School leadership in England 2010 to 2016: characteristics and trends

April 2018

Revised July 2018

Contents

Executive Summary

This report builds on the statistics presented in the annual School Workforce Census Statistical First Release (hereafter the SFR)[1] by providing further analysis looking at the characteristics and trends of teachers in leadership roles.

Given detailed underlying data have already been published alongside each SFR; this report does not seek to provide an exhaustive or comprehensive set of fine-grained data. Instead, it aims to generate new insights and is intended to be an accessible resource to stimulate debate, improve the public understanding of our data, and generate ideas for further research, rather than to provide authoritative answers to research questions.

The report is structured in three distinct sections:

Section 1 examines the number of teachers in each leadership role and how this has changed over time.
Teachers with a senior leadership role (headteacher, deputy or assistant headteacher) form a small proportion of the overall teaching population, smaller in secondary (10.8%) than primary (18.5%) schools, which has grown since 2010 (up from 9.7% and 18.1% respectively). This growth was mainly in assistant heads, which have increased from 3.5% to 5.2% of teachers in primary schools and 5.6% to 6.5% in secondary schools between 2010 and 2016.

There has also been an increase in both the number and proportion of middle leaders, so that these now form 39.3% of teachers in secondary schools and 17.3% in primary schools (up from 36.8% and 15.2% respectively in 2010). The greater presence of middle leadership (and smaller presence of senior leadership) roles in secondary schools is probably related to their larger size, on average.

Section 2 compares the characteristics of teachers in leadership roles with those of classroom teachers and considers how these have changed over time.
The number of teachers retiring peaked between 2010 and 2011. This has provided an opportunity for some teachers to advance to leadership positions sooner in their careers than their older peers, and has consequently resulted in an overall younger population of teachers in leadership roles. The median age for headteachers has reduced from 51 in 2010 to 48 in 2016.

Women and ethnic minority teachers are under-represented in leadership roles compared to the wider teaching population, but this is improving – those new to post for all grades were more representative of the grade below and so over time, this will

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[1] Department for Education (2017) 'School workforce in England: November 2016'. Available at: https://www.gov.uk/government/collections/statistics-school-workforce.

improve on the current position for all roles. The population of the country as a whole is growing more ethnically diverse (ethnic minorities comprised 19.5% of the population of England and Wales in 2011, compared to 12.5% in 2001) and there is a time lag as this feeds through to leadership positions.

Teachers spend less time in the classroom as seniority increases, with 50% of assistant headteachers teaching less than ten hours per week compared to 10% of classroom teachers. The distribution of degree subjects studied by teachers in leadership roles mirrors that of classroom teachers.

Section 3 explores progression to leadership and how this is affected by the characteristics of gender, ethnicity and region, and then once there how well these leaders are retained.
Teachers took less time, on average, to reach a leadership role in secondary schools (50% achieved this by seven years) than in primary schools (50% achieved this by nine years). However, progression to a headteacher role was faster in primary schools where 50% of new headteachers had been qualified for 17 years or less, compared to 20 years or less in secondary schools. The evidence on progression by different characteristics suggests:

- Men were more likely to progress to a first leadership and headship role in five years compared to women;
- No significant evidence of disparity by ethnicity in progression to leadership roles at any level; and
- Teachers in London were more likely to progress to a first leadership role in five years, but there was no disparity by region in progression beyond this.

Leaders in primary schools showed slightly higher rates of retention in their leadership role, or higher, than those in secondary schools. Comparing those aged under 50 who were newly promoted in 2013, after three years in post in primary schools, 81% of headteachers in post were retained, compared to 80% of deputy headteachers and 79% of assistant headteachers. This was higher than in secondary schools (69%, 76%, and 71% respectively).

Introduction

This report provides a more detailed analysis of data available in the School Workforce Census (SWC)[2] to build our understanding of school leaders. This evidence is being published at a time of growing interest in developing the quality and diversity of teachers and leaders. It is intended to inform efforts to support their progression and retention.

Good leadership of any organisation, including schools, is important. The greatest school-based influences on pupil outcomes are teaching, and leadership[3] – school leaders improve teaching and learning indirectly through their influence on staff motivation, commitment and working conditions[4].

The importance of excellent leadership is reflected in Ofsted's inspections of schools. The judgement in leadership and management is nearly always as good or higher than the overall rating[5,6].

The scope of this report is limited to teachers in the state-funded school sector in England, as recorded in the School Workforce Census. Whilst this reflects the availability of comparable data, in practice there are other parts of the teaching labour market that are intrinsically interlinked. Teachers and leaders in the privately-funded school, further and higher education sectors are not included here. In addition, the limitations of the data source mean that it was not possible to include either those in governance roles and non-teaching staff (such as school business managers) despite these providing being important functions of school leadership.

We would welcome feedback on the methods used and insights generated in this report, to inform future research.

Please send your views to: TeachersAnalysisUnit.MAILBOX@education.gov.uk.

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[2] Department for Education 'School workforce censuses: Guide to submitting data, business and technical specification, COLLECT guides, information for local authorities' Available at: https://www.gov.uk/education/school-workforce-censuses

[3] Leithwood, K., Day, C., Sammons, P., Harris, A. and Hopkins, D. (2006). Seven Strong Claims about Successful School Leadership. Nottingham, National College for School Leadership https://www.gov.uk/government/publications/seven-strong-claims-about-successful-school-leadership

[4] Day, C., Sammons, P., Hopkins, D., Harris, A., Leithwood, K., Gu, Q., Brown, E. (2010) Ten strong claims about successful school leadership. Nottingham: NCSL. https://www.gov.uk/government/publications/10-strong-claims-about-successful-school-leadership

[5] Maintained schools and academies inspections and outcomes as at 31 March 2017, page 6. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/622914/Maintained_schools_and_academies_inspections_and_outcomes_as_at_31_March_2017.pdf

[6] The Annual Report of Her Majesty's Chief Inspector of Education, Children's Services and Skills 2016/17, Page 10. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/666871/Ofsted_Annual_Report_2016-17_Accessible.pdf

Background and the School Workforce Census

The annual School Workforce Census was introduced in November 2010, replacing a number of different workforce data collections. It collects information on school staff from all state-funded schools in England, including local-authority-maintained (LA-maintained) schools, academy schools (including free schools, studio schools and university technology colleges) and city technology colleges, special schools and pupil referral units (PRU)[7].

The statistical first release (SFR) "School Workforce in England" provides the main annual dissemination of statistics based on the data collected, as well as details of the underlying methodology for those and the collection itself. The latest publication was released in June 2017, with results from the November 2016 census[8]. Alongside each SFR, an underlying dataset is released, giving some of the workforce statistics at school, local authority and regional level. The information is used by the Department for Education for analysis and modelling, including the Teacher Supply Model[9], as well as for research purposes.

Aims of the report

Whilst underlying data are published separately each year, the School Workforce Census data are designed in the main to provide aggregate national statistics about teachers, including time series in a subset of variables at this level. The latest SFR includes results generated using the Department's teacher dataset, which matches individual teacher records across years - enabling the Department to improve data quality and better ensure consistency over time. With these improvements in place and with seven census collections completed, this report takes an opportunity to re-examine the data, providing new insights on trends in teachers in leadership roles over time and patterns in progression and retention, including across different parts of the country.

Some of the comparisons made have not been published before. The most recent data are from the latest School Workforce Census covering November 2016, **so this report does not replace the SFR as the authoritative source of the latest school workforce statistics.**
This publication is designed to look at some of the key questions around the school leadership workforce in order to improve our understanding of these areas.

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[7] It collects information from LAs on their centrally employed teachers but does not cover early years settings, non-maintained special schools, independent schools, sixth form colleges and other further education colleges

[8] Department for Education (2017) 'School workforce in England: November 2016'. Available at: https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016

[9] Department for Education (2017) Teacher supply model 2018 to 2019: SFR88/2017'. Available at: https://www.gov.uk/government/statistics/tsm-and-initial-teacher-training-allocations-2018-to-2019.

Organisation of the report

The following section outlines the methodology used in the study along with key caveats to consider alongside the findings. Findings are then presented in three sections covering:

1. The size and structure of the teaching and leadership population – including the proportion of the teaching population in leadership positions and changes over time;

2. Characteristics of teachers in leadership roles – including age, years since qualification, gender, ethnicity, classroom teaching time and degree subject; and

3. Progression to and retention in leadership roles – including differences in progression by gender, ethnicity and region, retention of those new to leadership roles, and flows between roles.

Accompanying this report, the figures used here are published alongside their underlying data in spreadsheet format and data tables covering other findings quoted in the text. Annex 1 lists these and the spreadsheet file can be found at: www.gov.uk/government/publications/school-leadership-2010-to-2016-characteristics-and-trends

Methodology

This study uses data from the School Workforce Census to analyse the characteristics of the school leadership workforce. The School Workforce Census is an annual collection of the composition of the school workforce in England employed in: local-authority-maintained nursery, primary, secondary and special schools; all primary, secondary, and special academy schools; and free schools. Data have been included from each of the censuses from 2010 to 2016. Where a teacher is indicated as in service in a particular year, this refers to the census day in November of that year which is used as a proxy for the rest of that academic year. So for example, staff recorded as in service for November 2016 are used as an approximation of the workforce for the whole of the 2016/17 academic year.

For more information on how the School Workforce Census (SWC) data is collected and how the statistics are produced see the School Workforce in England statistical first release (SFR).

These data have been supplemented with information from the database of qualified teachers, a register of all qualified teachers in England and Wales, maintained by the Department for Education. This contains the date on which each teacher was awarded Qualified Teacher Status (QTS) and details of degree subjects. More information about the database of qualified teachers is available in the Guidance about Individual teacher records: information for teachers.

This paper looks at local-authority-maintained nursery, primary and secondary schools and all primary and secondary academy schools and free schools in England. Special schools have been included in the analysis where possible; the numbers of teachers in these schools are much smaller so comparisons are not included where the small sizes make this more unreliable.

This study includes some comparisons on a regional basis using the nine government office regions: North East, North West, Yorkshire & Humber, East Midlands, West Midlands, East of England, South East, South West, and London. In some other analysis, London is divided into Inner and Outer London. Here, the combined London category has almost exclusively been used because previous analysis[10] has shown that there is substantial staff movement between Inner and Outer London. Note that the region of London is similar to, but not fully coterminous with the definition of London used for

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[10] Department for Education (2017) 'Analysis of teacher supply, retention and mobility'. May 2017. https://www.gov.uk/government/statistics/teachers-analysis-compendium-2017 Pages 45-46.

determining those teachers' who receive a London pay weighting as defined in the School teachers' pay and conditions document[11].

Unless otherwise stated, numbers of teachers are reported using the number of full time equivalent (FTE) teachers (where the number of teachers was weighted according to the number of hours worked); in other cases a total headcount of teachers (where all teachers were counted equally) has been used instead. The measure selected is the one most appropriate to the particular variables being explored. For instance, for total numbers of teachers in each role FTE figures are used; however, for workforce flow measures, headcount figures make more sense.

This study uses summary categories of teachers in leadership roles that are set out in the table below, along with the corresponding posts, as defined in the School Workforce Census collection. Each category in the post column is as defined in the School Workforce Census data collection.

Table a Definition of leadership positions

Leadership	Post
Middle Leader	Classroom Teacher (subject to conditions – see below)
	Advisory Teacher
	Leading Practitioner[12]
Senior Leader	Assistant Headteacher
	Deputy Headteacher
Headteacher	Headteacher
	Executive Headteacher

The category of middle leader has been derived from various fields collected in the School Workforce Census and is defined as a teacher who falls into one or more of the following categories:
- Leading Practitioner;
- Advisory Teacher
- In receipt of a Teaching and Learning Responsibility additional payment of £100 or more;
- Classroom teacher who has one of the following roles:
  - Head of Department
  - Head of House
  - Head of Year
  - Behaviour Manager/Specialist

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[11] Department for Education (2017) 'School teachers' pay and conditions'. Available at: https://www.gov.uk/government/publications/school-teachers-pay-and-conditions

[12] Leading Practitioner from 2013 onwards. Prior to this, the roles of Advanced Skills Teacher and Excellent Teacher (which ceased to exist when the role of Leading Practitioner was introduced) are considered to be a Middle Leader.

- Data Manager/Analyst
- Extended Schools Manager/Support
- Learning Manager
- SEN Co-ordinator

Note that the classification of about 1,500 advisory teachers differs here and in the school workforce SFR. Here, they are classified as a middle leader whereas in the SFR they are classified as an assistant head.

Using data regarding the degree subject of teachers, this study investigates whether certain degree subjects were associated with specific leadership roles. There is an issue around choosing which degree subject to assign to a teacher, e.g. a teacher may hold a postgraduate degree in Mathematics and Physics and an undergraduate degree in English. The information provided, through the SWC, reflects all the qualifications they hold at any level. In the previous example, they would be assigned as having a degree in Mathematics, Physics and English. For this analysis, the subject of the highest qualification level was selected and if a teacher held more than one degree at that level, the teacher would be allocated to the number of degrees they hold equally. In the above example, the teacher would be considered to hold 50% a Mathematics degree and 50% a Physics degree. The undergraduate degree in English would not be taken into account, as it was at a lower level.

This paper uses ethnic group categories which are composed of one or more ethnicities as set out in the table below.

Table b: Ethnicities and ethnic groups

Ethnic group	Ethnicity
White British	White British
White other	White Irish
	Any other white background
Black	Black Caribbean
	Black African
	Any other black background
Asian	Bangladeshi
	Chinese
	Indian
	Pakistani
	Any other Asian background
Mixed	White and Asian
	White and Black Caribbean
	White and Black African
	Any other mixed background
Other	Any other ethnic group

In this report, changes over time and differences between areas are described in either terms of percentage point changes or a percentage change. Percentage point changes are the unit difference between two percentages as opposed to the ratio in which something has changed. For example if a percentage has risen from 10% to 15% in one year, this is an increase of 50% over a year but is a change of 5 percentage points.

Caveats

Wherever possible, the methodology used in this report mirrors the methodology used in the School Workforce Census SFR.

The School Workforce Census collects data on teachers who are allocated to a school. In some multi-academy trusts, there may be leadership roles and teachers who are not collected in the SWC because they are centrally employed – such teachers in local authorities are collected through the local authority part of the census, but there is currently no equivalent for multi-academy trusts. Therefore, no analysis depicting such "centrally employed" teachers has been shown because of the gaps in the data.

Similarly, the effects of centrally employed teachers[13] have not been taken into account in this analysis: it is possible that some areas may have higher numbers of centrally employed staff than other areas, which could affect the results of this study.

Comparisons between academies and maintained schools over time have not been included because of the changing numbers, which means that any differences may be due to the increasing number of academies rather than anything else.

Analysis looking at teachers newly promoted includes those who were recorded in a lower role in the previous year and those who were not found in the state school sector in the previous year. Roles in earlier years than this were not taken into account, however a small number of teachers would have held a higher post in earlier years. Limitations in the data available mean that comparisons across years were not available when taking into account roles in earlier years.

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[13] Centrally employed teachers include: peripatetic teachers - teachers who normally cover a number of schools each week on a regular timetable, usually because they possess some specialist knowledge e.g. music teachers; and teachers working in other non-school education - staff employed as teachers in institutions other than schools and PRUs, e.g. teachers in hospitals or centres run by social services, or those providing home tuition. This can also include advisory teachers - these are often qualified teachers that carry out a range of duties including training staff, helping develop and implement school policy and classroom support.

1. The size and structure of the teaching and leadership population

This section provides trends in the number of teachers in English state-funded schools between 2010 and 2016. The analysis focuses on teachers in leadership roles and changes in patterns between primary, secondary and special schools.

The number of schools affects the size and structure of the overall teaching population. Maintained schools are legally required to have a headteacher, while academies have greater autonomy in determining their leadership structure[14]. The number of headteachers is roughly equal to the number of schools; and more deputy/assistant headteachers and middle leaders tend to be found in larger schools. On average, secondary schools tend to be larger than primary and special schools, and subsequently have a larger number of deputy/assistant headteachers and in particular, middle leaders.

The different categories of teacher used in the school workforce SFR[15] are headteacher, deputy headteacher, assistant headteacher, and classroom teacher. This study uses the additional categories of middle leader and senior leader. The definitions are detailed in the Methodology section, but repeated here in Table 1.1 for ease. The order shows the ranking for a change in role to be considered as a promotion. The term "middle leader" is used for teachers who have additional responsibilities which often come with additional pay (such as head of year or head of subject) but were still mostly teaching in the classroom and not in a more formal leadership position such as assistant or deputy headteacher.

Table 1.1. Leadership roles

Leadership	Post
Classroom Teacher	Classroom Teacher
Middle Leader	Classroom Teacher
	Advisory Teacher
	Leading Practitioner
Senior Leader	Assistant Headteacher
	Deputy Headteacher
Headteacher	Headteacher Executive Headteacher

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[14] The Education Act 2002 requires all maintained schools to have a headteacher, or a person appointed to carry out the functions of a headteacher during an absence of the headteacher or pending the appointment of a headteacher. Academies have greater autonomy in determining their leadership structure in accordance with their funding agreement. Department for Education (2017) 'Recruiting a headteacher'. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/668949/Recruiting-a-headteacher-v2.pdf

[15] Department for Education (2011 to 2017) 'Statistics: school workforce'. Available at:
https://www.gov.uk/government/collections/statistics-school-workforce

Teachers in senior leadership roles form a small proportion of the overall teaching population

The distribution of staff between roles varies between primary, secondary and special school phases as shown in Figure 1.1 below.

Headteachers and senior leaders represented 10.8% of teachers in secondary schools and 18.5% in primary schools in 2016, (up from 9.7% and 18.1% respectively in 2010).

The number and proportion of headteachers and deputy headteachers was higher in primary schools than in secondary schools, reflecting the far greater number of primary schools (17,200) than secondary schools (3,400). The number of assistant headteachers and middle leaders was greater in secondary schools reflecting the larger average school size[16] compared with primary schools. Overall, the most common leadership role is a middle leader.

Figure 1.1. Teacher population in 2016. The labels on the y-axis show the overall number and proportion of teachers for each role.
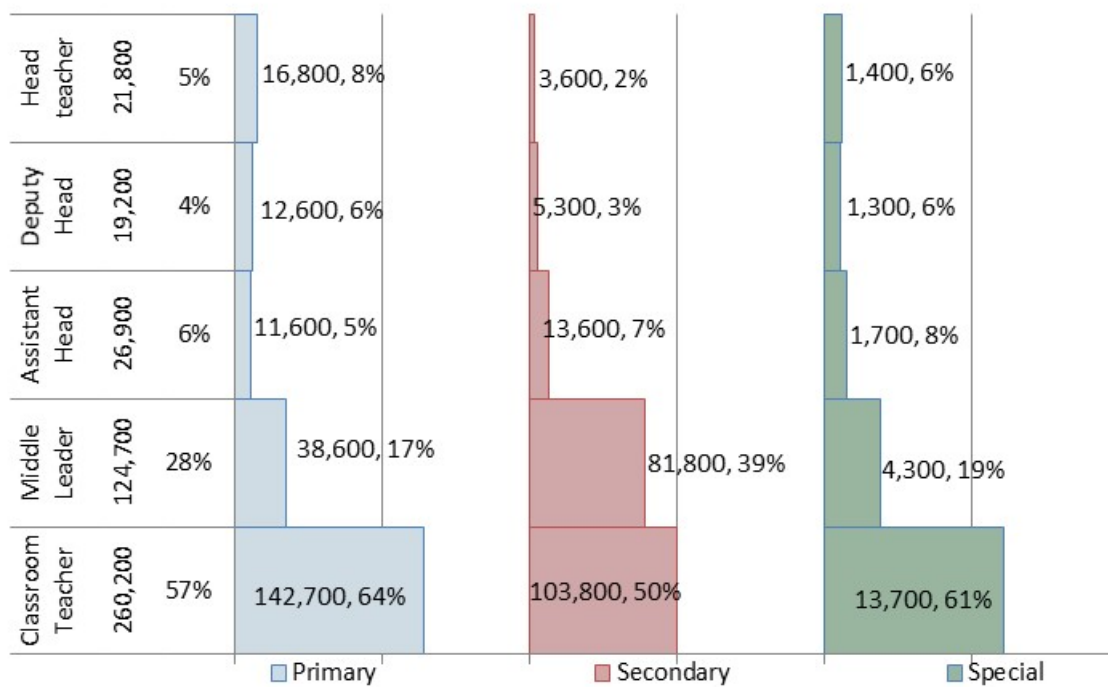
Source: School Workforce Census 2016[17]

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[16] Department for Education (2017) 'Schools, pupils and their characteristics: January 2017', Table 2e. Available at: https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2017

[17] Centrally employed teachers are not included in this chart.

As can be seen, teaching has a relatively flat career structure in primary and special schools. A relatively small number of teachers in each of the leadership roles may suggest a potential "bottleneck" in the supply of headteachers, since for example, not all deputy headteachers would want to become a headteacher. This is mitigated in the school sector by a) the presence of career pathways to headteacher which do not include all of the possible intermediary steps; and b) the presence of leadership development programmes, such as the National Professional Qualifications for school leadership[18], to enhance on the job experience.

The overall number of teachers in leadership roles rose between 2010 and 2016

As shown in Table 1.2, in 2016, there were approximately 457,300 teachers in 2016 for a total of 7.9 million pupils[19] in all state-funded schools (21,900) in England. Since 2010, the total number of schools has increased by 1.5%, the total number of pupils by 7.5% and the total full-time equivalent (FTE) number of teachers by 3.5%. This consequentially means that the ratio of pupils to teachers[20] increased by 2.3% from 17.2 in 2011 to 17.6 in 2016[21]; historically, changes in the pupil population have been reflected in changes in the ratio of pupils to teachers (Pupil-Teacher Ratio)[22].

This increase of 3.5% in the total number of teachers included a shift from classroom teachers to leadership roles. The number of classroom teachers decreased by 0.5%, from 263,900[7] in 2010 to 262,800[7] in 2016 while the number of teachers in leadership roles has increased by 9.3%, from 178,000 in 2010 to 194,500[23] in 2016.

In the 3,400 secondary schools in 2016, there were 3,600 headteachers, 5,300 deputy headteachers, 13,600 assistant headteachers, 81,800 middle leaders and 103,800 classroom teachers which equates to a roughly one-to-one ratio of classroom teachers to leaders. The number of teachers in any form of leadership role in secondary schools rose slightly from 102,000 2010 to 104,400 in 2016.

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[18] For more information about these programmes, see the collection of publications concerning professional development for school leaders at: https://www.gov.uk/government/collections/professional-development-for-school-leaders.

[19] Department for Education (2017) 'Schools, pupils and their characteristics: January 2017', Table 17a: https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2017

[20] Department for Education (2017) 'School workforce in England: November 2016' Table17a. Available at: https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016

[21] Calculations of the ratio of pupils to teachers in 2010 did not include special schools, thus only the values from 2011 to 2016 are shown.

[22] Department for Education (2017) '2018/19 Teacher Supply Model (TSM) Methodological Annex', Page 38. Available at: https://www.gov.uk/government/statistics/tsm-and-initial-teacher-training-allocations-2018-to-2019.

[23] Teacher numbers have been rounded to the nearest 100 for all leadership roles. There may therefore be discrepancies between the sum of constituent items and totals as shown in Table 1.2. The total includes null values in phase.

In the, on average much smaller and subsequently more numerous 17,200 primary schools in 2016, there were 16,800 headteachers, 12,600 deputy headteachers, 11,600 assistant headteachers, 38,600 middle leaders and 142,700 classroom teachers which equates to a roughly two-to-one ratio of classroom teacher to leaders, double that in secondary schools. The number of teachers in any form of leadership role in primary schools rose from 65,500 in 2010 to 79,600 in 2016.

Table 1.2. Number of pupils[24] and teachers[25], 2010 to 2016[26],[27]

	2010	2011	2012	2013	2014	2015	2016
Pupils	7,375,700	7,426,800	7,499,700	7,594,400	7,697,300	7,815,700	7,929,800
Teachers	441,800	440,100	445,400	449,700	455,300	456,900	457,300
Pupil-Teacher Ratio[28]	-	17.2	17.2	17.2	17.1	17.4	17.6
Schools							
Primary[29]	17309	17242	17202	17203	17177	17184	17188
Secondary	3310	3268	3281	3329	3381	3401	3408
Special[30]	971	967	961	1335	1333	1326	1324
Total Teachers	**441,800**	**440,100**	**445,400**	**449,700**	**455,300**	**456,900**	**457,300**
Classroom Teacher	263,900	261,800	265,600	265,600	270,100	266,400	262,800
Middle Leader	117,200	117,600	118,200	120,600	119,400	123,100	126,300
Assistant Head	20,300	20,700	21,700	23,200	25,300	26,600	27,000
Deputy Head	18,900	18,600	18,600	18,800	19,100	19,300	19,200
Headteacher	21,600	21,300	21,300	21,500	21,500	21,500	21,900
Primary	**196,400**	**199,500**	**204,700**	**209,500**	**215,700**	**220,000**	**222,400**
Classroom Teacher	130,800	133,000	136,600	139,100	143,900	144,900	142,700
Middle Leader	29,900	30,500	31,500	32,800	33,000	34,900	38,600
Assistant Head	6,800	7,400	8,000	8,900	10,100	11,100	11,600
Deputy Head	12,000	11,900	12,000	12,000	12,300	12,500	12,600
Headteacher	16,900	16,700	16,700	16,600	16,500	16,600	16,800

[24] Includes Primary, Secondary & Special Schools. State-funded Primary schools (1)(2), State-funded Secondary schools (1)(3), Special schools: State-funded special (4) and Non-maintained. (1) Includes middle/all through schools as deemed (2). Includes all primary academies, including free schools. (3) Includes city technology colleges and secondary academies, including free schools, university technical colleges and studio schools. (4) Includes general hospital schools and special academies.

[25] Headteacher numbers include executive headteachers.

[26] Teacher numbers have been rounded to the nearest 100 for each leadership role. There may therefore be discrepancies between the sum of constituent items and totals as shown.

[27] The overall teacher numbers in 2011 and 2014 are slightly higher than those published in the School Workforce SFR in 2017. The difference is an increase of 100 from 440,000 in 2011, and of 400 from 454,900 in 2014 and also means that some of the breakdowns differ slightly. This is due to improvements made in the production of the school workforce census data. The latest processed school workforce data is due for release on June 28th 2018.

[28] The Pupil-Teacher Ratios (PTRs) are taken from Department for Education (2017) 'School workforce in England: November 2016'. (https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016) and cannot be reproduced with the numbers in this table. The PTRs are calculated using the pupils that match the schools in SWC, exclude centrally employed staff and the teacher numbers do not include estimation for missing schools as it done in SFR and in this analysis.

[29] Includes State-funded Nursery schools

[30] Performance Referral Units (PRU) were not identified separately in the SWFC until 2013. Up until then PRU staff were classified as centrally employed. From 2013 onwards, PRUs are classified as special schools, which explains the step change increase in the number of schools and teachers in this year.

	2010	2011	2012	2013	2014	2015	2016
Secondary	**219,000**	**215,200**	**215,700**	**214,200**	**213,800**	**210,900**	**208,200**
Classroom Teacher	117,000	113,900	114,000	110,900	110,600	105,700	103,800
Middle Leader	80,700	80,400	80,400	81,600	80,600	82,400	81,800
Assistant Head	12,200	12,000	12,400	12,800	13,600	13,800	13,600
Deputy Head	5,700	5,500	5,500	5,500	5,500	5,500	5,300
Headteacher	3,400	3,300	3,400	3,500	3,500	3,500	3,600
Special	**15,300**	**15,400**	**16,000**	**20,600**	**21,000**	**21,600**	**22,300**
Classroom Teacher	9,300	9,300	9,800	12,400	12,900	13,300	13,700
Middle Leader	3,000	3,200	3,200	4,200	4,100	4,100	4,300
Assistant Head	1,100	1,100	1,100	1,400	1,600	1,700	1,700
Deputy Head	1,000	900	1,000	1,200	1,200	1,200	1,300
Headteacher	900	900	900	1,300	1,300	1,300	1,400
Centrally Employed	**11,100**	**10,000**	**8,900**	**5,400**	**4,700**	**4,400**	**4,300**
Classroom Teacher	6,700	5,600	5,200	3,100	2,800	2,500	2,500
Middle Leader	3,500	3,600	3,100	2,000	1,800	1,700	1,600
Assistant Head	200	200	200	100	100	100	50
Deputy Head	200	200	200	100	100	100	100
Headteacher	300	300	300	100	100	100	100

Source: School Workforce Census 2010 to 2016

The increase in the number of leadership roles will have caused additional recruitment activity (either within or between schools), above levels seen in previous years. This was explored further in the analysis conducted by DfE in September 2016[31] which showed that school-to-school mobility is now the biggest source of new entrants to schools – and is therefore a key driver of increased recruitment activity in schools. Further work to explore this in the same analysis identified that inland urban areas with a high level of deprivation had the highest rate of leavers to other schools.

Subsequent analysis[32] found that there is no single observable factor that can explain why teachers and leaders move to a different school. One of the factors explored was whether teachers moved to the same role or not: in 2015, 10.5% of teachers moved schools on promotion[33], a decrease of 1.5 percentage points from 12.0% in 2011.

The largest increase has been in assistant headteachers and middle leaders in primary schools

Figure 1.2 below shows the change in the number of teachers at each role since 2010. The overall increase in the number of teachers was driven by the large increase in the

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[31] Department for Education (2016) 'Schools workforce in England 2010to 2015: trends and geographical comparisons. Available at: https://www.gov.uk/government/statistics/local-analysis-of-teacher-workforce-2010-to-2015

[32] Department for Education (2017) 'Analysis of teacher supply, retention and mobility'. Available at: https://www.gov.uk/government/statistics/teachers-analysis-compendium-2017

[33] Note that the leadership roles used for this did not use middle leader.

number of primary school classroom teachers, resulting from the increase in the number of primary school pupils over the time period. Subsequent periods will see this bulge in the pupil population move into secondary schools.

The largest growth proportionately since 2010 was in assistant heads, which have increased from 3.5% of teachers in primary schools and 5.6% in secondary schools in 2010, to 5.2% and 6.5% respectively in 2016. This represents an increase in the number of assistant headteachers of 71.3% in primary schools (from 6,800 in 2010 to 11,600 in 2016), 11.3% in secondary schools (from 12,200 in 2010 to 13,600 in 2016), and 59.8% in special schools (from 1,100 in 2010 to 1,700 in 2016)[34].

There has also been an increase in both the number and proportion of middle leaders, so that in 2016 these formed 39.3% of teachers in secondary schools and 17.3% in primary schools (up from 36.8% and 15.2% respectively in 2010). This represents an increase of 29.1% in primary schools (from 29,900 in 2010 to 38,600 in 2016), 1.4% in secondary schools (from 80,600 in 2010 to 81,800 in 2016), and 43.4% in special schools (from 3,000 in 2010 to 4,300 in 2016).

By comparison, the number of deputy headteachers and headteachers has remained roughly constant (changed by 500 or fewer). Of particular note is that the increase in assistant headteacher and middle leader numbers was seen in both primary and secondary phases, despite a decrease in the number of classroom teachers in secondary schools of 10%.

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[34] The sum of the number of teachers in primary, secondary and special schools does not equal the total presented in Table 1.2 due to the presence of some teachers who are centrally employed and for whom phase is unknown.

Figure 1.2. Teacher population changes from 2011 to 2016 compared to 2010
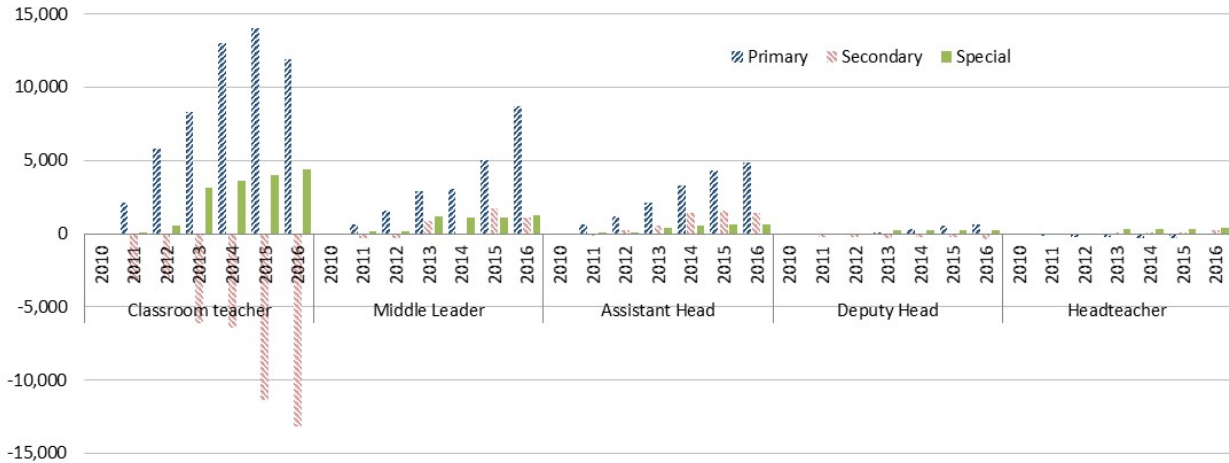
The number of teachers newly promoted[35] to middle leader and assistant headteacher has increased since 2010

The number of teachers who were newly promoted to a leadership position each year increased from 25,400 in 2011 to 38,100 in 2016. This represented 14.3% of those in leadership positions in 2011 and 19.6% in 2016. This is in part due to the increase in the number of teachers in each role as discussed above. The number of those newly promoted to middle leadership positions increased every year; however the number of those newly promoted to the other positions increased until 2014 and then remained roughly constant at those levels in 2016. In 2016, 13,200 middle leaders in secondary schools were newly promoted, compared with 10,700 in 2010. The equivalent figures for primary schools were 11,900 newly promoted in 2016 compared with 6,500 in 2010.
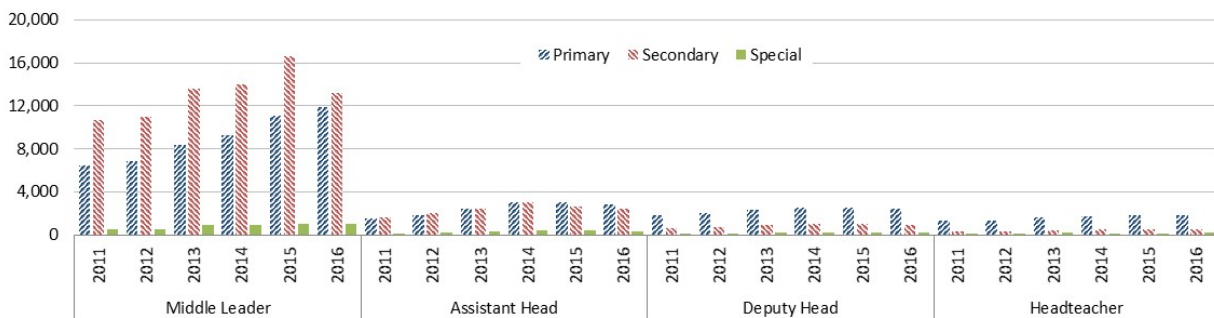
Figure 1.3. Newly promoted teachers in each year from 2011 to 2016

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[35] By "newly" promoted, we mean that they were in a role at a lower level, or not in the state school sector, in the immediate previous year. No further history is taken into account in this assessment.

The teaching and leadership workforce was similar in maintained schools and academies.

State-funded schools are divided between local-authority-maintained schools, and academies, which themselves are sub-divided between those in a multi-academy trust (MAT) who share governance with other schools in the same trust, and those that are "standalone".

In both primary and secondary schools in 2016, there was little difference between the structure of the workforce between LA maintained schools and academies as shown in Figure 1.4. In primary schools, there were a smaller proportion of teachers in leadership roles in standalone academies (33.2%) compared to MATs (34.3%) and LA maintained schools (36.4%).

Figure 1.4. Proportion of teachers in each role in 2016 by sector for Primary and Secondary schools

	Primary			Secondary		
	LA Maintained	MAT	Standalone academy	LA Maintained	MAT	Standalone academy
■ Head	7.8%	7.1%	6.6%	1.7%	1.8%	1.7%
■ Deputy Head	5.8%	5.2%	5.5%	2.5%	2.6%	2.6%
■ Assistant Head	5.0%	6.2%	5.5%	6.4%	7.0%	6.1%
■ Middle Leader	17.8%	15.8%	15.6%	40.1%	38.1%	39.9%
■ Classroom Teacher	63.6%	65.7%	66.8%	49.3%	50.4%	49.7%
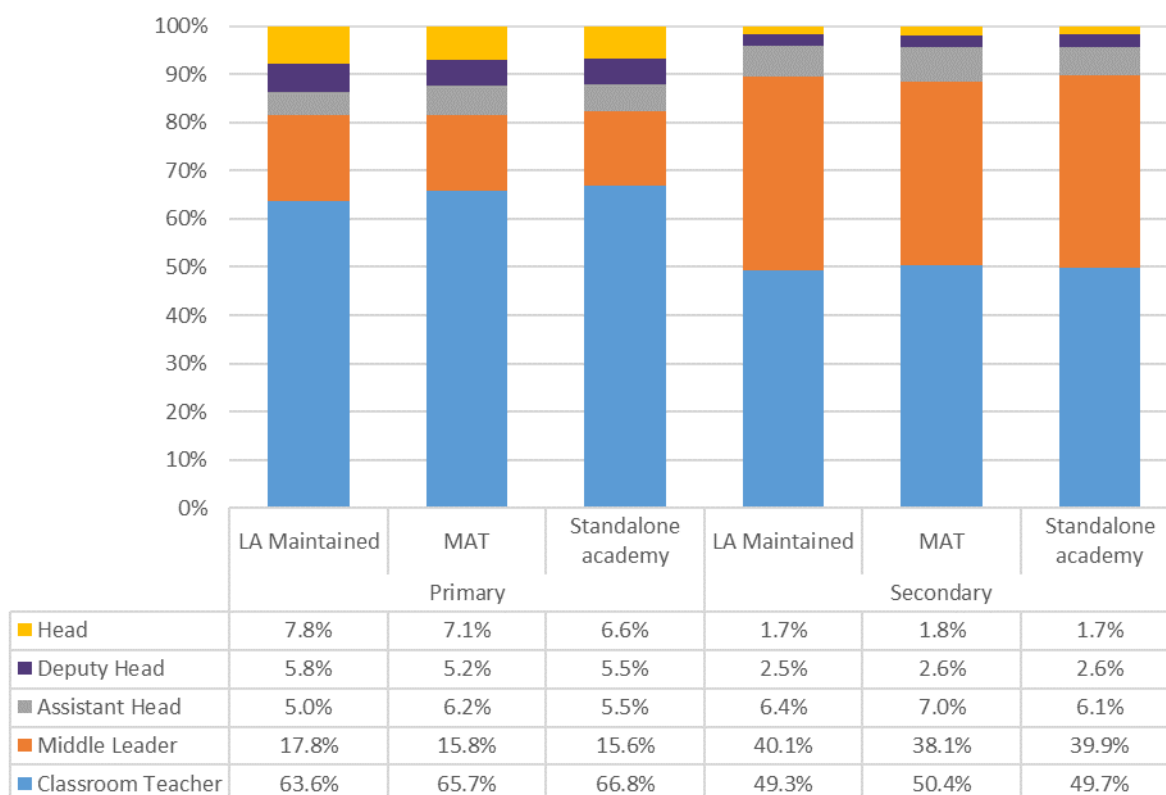
There was variation in the structure of the teaching and leadership workforce by region

England is divided into nine regions[36] which are the highest tier of sub-national division in England and although no longer used for officially-devolved functions within government, continue to be used for statistical purposes.

Figures 1.5 and 1.6 show the structure of the primary and secondary school teaching and leadership workforce in 2016 for each region of the country. This shows some variation by region: the region with the largest proportion of the workforce in a leadership role for primary schools was Inner London (45.2%) and for secondary schools was Outer London (51.9%). There was greater variation between primary schools than between secondary schools.

Figure 1.5. Proportion of primary school teachers in each role in 2016 by region

	Inner London	West Midlands	Outer London	East Midlands	North West	North East	Yorkshire and the Humber	East of England	South East	South West
									Primary	
■ Head	5.5%	7.4%	5.0%	8.8%	8.3%	8.2%	8.1%	7.9%	7.5%	8.8%
■ Deputy Head	5.5%	5.9%	5.0%	5.3%	6.5%	6.6%	5.5%	5.8%	5.4%	5.5%
■ Assistant Head	7.3%	6.3%	6.0%	4.7%	5.3%	4.1%	6.2%	4.4%	4.4%	4.0%
■ Middle Leader	26.9%	17.6%	20.8%	17.2%	17.2%	18.9%	16.6%	15.3%	15.2%	12.8%
■ Classroom Teacher	54.8%	62.8%	63.2%	63.9%	62.7%	62.1%	63.7%	66.6%	67.5%	69.0%

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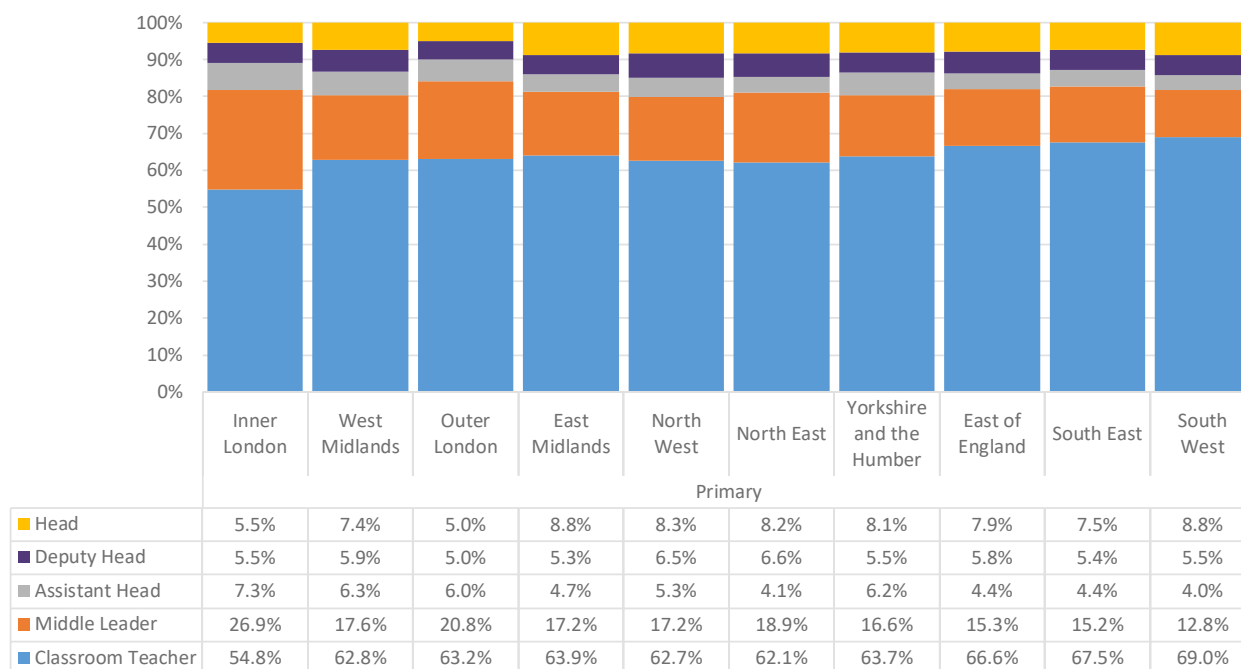
[36] Formerly known as Government Office Regions.

Figure 1.6. Proportion of secondary school teachers in each role in 2016 by region

	Outer London	North West	East Midlands	North East	Inner London	South West	East of England	West Midlands	South East	Yorkshire and the Humber
										Secondary
■ Head	1.5%	1.8%	1.7%	2.0%	1.6%	1.9%	1.7%	1.8%	1.7%	1.8%
■ Deputy Head	2.7%	2.5%	2.4%	2.3%	3.1%	2.5%	2.5%	2.9%	2.4%	2.2%
■ Assistant Head	6.8%	6.7%	6.2%	6.3%	6.4%	6.0%	6.2%	7.2%	6.2%	7.0%
■ Middle Leader	43.1%	42.2%	42.2%	40.7%	39.6%	39.4%	38.8%	36.8%	36.7%	35.3%
■ Classroom Teacher	45.8%	46.7%	47.5%	48.6%	49.3%	50.3%	50.7%	51.2%	53.0%	53.7%
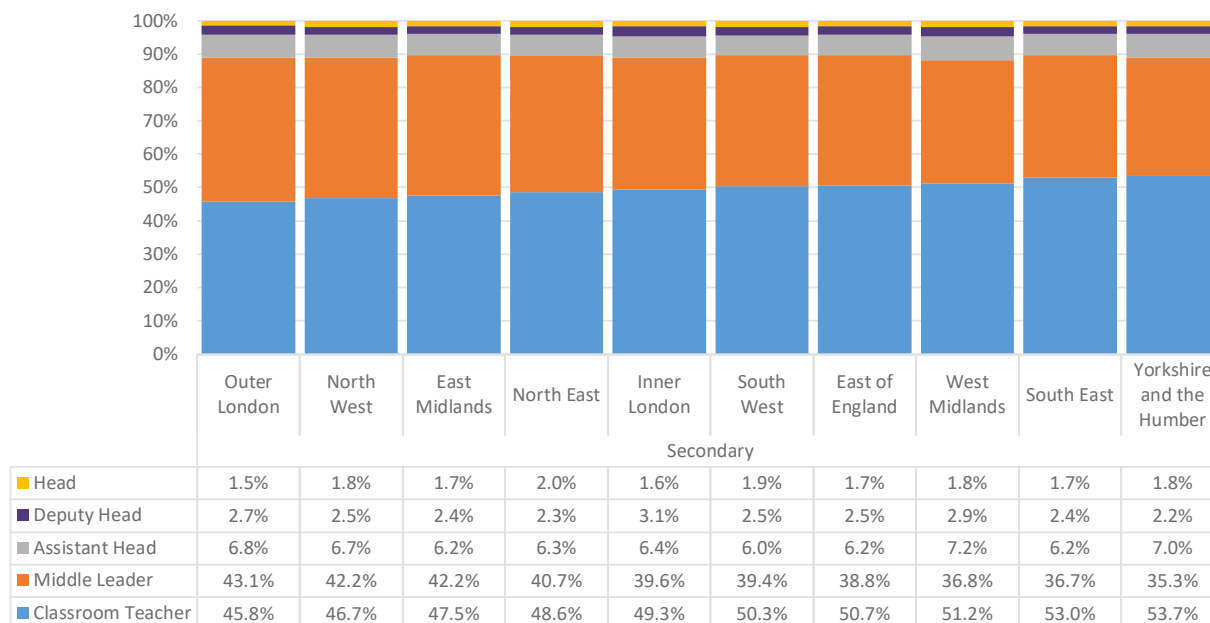
Tables 1.3 and 1.4 in the accompanying spreadsheet show the structure of the primary and secondary school teaching and leadership workforce in 2016 for each Regional Schools Commissioners (RSC)[37] region. This shows similar results to that above.

The structure of the teaching and leadership workforce was similar across tiers 2-6, with the difference in tier 1 attributed to the over-representation of London here

The 2016 Educational excellence everywhere white paper[38] introduced a new categorisation of the country at local authority district (LAD) level into six tiers according to areas most in need of support based on current educational performance and capacity to improve[39]. Subsequent to this, the department announced 12 Opportunity Areas (OA)[40] which are both social mobility cold spots and a subset of tier 6 – the area most in need of support.

Figure 1.7 shows the structure of the teaching and leadership workforce in 2016 in each of these tiers, with the addition of OAs shown separately. Tier 1 shows the most difference to the other tiers, but this is in the context that as shown above, London appears different to other parts of the country and London is over-represented in this tier (72% of London LADs are in Tier 1). There was little difference between the other tiers.

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[37] Regional Schools Commissioners act on behalf of the Secretary of State for Education and are accountable to the National Schools Commissioner. Schools Commissioners Group: https://www.gov.uk/government/organisations/schools-commissioners-group/about

[38] https://www.gov.uk/government/publications/educational-excellence-everywhere.

[39] https://www.gov.uk/government/publications/defining-achieving-excellence-areas-methodology

[40] https://www.gov.uk/government/news/education-secretary-announces-6-new-opportunity-areas

Figure 1.7. Proportion of teachers in each role in 2016 by tier for Primary and Secondary schools

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	OA	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	OA
				Primary							Secondary			
■ Headteacher	6.4%	8.4%	8.1%	7.7%	7.5%	7.5%	7.0%	1.6%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%
■ Deputy Headteacher	5.6%	5.9%	5.7%	5.7%	5.7%	5.4%	5.5%	2.7%	2.5%	2.7%	2.6%	2.4%	2.4%	2.2%
■ Assistant Headteacher	5.6%	4.4%	4.8%	5.4%	5.4%	5.6%	6.8%	6.3%	6.3%	6.6%	6.7%	6.7%	6.6%	6.9%
■ Middle Leader	21.2%	15.7%	15.2%	17.6%	16.9%	16.9%	16.2%	41.8%	39.8%	39.2%	39.0%	37.6%	38.3%	38.6%
■ Classroom Teacher	61.1%	65.6%	66.2%	63.6%	64.5%	64.6%	64.5%	47.6%	49.7%	49.8%	50.0%	51.4%	50.9%	50.4%
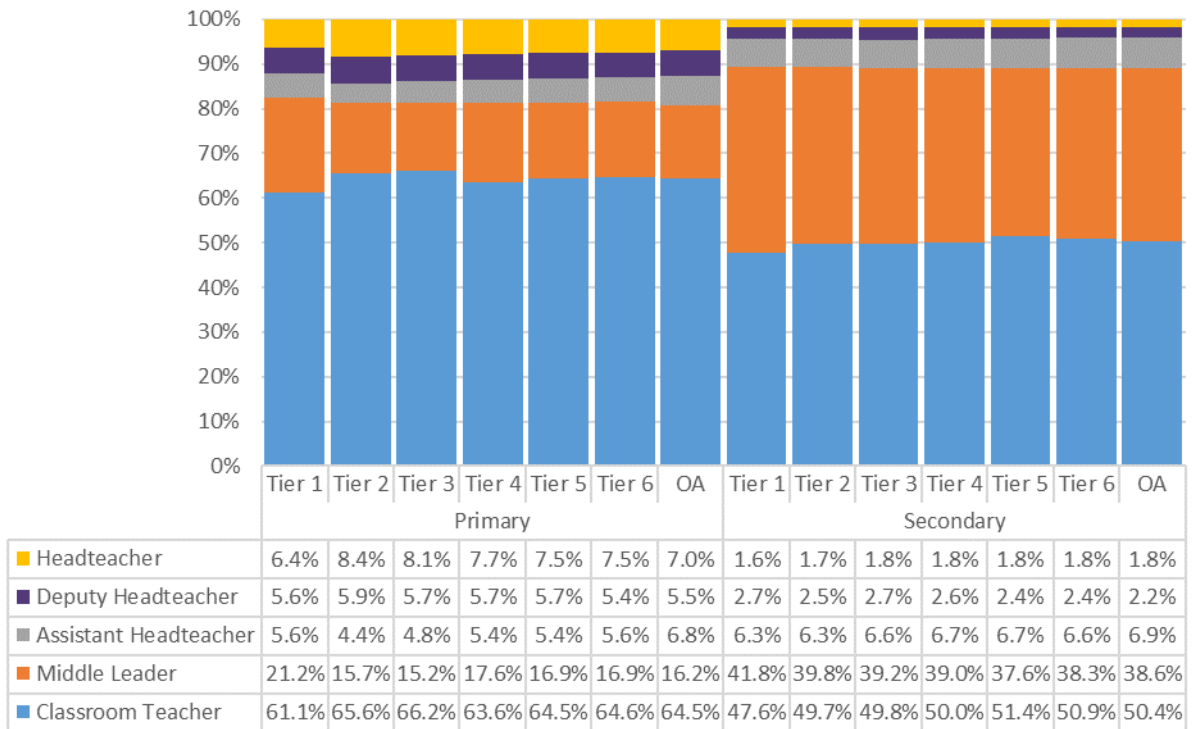
2. Characteristics of teachers in leadership roles

This section looks at the characteristics of teachers in leadership roles by age, years since qualification, gender, ethnicity, classroom teaching time, and degree subject and level.

The population of teachers in leadership roles has grown younger on average

Table 2.1 below shows the median, lower and upper quartile[41] ages for teachers in different roles in 2010 and 2016. There was an overall decrease in the size of older cohorts, and an increase in size of the younger cohorts, as shown by the larger decrease in the upper quartile, compared to the lower quartile between 2010 and 2016. In 2010, half of headteachers were aged 51 or less, compared with half aged 48 or less in 2016. The difference between upper quartile ages was smallest for headteachers at one year's difference (25% of headteachers in 2010 were aged 55 or more, compared to 54 or more in 2016) compared to 3 or 4 years for the other roles.

Table 2.1. Teachers' age quartiles in 2010 and 2016 for the different roles

	2010				2016			
	Classroom Teacher	Middle Leader	Senior Leader	Head teacher	Classroom Teacher	Middle Leader	Senior Leader	Head teacher
Lower quartile	28	32	37	44	27	31	36	43
Median	35	39	44	51	34	38	42	48
Upper quartile	47	50	52	55	44	46	48	54

Source: School Workforce Census 2010 and 2016

This is illustrated in more detail in Figure 2.1 below which shows the distribution of teachers in service, by role, in 2010 (lines) and 2016 (solid fill) by age.

The overall shape of the graph, showing a higher proportion of younger teachers, and fewer older teachers reflects general trends in retention of teachers in the profession. It is generally possible to see the shape of the graph shifted by six years from 2010 to 2016. The proportion of teachers in a leadership role increased with age and patterns of promotion (the shape of the graph) were roughly similar between the two years, with the shape in 2010 repeated with a shift of six years for 2016. This pattern holds across teachers in each of the primary, secondary and special phases of schooling.

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[41] The Median represents the middle value where 50% of cases lie above this and 50% lie below it. One quarter of the values can be found below the lower quartile, and one quarter of values above the upper quartile, with 50% found between these two statistics.

Virtually all promotions into middle leadership were after age 23, into senior leadership after age 27, and into headteacher roles after age 31. In both years, over 20% of those still in teaching had a leadership role by age 27. In 2016, for those teachers aged 35 or above, over half of teachers in service were in a leadership position; this compares with age 49 or above for the equivalent in 2010.

Figure 2.1: Teacher population (all schools) by age in 2010 (solid fill) compared with 2016 (line)
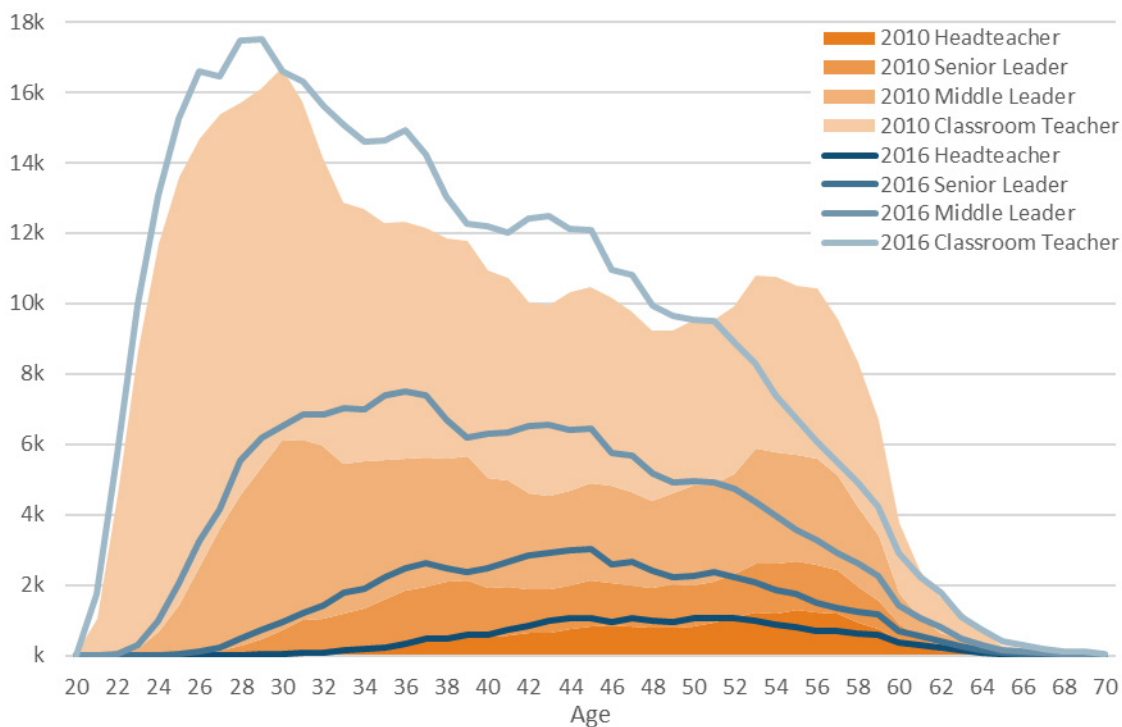
Source: School Workforce Census 2010 and 2016

Of particular note is the "bulge" in the number of teachers (visible for all roles) aged between 53 and 60 who were in service in 2010, but not in 2016 (as indicated by the orange shading being above the corresponding blue lines in the chart above) – these teachers were mostly recruited in the 1970s to meet the corresponding bulge in the pupil population[42], (peaking in 1977). The timing of this peak in demand for teachers coincided with a peak in the population of people in their twenties (representing the baby boomers, the generation mostly born following World War II[43]). This, combined with recessions in 1973, 1975 and 1980, helped to increase the number of people recruited to teaching and retained in the profession (since teaching is a more popular profession in times of economic uncertainty). The teaching profession also became a graduate profession over this period, with the last entry to non-graduate training courses in 1979.

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[42] This was also exacerbated as the school leaving age was raised to 16 in 1972.

[43] The peak in the pupil population was mostly caused by the children of the baby boomers, also known as Generation X.

There was a peak in retirements of teachers in the first couple of years that the School Workforce Census data was available[44]. This matches the bulge at the older end of the age distribution for 2010 in the chart shown. The retirement, and subsequent replacement, of these teachers has contributed to the rise in the number of teachers newly promoted to leadership positions, as illustrated in section 1.

The chart suggests that it is the teachers in their thirties and forties who have replaced those in leadership roles who have recently retired. These cohorts are both larger than that of their older peers in their fifties.

The large difference in size between the teaching cohorts aged between 29 and 32 in 2010 (35 and 38 in 2016, respectively) roughly corresponds to the increase in the number of newly qualified teachers (NQTs) who entered service between 2001 and 2004. 18,600 NQTs were recorded in service by March 2002 (equating to the same academic year as the 2001 School Workforce Census) and 25,200 NQTs were recorded in service by March 2005 (2004 School Workforce Census)[45].

Figure 2.2 below compares the number of headteachers in service in 2010 with 2016 by age (it is an enlargement of the headteacher part of Figure 2.1). Up until about age 37, the graphs have an identical shape in both years, suggesting similar patterns of promotion to leadership by age up to this point; beyond this, there were a higher number of younger headteachers in 2016 than in 2010. Of particular note is the shift in the age of headteachers, from a bulge of those aged 52 to 59 in 2010, to a longer, lower bulge of those aged 41 to 52 in 2015.

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[44] Department for Education (2017) 'School workforce in England: November 2016', Table 21. Available at: https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016

[45] Department for Education (2017) 'School workforce in England: November 2016', Table 8. Available at: https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016

Figure 2.2: Headteacher population in 2010 (solid fill) compared with 2016 (line)
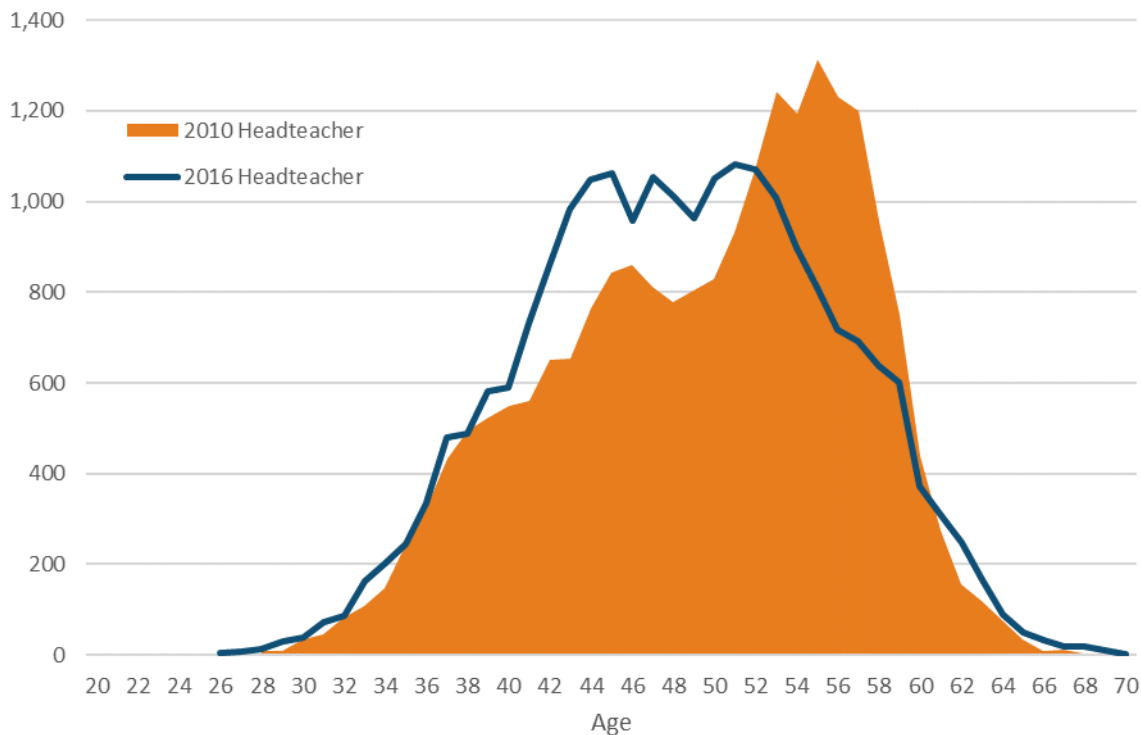
Source: School Workforce Census 2010 and 2016

Age and years since qualification are highly correlated in general, but less so for teachers in leadership roles

Age of teachers and years since qualification (years since achieving Qualified Teacher Status (QTS)) are highly correlated since for each individual teacher, one increases in line with the other. Figure 2.3 below shows this clear correlation for all teachers in 2016. For each number of years since qualification, a boxplot has been plotted to show the distribution of ages of teachers with this number of years since qualification. The top and bottom of the box show the upper and lower quartiles respectively with the median shown by the solid black line within the box. The values outside of this middle 50% of values are shown by the vertical lines leading from the box in both directions.

Whilst the median follows a diagonal line upwards, representing those who chose teaching as their first career, there is a wide variation for the upper quartile representing those who pursued other careers before entering teaching. The range of the box plots narrows as both age and years since qualification increase. Teachers with more than 25 years since qualification are likely to have spent their whole, or a substantial part, of their working life in teaching and they are a more homogenous group in terms of age than those with fewer years since qualification.

Figure 2.3: Box plots showing the relationship between age and years since qualification for all teachers in 2016
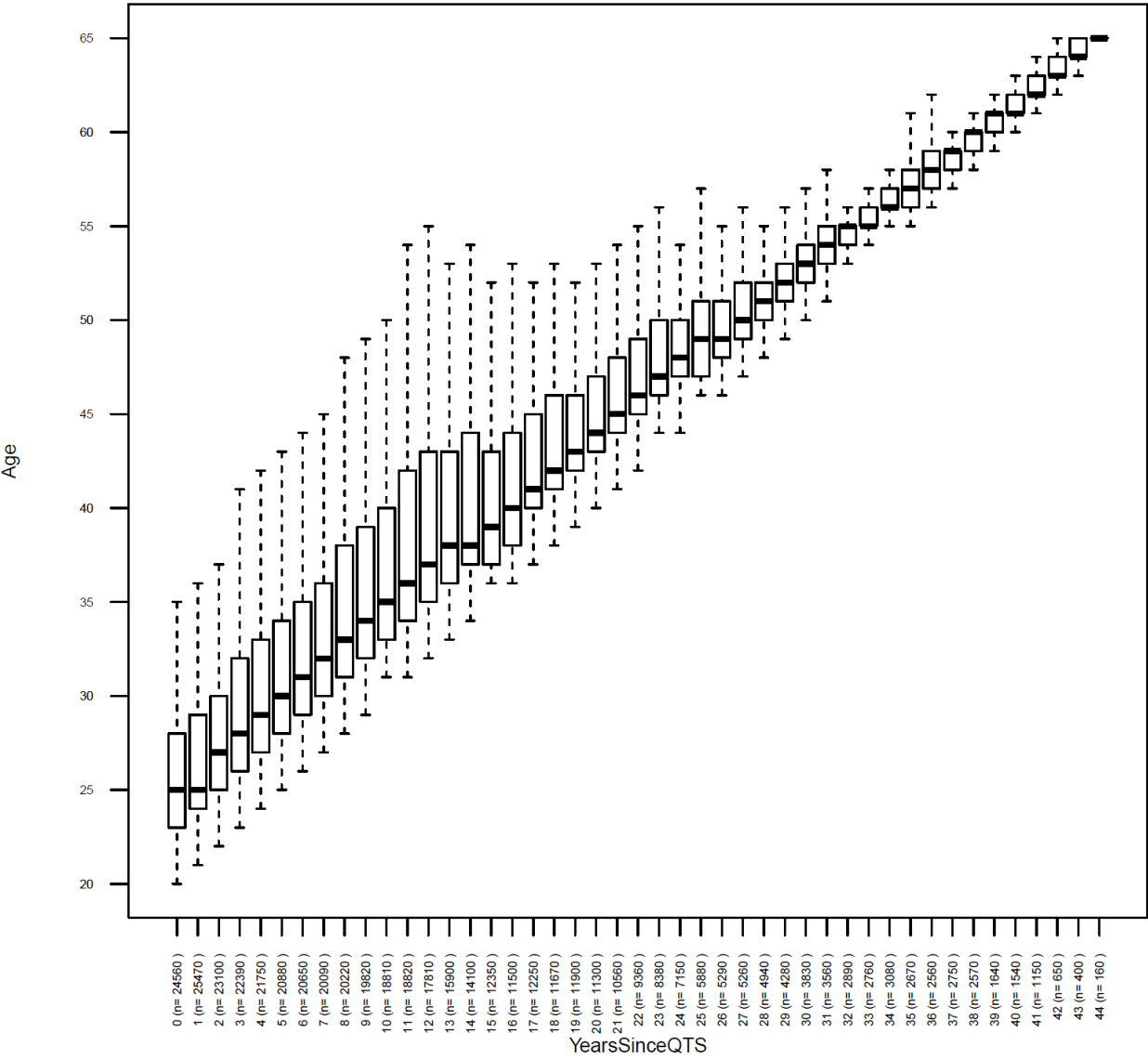
Source: School Workforce Census and Database of Qualified Teachers

Figure 2.4 shows that the correlation between age and years since QTS is weaker for headteachers than that shown in the previous chart. Headteachers with fewer years since qualification show a wider range of ages, which suggests faster career progression for those who enter teaching after a career change.

Figure 2.4: Box plots showing the relationship between age and years since qualification for headteachers in 2016
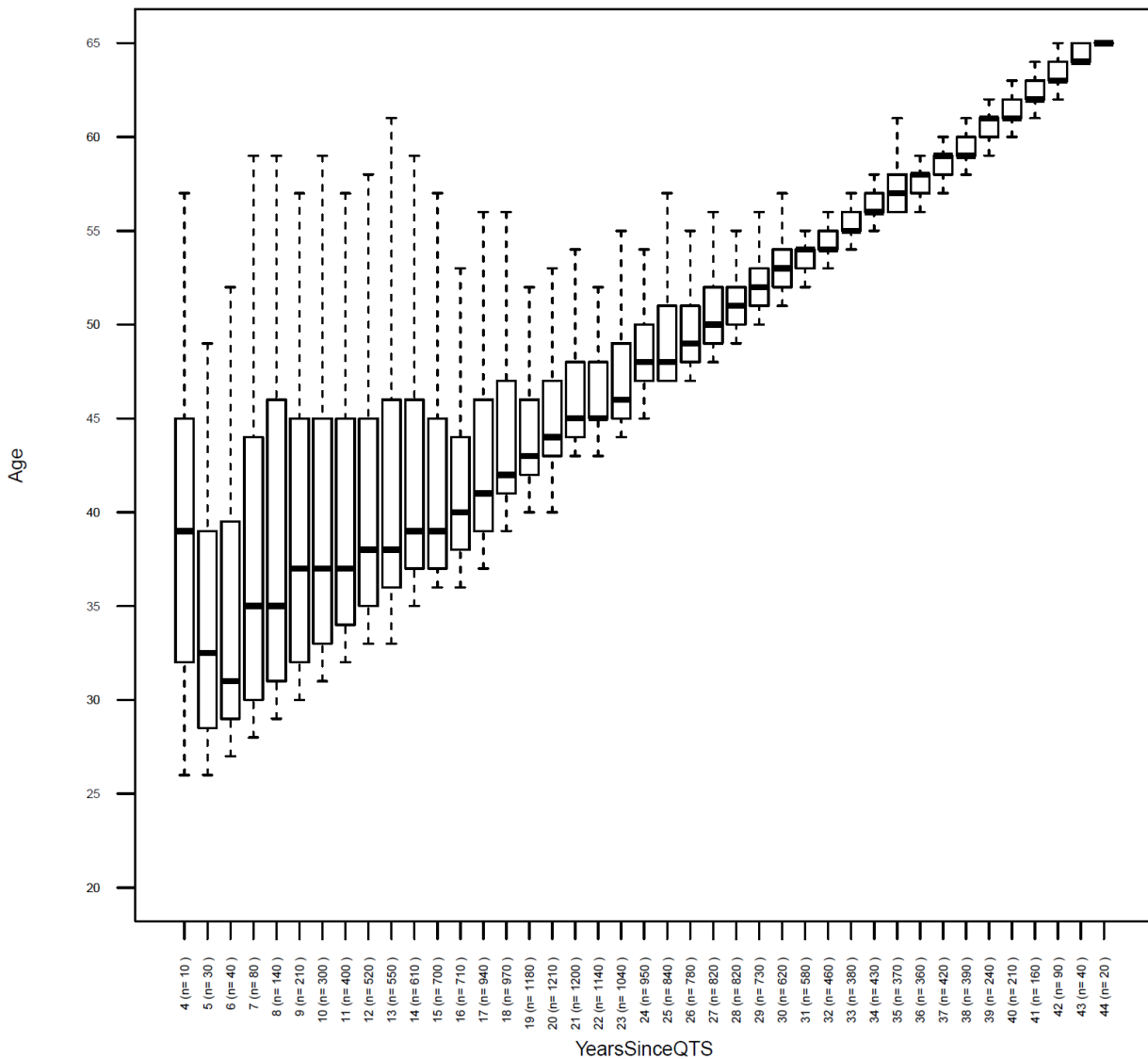
Source: School Workforce Census and Database of Qualified Teachers

Further correlation plots for other leadership roles can be found in Annex 2.

Since the relationship between age and years since qualification is less clear for teachers in leadership roles, the analysis shown earlier, looking at the distribution of teachers by age is repeated below for years since qualification.

Teachers have progressed faster on average to leadership roles in recent years

Number of years since qualification (when Qualified Teacher Status (QTS) was awarded) is used as a proxy for calculating time in the teaching profession. The main limitation of using this is that it includes no information about whether service has been continuous,

full-time or part-time, or whether it has been interrupted by periods of non-service such as career breaks.

Table 2.2 below shows the median, lower and upper quartile[46] number of years since qualification for teachers in different roles in 2010 and 2016. In 2010, 50% of headteachers had qualified 26 or fewer years earlier, compared with 22 years in 2016. The difference between the upper quartiles for years since qualification was greatest for senior leaders and headteachers with 75% of headteachers in 2016 having 29 or fewer years since qualification, compared with 33 years in 2010. There was virtually no change in the lower quartile between 2010 and 2016, with 25% of headteachers having 18 or fewer years since qualification in both 2010 and 2016.

Table 2.2. Teachers' years since qualification in 2010 and 2016 for the different roles

Years since qualification	2010				2016			
	Classroom Teacher	Middle Leader	Senior Leader	Head teacher	Classroom Teacher	Middle Leader	Senior Leader	Head teacher
Lower quartile	2	6	12	18	2	6	11	18
Median	6	11	17	26	7	11	16	22
Upper quartile	16	21	29	33	14	18	22	29

Source: School Workforce Census 2010 and 2016 and Database of Qualified Teachers

This is illustrated in more detail in Figure 2.5 below which shows the distribution of teachers in service, by role, in 2010 (solid fill) and 2016 (line) by years since qualification.

The overall shape of the graph, showing more teachers with fewer years since qualification reflects general trends in retention of teachers in the profession. Within this, the proportion of teachers in leadership roles was higher for those with a greater number of years since qualification. The peaks and troughs evident in the graph largely coincide with peaks and troughs (showing a shift of six years between 2010 and 2016) in the pupil population that drove increases or decreases in recruitment. This pattern holds across teachers in each of the primary, secondary and special phases of schooling.

For teachers with six or fewer years since qualification, the solid fill for 2010 and lines for 2016 are identical for middle and senior leaders suggesting similar patterns of initial promotion to leadership positions. Beyond that, the most recent year (2016) shows more leaders in teaching with fewer years since qualification (the blue lines are above the equivalent orange fill). For those with more than 10 years since qualification, over half of teachers in service were in a leadership position.

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[46] The Median represents the middle value where 50% of teachers lie above this and 50% lie below it. One quarter of teachers can be found below the lower quartile, and one quarter above the upper quartile, with 50% found between these two statistics.

Figure 2.5: Teacher population by years since qualification comparing 2010 (solid fill) and 2016 (line)
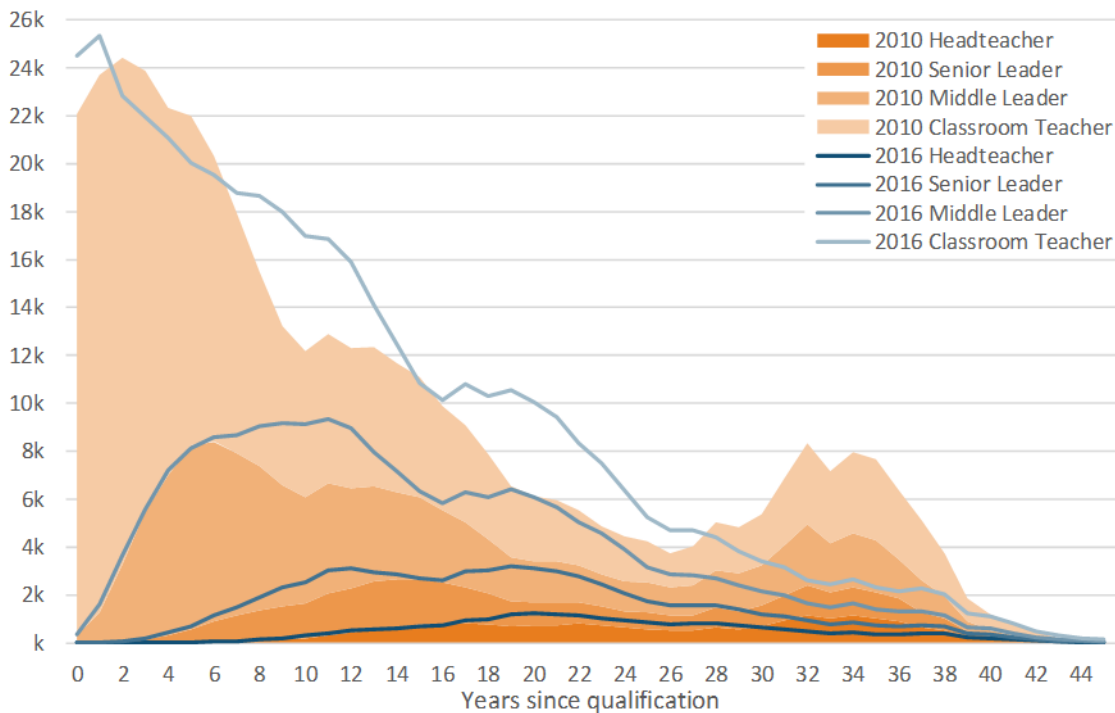
Source: School Workforce Census 2010 and 2016 and Database of Qualified Teachers

Similar to Figure 2.1 showing age, Figure 2.5 shows a "bulge" in 2010, present for all teacher roles, for those who had between 27 and 37 years since qualification and who had retired by 2016.

There is a large difference in the overall number of teachers between those with 5 years since qualification and those with 9 years in 2010 (11 and 15 in 2016). As mentioned in the discussion above about age, this roughly corresponds to the increase in the number of newly trained teachers who entered service between 2001 and 2005.

The following charts (Figure 2.6 and 2.7) show demographics for teachers in leadership roles by years since qualification for primary and secondary schools separately. Each chart shows the shift to a leadership population with fewer years since qualification in total (the blue line for 2016 is above the orange fill for 2010 on the left side of the chart).

Figure 2.6: Leadership population by years since qualification in primary schools
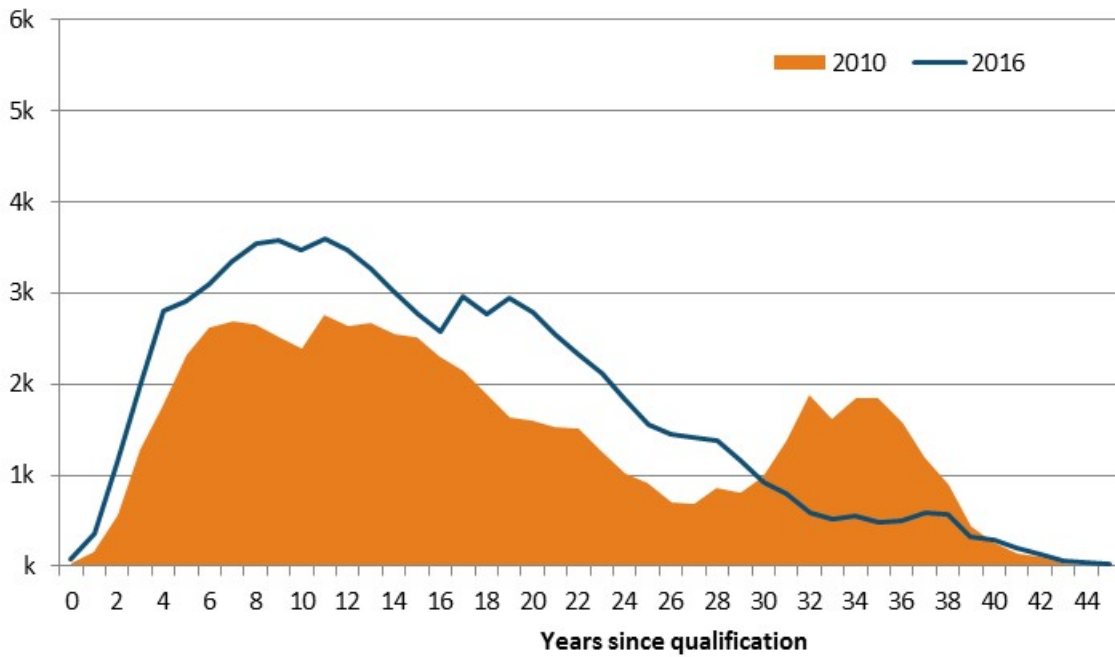
Source: School Workforce Census 2010 and 2016 and Database of Qualified Teachers

Figure 2.7: Leadership population by years since qualification in secondary schools
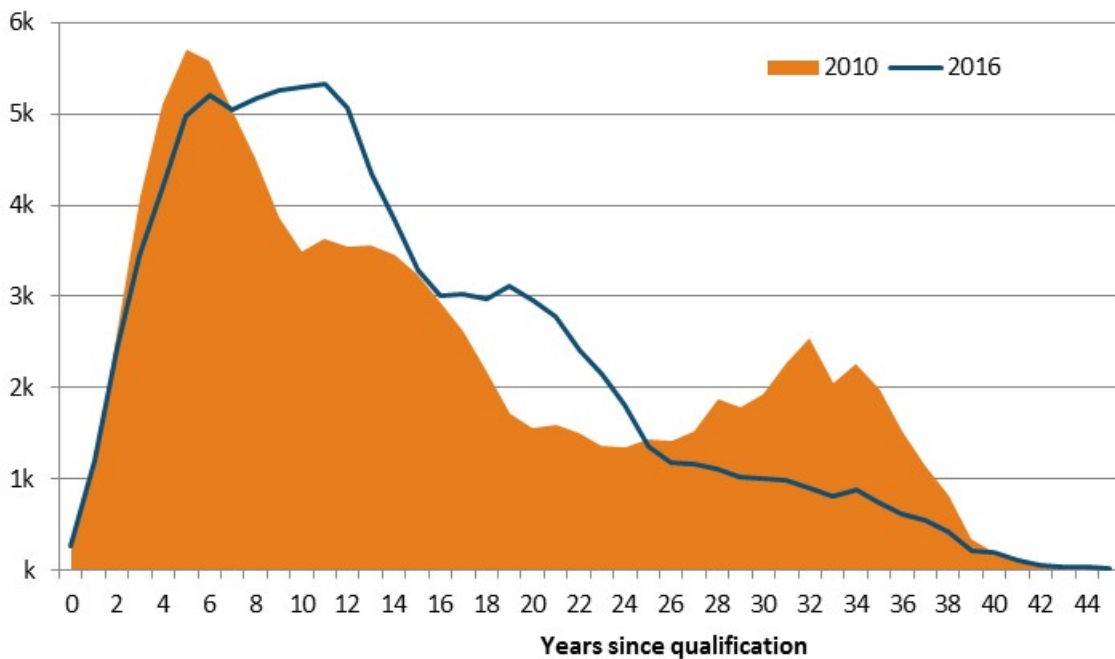
Source: School Workforce Census 2010 and 2016 and Database of Qualified Teachers

Women make up a high proportion of the teaching workforce, but are under-represented at leadership positions

The teaching workforce is predominantly female, particularly in primary schools. The proportion of women was highest amongst classroom teachers and middle leaders, and lowest for senior leaders and headteachers. Figures 2.8 and 2.9 show that there was a smaller difference between roles in primary schools, where women made up 85% of the workforce in 2016 compared with 73% of headteachers, than in secondary schools, where women made up 62% of the workforce compared with 38% of headteachers. Between 2010 and 2016, the proportion of women in leadership roles has generally increased.

Figure 2.8: Proportion of female teachers in primary schools
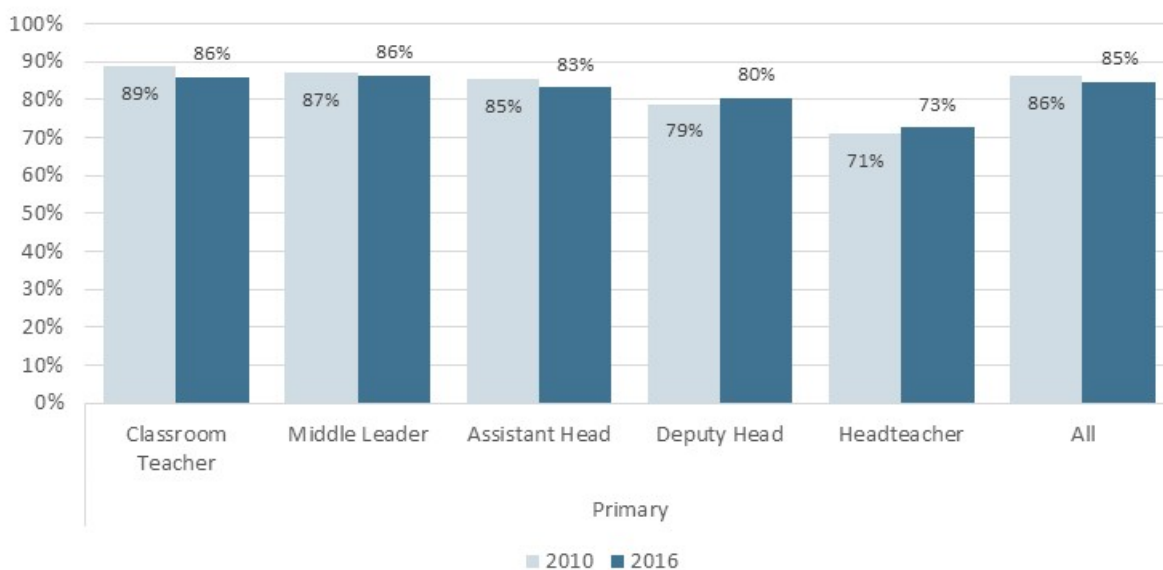
Source: School Workforce Census 2010 and 2016

Figure 2.9: Proportion of female teachers in secondary schools
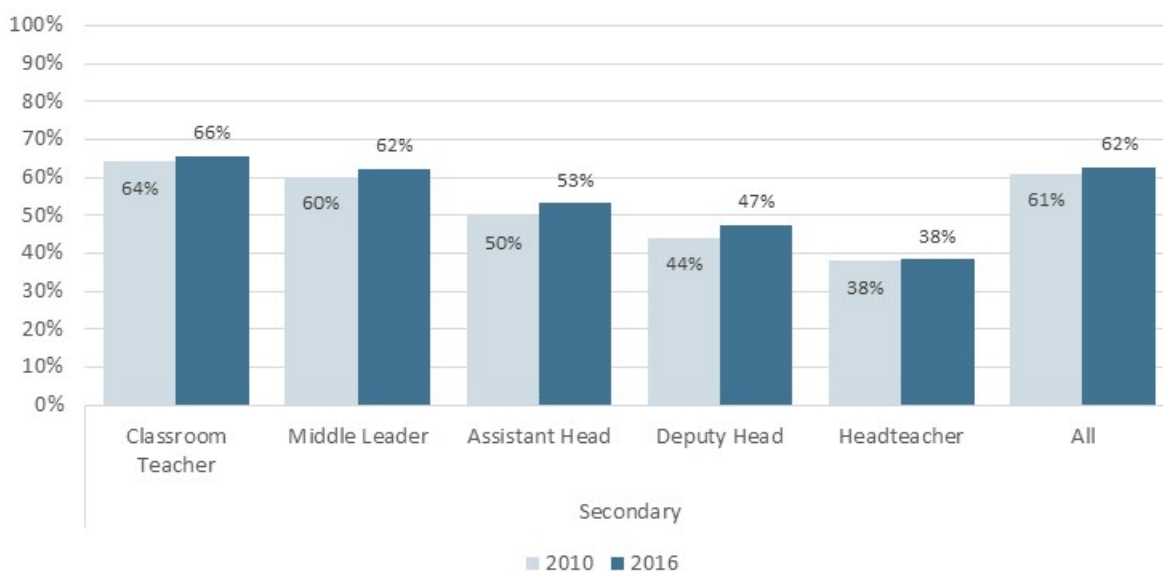
There is a time lag between any changes being seen amongst classroom teachers and similar changes being seen amongst leadership roles because of the time required to reach leadership positions and replace those currently in the 'stock'[47].

Figures 2.10 and 2.11 show that for each leadership grade, the proportion of those who were newly promoted[48] to post who were female was greater than or equal to the proportion of the stock at that grade[49]. In the primary sector in 2016, 77% of newly promoted headteachers were female compared with 72% of existing headteachers, an increase from 74% and 71% in 2011, respectively. In the secondary sector, 43% of newly promoted headteachers were female compared to 37% of existing headteachers, a change from 39% and 38% in 2011, respectively.

Figure 2.10: Proportion of female teachers new to post in primary schools
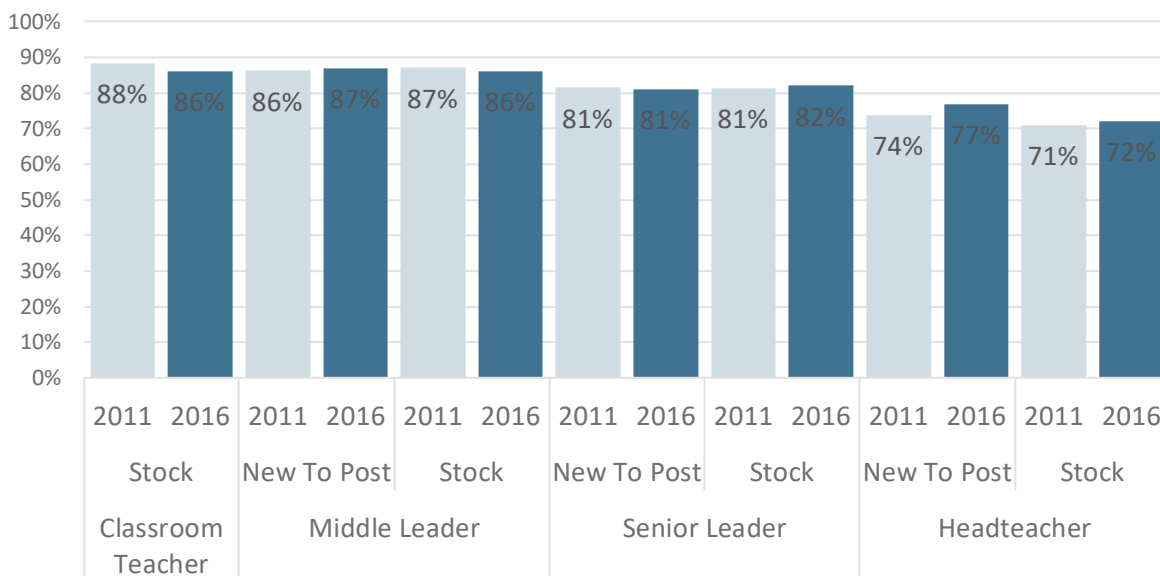
Source: School Workforce Census 2011 and 2016

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[47] The stock refers to those who are at the same role as in the previous year as well as those who were in a higher role in the previous year.

[48] Those newly promoted includes those who were recorded in a role at a lower grade in the previous year and those who were not found in the state school sector in the previous year.

[49] Note that the figures in the graph below do not match exactly those in the previous graph because each role has been split into those new to post and those who already present in the stock.

Figure 2.11: Proportion of female teachers new to post in secondary schools

	Classroom Teacher	Middle Leader		Senior Leader		Headteacher	
	Stock	New To Post	Stock	New To Post	Stock	New To Post	Stock
2011	65%	63%	60%	51%	48%	39%	38%
2016	66%	65%	61%	54%	51%	43%	37%
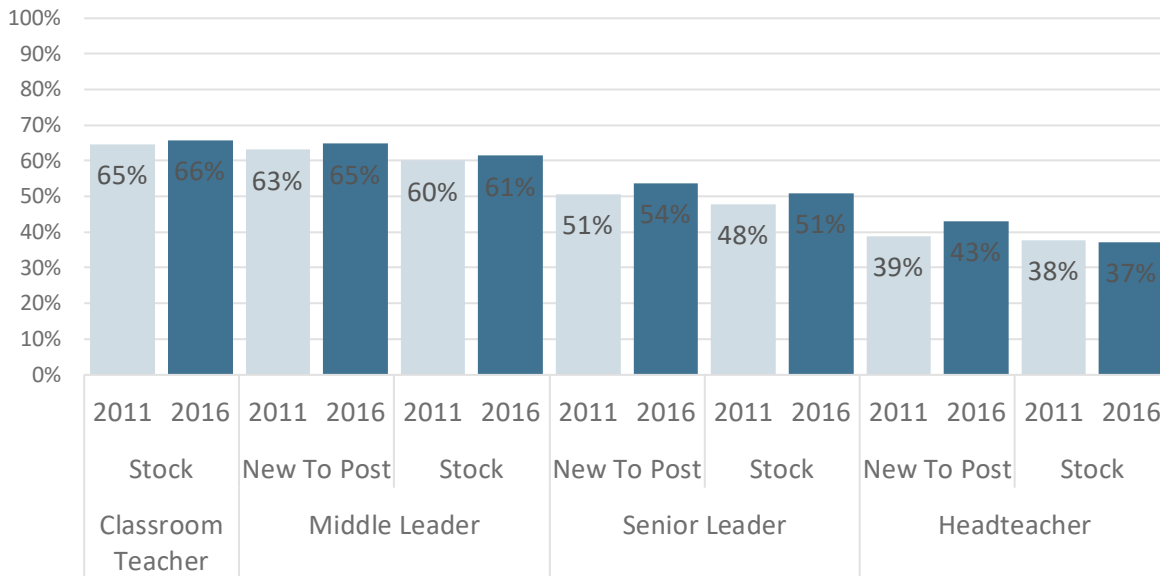
Teachers in leadership positions are less ethnically diverse than classroom teachers but this has improved over time

Leadership positions are rarely entry points into the teaching profession, and thus the diversity of leaders will lag behind a population whose diversity is changing. This is the case even if there is no disparity in progression to leadership positions.

The proportion of the population of England and Wales who were from an ethnic minority increased from 12.5% in 2001 to 19.5% in 2011[50]. There has been a rise in the proportion of Ethnic Minority teachers in leadership positions, reflecting progression of the more diverse cohorts at lower rungs of the leadership ladder, which in turn reflects the rise in the Ethnic Minority proportion of the population.

Between 2010 and 2016, the proportion of leadership positions held by Ethnic Minority teachers has increased (from 5% to 7% for headteachers in primary schools, and from 7% to 9% for headteachers in secondary schools. The proportion in the overall workforce has also increased (from 9% to 11% in primary schools and from 14% to 17% in secondary schools).

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[50] Office for National Statistics (2012) 'Ethnicity and National Identity in England and Wales: 2011'. Available at:
https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/ethnicityandnationalidentityinenglandandwales/2012-12-11

Figure 2.12: Proportion of primary school teachers from Ethnic Minorities

Bar chart showing proportion of primary school teachers from ethnic minorities, comparing 2010 and 2016:
- Classroom Teacher: 10% (2010), 12% (2016)
- Middle Leader: 11% (2010), 12% (2016)
- Assistant Head: 9% (2010), 10% (2016)
- Deputy Head: 6% (2010), 7% (2016)
- Headteacher: 5% (2010), 7% (2016)
- All: 9% (2010), 11% (2016)

Primary

■ 2010 ■ 2016

Figure 2.13: Proportion of secondary school teachers from Ethnic Minorities

Bar chart showing proportion of secondary school teachers from ethnic minorities, comparing 2010 and 2016:
- Classroom Teacher: 16% (2010), 20% (2016)
- Middle Leader: 12% (2010), 15% (2016)
- Assistant Head: 8% (2010), 11% (2016)
- Deputy Head: 7% (2010), 10% (2016)
- Headteacher: 7% (2010), 9% (2016)
- All: 14% (2010), 17% (2016)

Secondary

■ 2010 ■ 2016

Newly promoted leaders were as ethnically diverse as the "stock" five years earlier at the grade below

Equality of diversity in the leadership population and equality of diversity in progression to those leadership positions is only possible if the underlying (teacher) population is stable, which it is not at the moment, as mentioned above. However, equality in progression can be achieved before equality of the population and is possible regardless of changes in the underlying population.

Figures 2.14 and 2.15 below show that those new to post were not only more ethnically diverse than those they joined already at the grade (the stock), but also that those new to post were at least as ethnically diverse as the stock five years earlier at the grade below – the main source for those seeking promotion. This suggests that there is little difference in net progression to leadership for different ethnicities. This is explored further at individual level in section 3.

In primary schools in 2016, 8% of newly promoted headteachers were from Ethnic Minorities compared to 7% of the stock of senior leaders five years earlier in 2011. In secondary schools, 8% of newly promoted headteachers were from Ethnic Minorities compared to 8% of the stock of senior leaders five years earlier.

Figure 2.14: Proportion of primary school teachers new to post from Ethnic Minorities
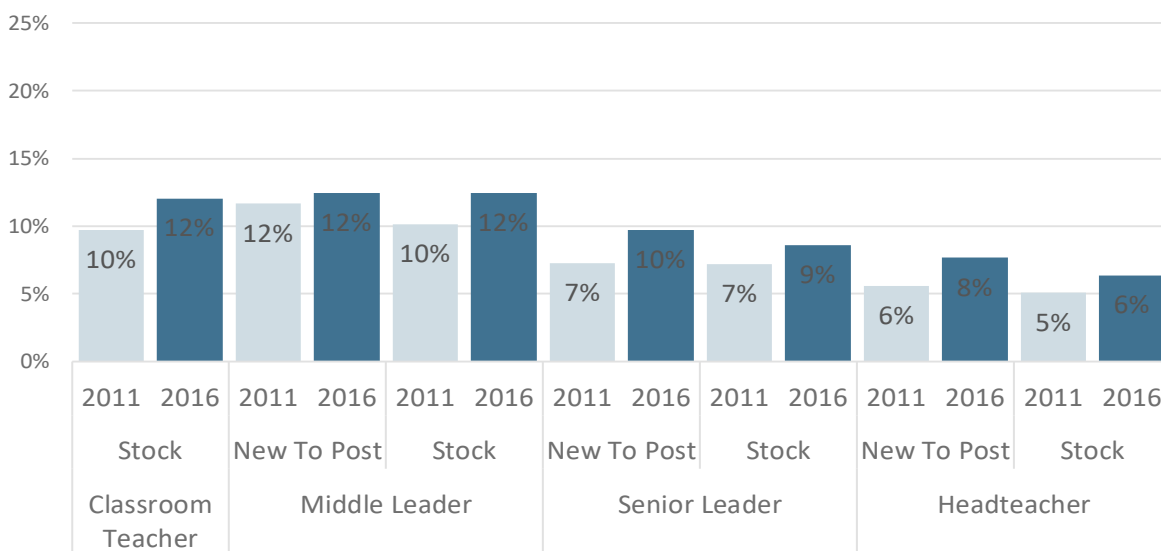
Source: School Workforce Census 2011 and 2016

Figure 2.15: Proportion of secondary school teachers new to post from Ethnic Minorities
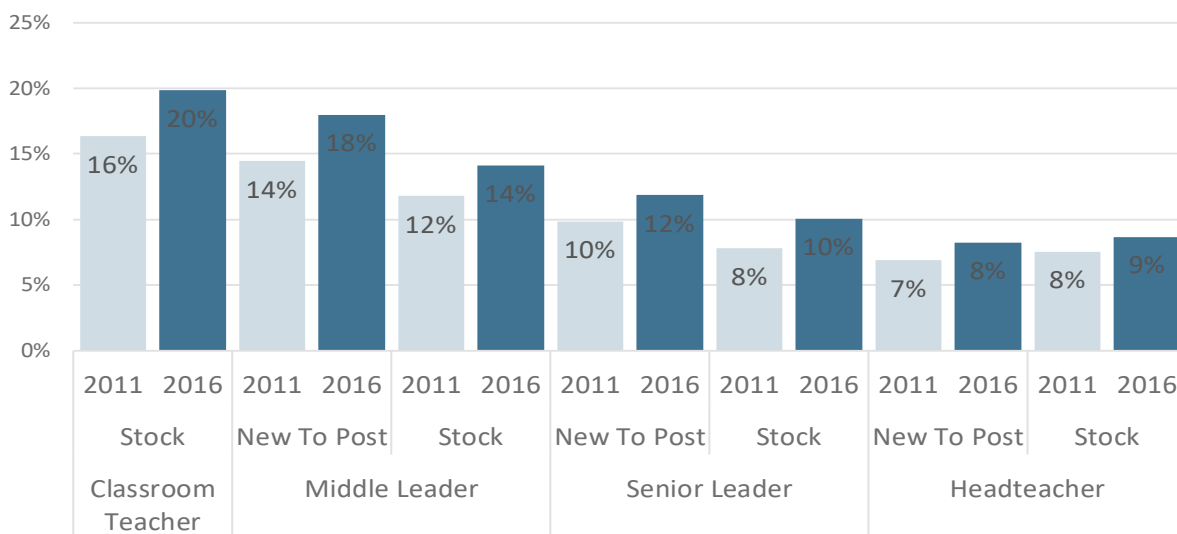
Source: School Workforce Census 2011 and 2016

The proportion of Ethnic Minority teachers is greatest in London

The different ethnic groups are not equally distributed within the teaching population across the country, in common with the general population. In primary schools, 53% of all Ethnic Minority teachers were in London compared with 12% of their White British counterparts; for secondary schools, the figures were 42% and 11% respectively.

Table 2.3. Proportion of teachers in each Ethnic Group in London

Ethnic Group	Primary	Secondary	Special
White British	12%	11%	12%
Ethnic Minorities	53%	42%	51%
Black	74%	61%	64%
Any Other	62%	51%	54%
White Other	53%	35%	51%
Mixed	47%	37%	41%
Asian	45%	40%	40%

Figures 2.16 and 2.17 below show the distribution of Ethnic Minority teachers by role and region for primary and secondary phases respectively. The figures show that in primary and secondary schools between 2010 and 2016, teachers have become more ethnically diverse in every role and region, except in Inner London where ethnic diversity was highest, but there has been a slight reduction in diversity for some roles.

The highest proportion of teachers from Ethnic Minorities in all leadership roles was in Inner and Outer London, followed by the West Midlands. This shows a greater geographic spread of Ethnic Minorities in the secondary phase. The pattern that headteachers are less diverse than senior leaders, who in turn are less diverse than middle leaders, is consistent across all regions.

Figure 2.16: Proportion of Ethnic Minority teachers[51] in primary schools, by role and region in 2010 and 2016
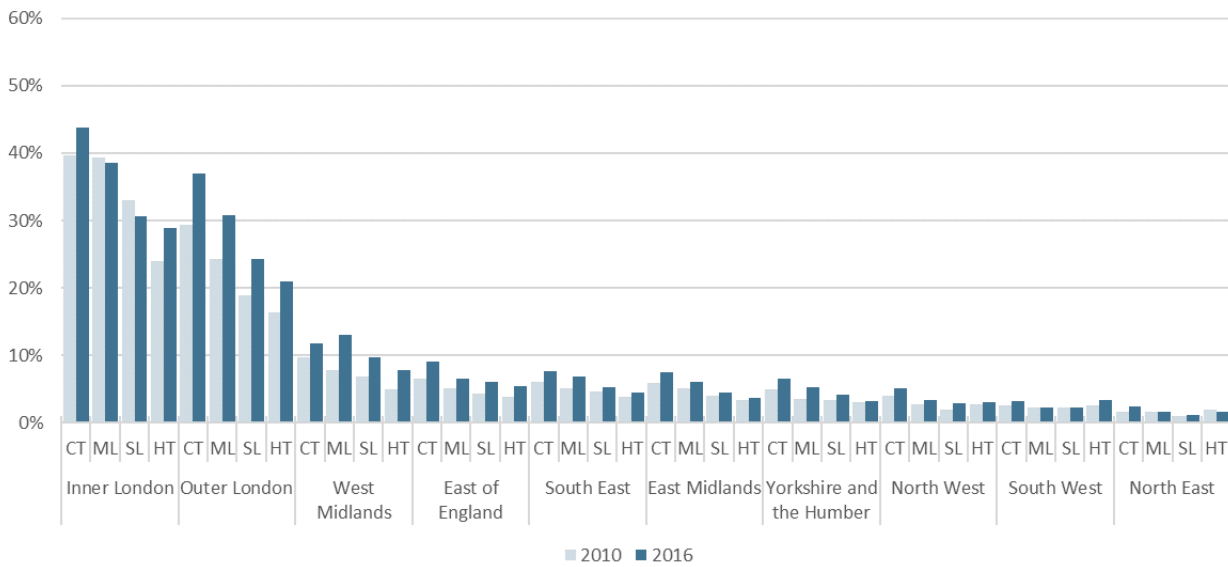
Figure 2.17: Proportion of Ethnic Minority teachers in secondary schools, by role and region in 2010 and 2016
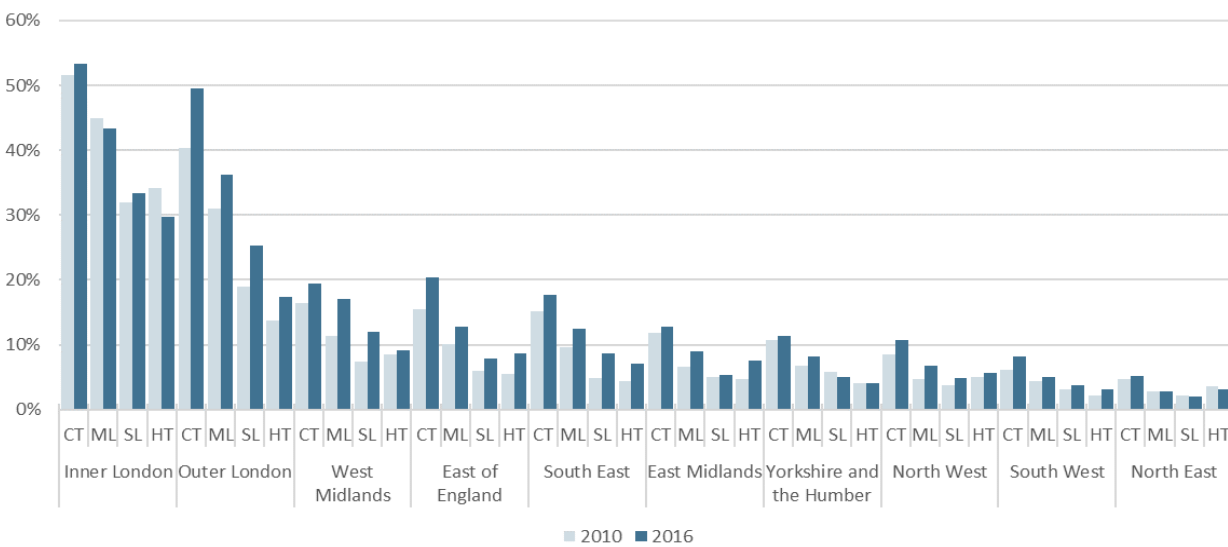
Figures 2.18 and 2.19 show the proportion of teachers from each Minority Ethnic group by role and region for primary and secondary schools respectively. A full definition for each of the ethnic groups can be found in the Methodology Section. London had the highest levels of representation for all ethnic groups in both primary and secondary schools. Outside of London, the distribution of ethnic groups across the country varied; for example, the White Other group was more highly represented in the South East and East of England, and the Asian group in the Midlands and Yorkshire and the Humber whereas the Black group had little significant presence outside of London. Overall, the

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[51] CT: Classroom Teachers, ML: Middle Leaders, SL: Senior Leaders, HT: Headteacher

White Other group was the largest minority ethnic group and had the highest representation of the Minority Ethnic groups at headteacher level for all regions.

Figure 2.18: Proportion of teachers from each minority ethnic group in primary schools, by role and region
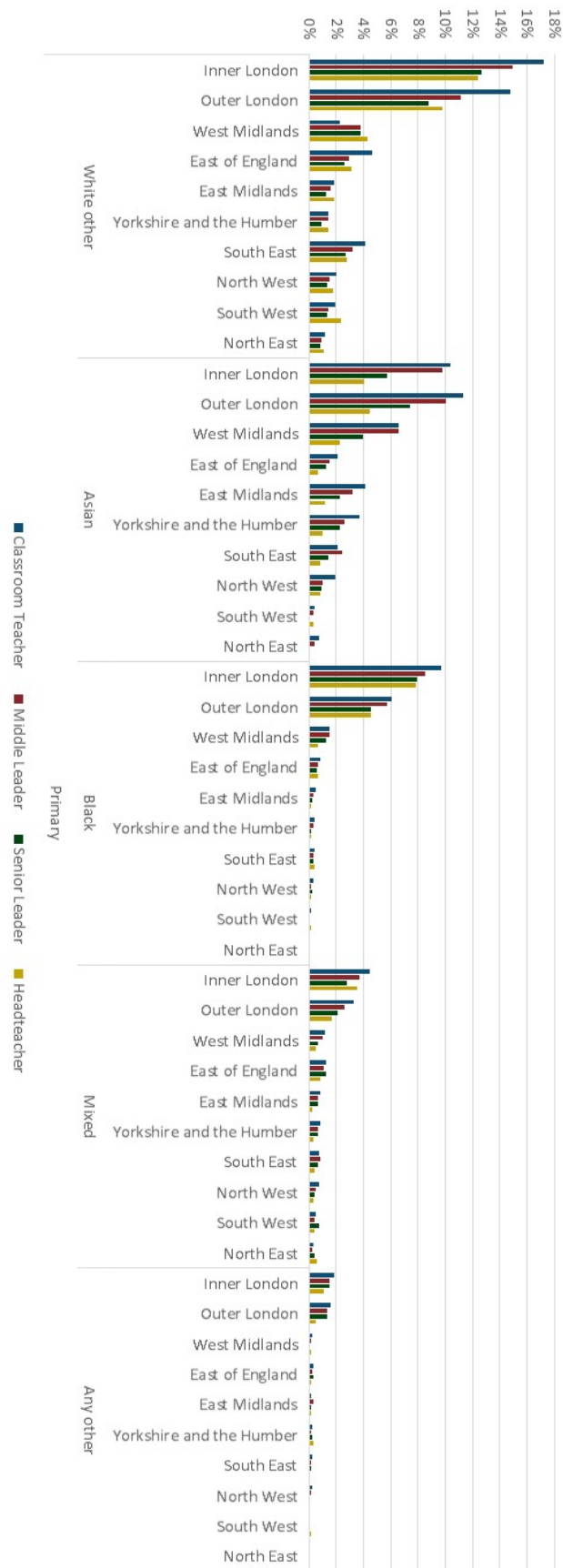
Figure 2.19: Proportion of teachers from each minority ethnic group in secondary schools, by role and region
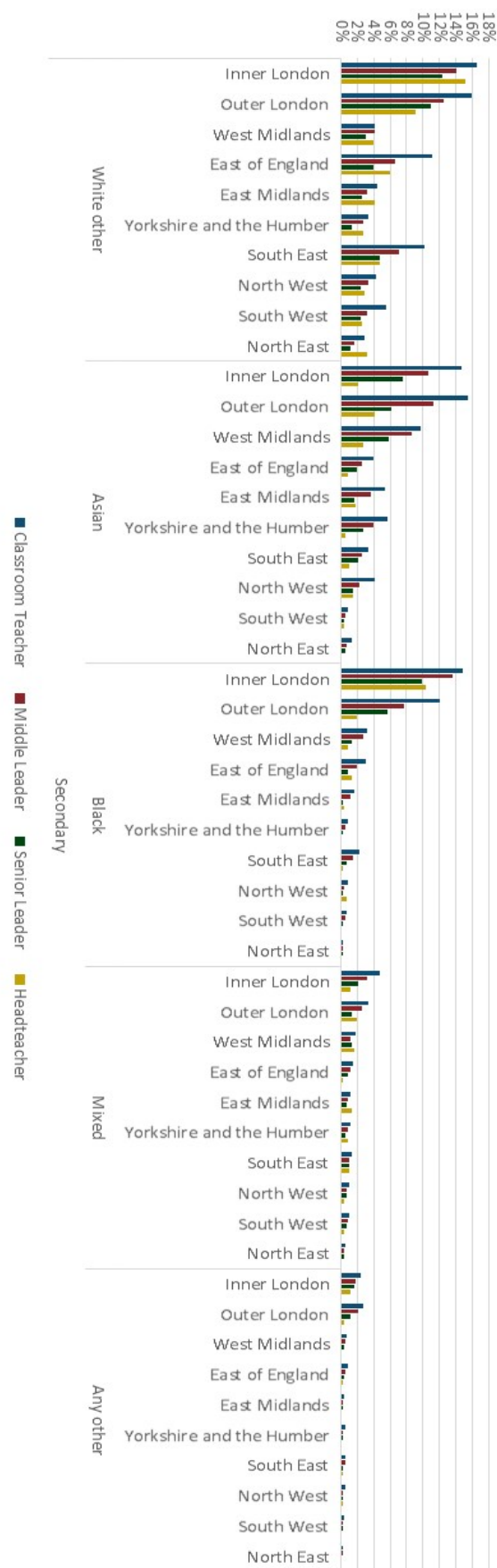
Source: School Workforce Census 2016

Senior leaders spend less time in the classroom

The School Workforce Census contains information on teaching time for around two thirds of secondary school teachers. No similar data is collected for primary schools. This allows an indication of teaching time for teachers in leadership roles in secondary schools.

Classroom teaching time as recorded in the School Workforce Census only represents face-to-face teaching time[52]. Other studies have looked at time spent in teaching hours and total hours worked per week by teachers and these findings are similar to those presented below. In Talis (2013)[53], teachers in secondary schools in England reported that they spent on average just under 20 hours per week in face-to-face teaching time, but a total of 46 working hours per week. Likewise, in the Teachers' Workload Diary[54] (2013) classroom teachers reported on average teaching 19 to 20 hours a week out of a total of over 50 hours per week. Headteachers reported teaching on average 2.8 hours out of a total of 60 hours per week. More recently, in the Teacher Workload Survey[55], classroom teachers in primary schools reported teaching an average of 23.2 hours a week compared to 20.7 in secondary schools. The equivalent figures for middle leaders were 22.1 and 19.6 hours per week respectively.

Time spent teaching in the classroom decreases as seniority increases. As can be seen in Figure 2.20 below, there has been little change over time. In 2016:
- 80% of middle leaders taught less than 20 hours compared to 65% of classroom teachers.
- 49% of assistant headteachers taught less than 10 hours compared to 10% of classroom teachers
- 45% of deputy headteachers taught less than 5 hours compared to 11% of assistant headteachers and 94% of deputy headteachers taught less than 10 hours compared to 49% of assistant headteachers.
- 88% of headteachers taught less than 5 hours compared to 45% of deputy headteachers

Average teaching hours for classroom teachers and middle leaders in London in 2016 were less than in the rest of England, as shown in Figure 2.21.

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[52] The data is unable to tell us about any other teacher activities.

[53] Department for Education (2014) 'Teachers in secondary schools: evidence from TALIS 2013', Pages 48-49. Available at: https://www.gov.uk/government/publications/teachers-in-secondary-schools-evidence-from-talis-2013

[54] Department for Education (2014) 'Teachers' workload diary survey 2013', page 12. Available at: https://www.gov.uk/government/publications/teachers-workload-diary-survey-2013

[55] Department for Education (2017) 'Teacher Workload Survey 2016', page 40. Available at: https://www.gov.uk/government/publications/teacher-workload-survey-2016

Figure 2.20: Hours spent in classroom teaching by role in secondary schools in 2010 and 2016
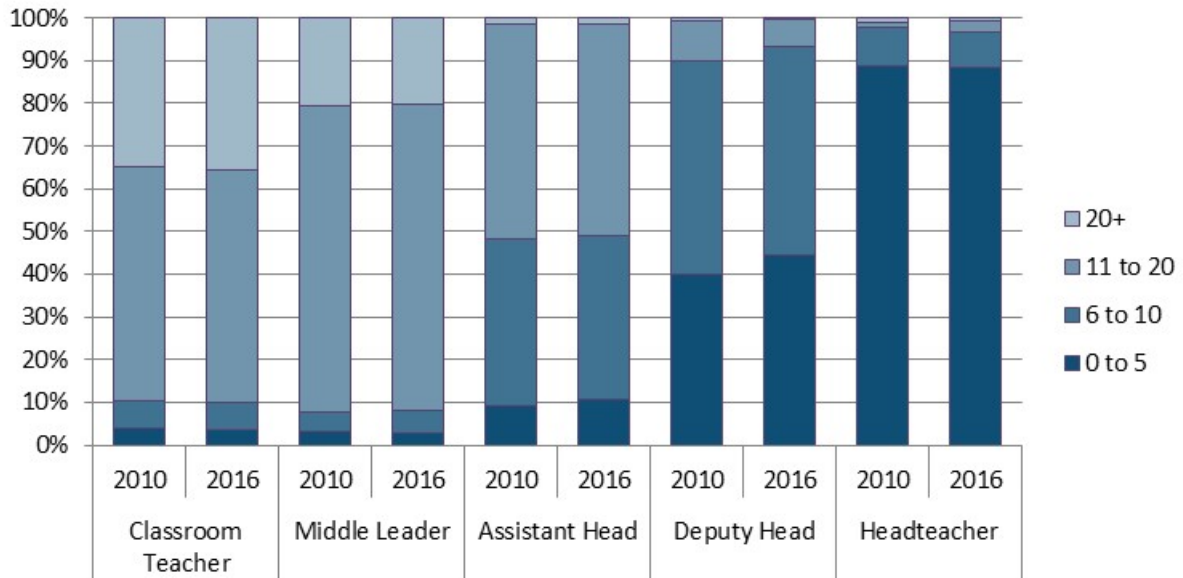
Average teaching hours for classroom teachers and middle leaders in London in 2016 were less than in the rest of England, as shown in Figure 2.21.

Figure 2.21: Hours spent in classroom teaching by role in secondary schools comparing London with the rest of England
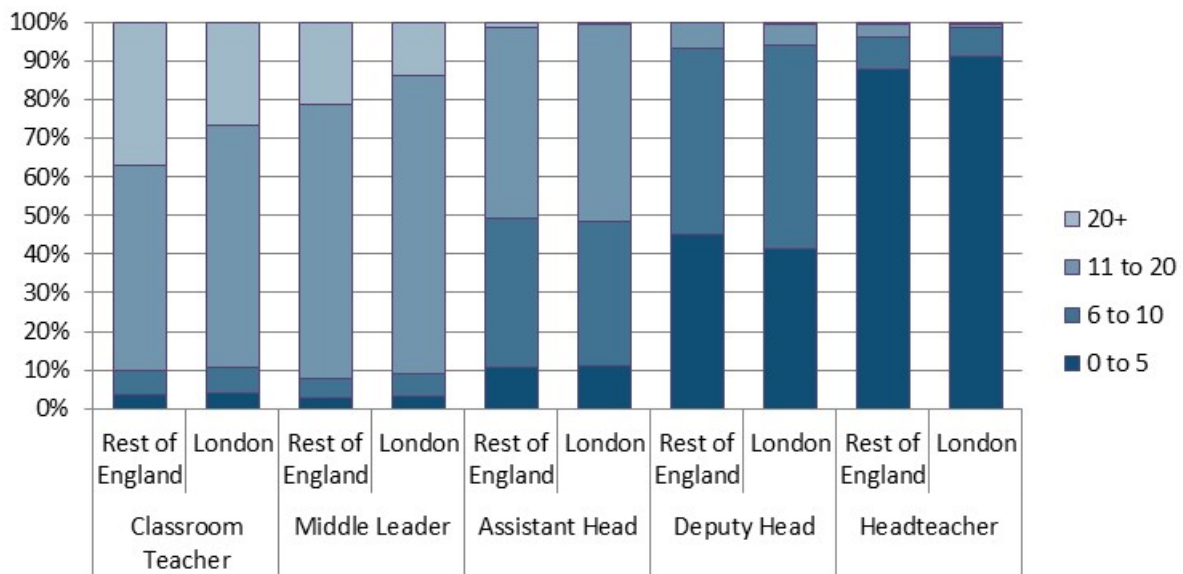
The degree subjects of teachers in leadership roles mirror those of classroom teachers

The School Workforce Census contains information on the qualifications held by teachers. The analysis below considers teachers by the subject of the highest

qualification level held. Where a teacher held more than one degree, only the highest degree(s) was considered in this analysis.

Tables 2.4 and 2.5 show the proportion of teachers by degree subject and leadership role in 2016 in primary and secondary schools respectively[56].

In primary schools, 49% of headteachers held a degree in "Others" (this includes undergraduate teaching degrees, which are far more common in initial teacher training for this phase than for secondary teaching), followed by English, 11%, and History, 6%. Teachers with a degree subject classified as Others were most under-represented amongst leadership roles compared to classroom teaching.

Table 2.4. Percentage of primary school teachers by degree subject and by role in 2016

	Primary			
	Headteacher	Senior Leader	Middle Leader	Classroom Teacher
Others	49%	55%	65%	69%
English	11%	11%	8%	6%
History	6%	5%	3%	2%
Mathematics	4%	4%	3%	2%
Biology	3%	3%	3%	2%
Art & Design	2%	2%	2%	1%
Geography	3%	2%	2%	1%
Religious Education	3%	2%	2%	1%
Music	3%	2%	1%	1%
Design & Technology	2%	2%	1%	1%
Physical Education	2%	2%	1%	1%
Drama	2%	1%	1%	1%
Science	1%	1%	1%	1%
French	1%	1%	1%	1%
Chemistry	1%	1%	1%	1%
Computing	1%	1%	1%	0%
Business Studies	1%	1%	1%	1%
Physics	1%	1%	0%	0%
Other Modern Foreign Language	0%	0%	0%	0%
Spanish	0%	0%	0%	0%
German	0%	0%	0%	0%
Classics	0%	0%	0%	0%
Food	0%	0%	0%	0%
Unknown	5%	3%	3%	5%

Source: School Workforce Census 2016

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[56] A list with the degree subject that fall under the name "Other" can be found in Annex 3.

In secondary schools, 22% of headteachers held a degree in Others, followed by English, 11%, and History, 10%. Contrary to the finding for primary schools, teachers with a degree subject classified as Others were over-represented in leadership roles compared to classroom teaching.

Table 2.5. Percentage of secondary school teachers by degree subject and by role in 2016

	Secondary			
	Headteacher	**Senior Leader**	**Middle Leader**	**Classroom Teacher**
Others	22%	20%	17%	14%
English	11%	13%	12%	12%
Mathematics	9%	10%	9%	11%
Biology	6%	8%	8%	9%
History	10%	7%	6%	5%
Art & Design	2%	2%	4%	4%
Design & Technology	2%	3%	5%	5%
Physical Education	4%	6%	5%	4%
Chemistry	4%	4%	4%	4%
French	3%	3%	3%	3%
Religious Education	4%	3%	4%	3%
Business Studies	4%	4%	3%	2%
Geography	4%	4%	3%	2%
Physics	4%	3%	3%	3%
Music	2%	2%	3%	2%
Computing	1%	2%	3%	3%
Drama	2%	3%	3%	2%
German	1%	1%	1%	1%
Other Modern Foreign Language	1%	1%	1%	2%
Science	1%	1%	1%	1%
Spanish	0%	0%	1%	1%
Classics	0%	0%	0%	0%
Food	0%	0%	0%	0%
Unknown	2%	2%	2%	7%

Source: School Workforce Census 2016

Tables 2.6 to 2.9 in the accompanying spreadsheet available online show the degree subjects of both headteachers and classroom teachers who were new to post compared to those in the existing 'stock' and how this changed between 2011 and 2016.

Increase in headteachers holding a Masters' degree in secondary schools

Table 2.10 shows that in 2016, the highest qualification level[57] of 94.5% of teachers in secondary schools was NQF level 7 (70.5%) or NQF level 6 (24.0%) compared to 95.9% of teachers in primary schools (46.6% Level 7 and 49.3% Level 6). In both primary and secondary schools, there was an increase in the proportion of teachers holding a qualification at level 7 from 2010 to 2016.

Table 2.10. Proportion of teachers by qualification level

	Primary		Secondary	
NQF	**2010**	**2016**	**2010**	**2016**
Level 4	0.0%	0.0%	0.0%	0.1%
Level 5	0.9%	0.6%	0.5%	0.3%
Level 6	51.5%	49.3%	30.2%	24.0%
Level 7	38.0%	46.6%	61.8%	70.5%
Level 8	0.1%	0.1%	0.4%	0.7%

Source: School Workforce Census 2010 and 2016

Tables 2.11 and 2.12 in the accompanying spreadsheet available online show the highest qualification level of both headteachers and classroom teachers who were new to post compared to those in the existing "stock" and how this changed between 2011 and 2016.

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[57] Further details can be found in Annex 3, but in brief the National Qualification Framework Levels are:

Level	Description
5	Certification in Education or equivalent
6	Degree or BEd or other first degree combined with teacher qualifications or Other programme leading to QTS
7	Master's Degree or Post-graduate Initial Teacher Training Qualification
8	Doctorate

3. Progression to and retention in leadership roles

This section looks at the time taken to progress from qualifying as a teacher to a first leadership role, and how this varies by phase, gender, ethnicity and region. It makes similar comparisons for progression from a senior leader role to headteacher[58]. This is then followed by examining the retention of teachers in leadership roles.

As mentioned in section 2, number of years since qualification (when Qualified Teacher Status (QTS) was awarded) is used as a proxy for calculating time in the teaching profession. The main limitation of using this is that it includes no information about whether service has been continuous, full-time or part-time, or whether it has been interrupted by periods of non-service such as career breaks.

Teachers progressed faster to their first leadership role in secondary schools, but progressed faster to a headteacher role in primary schools

Figure 3.1 shows that time to reach a leadership role was shorter in secondary schools. In 2016, 50% of teachers new to leadership positions in primary schools had been qualified for 9 years or less, compared with 7 years or less for teachers new to leadership positions in secondary schools. This is consistent with the greater proportion of middle leader roles in secondary schools.

Figure 3.1. Time since qualification to reach leadership in primary and secondary schools
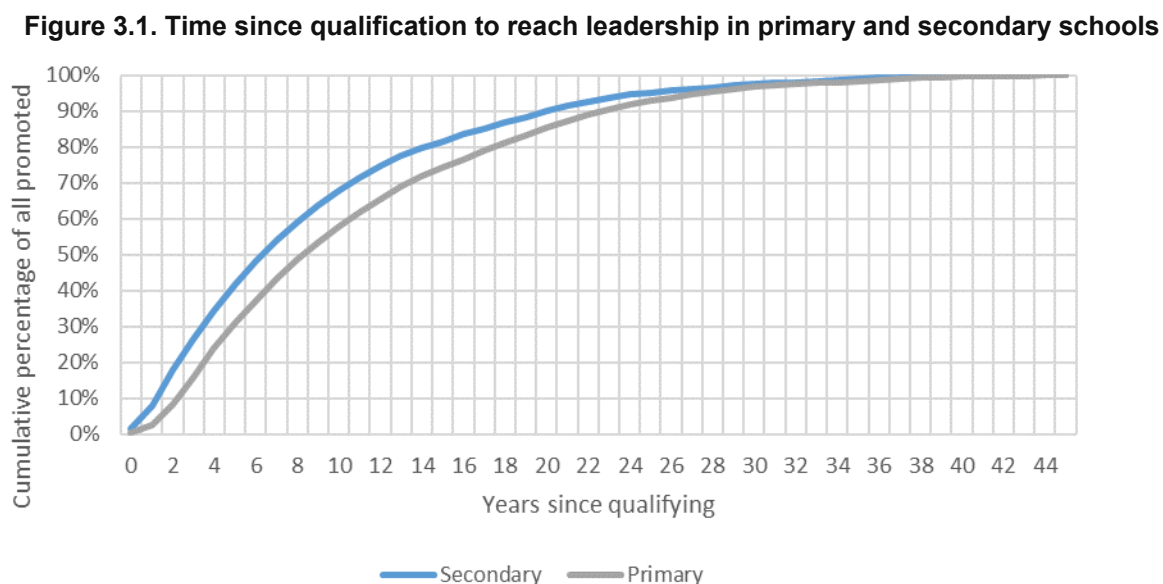
Source: School Workforce Census and Database of Qualified Teachers

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[58] Newly promoted to a first leadership or headship role includes teachers who were recorded in a "lower" role and teachers who were not found in the state school sector in the previous year. A small number of teachers with more than 45 years since QTS or who were recorded as gaining QTS after taking up a leadership post were excluded from this analysis.

Figure 3.2 shows that the time taken to reach a headteacher role was shorter in primary schools. In 2016, 50% of new secondary headteachers had been qualified for 20 years or less, compared with 17 years or less for primary headteachers.

Figure 3.2. Time since qualification to reach headship in primary and secondary schools
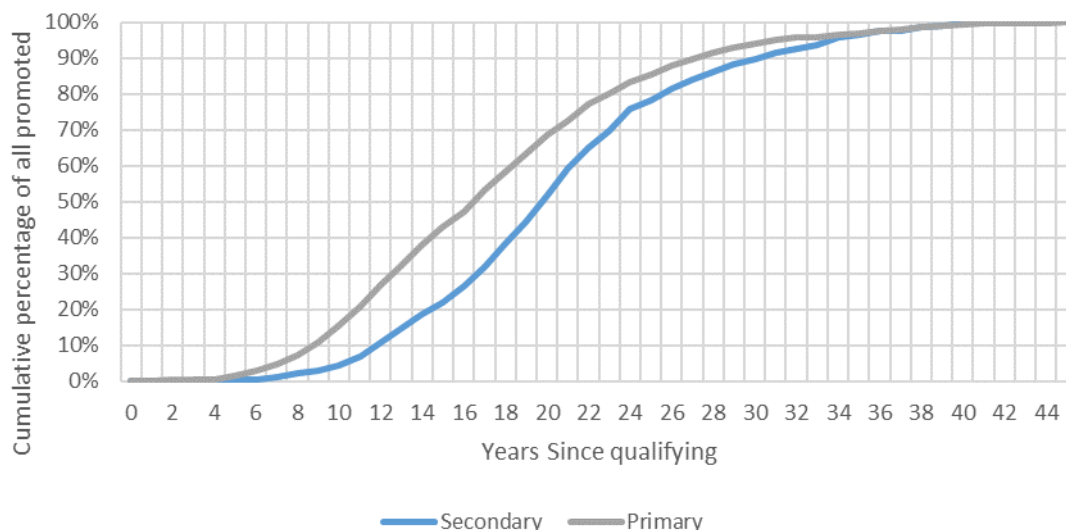
Source: School Workforce Census and Database of Qualified Teachers

Men progressed faster than women to headteacher roles, with a more pronounced difference in primary schools

Figure 3.3 shows that there was little difference between the genders in secondary schools for time to progress to first leadership role; in 2016, 50% of both male and female teachers new to leadership positions in secondary schools had been qualified for 7 years or less. This contrasts with the situation in primary schools where men progressed faster on average; in 2016, 50% of female teachers new to leadership positions in primary schools had been qualified for 9 years or less, compared with 6 years or less for male teachers.

Figure 3.3. Time since qualification to reach leadership in primary and secondary schools for male and female teachers
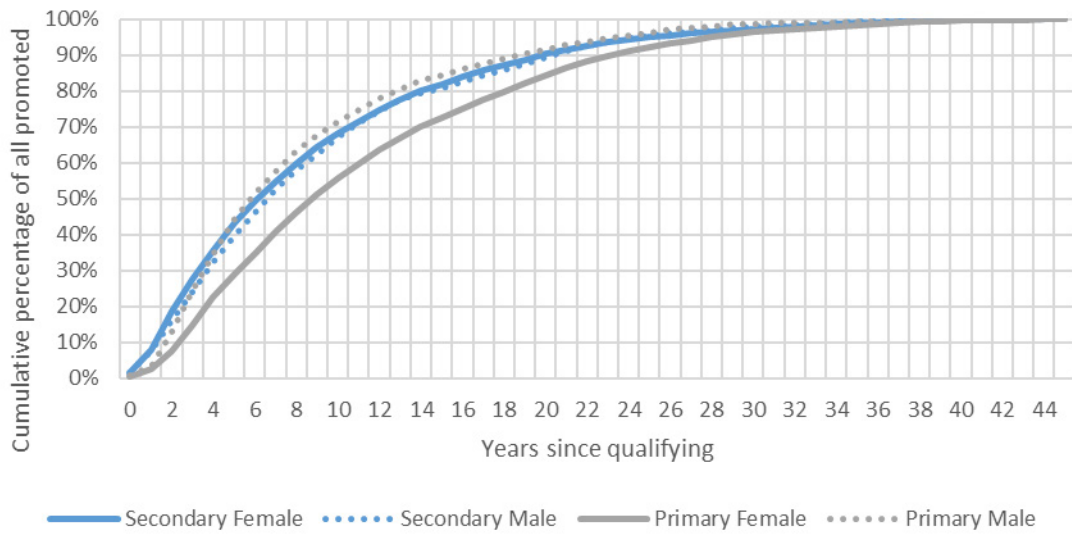
Figure 3.4 shows that on average men reached headteacher roles faster than women, in both primary and secondary schools. In 2016, 50% of new female primary headteachers had been qualified for 18 years or less, compared with 14 years or less for male primary headteachers. In secondary schools, 50% of female headteachers had been qualified for 21 years or less, compared with 20 years or less for males.

Figure 3.4. Time since qualification to reach headship in primary and secondary schools for male and female teachers
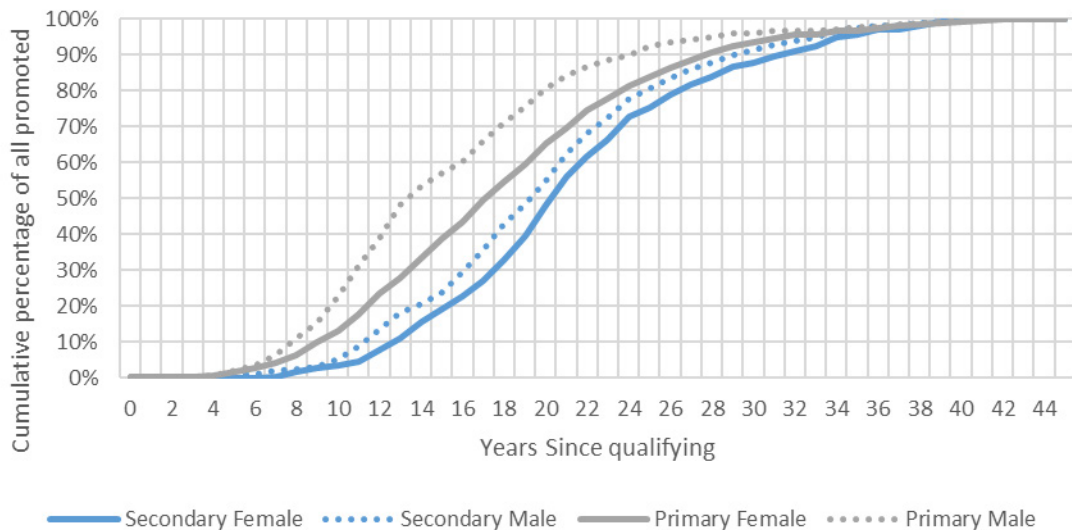
More advanced statistical techniques were used to assess progression to leadership and headteacher

A statistical technique for observational data called exact matching was used to estimate the effects of different values of one "treatment" characteristic (such as gender or ethnicity) by accounting for the effects of the other characteristics. The analysis was limited to the characteristics available in the School Workforce Census and those included were ethnicity, age, gender, school phase, region, years since qualification, and post held at the beginning of the five-year period (2010 to 2015 or 2011 to 2016 depending on the cohort).

The effects of different values of the treatment characteristic were compared against the outcome of progression to both first leadership and headship roles by the end of five years. Further details about the methodology are included in Annex 4.

Four models were used to compare career progression to both leadership[59] and headship for the different treatment characteristics:
- Model 1: Minority ethnic teachers compared to White British teachers.
- Model 2: Male teachers compared to female teachers.
- Model 3: Teachers working in London compared to teachers working outside London.
- Model 4: Teachers working in each region compared to teachers working in London.

In each case, one value of the treatment characteristic was identified as the "control" and the other values compared with this. For example, in model 1 the treatment was ethnicity with the White British group identified as the control to compare the minority ethnic groups with, whilst holding age, gender, phase, region, years since qualification, and post at the beginning of the period constant.

Tables 3.1 and 3.2 show the difference in average progression to leadership and headship for each of the treatment groups compared with the control group for each model. The treatment effect was calculated as the difference in means between each treatment group and the control group.

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[59] This looked at first leadership post after being a classroom teacher and included all posts from middle leader to headteacher. The majority of these first leadership posts were as middle leader.

No significant[60] evidence of disparity by ethnicity in progression to leadership roles at any level

In Model 1, the analysis found no significant difference in progression to either a first leadership or headteacher role between minority ethnic groups and the White British group. The differences in treatment effect for progression to leadership (-6.5 percentage points for Black, -5.6 percentage points for Asian, +0.1 percentage points for Mixed and +1.7 percentage points for White Other) and for headteacher (-0.9, -5.2, +5.0, +2.3 percentage points respectively), failed to replicate at the appropriate level of 95% of all simulations[61].

Men were more likely to progress to a first leadership and headship role in five years compared to women

In Model 2, the analysis found that there was a significant effect for gender with more men progressing to both first leadership and headteacher roles on average than women. The treatment effect for male teachers was 8.2 percentage points and 6.2 percentage points for progression to leadership and progression to headship respectively. This means that when keeping all characteristics the same other than gender, we would expect the proportion of male teachers who progressed to leadership to exceed that of the female group by 8.2 percentage points and likewise by 6.2 percentage points for progression to headteacher.

Teachers in London were more likely to progress to a first leadership role in five years, but there was no disparity by region in progression beyond this

In Model 3, the analysis found that there was a significant effect for working in London in progression to first leadership role. This means that keeping all characteristics the same other than location we would expect progression of the London group to exceed the non-London group by 16 percentage points, a bigger effect size than for gender in Model 2. There was no difference in progression to headship between working in and outside of London.

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[60] See Annex 4 for details of assessment of significance in this analysis.

[61] For example, the Asian group comparison showed the highest number of significant simulations in Model 1. A significant difference in progression was shown by 68% of the tests. This could be due to randomness as there were many controls (15,966) out of which only 776 were chosen to match to the treatment group, however increasing the number of simulations from 100 to 300 did not alter this value. Since 68% is less than 95%, the experiment failed to find a significant difference in progression between any of the ethnic groups and the White British group.

Model 4 contains a more fine-grained analysis of region than model 3. The results showed that teachers in all regions were less likely to progress to leadership than those in London. The analysis found that this difference was statistically significant at the 95% level. The treatment effect for South West was the highest with a treatment effect of -22.6 percentage points, followed by Yorkshire and the Humber with -20.3 percentage points. There was no difference in progression to headship between any of the regions compared with London.

Table 3.1. Group comparison after matching for progression to leadership

Treatment group	Number of observations	Observations matched to control	Treatment effect	Statistical significance[62]
Model 1 – Ethnicity (control: White British)				
Asian	777	776	-5.6%	No
Black	319	317	-6.5%	No
Mixed	309	308	0.1%	No
White other	846	839	1.7%	No
Model 2 - Gender (control: Female)				
Male	4731	4690	8.2%	Yes
Model 3 - London Area (control: not London)				
London	3207	3077	16.2%	Yes
Model 4 - Region (control: London)				
East Midlands	1367	1344	-14.4%	Yes
East of England	2296	2265	-16.9%	Yes
North East	805	801	-19.6%	Yes
North West	2009	1991	-17.5%	Yes
South East	3103	3051	-16.6%	Yes
South West	1428	1405	-22.6%	Yes
West Midlands	1789	1763	-14.5%	Yes
Yorkshire & the Humber	1780	1763	-20.3%	Yes

Table 3.2. Group comparison after matching for progression to headteacher

Treatment group	Number of observations	Observations matched to control	Treatment effect	Statistical significance[62]
Model 1 – Ethnicity (control: White British)				
Asian	124	115	-0.6%	No
Black	48	46	-4.6%	No
Mixed	43	42	5.7%	No
White other	133	125	2.6%	No
Model 2 - Gender (control: Female)				
Male	1439	1345	6.2%	Yes
Model 3 - London Area (control: not London)				
London	624	511	0.4%	No

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[62] See Annex 4 for details of assessment of significance in this case.

Treatment group	Number of observations	Observations matched to control	Treatment effect	Statistical significance[62]
Model 4 - Region (control: London)				
East Midlands	311	250	6.8%	No
East of England	480	383	5.5%	No
North East	253	226	1.9%	No
North West	684	578	0.9%	No
South East	655	555	3.6%	No
South West	376	309	-3.4%	No
West Midlands	628	518	0.6%	No
Yorkshire & the Humber	522	437	0.7%	No

For all models, the analysis was limited to the characteristics listed earlier from the School Workforce Census, and the time period (since 2010) for which that was available. It was not possible to allow for qualitative characteristics such as motivation and career aspirations. In addition, larger treatment groups would allow for more nuanced analysis than was possible with the available data.

In addition, it is important to note the limitations due to this approach and the sample size. Specifically, due to the data available, it was only possible to identify two cohorts of teachers with which to compare progression to leadership and one for progression to headteacher. The analysis took a cautious approach to identifying suitable control groups - requiring exact matching rather than other methods that allow a wider set of observations to be matched or that rely on distributional assumptions, including regression analysis. This reduced the sample size further. Some of the effect sizes found in this analysis might be found to be significant if based on a larger sample.

In conclusion, the analysis showed that career progression to both first leadership and headteacher roles was on average faster for male teachers than their female counterparts. Region has the greatest effect for progression to first leadership role out of all the characteristics explored, although there was no difference between regions for progression to headteacher.

Retention of teachers in leadership roles increased with seniority and was generally slightly better in primary schools than in secondary schools

For the purposes of this analysis, "retention" is defined as the proportion of teachers who were employed in subsequent years in a role of the same or higher level[63] and in the same phase, as recorded by the School Workforce Census[64].

"New to post" is defined as being recorded in the SWC at a higher level than in the previous year, or who were not recorded in the SWC in the previous year[65]. The number of teachers is measured using headcount, which considers the number of teachers recorded and does not account for full time equivalents.

Figure 3.5 shows the percentage of teachers who were new to leadership roles with a contract that was not permanent. Of all teachers new to leadership posts, 25% of primary school headteachers and 19% of secondary school headteachers did not have a permanent contract[66] in 2016. Compared to 2011, this was a slight decrease from 26% for primary school headteachers and an increase from 13% for secondary school headteachers.

Figure 3.5. Proportion of leadership teachers without permanent contracts by role in 2011 and 2016 for Primary and Secondary schools
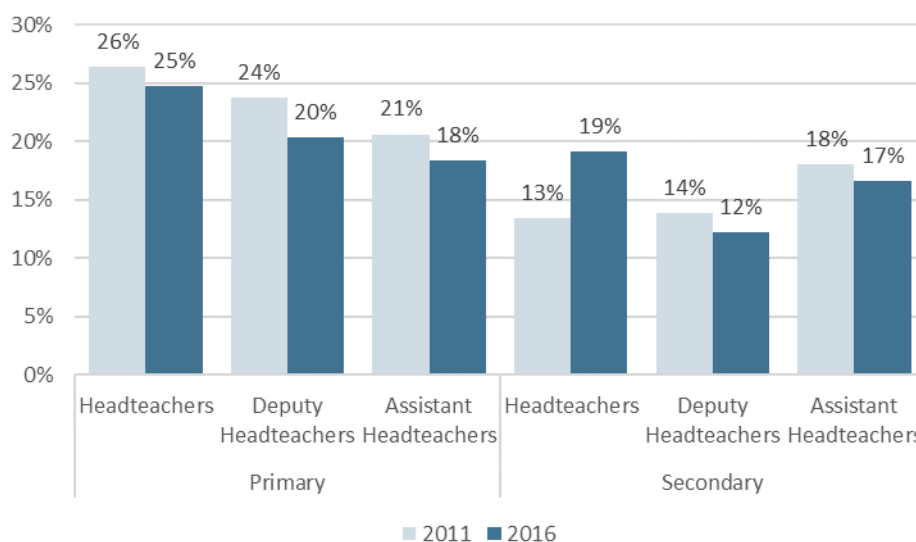
Source: School Workforce Census

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[63] For example, retention at assistant headteacher includes any teachers promoted to deputy headteacher or headteacher.

[64] Note that leaders who are not retained under this definition may still be retained within the teaching profession for example, at a "lower" role, in a different phase, within a multi academy trust where their role falls outside the scope of the School Workforce Census, or may have moved outside the state school sector, to the independent, FE or HE sector

[65] Such teachers may have been taking a career break, or working outside the state-funded school sector.

[66] Alternative classifications of contracts in the School Workforce Census are "temporary", "fixed term" or "service level agreement".

Retention of leaders with permanent contracts is not directly comparable with those with temporary or fixed contracts that are deliberately shorter term and for this reason, the analysis presented below is restricted to only those with permanent contracts.

In addition, the analysis is restricted to only those aged under 50 to minimise the influence of retirement on the figures presented. For completeness, equivalent statistics for those aged 50 or over are included in the accompanying spreadsheet.

Headteachers

Tables 3.3 and 3.4 show that retention of headteachers in primary schools was slightly better (84% of the cohort new to post in 2011 were retained after 3 years) than in secondary schools (77% were retained) and both saw a slight decline in rates over time (equivalent figures for those new to post in 2013 were 81% and 69% respectively).

Table 3.3. Retention rates of new headteachers aged under 50 in primary schools

Year	New to post (rounded)	Percentage of headteachers retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	1,020	93%	90%	86%	83%	78%
2012	1,120	92%	89%	85%	81%	
2013	1,230	92%	86%	82%		
2014	1,360	90%	85%			
2015	1,390	91%				

Source: School Workforce Census

Table 3.4. Retention rates of new headteachers aged under 50 in secondary schools

Year	New to post (rounded)	Percentage of headteachers retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	250	90%	84%	78%	69%	65%
2012	310	90%	88%	77%	71%	
2013	350	87%	80%	73%		
2014	390	86%	80%			
2015	410	87%				

Source: School Workforce Census

Deputy Headteachers

Tables 3.5 and 3.6 show that retention of deputy headteachers in primary schools was marginally better (80% of the cohort new to post in 2011 were retained after 3 years) than in secondary schools (78% were retained) and this has remained roughly similar since then.

Table 3.5. Retention rates of new deputy headteachers aged under 50 in primary schools

Year	New to post (rounded)	Percentage of deputy headteachers retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	1,590	91%	85%	80%	79%	75%
2012	1,830	88%	84%	80%	78%	
2013	1,860	90%	84%	80%		
2014	2,160	89%	85%			
2015	2,130	91%				

Source: School Workforce Census

Table 3.6. Retention rates of new deputy headteachers aged under 50 in secondary schools

Year	New to post (rounded)	Percentage of deputy headteachers retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	590	88%	81%	78%	73%	68%
2012	750	87%	83%	75%	71%	
2013	780	88%	83%	76%		
2014	960	86%	75%			
2015	870	85%				

Source: School Workforce Census

Assistant Headteachers

Tables 3.7 and 3.8 show that assistant headteachers displayed similar rates of retention to deputy headteachers, again with retention in primary schools marginally better (81% of the cohort new to post in 2011 were retained after 3 years) than in secondary schools (76% were retained). There was little variation in retention rate over time in primary schools; however, there was a small reduction in secondary schools (71% of the cohort new to post in 2013 were retained after 3 years).

Table 3.7. Retention rates of new assistant headteachers aged under 50 in primary schools.

Year	New to post (rounded)	Percentage of assistant headteachers retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	1,270	91%	85%	81%	78%	74%
2012	1,510	89%	84%	79%	76%	
2013	1,960	91%	84%	79%		
2014	2,590	91%	84%			
2015	2,560	90%				

Source: School Workforce Census

Table 3.8. Retention rates of new assistant headteachers aged under 50 in secondary schools.

Year	New to post (rounded)	Percentage of assistant headteachers retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	1,380	90%	81%	76%	70%	63%
2012	1,870	87%	80%	74%	67%	
2013	2,060	88%	80%	71%		
2014	2,620	85%	76%			
2015	2,270	84%				

Source: School Workforce Census

Middle Leaders

Tables 3.9 and 3.10 show that middle leaders displayed lower rates of retention than their more senior counterparts did. Retention in primary schools (65% of the cohort new to post in 2011 were retained after 3 years) was very similar to that in secondary schools (67% were retained). There was little variation in retention rate over time in primary schools; however, secondary schools saw a small reduction (62% of the cohort new to post in 2013 were retained after 3 years).

Table 3.9. Retention rates of new middle leaders aged under 50 in primary schools

Year	New to post (rounded)	Percentage of middle leaders retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	6,570	83%	72%	65%	59%	57%
2012	7,180	80%	68%	66%	63%	
2013	8,570	79%	68%	64%		
2014	9,550	76%	66%			
2015	11,120	78%				

Source: School Workforce Census

Table 3.10. Retention rates of new middle leaders aged under 50 in secondary schools

Year	New to post (rounded)	Percentage of middle leaders retained after:				
		1 year	2 years	3 years	4 years	5 years
2011	11,560	84%	73%	67%	61%	57%
2012	12,560	82%	71%	64%	60%	
2013	14,080	80%	68%	62%		
2014	14,890	79%	68%			
2015	17,200	80%				

Source: School Workforce Census

Overall net flows of teachers showed lowest flows in and out of the state-funded school sector for leaders

There are four main net flows concerning the teaching population in state-funded schools:

- retention (teachers staying in role),
- wastage (teachers leaving the state-funded school sector),
- inflow (teachers joining the state-funded school sector),
- Role change (teachers who change role, most commonly on promotion.)

Looking at the net flows of teachers between roles allows an overview of the different career pathways and their relative prominence, as well as the main flows into and out of the profession.

The Sankey diagrams in Figures 3.6 and 3.7 illustrate the movement of teachers between roles for primary and secondary schools respectively[67]. The thickness of the lines shows the proportion of teachers who moved from their original role in 2015 (on the left) to their role in 2016 (on the right). The percentages labelled show those who remained in the same role. For example in primary schools, 78.1% of classroom teachers in 2015 remained as classroom teachers in 2016. The vast majority of teachers stayed in the same role year on year, with the percentage remaining in role increasing with seniority.

In both phases, classroom teachers contained the largest flows into and out of the sector, and the largest flows within the sector were between classroom teacher and middle leader. In primary schools, the proportion of middle leaders who moved back to classroom teacher roles was slightly higher than for those who left the state school funded system; in secondary schools, the proportions were similar. More detailed stock and flow diagrams are included in Annex 5.

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[67] All flow numbers are rounded to the nearest hundred and percentages to the nearest point. All flows under 1% are omitted.

Figure 3.6. Flows between roles for Primary schools for the years 2015 and 2016
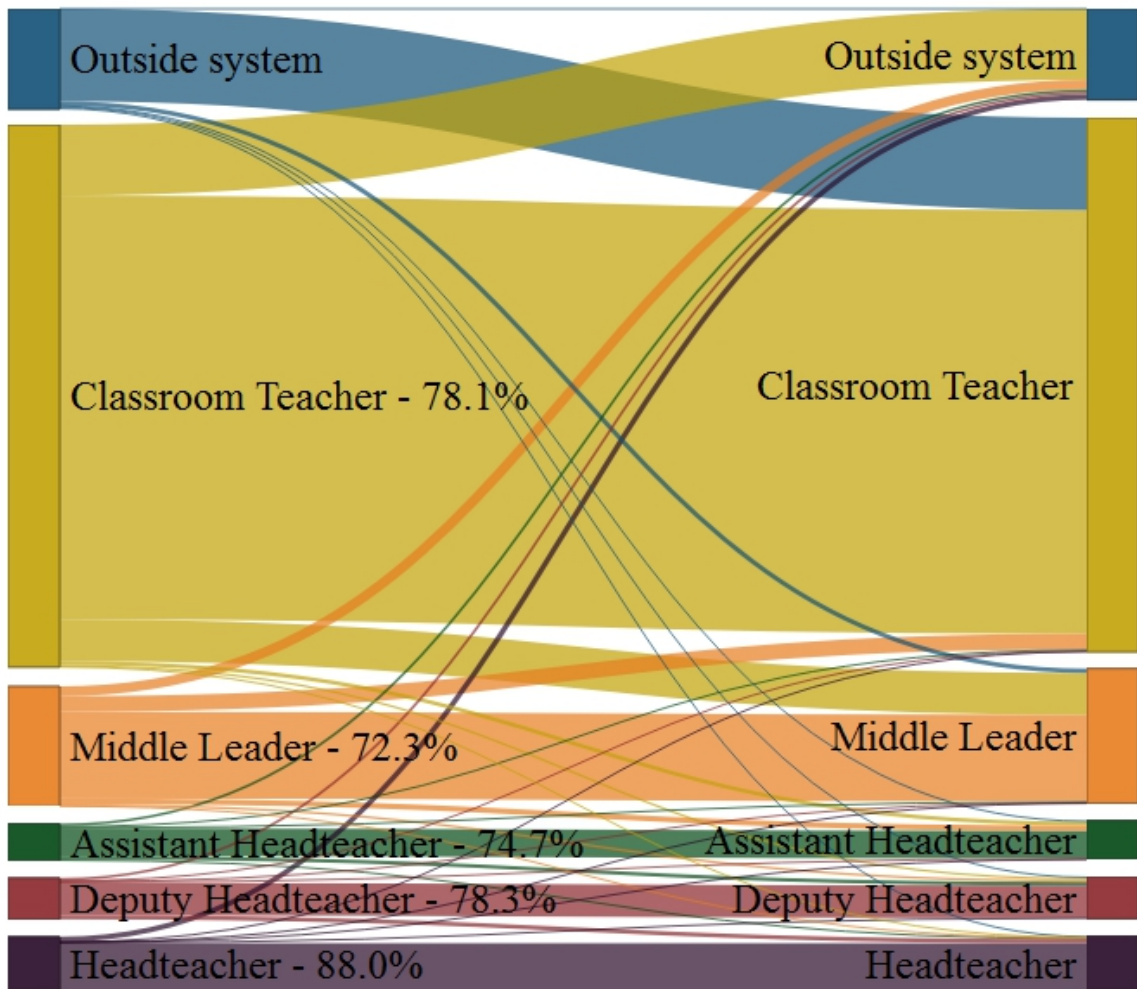
Figure 3.7. Flows between roles for Secondary schools for the years 2015 and 2016

Outside system

Outside system

Classroom Teacher - 70.7%

Classroom Teacher

Middle Leader - 79.6%

Middle Leader

Assistant Headteacher - 76.8%

Assistant Headteacher

Deputy Headteacher - 75.4%

Deputy Headteacher

Headteacher - 82.7%

Headteacher
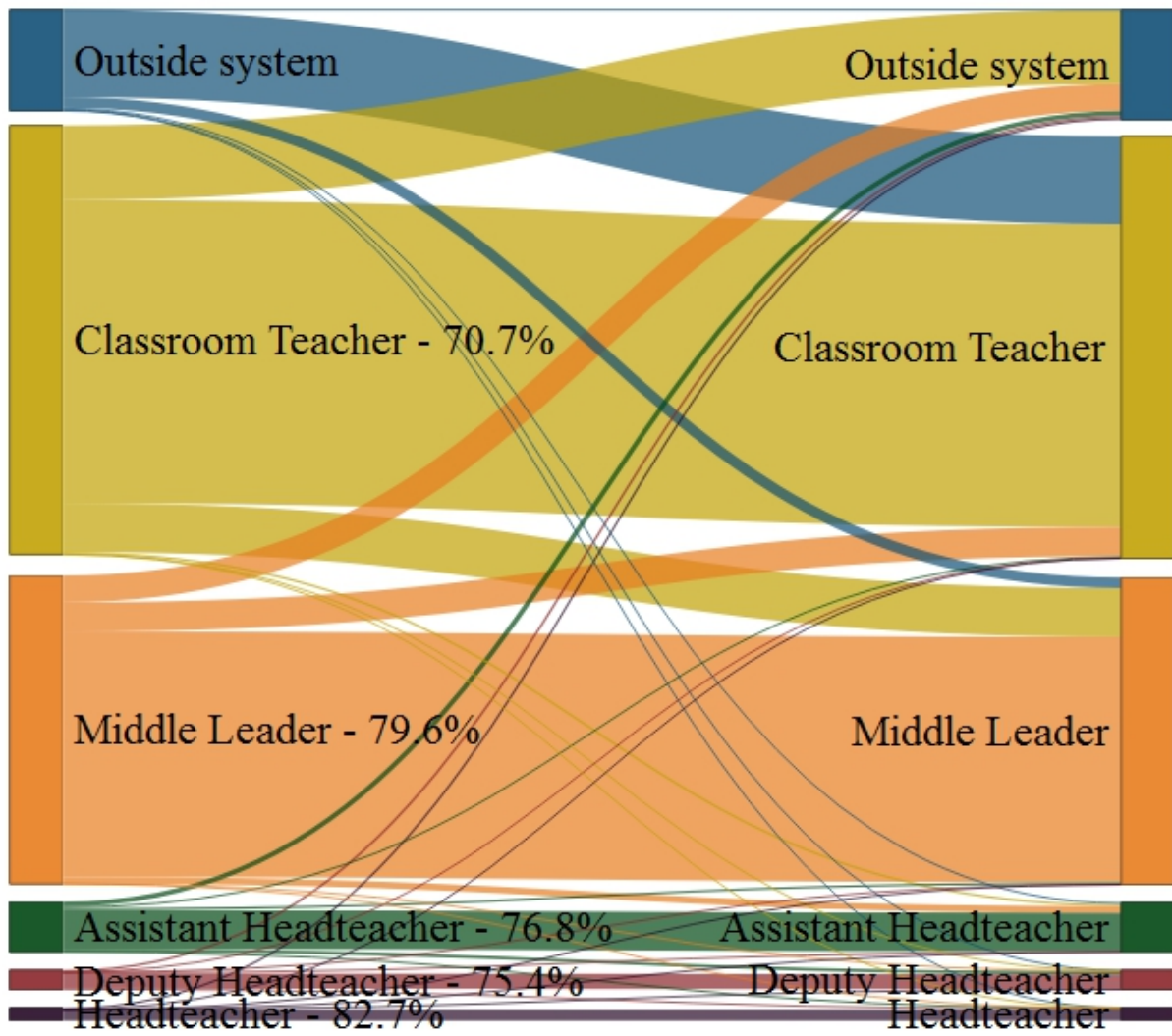
Source: School Workforce Census 2015 and 2016

Annex 1: List of tables and figures

The following tables and figures used in this publication are available in spreadsheet format online.

1. The size and structure of the teaching and leadership population

Table 1.1. Leadership roles
Figure 1.1. Teacher population in 2016. The labels on the y-axis show the overall number and proportion of teachers for each role.
Table 1.2. Number of pupils and teachers, 2010 to 2016,
Figure 1.2. Teacher population changes from 2011 to 2016 compared to 2010
Figure 1.3. Newly promoted teachers in each year from 2011 to 2016
Figure 1.4. Proportion of teachers in each role in 2016 by sector for Primary and Secondary schools
Figure 1.5. Proportion of primary school teachers in each role in 2016 by region
Figure 1.6. Proportion of secondary school teachers in each role in 2016 by region
Table 1.3. Proportion of primary school teachers in each role in 2016 by RSC region
Table 1.4. Proportion of secondary school teachers in each role in 2016 by RSC region
Table 1.5. Proportion of teachers in each role in 2016 by tier for Primary and Secondary schools

2. Characteristics of teachers in leadership roles

Table 2.1. Teachers' age quartiles in 2010 and 2016 for the different roles
Figure 2.1: Teacher population (all schools) by age in 2010 (solid fill) compared with 2016 (line)
Figure 2.2: Headteacher population in 2010 (solid fill) compared with 2016 (line)
Figure 2.3: Box plots showing the relationship between age and years since qualification for all teachers in 2016
Figure 2.4: Box plots showing the relationship between age and years since qualification for headteachers in 2016
Table 2.2. Teachers' years since qualification in 2010 and 2016 for the different roles
Figure 2.5: Teacher population by years since qualification comparing 2010 (solid fill) and 2016 (line)
Figure 2.6: Leadership population by years since qualification in primary schools
Figure 2.7: Leadership population by years since qualification in secondary schools
Figure 2.8: Proportion of female teachers in primary schools
Figure 2.9: Proportion of female teachers in secondary schools
Figure 2.10: Proportion of female teachers new to post in primary schools
Figure 2.11: Proportion of female teachers new to post in secondary schools
Figure 2.12: Proportion of primary school teachers from Ethnic Minorities
Figure 2.13: Proportion of secondary school teachers from Ethnic Minorities
Figure 2.14: Proportion of primary school teachers from Ethnic Minorities

3. Progression to and retention in leadership roles

Annex 2: Relationship between age and years since qualification

Annex 3: Teachers by degree subject and level

Annex 4: Matching methodology

Annex 5: Teacher flows between roles

We round numbers.	All percentages will be rounded to either 1 decimal place or to an integer value, depending on context (large counts such as counts of groups of teachers, are rounded to the nearest 100, for example).
Totals for England do not necessarily equal averages for regions.	Because of the differing sizes of the regions and the number of schools within them, averaging of the regional values will not equal the national value for England, which is calculated directly from teacher-level data.

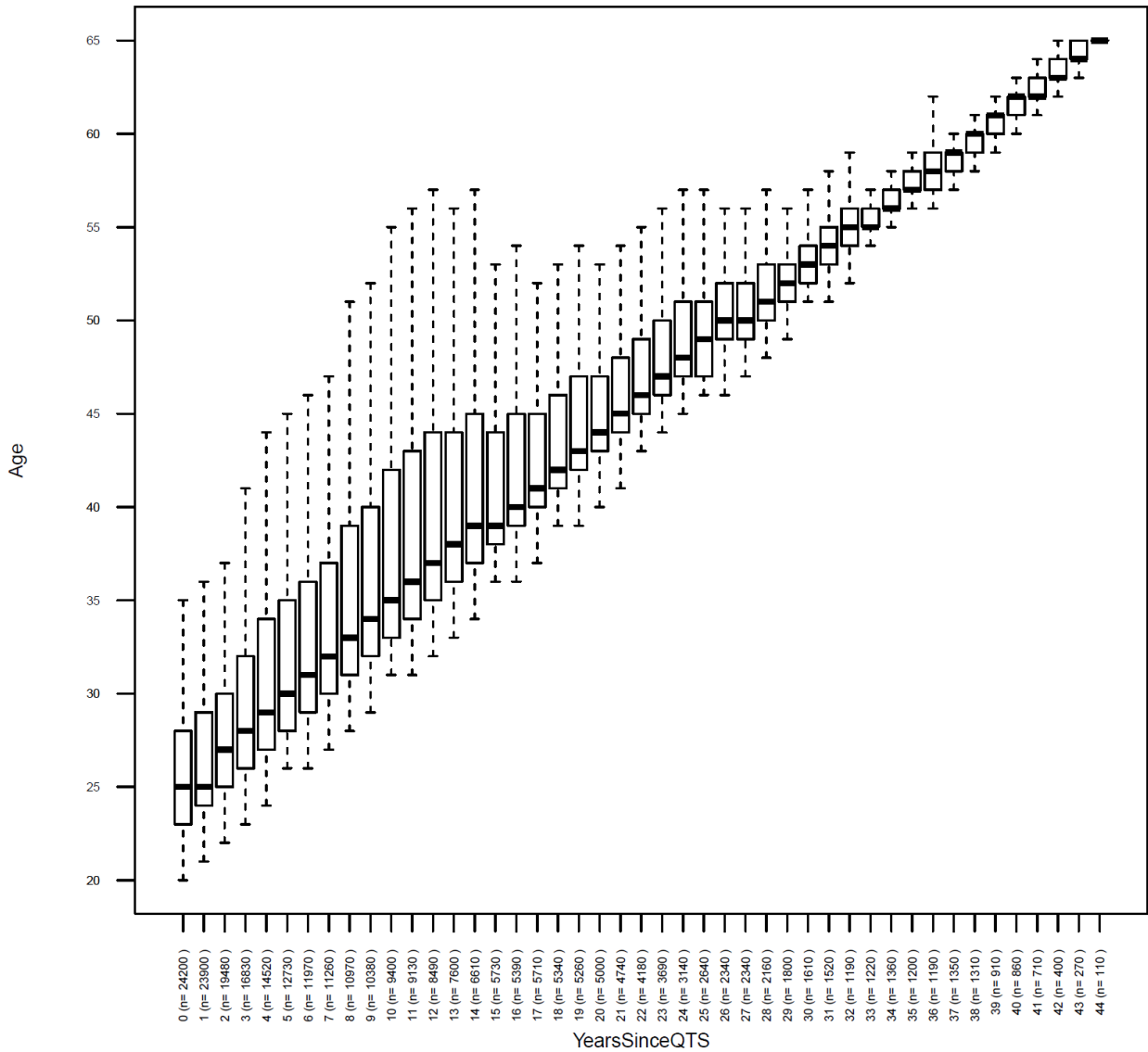# Annex 2: Relationship between age and years since qualification

This annex supplements the charts included in section 2 by showing the relationship between age and years since qualification (measured as years since achieving QTS) for different types of teachers. For each number of years since qualification, a series of box plots show the spread of ages with that number of years since qualification. The top and bottom of the box show the upper and lower quartiles respectively with the median shown by the solid black line. The values outside of this middle 50% of values are shown by the vertical lines leading from the box in both directions.

As for the charts in section 2, the median of the boxplots follows a diagonal line upwards, representing the majority of teachers for whom teaching was their first career. There is wide variation in the upper quartile representing those who pursued other careers before entering teaching.

The charts below look separately at the relationship in 2016 for classroom teachers (Figure A2.1), middle leaders (Figure A2.2), senior leaders (Figure A2.3) and headteachers (Figure A2.4, note this is identical to Figure 2.4, but repeated here for ease of comparability).

The relationship between age and years since qualification for classroom teachers and middle leaders was very similar to that for all teachers (the shape of the boxplots is similar to that for all teachers shown in section 2) since these are the biggest subsets of teachers. The relationship for senior leaders and headteachers was weaker - leaders with fewer years since qualification had a wider range of ages, which as mentioned in section 2, indicates faster career progression on average for teachers who pursued other careers before entering teaching.

Figure A2.1. Box plots showing the relationship between age and years of since qualification for classroom teachers in 2016

Source: School Workforce Census and Database of Qualified Teachers

Figure A2.2. Box plots showing the relationship between age and years since qualification for middle leaders in 2016

Age

YearsSinceQTS

0 (n= 350)
1 (n= 1570)
2 (n= 3570)
3 (n= 5390)
4 (n= 6800)
5 (n= 7460)
6 (n= 7520)
7 (n= 7340)
8 (n= 7360)
9 (n= 7090)
10 (n= 6840)
11 (n= 6620)
12 (n= 6160)
13 (n= 5300)
14 (n= 4560)
15 (n= 3860)
16 (n= 3450)
17 (n= 3530)
18 (n= 3280)
19 (n= 3420)
20 (n= 3150)
21 (n= 2810)
22 (n= 2420)
23 (n= 2240)
24 (n= 1930)
25 (n= 1520)
26 (n= 1360)
27 (n= 1340)
28 (n= 1210)
29 (n= 1090)
30 (n= 1030)
31 (n= 910)
32 (n= 760)
33 (n= 770)
34 (n= 830)
35 (n= 720)
36 (n= 670)
37 (n= 670)
38 (n= 540)
39 (n= 320)
40 (n= 320)
41 (n= 170)
42 (n= 110)
43 (n= 60)
44 (n= 20)
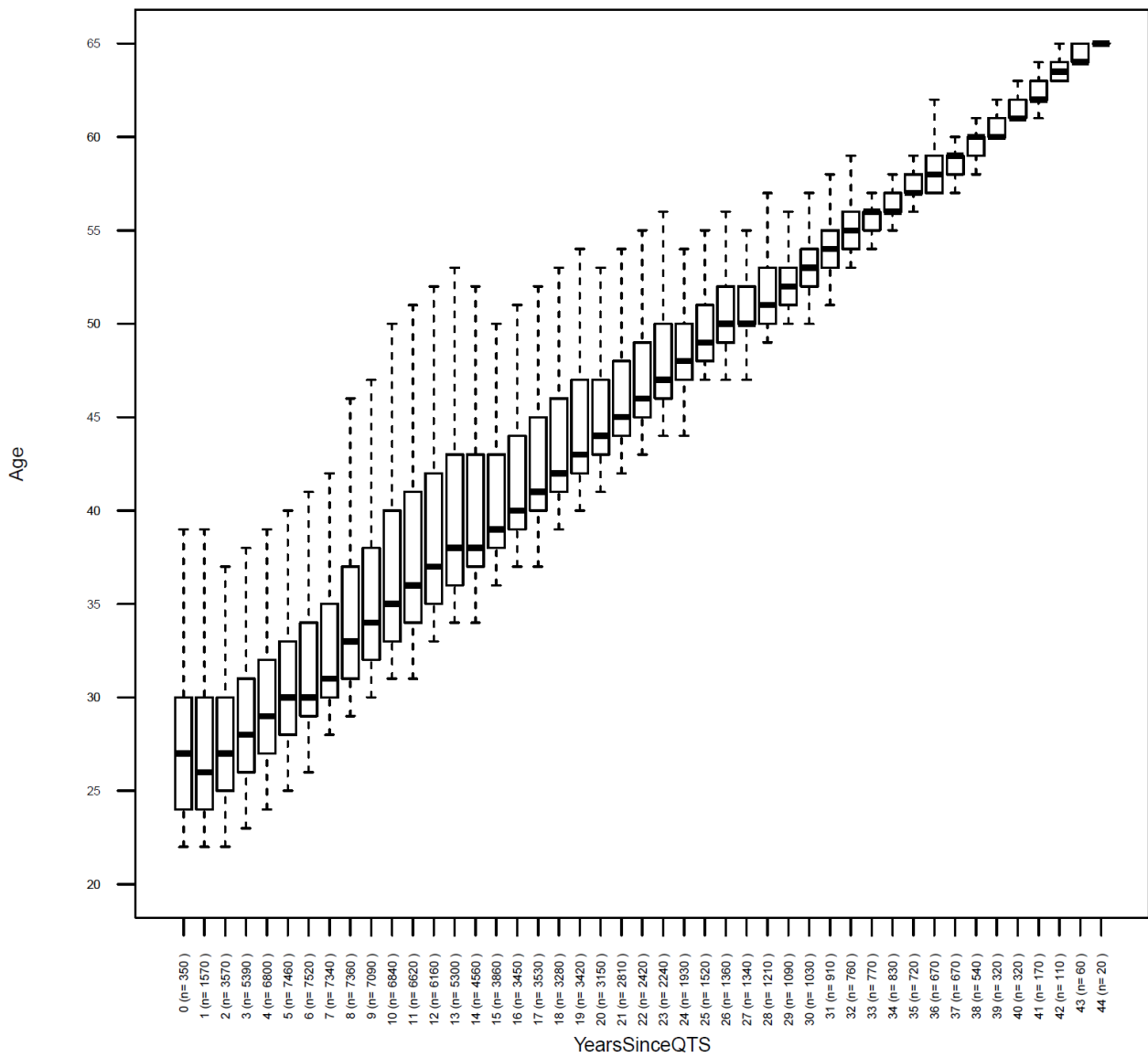
Source: School Workforce Census and Database of Qualified Teachers

Figure A2.3. Box plots showing the relationship between age and years since qualification for senior leaders in 2016
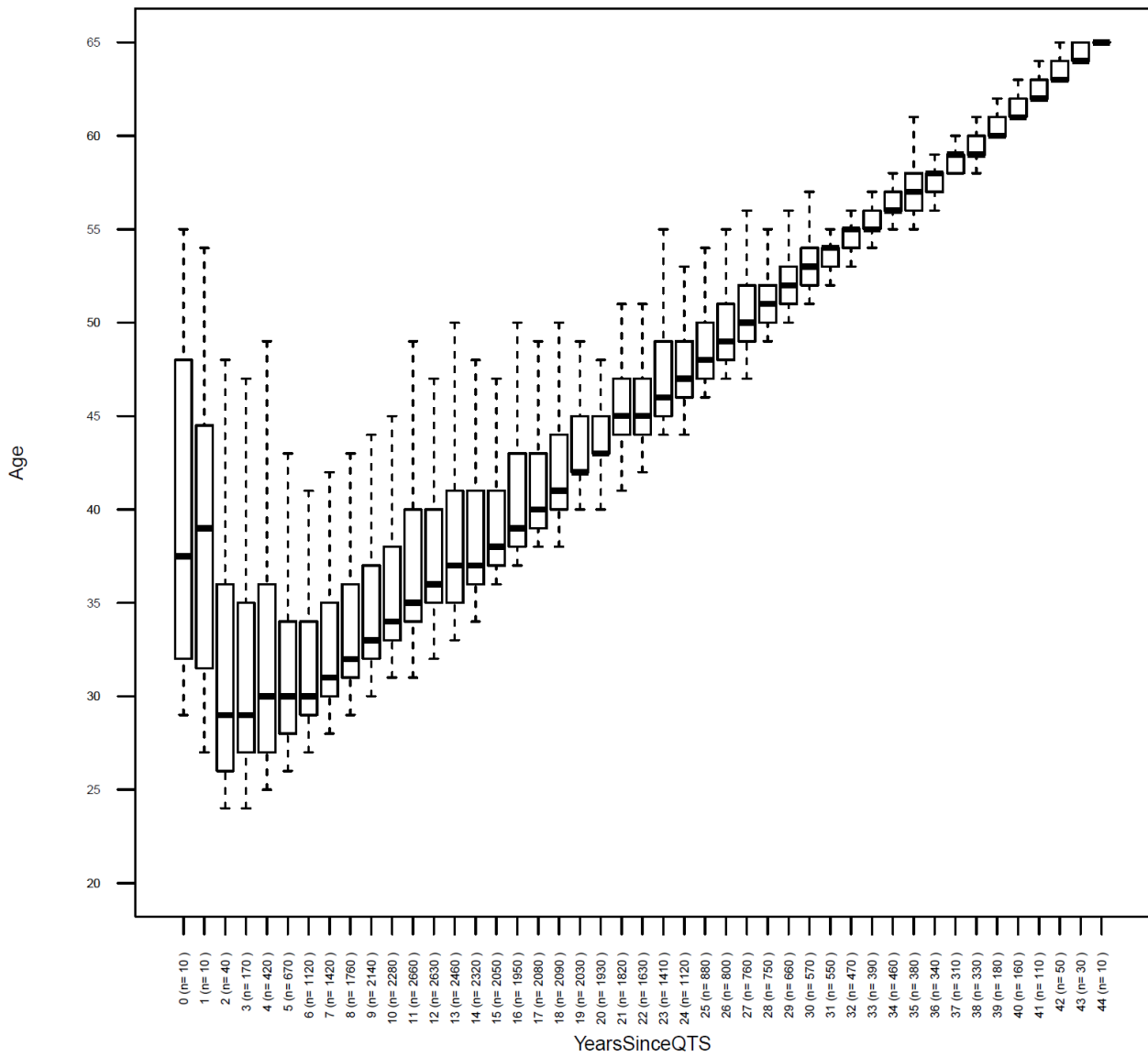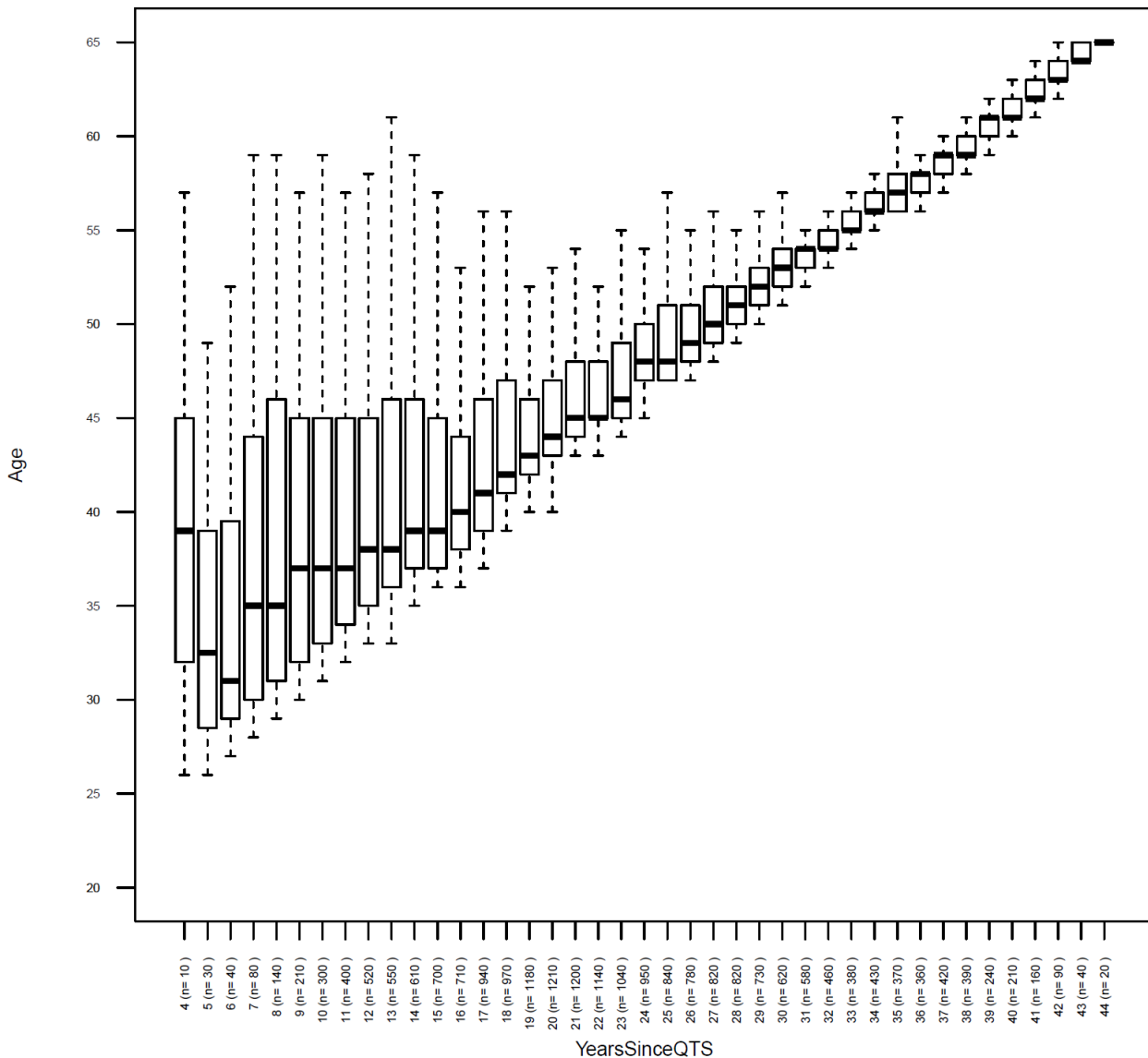

Source: School Workforce Census and Database of Qualified Teachers

68

Figure A2.4. Box plots showing the relationship between age and years since qualification for headteachers in 2016

The relationship between age and years since qualification has remained broadly similar between 2010 and 2016. Figure A2.5 shows the relationship between age and years since qualification for headteachers in 2010, for comparison to Figure A2.4 above. The difference for senior leaders was similar (not shown).
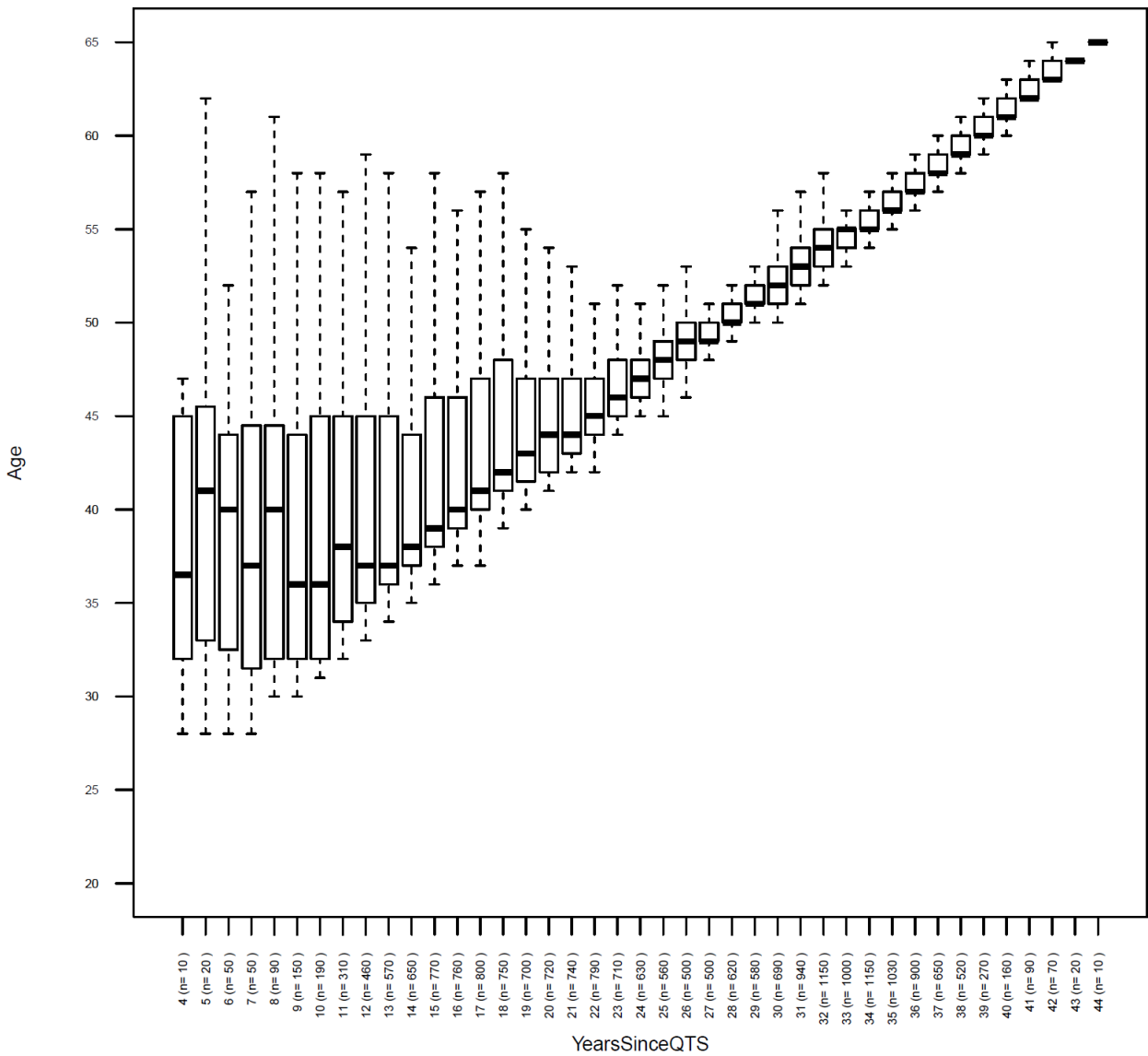
Figure A2.5. Box plots showing the relationship between age and years since qualification for headteachers in 2010

YearsSinceQTS

Source: School Workforce Census and Database of Qualified Teachers

Annex 3: Teachers by degree subject and level

Section 2 includes analysis of teachers' qualifications by degree subject and level. Table A3.1 provides further detail about the subjects that fall under the category "Others" and Table A3.2 gives further detail of the Qualification levels according to the National Qualifications Framework (NQF).

Table A3.1. Degree subjects that fall under the category "Others"

Subjects in category 'Others'		
Vocational subject	Education	Other Physical Subject
Applied Science	European Studies	Other Sciences
Child Development	Government and Politics	Other Social Studies
Citizenship	Land and Environment / Agriculture	Other Technological Subject
Combined Arts / Humanities / Social studies	Law	Other Vocational Subject
Communication Studies	Media Studies	Psychology
Community Studies	Other	Social Studies/Science
Dance	Other Aesthetic / Practical Subject	Sociology
Economics	Other Humanities	

Table A3.2. Qualification level according to National Qualifications Framework

National Qualifications Framework (NQF)	
NQF Level	Qualification Type
Level 4	Level 4 NVQ, diplomas of higher education and further education, foundation degrees and
Level 5	Post-graduate Initial Teacher Training Qualification Certificate in Education or equivalent
Level 6	BEd or other first degree combined with teacher qualification Other first degree (that is; degrees other than BEd or other first degree combined with teacher qualifications) such as BA and BSc, or other level 6 qualification such as graduate certificates and diplomas
Level 7	Master's Degree, for example MSc, MEd or other level 7 qualifications such as postgraduate certificates and diplomas
Level 8	Doctorate, for example PhD, or other level 8 qualification

Annex 4: Matching methodology

Section 3 looked at the influence of different characteristics on progression to leadership roles over a period of 5 years. A statistical matching technique for observational data called exact matching was used to estimate the effect of a "treatment" variable (characteristic) by accounting for the effects of the other variables (characteristics). One value of the treatment variable was identified as the "control" and the rest were considered as the treatment. For some variables there was one treatment (e.g. gender) and for others there were more (e.g. ethnicity).

Four models were used to compare career progression to both leadership[68] and headship for the different treatment characteristics:

- Model 1: Minority ethnic teachers compared to White British teachers.
- Model 2: Male teachers compared to female teachers.
- Model 3: Teachers working in London compared to teachers working outside London.
- Model 4: Teachers working in each region compared to teachers working in London.

Teachers were divided into homogenous blocks according to all variables except the treatment variable. For each individual with the treatment value, the exact matching algorithm randomly selected (matched) an individual with the control value in the corresponding homogenous block (identical except for the treatment variable). For example, in the first model looking at ethnicity, White British was classified as the control and other ethnicities the treatment. Each minority ethnic teacher was matched to a White British teacher who was identical on all characteristics except ethnicity. A small number of teachers without a corresponding match were discarded.

After the matching process, there was a control group equal in size to each treatment group[69]. Note that the sizes of the treatment groups (and the corresponding control groups) were different, due to variation in the prevalence of different characteristics.

This pre-processing step to create a control group and treatment group(s) was necessary to incorporate the additional information from the covariates to give a more robust comparison than would be available without this step. This results in balance being achieved in the covariates, meaning that differences between the covariate distributions within each group (treatment and control) had lessened. It also removes any statistical

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[68] This looked at first leadership post after being a classroom teacher and included all posts from middle leader to headteacher. The majority of these first leadership posts were as middle leader.

[69] Note that there may be teachers duplicated in the control group since the algorithm was run with replacement - more than one teacher in the treatment group could be mapped to the same teacher in the control group.

relationship (also known as model dependence), whether causal or not, between the treatment variable and the covariates that might otherwise influence the outcome. Note however that it was only possible to consider the covariates present in the data (i.e. the School Workforce Census). Unobservable covariates may have also become more balanced through the matching, but it was not possible to assess this.

Exact matching was used because it was possible to identify teachers in the control group who were an exact match to the teachers in the treatment group for each block, for the covariates under consideration. If this was not possible, then alternative matching techniques that involve calculating a metric for evaluating distance between teachers (e.g. Mahalanobis distance, or propensity score) could have been used instead.

The analysis aimed to understand the impact on progression attributable to being in different treatment groups compared to a control group. It looked at two types of progression:
- progression for newly qualified teachers to a first leadership role; and
- progression from assistant or deputy headteacher to headteacher,

For the first, the variable of interest (the dependent variable) was whether the teacher was in a leadership role at the end of the study (after 5 years). Equivalently, a headteacher role for the second.

Once the treatment and control groups were identified, the mean progression to leadership for each group was calculated. To test the stability, this process was repeated at least 100 times for different randomly selected control samples since in most cases there were many teachers in the control group to choose from for each teacher in the treatment group. Picking 100 random samples of teachers from the control group that matched the teachers in the treatment group gave different results – sometimes the t-test comparing means for each sample showed that the treatment group was statistically significantly different from the control group and sometimes not. For us to be confident that the outcome from the treatment group was statistically significantly different from the control group we required 95% of the t-tests for these samples to be significant.

The treatment effect reported in section 3 is the difference in means between the treatment group and the average mean of 100 control samples. Standard errors are not reported due to the non-equivalence of the sampling distributions caused by the size of the different treatment groups.

To stress test the results, and check sensitivity around age the experiments shown in section 3 were repeated, but this time by matching on ±1 and ±2 years on teachers' age. For example, testing the sensitivities around age by ±1: if the treatment was ethnicity being Asian, with the other characteristics age, phase, gender, London having the values 25, Primary, Male and London, the match in the control group of White British teachers

would have characteristics having the values 24, 25 or 26 years old, Primary, Male and London. The sensitivity check was performed on all models and showed similar results, thus verifying the analysis to be stable and robust.

Further details about the cohort selection for each of the models are included below.

Cohort selection to assess progression to leadership

The data available were limited to that available in the School Workforce Census, which was first collected in 2010, with the most recent data available from 2016.

The data allowed for two cohorts of teachers to be chosen in order to increase the sample size: those that qualified in 2010 who stayed in service until 2015, and those that qualified in 2011 and stayed in service until 2016. For each cohort, only newly qualified teachers that had been in service continually over the time period were included, to ensure a similar number of years since qualification (as a proxy for experience) as far as possible. Similarly, only teachers who were continually either in London or out of London over the same period were included to reduce ambiguity when comparing between London and outside London.

Cohort selection for Models 1, 2 and 3

A total of 19,456 teachers were selected, split between the two cohorts:

- Those that qualified in 2010 and stayed in service until the 2015 census, who numbered 10,440; and
- Those that qualified in 2011 and stayed until the 2016 census, who numbered 9,016.

Of the 19,456 teachers, 777 were Asian, 319 Black, 309 Mixed Ethnicity, 846 White Other and 17,117 White British. There was also a small group of 88 teachers that were classified as Other Ethnicity – this group was left out of the analysis, as it was very small, and formed a heterogeneous group of other ethnicities. A full definition for each of the ethnic groups can be found in the Methodology Section.

Cohort selection for Model 4

A total of 17,811 teachers were selected, split between the two cohorts:

- Those that qualified in 2010 and stayed in service until the 2015 census, who numbered 9,785; and
- Those that qualified in 2011 and stayed until the 2016 census, who numbered 8,026.

Of the 17,811 teachers, 723 were Asian, 305 Black, 296 Mixed Ethnicity, 782 White Other and 15,620 White British. There was also a small group of 85 teachers that were classified as Other Ethnicity – this group was left out of analysis, as it was very small, and formed a heterogeneous group of other ethnicities.

Tables A4.1 to A4.4 below demonstrate the need for the matching stage by showing the differences in characteristics, prior to the matching being completed, for each group in each model. After matching, by design, each control group matched exactly the characteristics of the relevant treatment group.

In Table A4.1, Ethnic Minority groups showed a far higher percentage of teachers based in London compared to the White British group. The Black group had the highest percentage of teachers working in London at 69% whilst the other Ethnic Minority groups had similar proportions of teachers working in London at around 40%. The Ethnic Minority groups also contained higher proportions of teachers working in secondary schools. The Black and White Other groups had a higher average age (35 and 34 respectively) than the other ethnic groups, including White British (32).

Table A4.1. Model 1 - Characteristics of ethnic groups prior to matching

Ethnic Group	Percentage Female	Average Age	Percentage in Secondary schools	Percentage based in London
Control group:				
White British	76%	32	49%	12%
Treatment groups:				
Asian	78%	32	59%	43%
Black	71%	35	68%	69%
Mixed	74%	32	53%	40%
White other	72%	34	64%	41%

Source: School Workforce Census

Table A4.2 shows that both male and female groups had a similar percentage of White British teachers, similar average age and there was no difference in the percentage working in London. The only difference was that the male group had a higher percentage of teachers working in secondary schools at 70% compared to 44% for females.

Table A4.2. Model 2 - Characteristics of gender groups prior to matching

Gender	Percentage White British	Average Age	Percentage in Secondary schools	Percentage based in London
Control group:				
Female	88%	32	44%	16%
Treatment group:				
Male	87%	33	70%	16%

Source: School Workforce Census

Table A4.3 shows that gender and average age were similar across both the London area and the non-London area. There were far higher proportions of minority ethnic groups in London (66% White British in London compared to 92% outside) and the non-London group also contained a higher proportion of teachers working in secondary schools (52%, compared to 47% in London).

Table A4.3. Model 3 - Characteristics of regional groups prior to matching

Region	Percentage Female	Average Age	Percentage in Secondary schools	Percentage White British
Control group:				
Non-London	76%	32	52%	92%
Treatment group:				
London	76%	32	47%	66%

Source: School Workforce Census

Table A4.4 shows that the average age of teachers across all regions was similar. The Yorkshire and the Humber region had the highest percentage of female teachers (78%) and the South West the lowest (72%). The percentage of White British teachers was lowest in London (66%) and highest in the North East (97%).

Table A4.4. Model 3 - Characteristics of regional groups prior to matching

Region	Percentage Female	Average Age	Percentage Secondary Phase	Percentage White British
Control group:				
London	76%	32	47%	66%
Treatment groups:				
East Midlands	75%	32	49%	93%
East of England	77%	33	48%	91%
North East	74%	32	55%	97%
North West	75%	31	52%	94%
South East	77%	32	48%	92%
South West	72%	32	58%	95%
West Midlands	77%	31	51%	88%
Yorkshire and the Humber	78%	31	47%	94%

Source: School Workforce Census

The matching analysis performed well for all treatment groups for all models. A few observations from each treatment group were dropped from the analysis, as a match could not be found for them.

Cohort selection to assess progression to headteacher

The data selection for the analysis looking at progression to headteacher differed to that for progression to leadership in that data was only available for one cohort: those new to post as an assistant or deputy headteacher in 2011, and in service continually between 2011 and 2016. It was not possible to identify teachers who were new to post in 2010. The size of the cohort, and therefore treatment group was smaller than that used to assess progression to leadership.

Data selection for Models 1 to 3

The total number of teachers selected was 4,695 teachers. Of the 4,695 teachers, 124 were Asian, 48 Black, 43 Mixed ethnicity, 133 White Other and 4,337 White British. There was also a small group of 10 teachers that were classified as Other ethnicity – this group was left out of the analysis, as it was very small, and formed a heterogeneous group of other ethnicities.

Data Selection for Model 4

The total number of teachers selected was 4,543 teachers. Of the 4,543 teachers, 121 were Asian, 47 Black, 42 Mixed ethnicity, 129 White Other and 4,194 White British. There was also a small group of 10 teachers that were classified as Other ethnicity – this group was left out of the analysis, as it was very small, and formed a heterogeneous group of other ethnicities.

Tables A4.5 to A4.8 below demonstrate the need for the matching stage by showing the differences in characteristics, prior to the matching being completed, for each group in each model. After matching, by design, each control group matched exactly the characteristics of the relevant treatment group.

In Table A4.5, the Black and Asian groups had the highest percentage of female teachers (81% and 71% respectively), the White British group had the smallest percentage in secondary schools (36%) and the smallest percentage based in London (11%).

Table A4.5. Characteristics of ethnic groups prior to matching

Ethnic Group	Percentage Female	Average Age	Percentage in Secondary schools	Percentage based in London	Start post Assistant Head[70]
Control group:					
White British	69%	44	36%	11%	52%
Treatment groups:					
Asian	71%	43	43%	40%	74%
Black	81%	45	42%	67%	67%
Mixed	67%	43	40%	35%	58%
White other	68%	45	47%	47%	58%

Source: School Workforce Census

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[70] The remaining teachers in the cohort were newly promoted to deputy head.

Table A4.6 shows that the male and female groups differed mostly in the percentage working in secondary schools. The male group had a higher percentage of teachers working in secondary schools (61%) compared to female teachers (26%).

Table A4.6. Characteristics of ethnic groups prior to matching

Ethnic Group	White British	Average Age	Percentage in Secondary schools	Percentage based in London	Starting post Assistant Head[70]
Control group:					
Female	92%	44	26%	14%	52%
Treatment group:					
Male	93%	44	61%	13%	58%

Source: School Workforce Census

Table A4.7 shows that both the London and non-London areas were similar for all characteristics except ethnicity where there were far higher proportions of ethnic groups in London (95%).

Table A4.7. Characteristics of regional groups prior to matching

Region	Percentage Female	Average Age	Percentage in Secondary schools	Percentage White British	Starting post Assistant Head[70]
Control group:					
Non-London	69%	44	37%	95%	52%
Treatment group:					
London	71%	45	35%	74%	61%

Source: School Workforce Census

Table A4.8 shows that the South West had the lowest percentage of female teachers (61%), the percentage of White British was lowest in London (74%) and highest in the North East (98%) and in the East Midlands, North West and South West (97% each).

Table A4.8. Characteristics of regional groups prior to matching

Region	Percentage Female	Average Age	Percentage in Secondary schools	Percentage White British	Start post Assistant Head[70]
Control group:					
London	71%	45	35%	74%	61%
Treatment groups:					
East Midlands	70%	44	33%	97%	45%
East of England	70%	44	35%	95%	44%
North East	72%	43	36%	98%	53%
North West	71%	45	40%	97%	49%

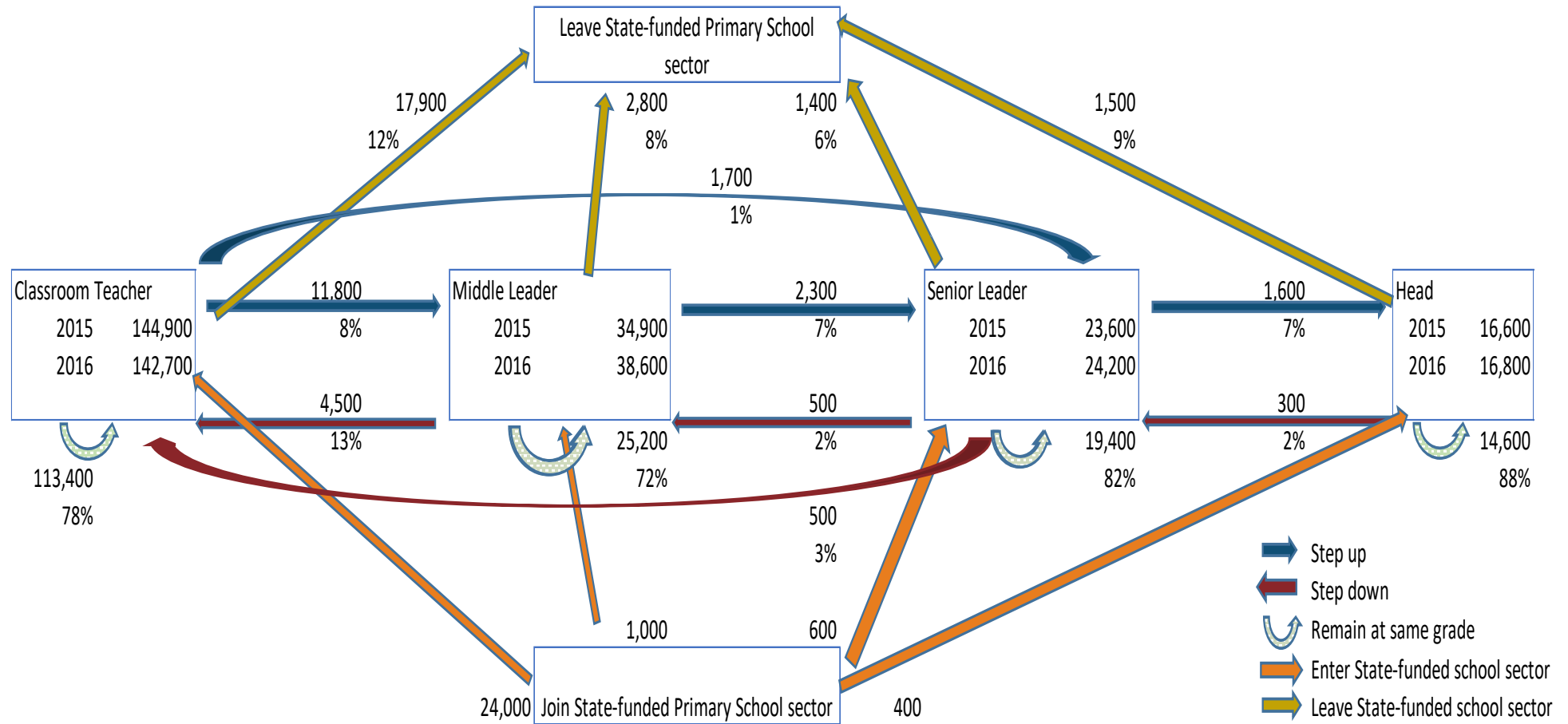| Region	Percentage Female	Average Age	Percentage in Secondary schools	Percentage White British	Start post Assistant Head[70]
South East	70%	44	32%	94%	50%
South West	61%	44	37%	97%	50%
West Midlands	71%	45	40%	92%	65%
Yorkshire and the Humber	71%	44	34%	95%	55%

Source: School Workforce Census

The matching analysis performed well for all treatment groups for all models. A few observations from each treatment group were dropped from the analysis, as a match could not be found for them.

Annex 5: Teacher flows between roles

More detailed net flows to those provided in section 3. Note that the category of senior leader contains both assistant and deputy headteachers.

Figure A5.1. Primary teacher flows and stock numbers 2015 to 2016

Leave State-funded Primary School sector

17,900	2,800	1,400		1,500
12%	8%	6%		9%

1,700
1%

Classroom Teacher		Middle Leader		Senior Leader		Head
2015	144,900	2015	34,900	2015	23,600	2015	16,600
2016	142,700	2016	38,600	2016	24,200	2016	16,800

11.800 / 8% (Classroom Teacher → Middle Leader)
2,300 / 7% (Middle Leader → Senior Leader)
1,600 / 7% (Senior Leader → Head)

4,500 / 13% (Middle Leader → Classroom Teacher)
500 / 2% (Senior Leader → Middle Leader)
300 / 2% (Head → Senior Leader)

113,400 / 78%
25,200 / 72%
19,400 / 82%
14,600 / 88%

500 / 3%

Join State-funded Primary School sector

24,000 1,000 600 400

Legend

- Step up
- Step down
- Remain at same grade
- Enter State-funded school sector
- Leave State-funded school sector

Source: School Workforce Census 2015 and 2016

Figure A5.2. Secondary teacher flows and stock numbers 2015 to 2016
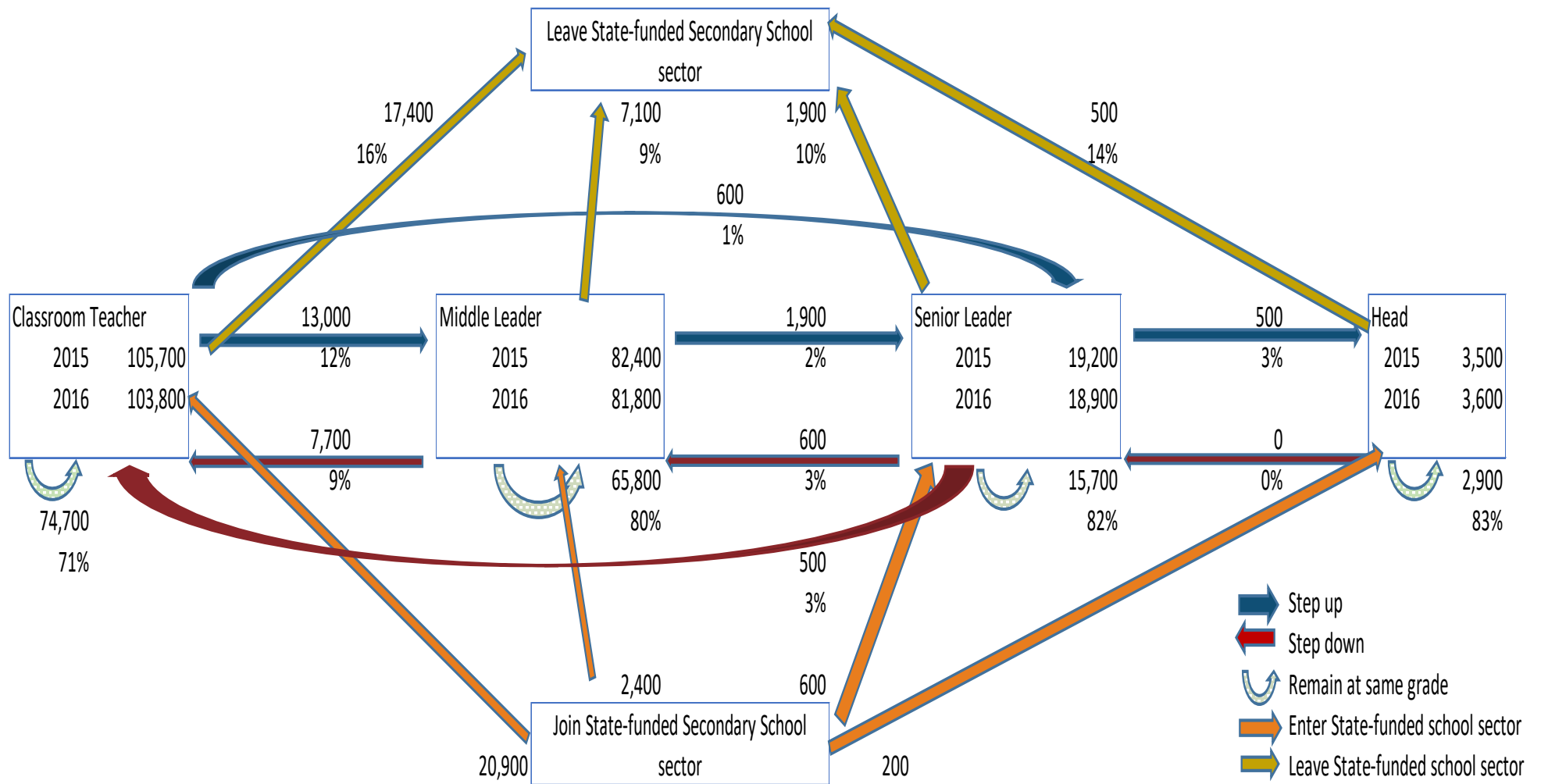
Source: School Workforce Census 2015 and 2016

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Reference: DFE-RR812

ISBN: 978-1-78105-893-0

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