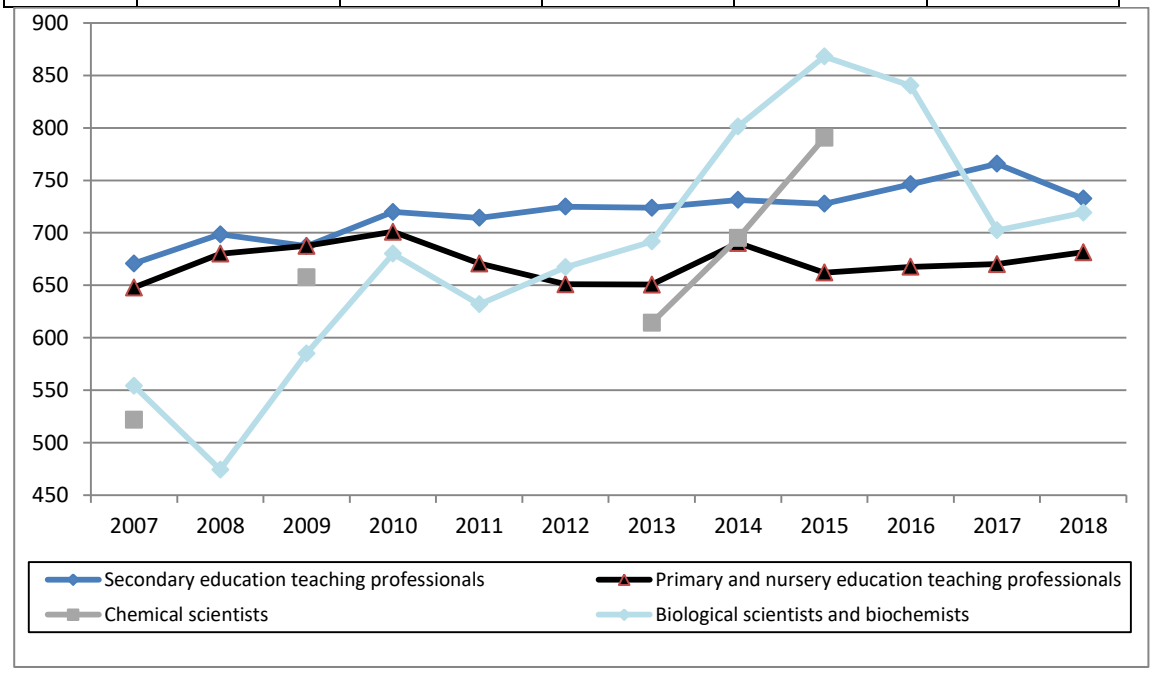


Appendix 8: Average gross weekly earnings 2007 to 2018 (ASHE)

A Science, Research, Engineering and Technology professionals

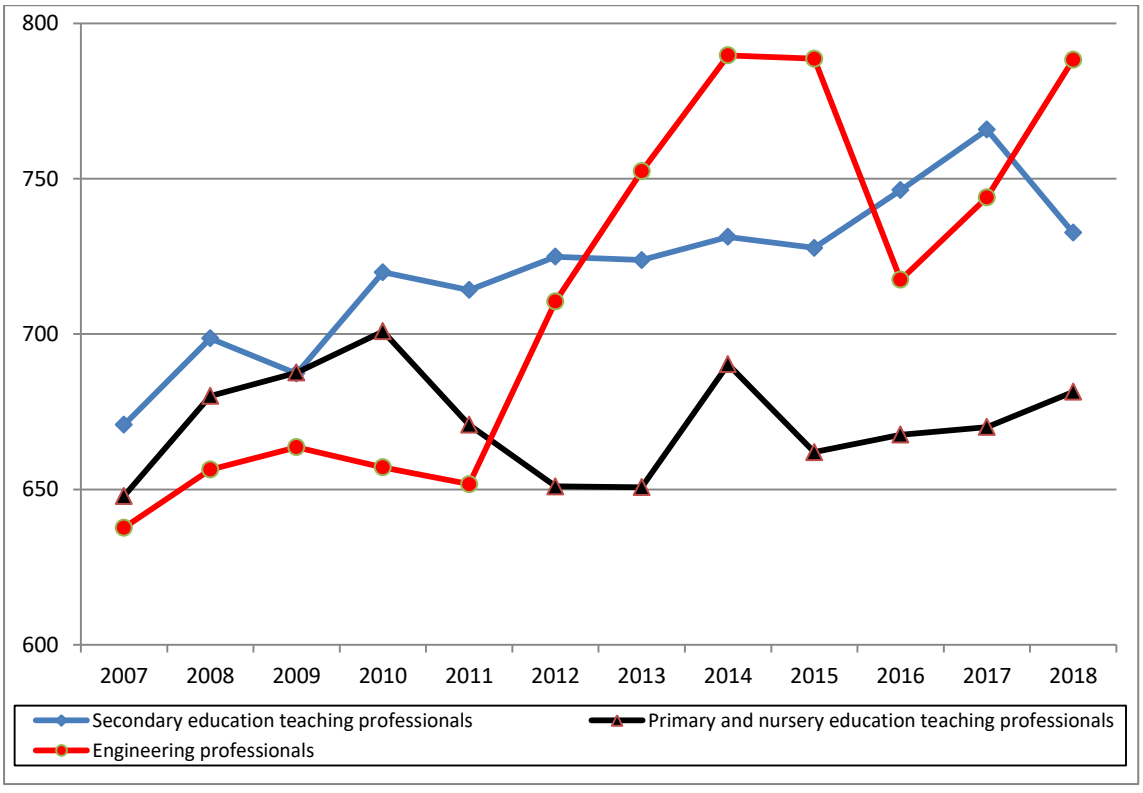
There was no base year data in 2007 for physical scientists.

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chemical scientists	Biological scientists and biochemists	Physical scientists
2007	670.8	647.9	521.7	554.1	
2008	698.6	680.1		474.3	
2009	687.3	687.6	657.7	585.0	
2010	719.9	700.9		680.0	
2011	714.2	670.8		631.9	
2012	724.9	651.0		667.3	
2013	723.8	650.7	614.1	691.7	
2014	731.3	690.3	695.1	801.3	
2015	727.7	662.0	790.5	868.0	
2016	746.3	667.6		840.3	
2017	765.8	670.1		702.3	
2018	732.6	681.4		719.1	



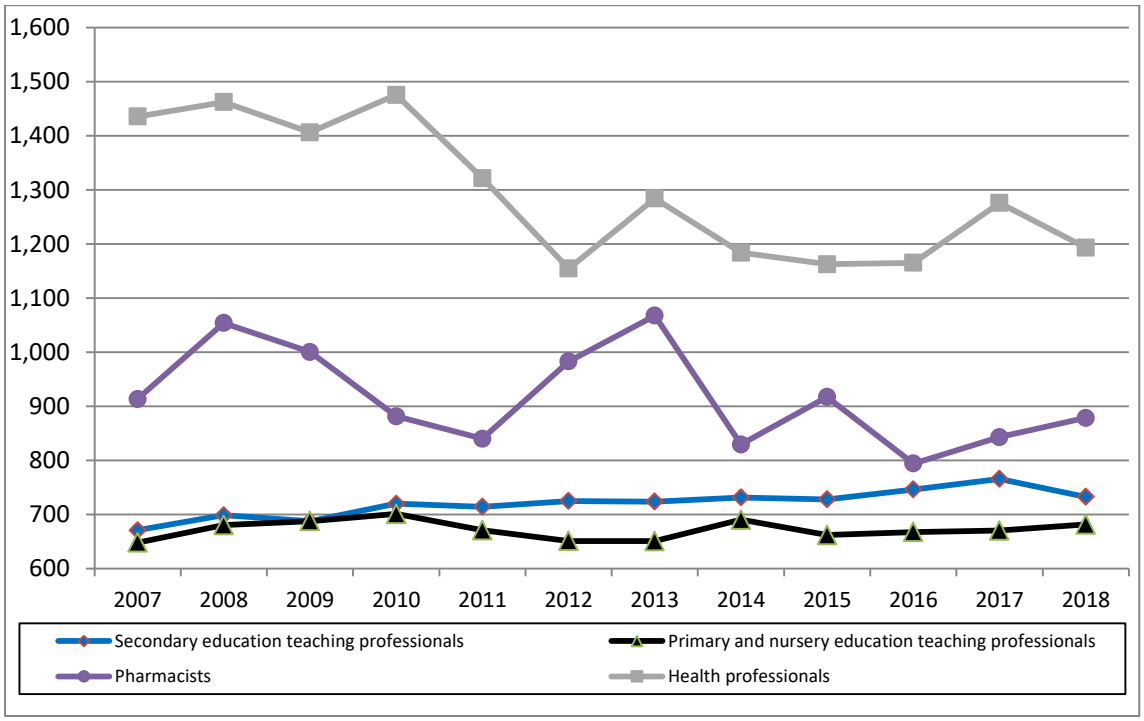
B Engineering professionals (average gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Engineering professionals
2007	670.8	647.9	637.7
2008	698.6	680.1	656.4
2009	687.3	687.6	663.6
2010	719.9	700.9	657.1
2011	714.2	670.8	651.7
2012	724.9	651.0	710.5
2013	723.8	650.7	752.4
2014	731.3	690.3	789.7
2015	727.7	662.0	788.6
2016	746.3	667.6	717.5
2017	765.8	670.1	744.0
2018	732.6	681.4	788.3



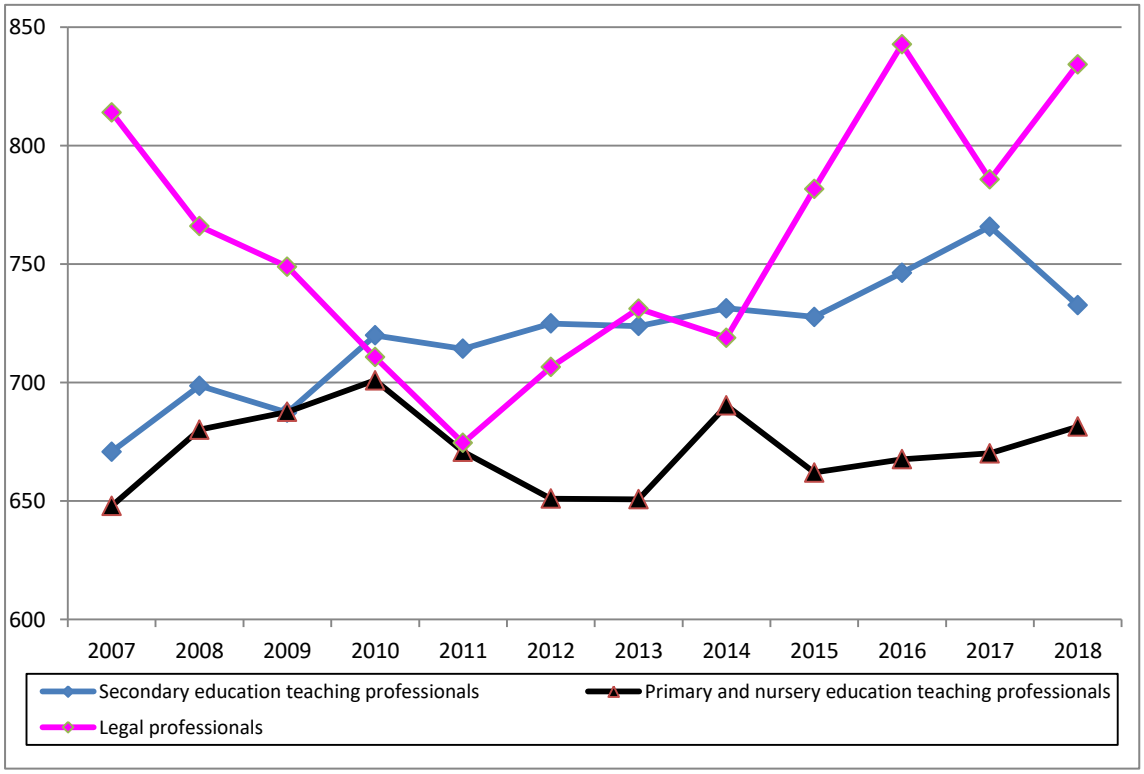
C Health professionals (average gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Health professionals	Pharmacists
2007	670.8	647.9	1,435.6	913.4
2008	698.6	680.1	1,462.2	1,054.0
2009	687.3	687.6	1,406.2	1,000.3
2010	719.9	700.9	1,475.5	881.5
2011	714.2	670.8	1,321.7	839.9
2012	724.9	651.0	1,154.5	982.9
2013	723.8	650.7	1,284.2	1,067.6
2014	731.3	690.3	1,183.7	829.4
2015	727.7	662.0	1,162.5	917.2
2016	746.3	667.6	1,165.2	794.0
2017	765.8	670.1	1,275.9	842.8
2018	732.6	681.4	1,193.3	878.4



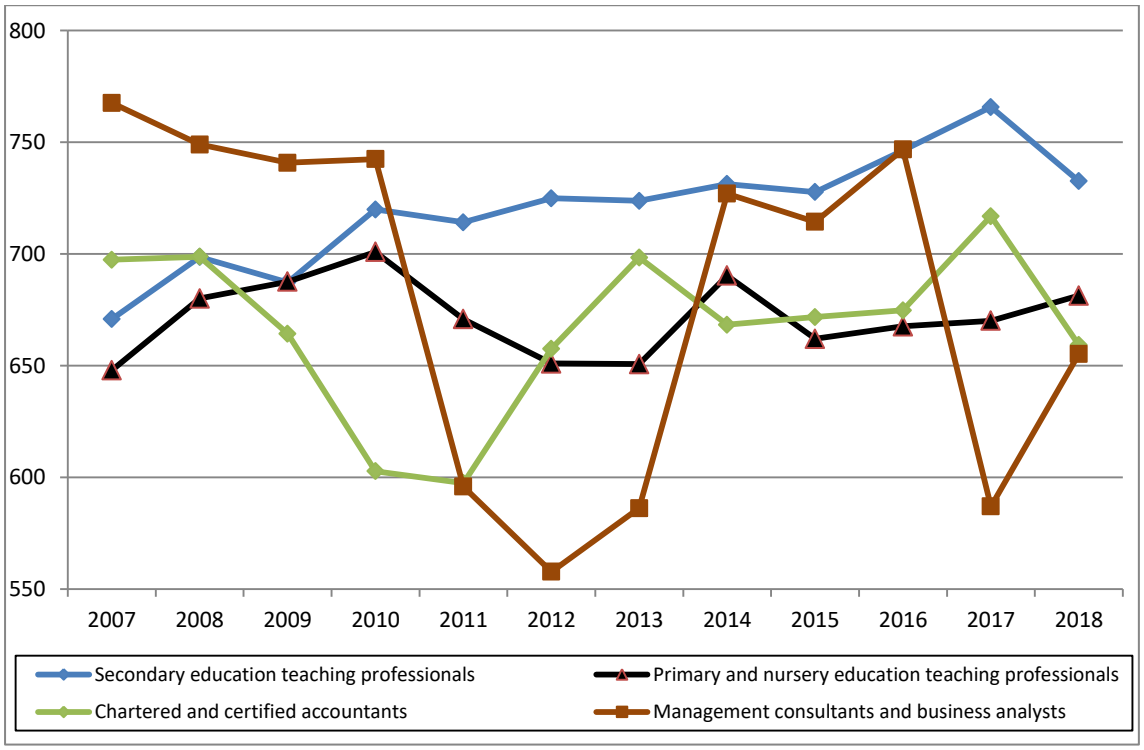
D Legal professionals (average gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Legal Professionals
2007	670.8	647.9	814.0
2008	698.6	680.1	766.0
2009	687.3	687.6	748.9
2010	719.9	700.9	710.7
2011	714.2	670.8	674.5
2012	724.9	651.0	706.5
2013	723.8	650.7	731.2
2014	731.3	690.3	718.9
2015	727.7	662.0	781.7
2016	746.3	667.6	842.7
2017	765.8	670.1	785.7
2018	732.6	681.4	834.3



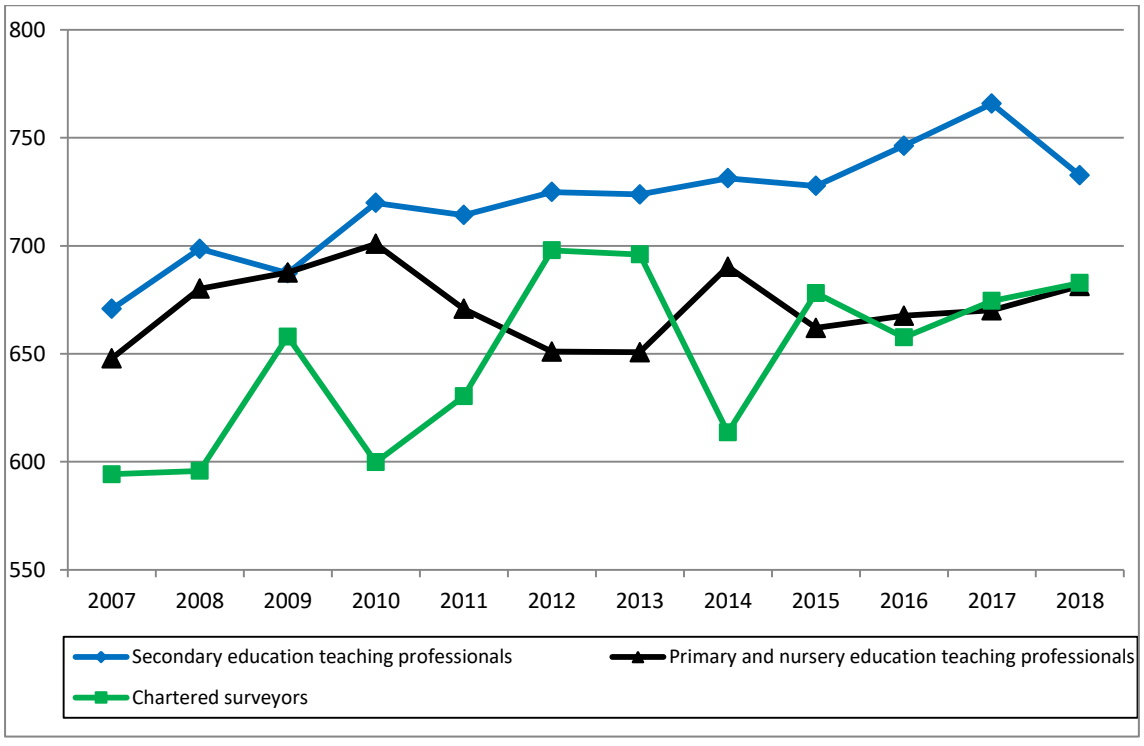
E Business, Research and Administrative professionals (average gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered and certified accountants	Management consultants and business analysts
2007	670.8	647.9	697.4	767.6
2008	698.6	680.1	698.8	749.0
2009	687.3	687.6	664.3	740.8
2010	719.9	700.9	602.8	742.5
2011	714.2	670.8	597.5	595.9
2012	724.9	651.0	657.6	557.8
2013	723.8	650.7	698.4	586.2
2014	731.3	690.3	668.3	727.0
2015	727.7	662.0	671.8	714.4
2016	746.3	667.6	674.8	746.8
2017	765.8	670.1	716.9	587.0
2018	732.6	681.4	659.2	655.3



F Chartered Surveyors (average gross earnings £pw)

	Secondary education teaching professionals	Primary and nursery education teaching professionals	Chartered surveyors
2007	670.8	647.9	594.2
2008	698.6	680.1	595.8
2009	687.3	687.6	658.0
2010	719.9	700.9	599.8
2011	714.2	670.8	630.3
2012	724.9	651.0	697.9
2013	723.8	650.7	696.0
2014	731.3	690.3	613.6
2015	727.7	662.0	678.1
2016	746.3	667.6	657.6
2017	765.8	670.1	674.5
2018	732.6	681.4	682.8



Appendix 9: Use of ASHE data

For the purposes of our analysis we have used full-time basic weekly and gross weekly earnings data from the Annual Survey of Hours and Earnings (ASHE), produced by the Office for National Statistics (ONS). As far as possible, we have tried to be consistent in collating occupational data for the period 2007 to 2018.

The Standard Occupational Classification (SOC) codes have also changed once since 2007. As a result, our analysis incorporates codes from SOC 2000 and 2010. This means that some of the occupational definitions featured in this report have changed in the last 8 years, although we do not think this detracts from the overall robustness of the datasets. Details of changes to some of the occupational definitions over time are shown below.

SOC	Applies to the years	Occupational definition variations	Definitions used in current report
2000	2002-2010	Physicists, geologists and meteorologists	Physical scientists
		Pharmacists/pharmacologists	Pharmacists
		Management consultants, actuaries, economists and statisticians	Management consultants and business analysts

Factors to bear in mind when interpreting results

The ONS provides guidance on data validation and quality assurance including sections on accuracy, sampling and non-sampling errors as well as the likely effect of data revisions. It points out that in terms of accuracy – The degree of closeness between an estimate and the true value – its estimates are subject to various sources of error. Total error consists of two elements, the sampling error and the non-sampling error.

Sampling error

Sampling error occurs because estimates are based on a sample rather than a census. ASHE estimates this error through coefficients of variation (CV) which are published alongside all ASHE outputs. The CV is the ratio of the standard error (SE) of an estimate to the estimate itself, expressed as a percentage. Generally speaking, when all other factors are constant, the smaller the CV value, the higher the quality of the estimate.

In published tables, ASHE uses colour coding as a quick reference guide to the CV of the estimates; estimates with CVs less than or equal to 5% are published with no colour fill;

estimates with CVs between 5% and 10% are published with a light green background; estimates with CVs between 10% and 20% are published with a dark green background; cells for which estimates have been suppressed on quality or disclosure grounds are also filled in dark green as shown here.

Key	Statistical robustness
CV <= 5%	Estimates are considered precise
CV > 5% and <= 10%	Estimates are considered reasonably precise
CV > 10% and <= 20%	Estimates are considered acceptable
x = CV > 20%	Estimates are considered unreliable for practical purposes

It should be noted that at low levels of disaggregation, high coefficients of variation imply estimates of low quality. For example, for an estimate of £400 with a CV of 10%, the true value is likely to lie between £321.60 and £478.40. This range is given by the estimate +/- 1.96 x the standard error. Where these ranges for different estimates overlap, interpretation of differences between the relevant domains becomes more difficult.

Non-sampling error

ASHE statistics are also subject to non-sampling errors. For example, there are known differences between the coverage of the ASHE sample and the target population (that is, all employee jobs). For example, jobs that are not registered on PAYE schemes are not surveyed. These jobs are known to be different from the PAYE population in the sense that they typically have low levels of pay. Consequently, ASHE estimates of average pay are likely to be biased upwards with respect to the actual average pay of the employee population.

Non-response bias may also affect ASHE estimates. This may happen if the jobs for which respondents do not provide information are different from the jobs for which respondents do provide information. For ASHE, this is likely to be a downward bias on earnings estimates since non-response is known to affect high-paying occupations more than low-paying occupations.

Finally, ASHE results tables do not account for differences in the composition of different 'slices' of the employee workforce. For example, figures for the public and private sectors include all jobs in those sectors and are not adjusted to account for differences in the age, qualifications or seniority of the employees or the nature of their jobs, all factors which may affect how much employees earn.

Various procedures are in place to minimise errors in returned data. Returns undergo a range of checks which include validation against previous returns and expected values, selective editing (a technique for prioritising suspicious values for follow-up based on their impact on published results) and re-contacting businesses for verification. Similar checks are also made at the aggregate level for key results.

Revisions

Provisional results are published in the November following the survey reference date. Revised results are then published one year later alongside the following year's provisional results. The revised results take account of late returns to the survey and amendments to data resulting from validating returns to the current year's survey. Revisions are usually quite small, with those at the UK level typically around 0.1%. However, estimates for domains with smaller sample sizes are susceptible to larger revisions.