

Baselines for Improving STEM Participation:

Ethnicity STEM data for students and academic staff in higher education 2007/08 to 2018/19

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Executive summary

Students

Entrance rates

The percentage of ethnic minority group entrants is higher for students studying STEM subjects compared to non-STEM subjects at both first degree and postgraduate level. The percentage of ethnic minority group STEM entrants is rising year on year at both first degree and postgraduate level.

Postgraduate continuation

Ethnic minority group STEM students at first degree level are continuing into STEM postgraduate level study in roughly the same proportion. There does not appear to be a sizable drop-off of ethnic minority group STEM students continuing into postgraduate level STEM study.

Subject choice

There is large variation in the subject areas that ethnic minority group STEM entrants are choosing to study at first degree and postgraduate level. In 2018/19 43.5 per cent of first degree entrants studying Medicine and dentistry are from ethnic minority groups compared with 6.7 per cent studying Agriculture and related subjects.

Non-completion

The non-completion rate is higher for ethnic minority group STEM first degree students than for white STEM first degree students. When you adjust for students domiciled from lowest geographical areas (POLAR4) in terms of participation in higher education, there is very little difference in non-completion rates between ethnic minority group STEM students and white STEM students at first degree level.

Black STEM first degree students have the highest non-completion rate of any ethnic group, and Black STEM male first degree students have the highest non-completion rate when comparing ethnicity and sex.

Qualification

A lower percentage of ethnic minority group STEM qualifiers achieve first or upper second-class honours compared to white STEM qualifiers. Black male STEM qualifiers achieve the lowest percentage when comparing ethnicity and sex.

Employment

A higher percentage of ethnic minority group STEM leavers are unemployed six months after graduation compared to white STEM leavers.

Staff

Subject areas

The percentage of ethnic minority groups academic staff is higher for staff working in STEM than non-STEM subjects.

There is large variation in the subject areas that STEM ethnic minority group academic staff work in. In 2018/19 33.1 per cent of academic staff working in Engineering and technology are from ethnic minority groups vs 7.5 per cent working in Veterinary science.

Age

The age group '34 and under' has the highest percentage of ethnic minority group STEM academic staff. The percentage decreases as age increases.

There is disparity between the percentage of STEM academic staff aged 34 and under by ethnic group. In 2018/19 19.2 per cent of STEM academic staff aged 34 and under are Asian compared to 1.8 per cent who are Black. Unless this changes there will be unbalanced representation of STEM academic staff between ethnic groups working in higher education in comparison to the ethnic breakdown of the general population.

Contract

STEM ethnic minority group academic staff are more likely to have a contract that is research only compared to white academic staff. They are also more likely to be on a fixed term contract.

STEM ethnic minority group academic staff are less represented in more senior contract levels. They are less likely to hold a senior position than white STEM staff. This holds true when taking age into account.

Black STEM academic staff are the least represented ethnic group working at professor level. 3.5 per cent of Black STEM academic staff work at the professor level compared to 11.9 per cent of white STEM academic staff.

Progression to academic employment

In 2018/19 there are more than twice as many Asian STEM academic staff as there are Black, mixed and other ethnicity STEM academic staff combined.

There appears to be a drop-off of Black and mixed ethnicity STEM postgraduate students entering STEM academic employment at universities. Their representation in STEM academic employment is lower than at postgraduate level suggesting a lower proportion enter STEM academic employment compared to Asian and other ethnicity.

Introduction

This report contains analysis on UK domiciled students, graduates and leavers studying Science, Technology, Engineering and Mathematics (STEM) subjects¹, and academic staff² working in STEM at UK higher education providers from 2007/08 to 2018/19. Data is sourced from the HESA Student and Staff records.

It analyses contextual and outcomes data comparing those who are from ethnic minority groups (Black, Asian, other and mixed) with those who are white. It also provides further analysis broken down by ethnic group³.

The report uses descriptive statistics to compare cohorts and not all differences have been statistically validated. It is important to understand that observed differences between ethnic minority group and white cohorts may be caused by other underlying factors such as socio-economic background, achievement prior to starting higher education, student age etc. Further statistical analysis is recommended to identify the underlying factors influencing the differences observed between cohorts.

Student data

The student data is restricted to UK domiciled first degree and postgraduate students. The analysis focusses on students studying STEM subjects, but comparison with students studying non-STEM subjects is included for context. It includes time series comparisons based on ethnic minority groups marker, ethnicity, sex, level of study, low participation neighbourhoods (POLAR 4), Russell Group and other universities, subject area, class of first degree, non-completion and activity after graduation.

- 'Entrants' refers to first year students only. This is used for time series analysis to avoid double counting of students.
- 'Students' refers to students irrespective of which year of study they are participating in. This is normally used when looking at a single year of data or non-completion time series analysis.
- 'Qualifiers' refers to those graduates who achieved a qualification whilst at university.
- 'Leavers' refers to those graduates who completed the Destination of Leavers from Higher Education survey after graduation.
- Ethnicity data is only mandatory for UK domiciled students, so data is restricted to these students. See Annex 3 for a breakdown of ethnicity.
- UK domiciled refers to those students who were living in the UK three months before they commenced their studies. **All student data in the report is restricted to UK domiciled students.**
- Those students whose ethnicity is unknown are excluded from the analysis.
- Analysis is restricted to first degree and postgraduate students. Other undergraduate students have not been included.
- All numbers are rounded to the nearest 5. Percentages are based on unrounded figures to 1.d.p. Percentage point differences between figures are calculated based on unrounded percentages. All percentages are based on a denominator of 22.5 or more.
- In 2018/19 data for Falmouth University, London South Bank University and the University of Worcester is not included as they did not opt-in to **Category 3 Permitted Purpose**.
- For additional context, cohort sizes can be viewed in Annex 4, Annex 5, Annex 6 and Annex 7.

¹ Students studying Medicine & dentistry; Subjects allied to medicine; Biological sciences; Veterinary science; Agriculture & related subjects; Physical sciences; Mathematical sciences; Computer science; Engineering & technology; Architecture, building & planning.

² Those staff with an academic contract that is either research only, teaching only, both teaching and research, or neither teaching nor research.

³ Black, Asian, Mixed and Other.

Staff data

The staff data is restricted to academic staff. The analysis is focussed on staff working in STEM subjects, but comparison with staff working in non-STEM subjects is included for context. It includes time series comparisons based on ethnic minority group markers, ethnicity, sex, mode of employment, Russell Group and other universities, age, subject area, academic employment function, contract level and terms of employment.

- From 2007/08 to 2011/12 data was collected on what academic subject the member of staff studied. Each member of staff could have up to 2 subjects. From 2012/13 onwards data was collected on their current academic discipline. Each member of staff could have up to two subjects from 2012/13 to 2013/14, and three subjects from 2014/15 onwards.
- Each member of staff has been assigned to the working in STEM category if their first academic discipline or current academic discipline is a STEM subject. Further analysis was carried out to determine whether including academic discipline 2, and current academic disciplines 2 and 3 affected the analysis. It did not, so for simplicity and ease of reporting it was restricted to the first discipline returned in the data.
- Analysis is restricted to academic staff and excludes atypical staff⁴.
- Those academic staff whose ethnicity is unknown are excluded from the analysis.
- All numbers are rounded to the nearest 5. Percentages are based on unrounded figures to 1.d.p. Percentage point differences between figures are calculated based on unrounded percentages. All percentages are based on a denominator of 22.5 or more.
- In 2018/19 data for Falmouth University, London South Bank University and the University of Worcester is not included as they did not opt-in to **Category 3 Permitted Purpose**.
- For additional context, cohort sizes can be viewed in Annex 8.

⁴ Atypical staff are those members of staff whose contracts involve working arrangements that are not permanent, involve complex employment relationships and/or involve work away from the supervision of the normal work provider.

Students

Contextual overview

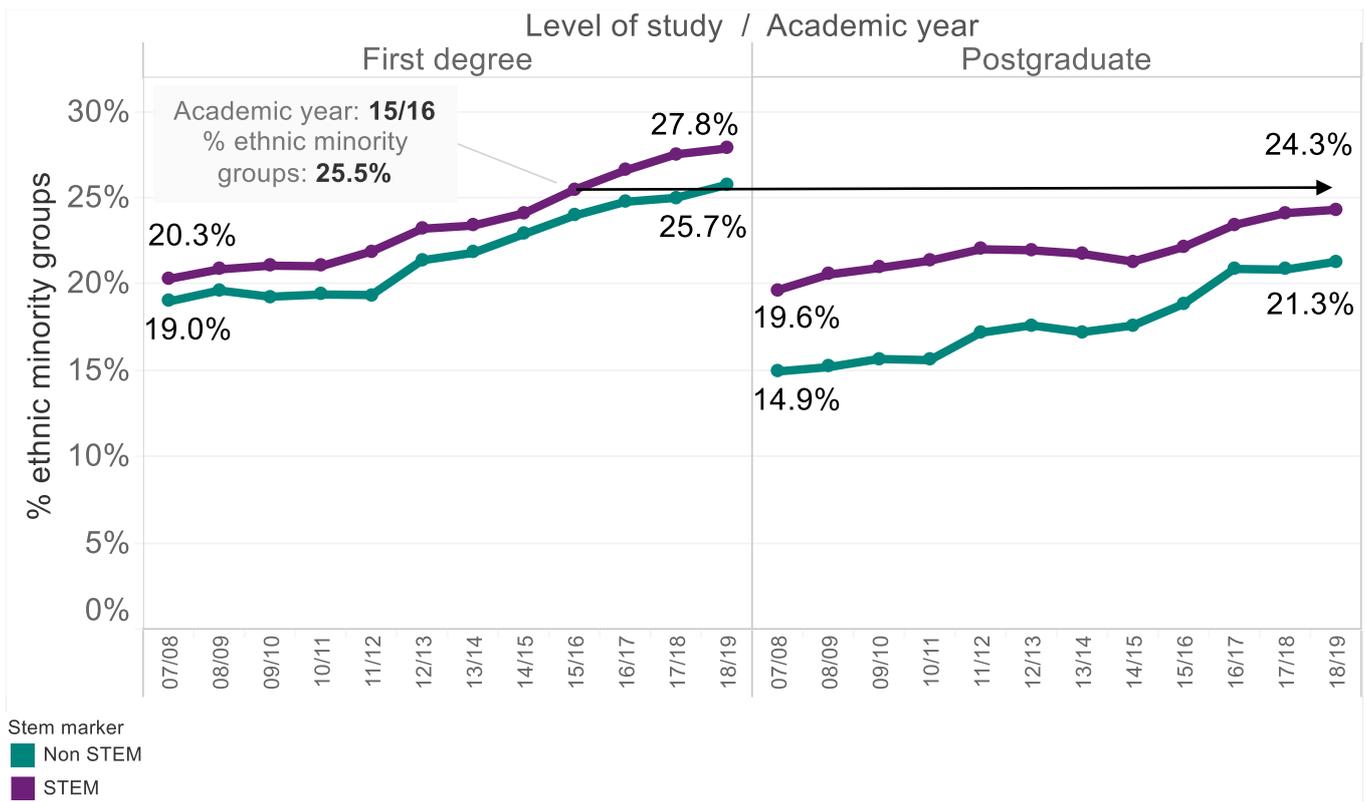
STEM subjects attract a higher percentage of ethnic minority group entrants than non-STEM subjects at both first degree and postgraduate level.

The overall trend shows an increase in representation of ethnic minority group entrants over the past 12 years of data for both STEM and non-STEM subjects.

Ethnic minority group STEM first degree entrants are continuing into postgraduate study. Although the percentage of ethnic minority group entrants appears lower at postgraduate level, there is normally a three to four year time lag from when a first degree student starts their study and when they could potentially start postgraduate study.

In 2015/16 25.5 per cent (53,395) of STEM first degree entrants are from ethnic minority groups. The first year this cohort could typically start postgraduate study would be 2018/19, where 24.3 per cent (22,395) of STEM postgraduate entrants are from ethnic minority groups. Although there are other factors to consider, this suggests STEM ethnic minority group first degree students continue to postgraduate level study at roughly the same proportion. There does not appear to be a sizable drop-off.

Chart 1 Percentage of ethnic minority group UK domiciled entrants by level of study and STEM marker 2007/08 to 2018/19



From the 2011 England and Wales census data⁵, 18.5 per cent of people aged 18-24 were from ethnic minority groups (see Annex 1), yet in 2011/12, 24.4 per cent of STEM first degree entrants domiciled from England and Wales aged 18 to 24 were from ethnic minority groups. The participation ratio of these representation percentages is 1.32.

In 2017/18 a fair comparison would be those aged 10-17 from the census data in 2011 (to take into account the age they would be in 2017/18), where 18.8 per cent were from ethnic minority groups. This compares with 31.1 per cent (48,970) of ethnic minority group STEM first degree entrants from England and Wales aged 18-24 in 2017/18. This gives a participation ratio of 1.70 which is a notable increase from 2011/12.

White STEM first degree entrants from England and Wales aged 18-24 compared to the general white population in England and Wales of a similar age is 0.84 in 2017/18 compared with 0.93 in 2011/12.⁶

This shows that representation of ethnic minority group students from England and Wales studying STEM subjects in higher education is high and has grown since 2011/12. A higher percentage of ethnic minority group young adults are choosing to enter higher education in comparison with white young adults.

A similar trend may be observed for Scotland and Northern Ireland, but their census data was not analysed. Please note that apart from the census analysis, the rest of the report does include data on students domiciled from Scotland and Northern Ireland (unless noted otherwise).

⁵ <https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/age-groups/latest>

⁶ A value of 1 would show percentage of a particular cohort in the HESA student record is the same as the percentage of that cohort in the general population. A value above 1 shows higher representation in comparison to the general population and a value below 1 shows lower representation.

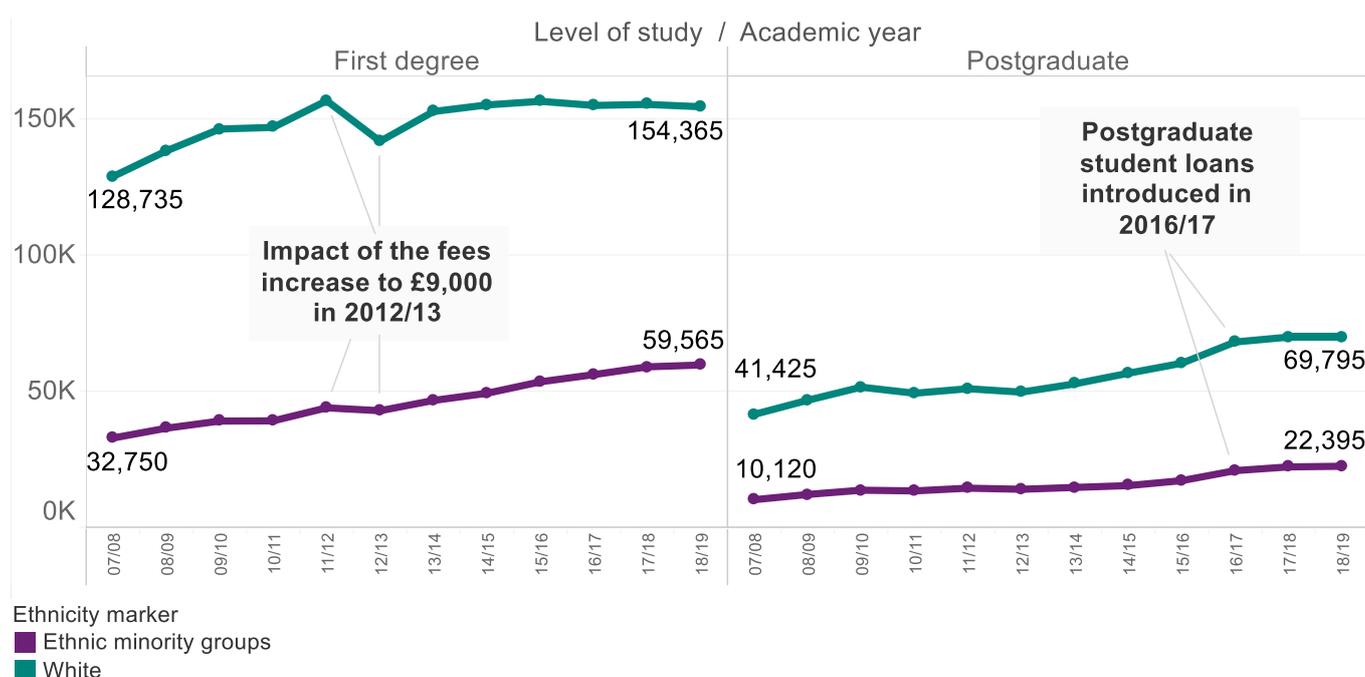
Much of the growth in entrants since 2013/14 at first degree level in STEM subjects can be attributed to the increase in ethnic minority group entrants. Between 2013/14 and 2018/19 white first degree entrants have increased by just 1.1 per cent (1,745), including a decrease of 0.6 per cent between 2017/18 and 2018/19⁷. Ethnic minority group entrants have increased year on year since 2013/14 with a 27.9 per cent (13,005) increase during this period.

In 2011/12 the forthcoming raising of tuitions fees saw many entrants choosing not to defer entry in order to avoid the higher tuition fees that came into effect in 2012/13⁸. This helps explain the increase in 2011/12 and the decrease in 2012/13.

At postgraduate level there has been steady growth of ethnic minority group and white entrants across most years. The introduction of postgraduate student loans in 2016/17 appears to have had a positive influence on numbers initially⁹. However, this growth has slowed more recently.

From 2015/16 to 2016/17 ethnic minority group STEM postgraduate entrants increased by 21.5 per cent (3,675) vs 13.0 per cent (7,800) of white STEM postgraduate entrants, whereas in the previous year the increase was 11.9 per cent (1,820) and 6.5 per cent (3,665) respectively. The numbers have plateaued in 2018/19, with a slight increase in ethnic minority group entrants (1.0 per cent, 230) and a slight decrease (0.0 per cent, 20) in white entrants⁷.

Chart 2 Number of UK domiciled STEM entrants by level of study and ethnicity marker 2007/08 to 2018/19



⁷ Please note that data for three universities has not been included for 2018/19 and this will have an impact on the figures. Please see the student introduction for more detail.

⁸ <https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2013>

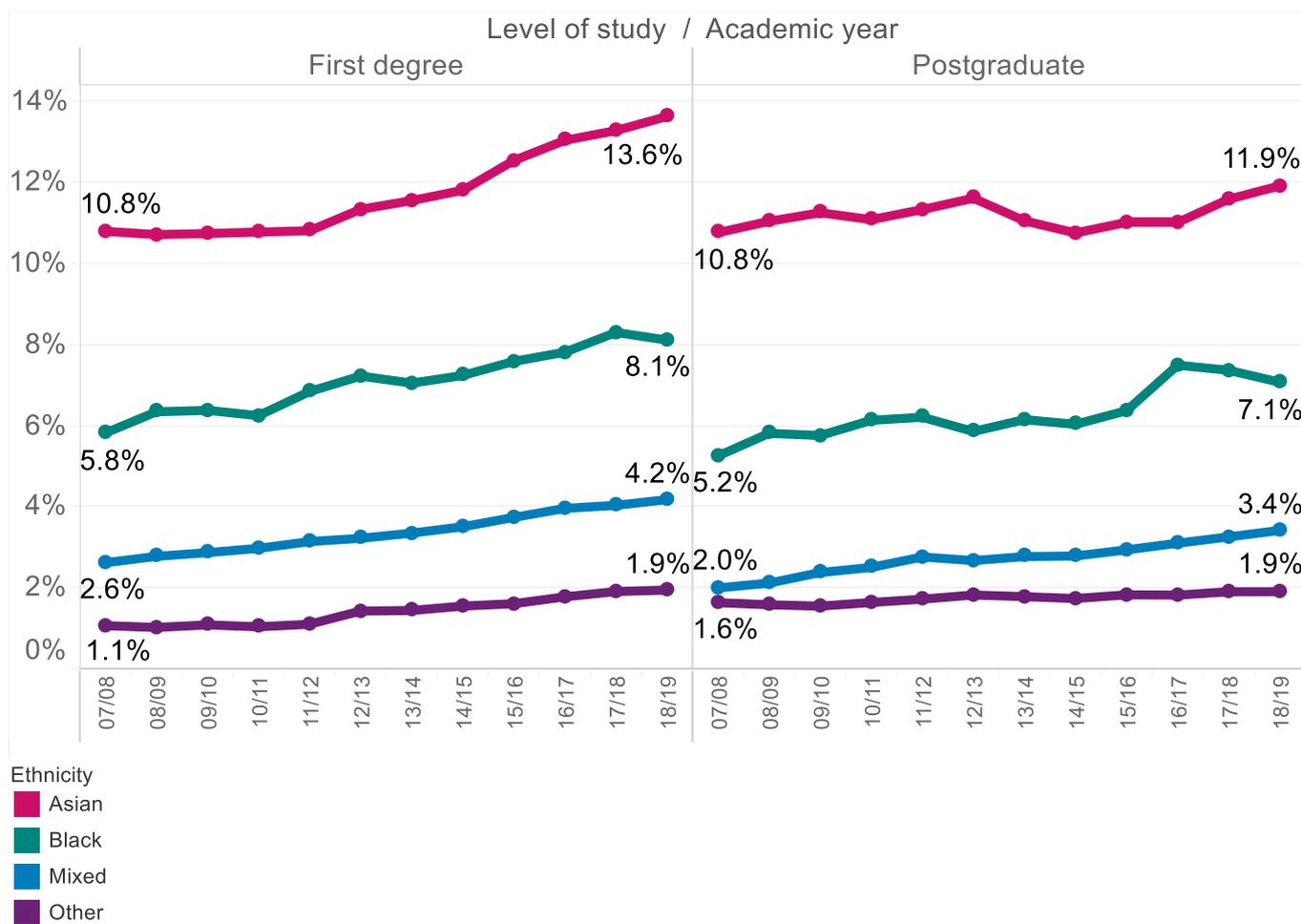
⁹ <https://www.officeforstudents.org.uk/data-and-analysis/the-effect-of-postgraduate-loans/>

Chart 3 shows the percentage of STEM entrants broken down by ethnic group. It shows that all ethnic groups have seen an increase since 2007/08 as a percentage of all students at both levels of study. For comparison Annex 1 shows the percentage broken down by ethnic group and age from the 2011 England and Wales census¹⁰.

At postgraduate level there is a large increase (in relation to other ethnic groups) in the percentage of Black STEM entrants between 2015/16 and 2016/17 (6.4 per cent, 4,920 to 7.5 per cent, 6,650). Black STEM entrants increased by 35.1 per cent (1,725) over this period. This trend is also observed in non-STEM subjects where Black postgraduate entrants increased by 47.3 per cent (2,905) from 2015/16 to 2016/17. The introduction of student loans in 2016/17 may have contributed to this increase¹¹.

However, since 2016/17 the number of Black STEM entrants has decreased by 2.0 per cent (135) at postgraduate level (the same trend is seen for non-STEM subjects).

Chart 3 Percentage of UK domiciled STEM entrants within each ethnic group by level of study 2007/08 to 2018/19



¹⁰ Please note that data included in this chart and all other student charts (unless noted otherwise) contains data for all students domiciled from the UK, not just England and Wales. Please compare with caution as census data from Scotland and Northern Ireland may differ.

¹¹ <https://www.officeforstudents.org.uk/data-and-analysis/the-effect-of-postgraduate-loans/>

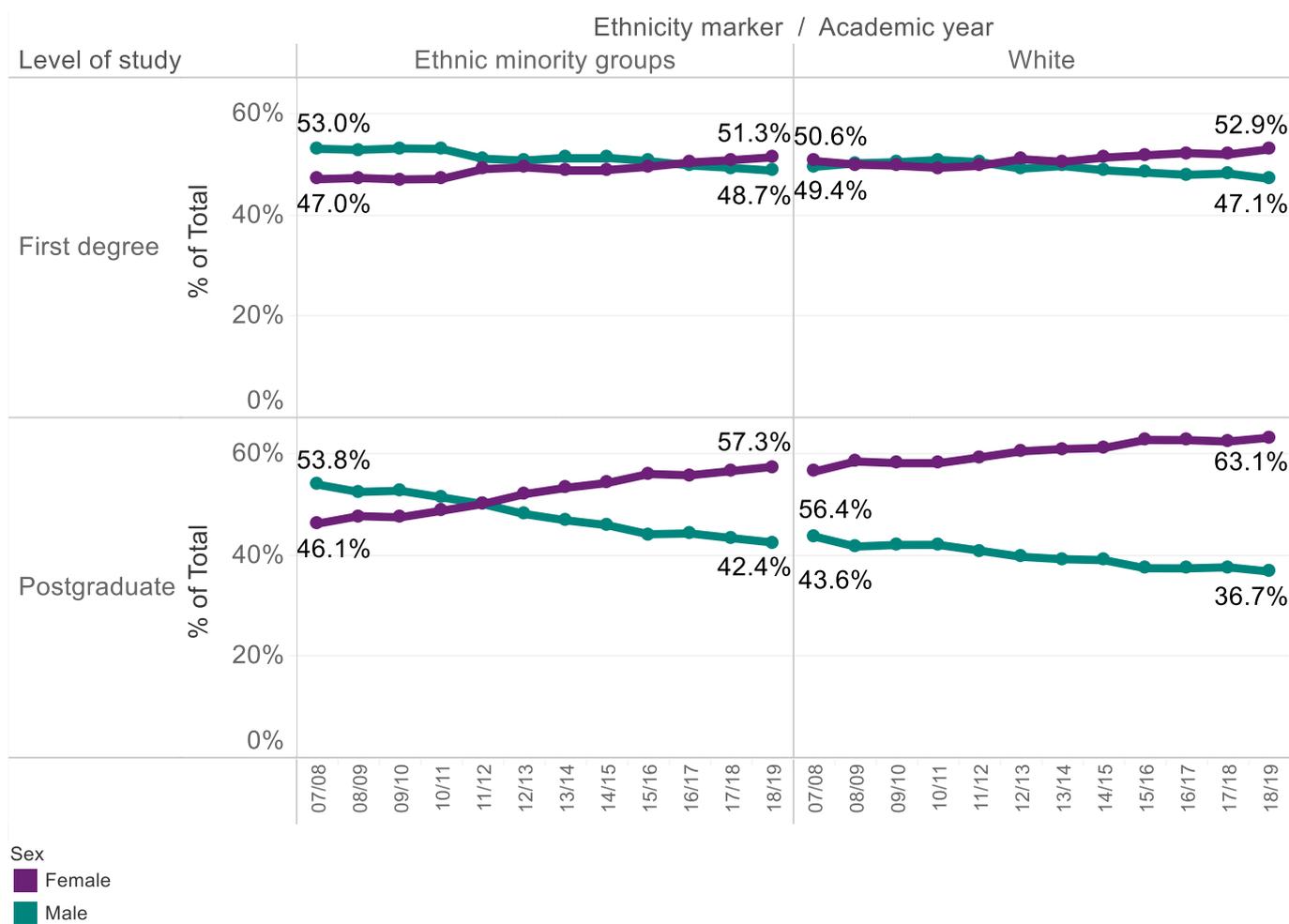
Overall, the proportion of female STEM entrants at first degree level has increased from 49.8 per cent (83,045) in 2007/08 to 52.3 per cent (113,095) in 2018/19. The corresponding figures for female STEM postgraduate entrants show an increase from 54.3 per cent (30,160) in 2007/08 to 61.4 per cent (58,010) in 2018/19.

Chart 4 shows the proportion of ethnic minority group STEM female entrants is increasing for both first degree and postgraduate entrants, and ethnic minority group STEM female entrants outnumber ethnic minority group STEM male entrants at both levels of study in 2018/19. This contrasts with 2007/08 when ethnic minority group STEM female entrants were in the minority at both levels of study.

Postgraduate level has seen the biggest increase with the proportion of ethnic minority group STEM female entrants increasing by 11.2 percentage points between 2007/08 and 2018/19.

The increase in the proportion of female STEM entrants has naturally led to a decline in the proportion of male STEM entrants. However, it is important to note that Nursing is the largest principal subject within STEM at both first degree and postgraduate level, and it is dominated by female entrants. In 2018/19 there were 46,375 entrants studying Nursing (14.9 per cent out of a total cohort of 310,615) at both levels of study, and 87.7 per cent (40,655) were female.

Chart 4 Proportion by sex for UK domiciled STEM entrants by level of study and ethnicity marker 2007/08 to 2018/19¹²



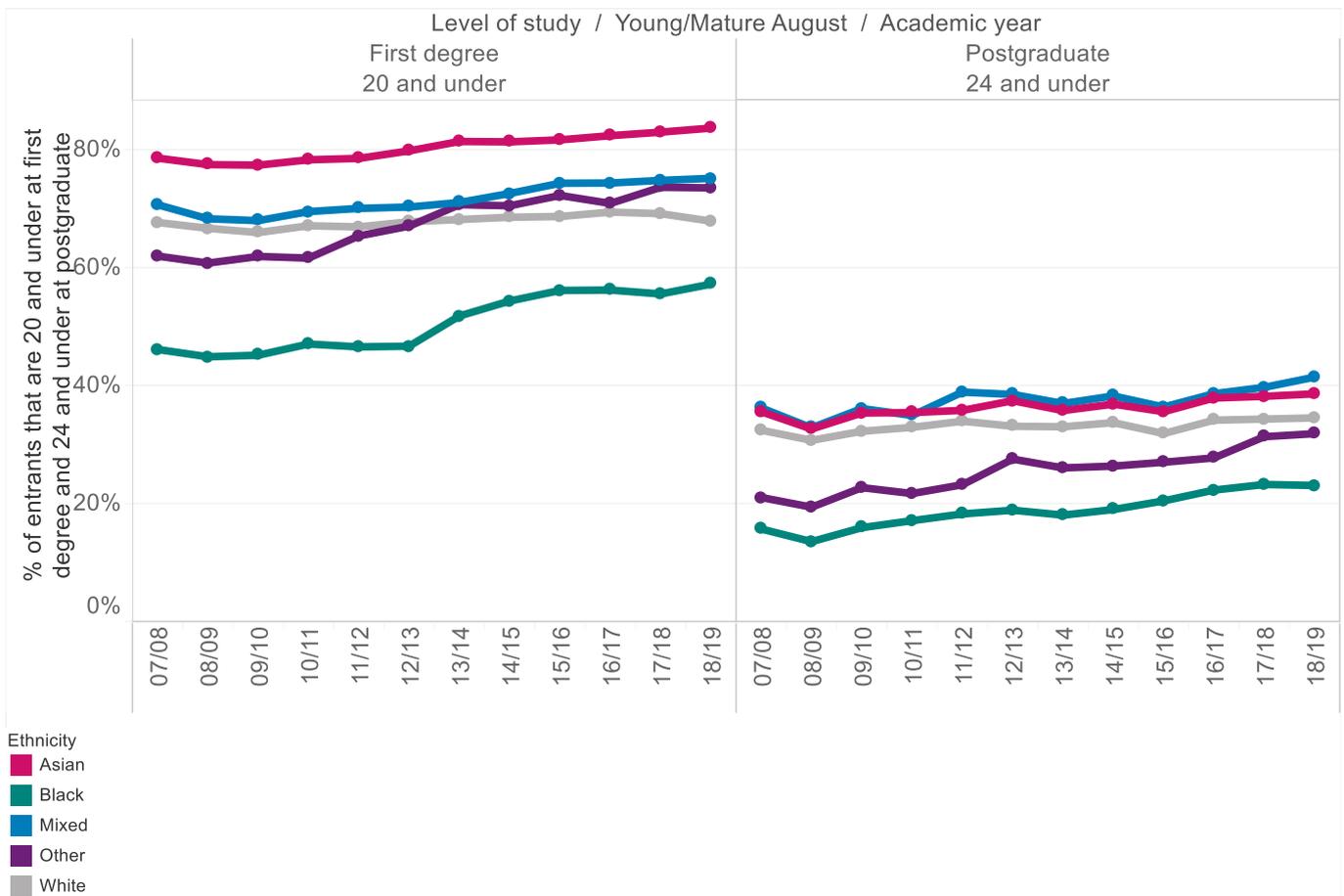
¹² Due to extremely small numbers, those entrants with a sex classified as 'Other' are included in the percentage calculations, but not shown.

There is a lower percentage of Black STEM first degree entrants aged 20 and under compared to other ethnic groups across all years of data. This is also true for those aged 24 and under at postgraduate level.

In 2018/19 57.2 per cent (9,910) of Black STEM first degree entrants were aged 20 and under compared to 83.6 per cent (24,365) of Asian STEM first degree entrants. At postgraduate level in 2018/19, 23.0 per cent (1,500) of Black STEM entrants were aged 24 and under compared to 38.6 per cent (4,235) of Asian STEM entrants.

Because Black entrants have the lowest proportion of young entrants at both levels of study, this implies a higher proportion of Black STEM entrants are starting higher education later in life compared to other ethnic groups.

Chart 5 Percentage of UK domiciled STEM entrants that were aged 20 and under at first degree level and aged 24 and under at postgraduate level on 31 August by level of study and ethnicity 2007/08 to 2018/19

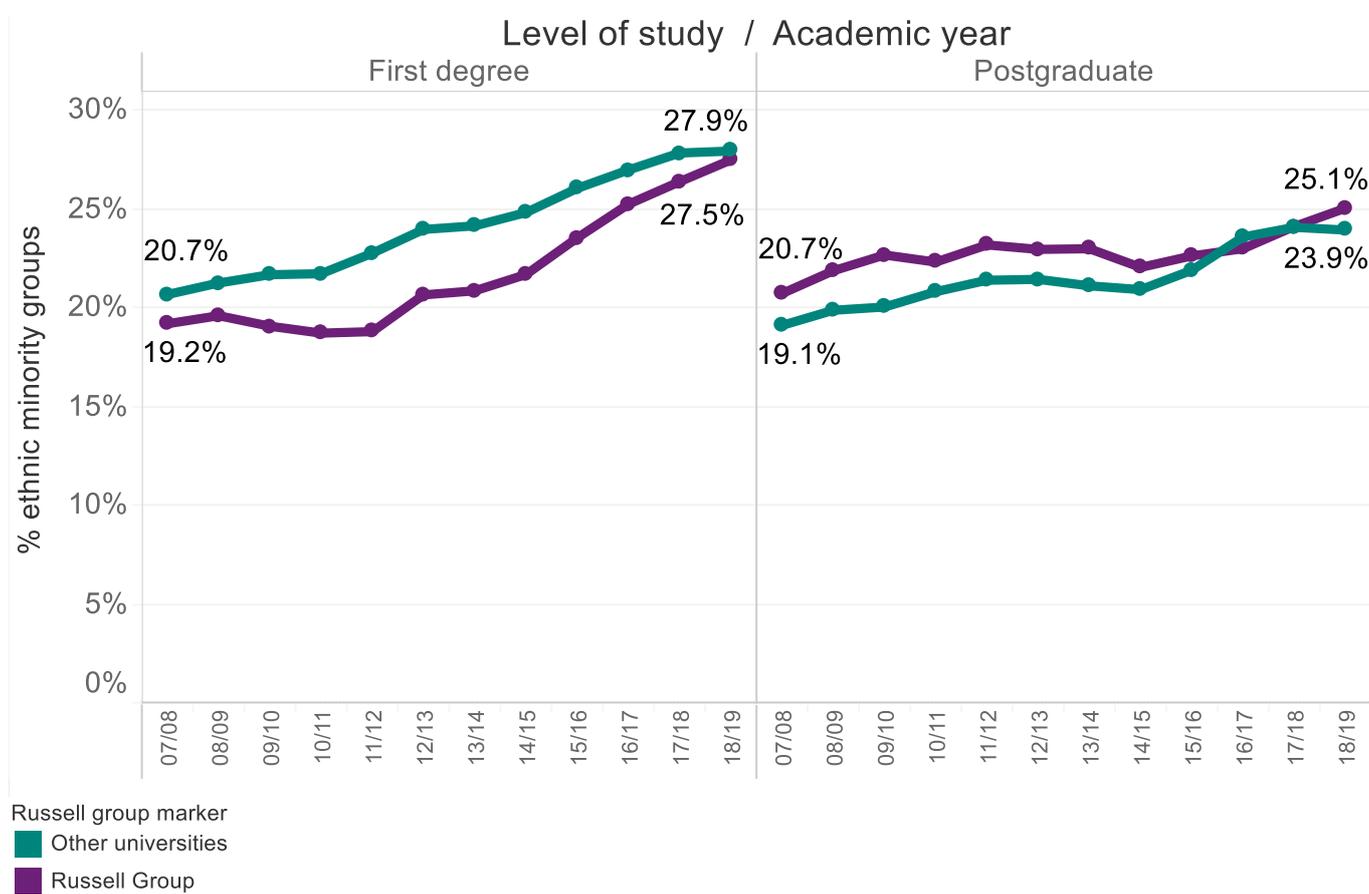


The percentage of ethnic minority group STEM first degree entrants at Russell Group universities (27.5 per cent, 13,740) is slightly lower in 2018/19 compared to other universities (27.9 per cent, 45,825). At postgraduate level, the percentage of ethnic minority group STEM entrants is higher at Russell Group universities (25.1 per cent, 7,280) than other universities (23.9 per cent, 15,115).

There is a general upward trend at first degree level across the time series in the percentage of ethnic minority group STEM entrants at Russell Group universities and other universities. However, during 2008/09 to 2011/12 there was a small percentage point decrease at Russell Group universities for ethnic minority group STEM first degree entrants.

For non-STEM subjects there is also a general upward trend at first degree level across the time series in the percentage of ethnic minority group entrants at Russell Group and other universities. However, the gap is larger between Russell Group universities and other universities for non-STEM subjects. In 2018/19 the percentage of ethnic minority group non-STEM first degree entrants at Russell Group universities is 19.5 per cent (9,005) vs 27.2 per cent (54,370) at other universities.

Chart 6 Percentage of UK domiciled ethnic minority group STEM entrants by level of study and Russell Group marker 2007/08 to 2018/19



POLAR 4 is a measure of participation rates of young people in higher education by local areas based on the student's domicile postcode. Low participation neighbourhood shows data for students from the lowest areas in terms of participation in higher education.

POLAR4 data shows that overall, 12.2 per cent (7,185) of ethnic minority group STEM first degree entrants were from low participation neighbourhoods in 2018/19 vs 14.2 per cent (20,700) of white STEM entrants.

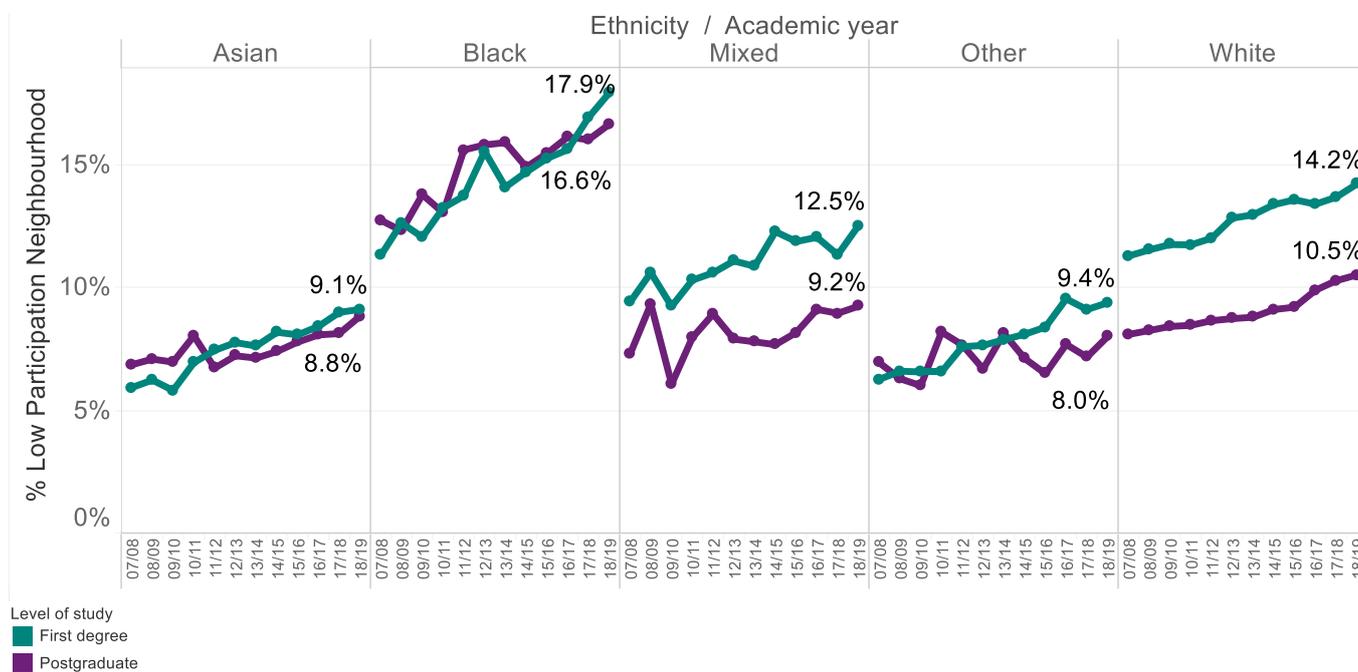
Chart 7 shows a higher percentage of white STEM entrants at both first degree and postgraduate level come from a low participation neighbourhood in 2018/19 compared to Asian, mixed and other ethnicities. This is also true for non-STEM subjects at postgraduate level. However, at first degree level for non-STEM subjects, a higher percentage of white non-STEM entrants come from a low participation neighbourhood in 2018/19 compared to all other ethnic groups.

Broken down by ethnicity, Chart 7 shows that first degree Black STEM entrants have the highest percentage from low participation neighbourhoods (17.9 per cent, 3,080) in 2018/19. This has risen by 6.6 percentage points since 2007/08, the biggest rise of any ethnic group over this period. This also holds true for non-STEM subjects although the increase is only 3.1 percentage points, rising from 9.7 per cent in 2007/08 to 12.8 per cent in 2018/19.

At postgraduate level Black STEM entrants also have the highest percentage from low participation neighbourhoods in 2018/19 (16.6 per cent, 1,065). This trend is also observed for non-STEM subjects.

It is important to understand that the low participation neighbourhood marker is determined by the student's postcode of domicile. For the majority at first degree level this is likely to be their parent/guardian's home address. Whilst at postgraduate level this may still be the case, they are more likely than first degree entrants to be living in different accommodation before they commence postgraduate level study. It therefore may not be as accurate in measuring students from low participation neighbourhoods at postgraduate level.

Chart 7 Percentage of UK domiciled STEM entrants from low participation neighbourhoods by ethnicity and level of study 2007/08 to 2018/19¹⁵



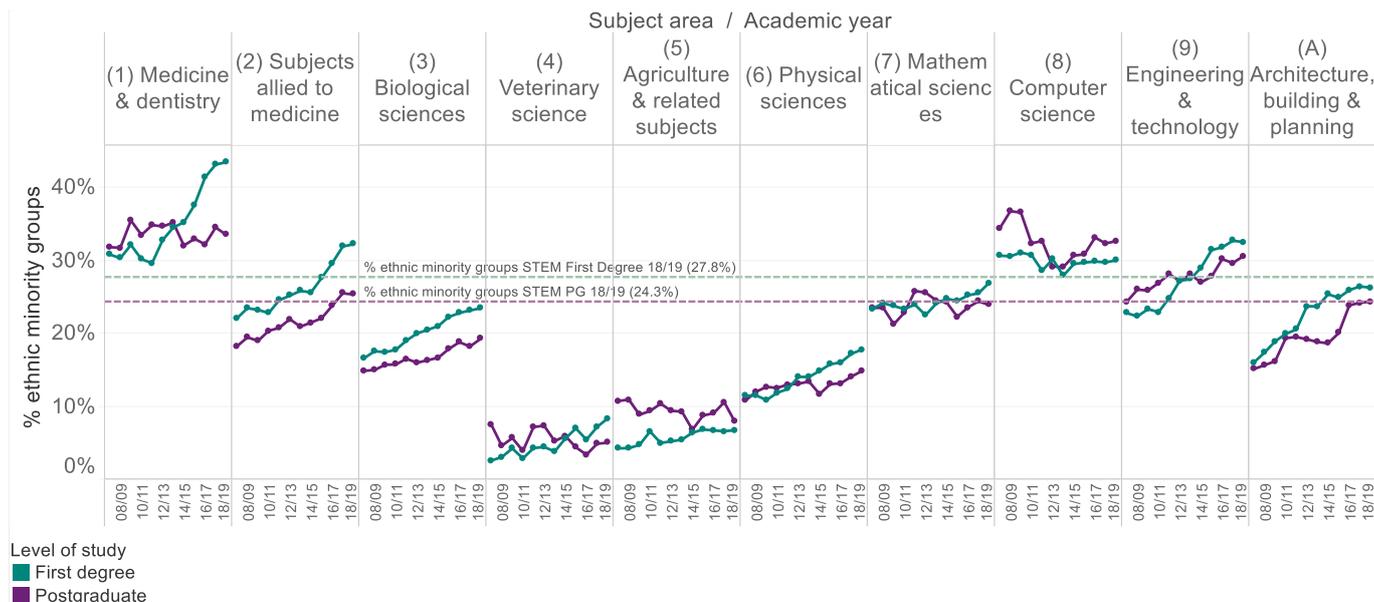
¹⁵ Excludes students domiciled from Northern Ireland and those with an unknown POLAR 4 quintile.

There is large variation between subject areas in the percentage of ethnic minority group STEM entrants.

In 2018/19 43.5 per cent (3,970) of STEM first degree entrants studying Medicine & dentistry are from ethnic minority groups compared with 6.7 per cent (225) of first degree entrants studying Agriculture & related subjects.

The reference lines show the percentage of ethnic minority group entrants in 2018/19 for first degree and postgraduate level study. Any value above the corresponding line in 2018/19 shows relatively high ethnic minority groups representation. In other words, ethnic minority group STEM entrants are more likely than white entrants to study Medicine and dentistry than Agriculture and related subjects.

Chart 8 Percentage of UK domiciled ethnic minority group STEM entrants within each subject area by level of study 2007/08 to 2018/19



Outcomes data

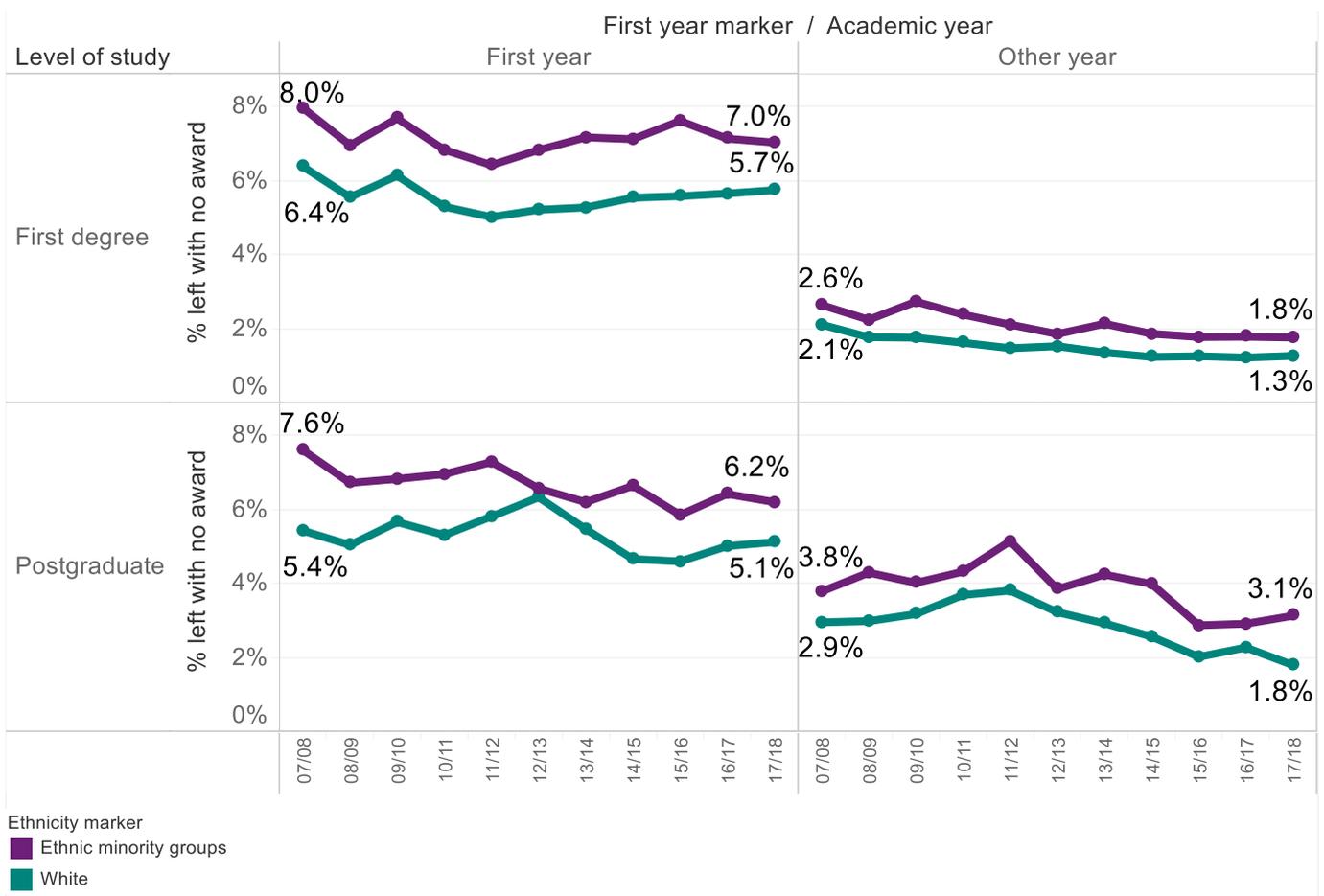
Non-completion

Non-completion¹⁶ rates for ethnic minority group STEM students are higher than for white STEM students at both levels of study. This is also true for non-STEM subjects.

In their first year of study, students are more likely to drop out, and the gap between ethnic minority group STEM students and white STEM students is higher in their first year of study than other years of study.

In 2017/18 there is a 1.3 per cent gap between first year ethnic minority group STEM students and white STEM students. This gap reduces to 0.5 per cent in other years of study. These percentage differences are statistically significant at the 95% confidence level.

Chart 9 Percentage of UK domiciled STEM students that left with no award by level of study, first year marker and ethnicity marker 2007/08 to 2017/18



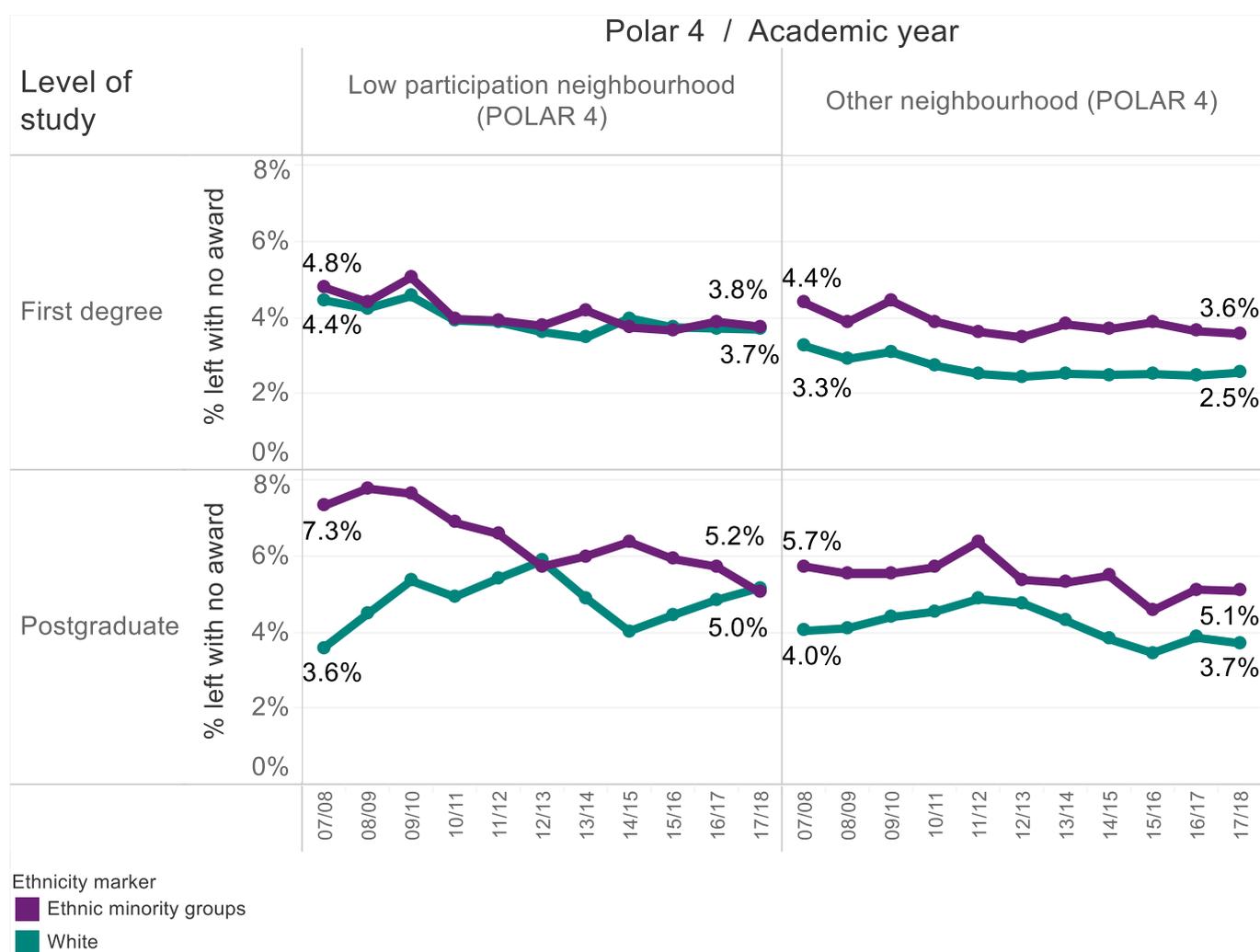
¹⁶ This is the percentage of students who did not continue into the following year of study and therefore left with no qualification awarded. They may have transferred to a different higher education provider.

Whilst the non-completion rates are higher overall for STEM students from a low participation neighbourhood compared to other neighbourhoods, there is very little difference between ethnic minority group STEM and white STEM first degree students from a low participation neighbourhood. This similarity is also observed when analysing first year and other years of study.

Although the trend is similar for non-STEM subjects, with ethnic minority group students from low participation neighbourhoods having higher non-completion rates, the gap between ethnic minority group and white students in 2017/18 is higher (0.7 per cent for non-STEM vs 0.1 per cent for STEM).

Although POLAR 4 is not in itself a measure of socio-economic disadvantage¹⁷, the data suggests that being domiciled from a low participation neighbourhood may be linked to non-completion rates at first degree level. Further statistical analysis would help determine the extent, along with examining other possible factors which influence non-completion rates.

Chart 10 Percentage of UK domiciled STEM students that left with no award by level of study, POLAR 4 and ethnicity marker 2007/08 to 2017/18¹⁸



¹⁷ <https://www.officeforstudents.org.uk/media/3f1479d3-d144-4adb-b3c7-a6df6f996b27/polar-and-tundra-faqs-september-2019.pdf>

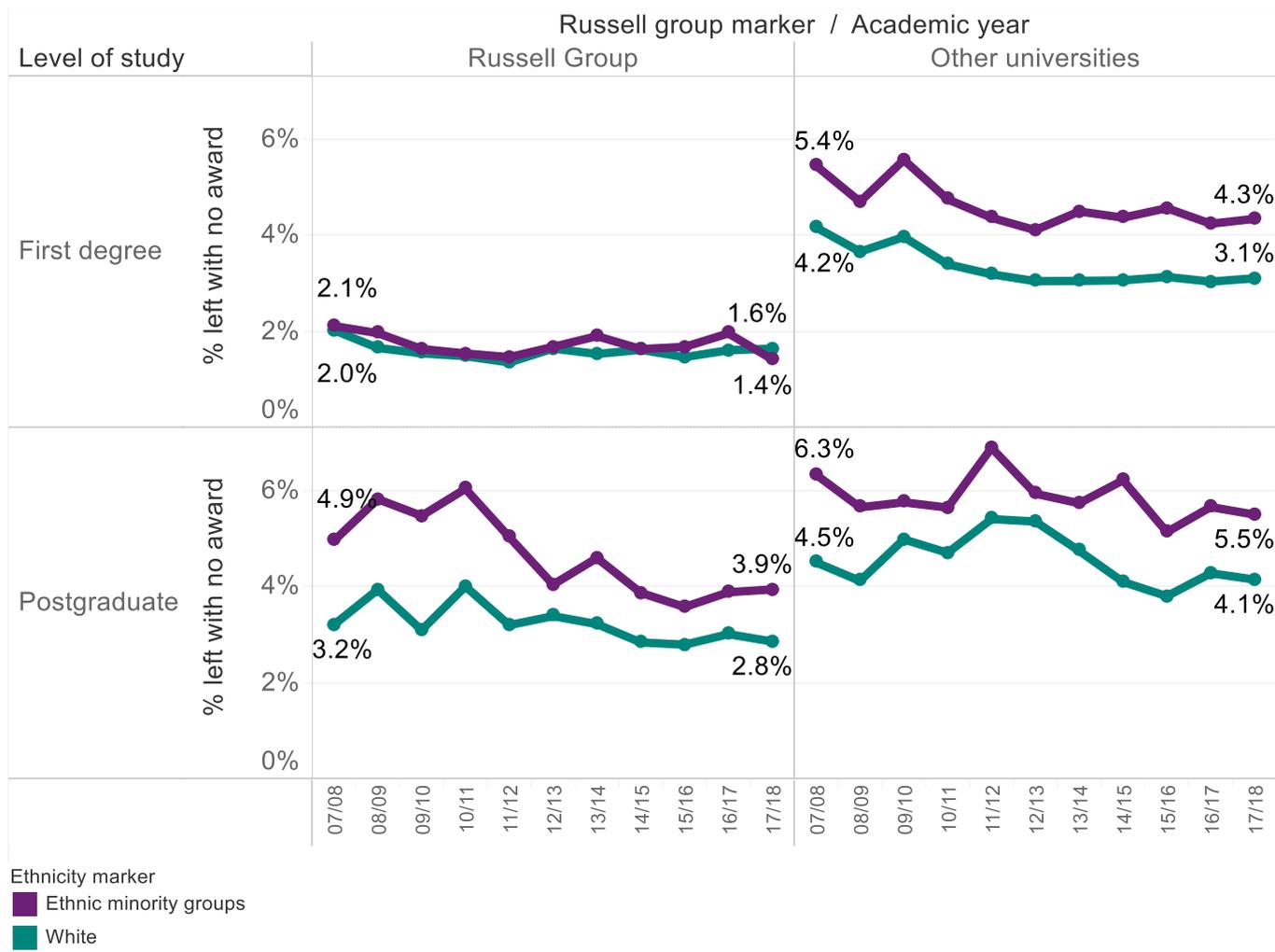
¹⁸ Excludes students domiciled from Northern Ireland and those with an unknown POLAR 4 quintile.

Non-completion rates are lower for first degree and postgraduate STEM students studying at Russell Group universities compared to other universities. This is also observed for non-STEM subjects.

At first degree level there continues to be very small differences in the non-completion rates between ethnic minority group STEM students and white STEM students at Russell Group universities (0.2 per cent in 2017/18). At other universities at first degree level, non-completion rates continue to differ (1.2 per cent in 2017/18). This similarity is also observed when analysing first year and other years of study.

At postgraduate level there are differences in the non-completion rates between ethnic minority group STEM students and white STEM students, and this is observed at both Russell Group universities and other universities.

Chart 11 Percentage of UK domiciled STEM first degree students that left with no award by Russell Group marker and ethnicity marker 2007/08 to 2017/18

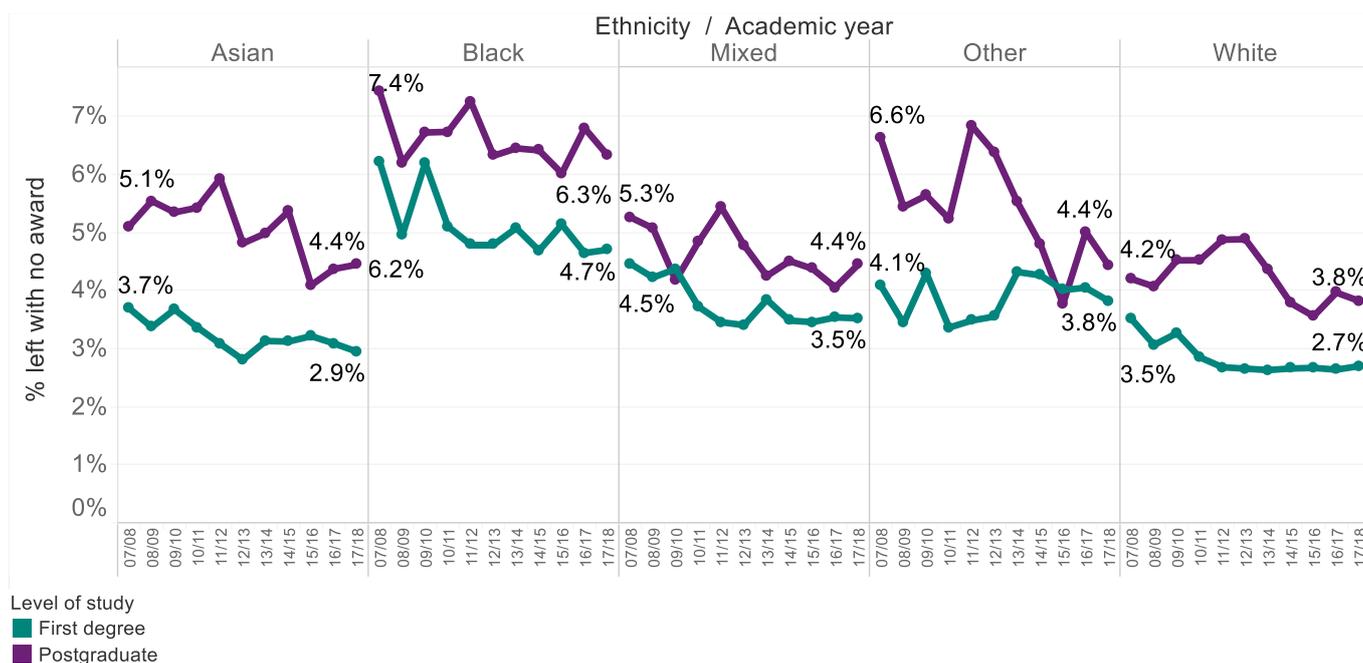


Black STEM students have the highest non-completion rates in 2017/18 at both first degree and postgraduate level. 4.7 per cent (2,230) of Black STEM first degree students, and 6.3 per cent (610) of Black STEM postgraduate students did not complete their studies. This trend is also observed for non-STEM subjects.

This compares with 2.9 per cent (2,540) of Asian STEM first degree and 4.4 per cent (620) of Asian STEM postgraduate students, and 2.7 per cent (13,030) of white STEM first degree and 3.8 per cent (3,515) of white STEM postgraduate students.

Non-completion rates increased in 2016/17 for STEM postgraduate students for all cohorts except mixed ethnicity students. This trend has not continued in 2017/18 as non-completion rates for Black, other and white ethnicities show a decline in 2017/18.

Chart 12 Percentage of UK domiciled STEM students that left with no award by ethnicity and level of study 2007/08 to 2017/18



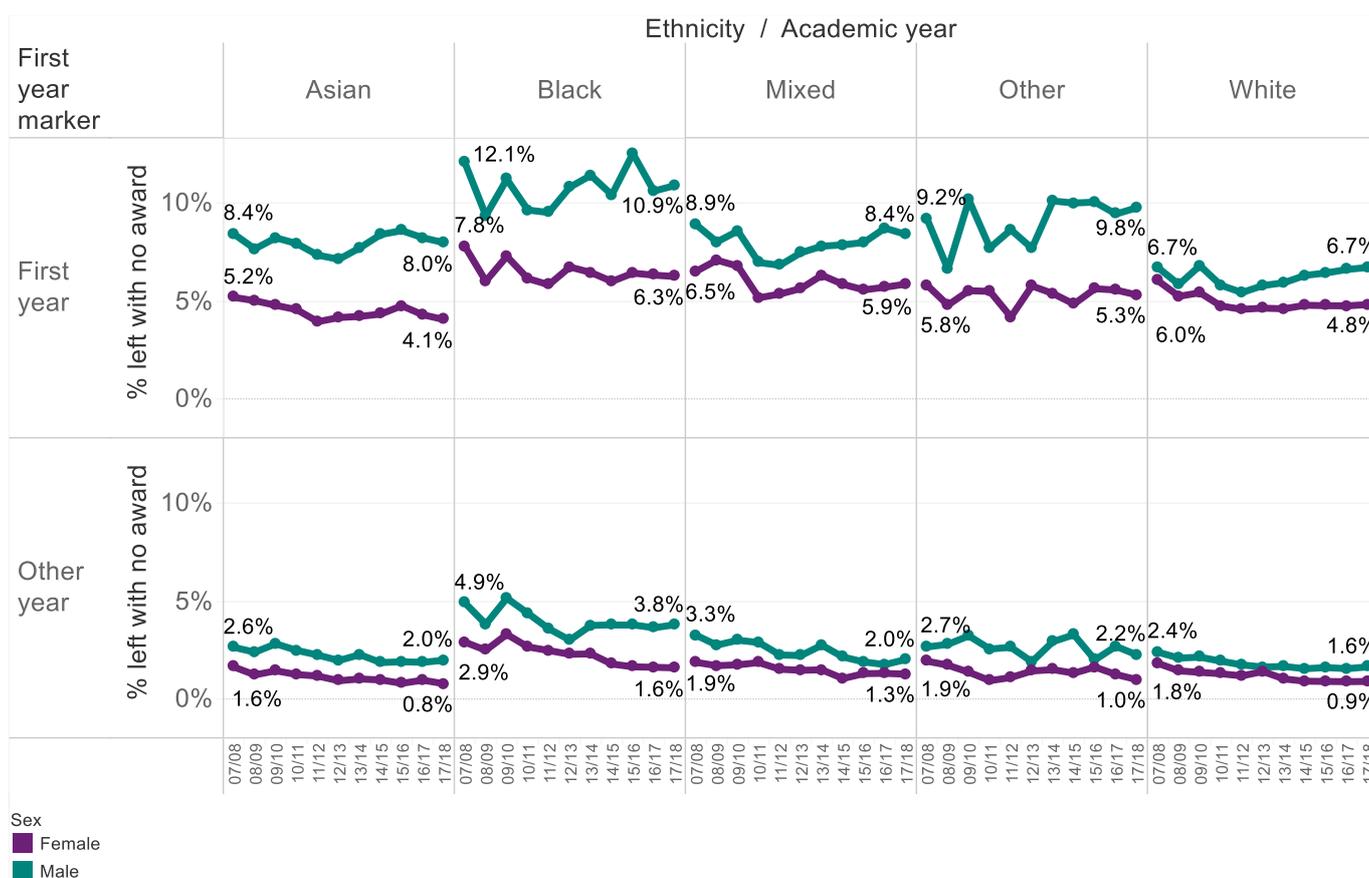
Non-completion rates are higher for STEM first degree male students compared to STEM first degree female students. This is also true for non-STEM subjects.

Non-completion rates are also higher for STEM postgraduate male students compared to STEM postgraduate female students, but the gap is smaller.

In 2017/18 10.9 per cent (840) of Black STEM male first year first degree students did not complete their studies compared to 6.7 per cent (5,025) of white STEM male first year students.

In 2017/18 the gap between males and females is also highest for Black STEM first year students (4.7 per cent) compared to other STEM ethnic groups (Asian - 3.9 per cent, mixed - 2.5 per cent, other - 4.5 per cent and white - 1.9 per cent).

Chart 13 Percentage of UK domiciled STEM first degree students that left with no award by ethnicity and sex 2007/08 to 2017/18¹⁹



¹⁹ Due to extremely small numbers, those students with a sex classified as 'Other' are not shown.

Class of first degree

Ethnic minority group STEM first degree qualifiers achieve a lower percentage of 'good honours' in comparison with white STEM first degree qualifiers.

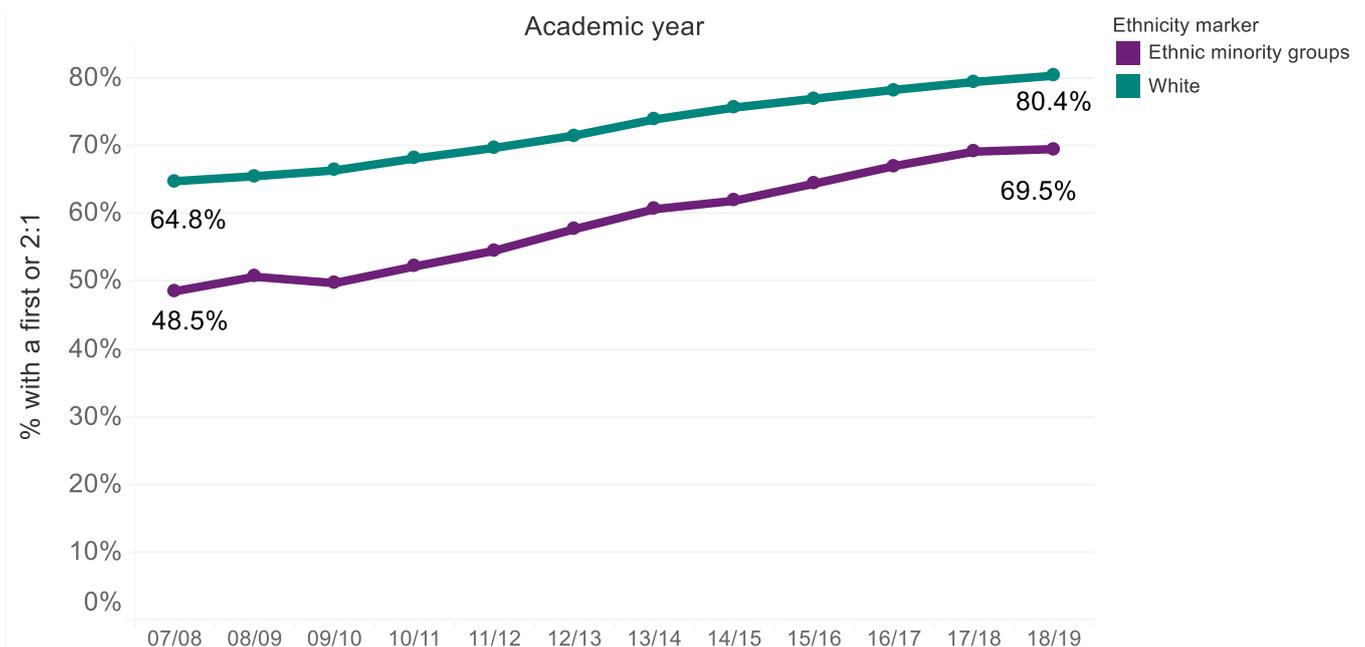
In 2018/19 69.5 per cent (23,555) of ethnic minority group STEM first degree qualifiers achieved 'good honours' compared to 80.4 per cent (84,220) of white STEM first degree qualifiers. The gap has narrowed from 16.2 per cent in 2007/08 to 10.9 per cent in 2018/19. These percentage differences are statistically significant at the 95% confidence level. A similar trend is observed for non-STEM subjects, yet the gap is wider (15.3 per cent in 2018/19).

However, the gap between STEM ethnic minority group and white first degree qualifiers achieving 'good honours' has increased from 10.3% in 2017/18 to 10.9% in 2018/19. This is caused by the rate of growth in the percentage achieving 'good honours' from 2017/18 to 2018/19 being lower for ethnic minority group STEM qualifiers than white STEM qualifiers.

When analysing the data by sex, ethnic minority group and white female STEM first degree qualifiers achieve a higher percentage of 'good honours' than ethnic minority group and white male STEM first degree qualifiers. This is consistent across all years of data.

The year on year increase across both cohorts reflects the trend across the sector of an increasing percentage of qualifiers achieving 'good honours'.

Chart 14 Percentage of UK domiciled STEM first degree qualifiers that achieved first class or upper second class honours by ethnicity marker 2007/08 to 2018/19

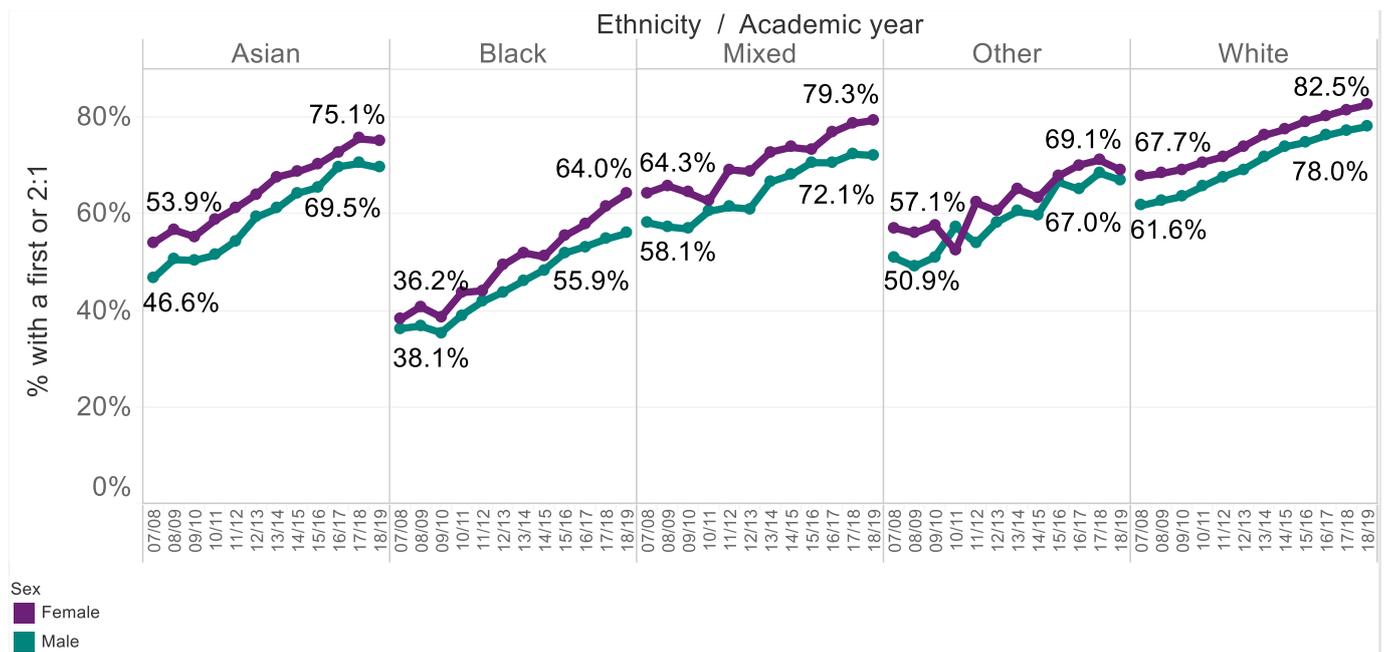


The data shows that Black STEM male first degree qualifiers achieve the lowest percentage of 'good honours' compared with other ethnicities, and this has consistently been the case across all years of data. In 2018/19 55.9 per cent (2,020) of Black STEM male first degree qualifiers achieved 'good honours' compared with 78.0 per cent (38,350) of white STEM male first degree qualifiers.

Although STEM females outperform STEM males, Black STEM female first degree qualifiers (despite increases in recent years) achieved lower in 2018/19 (64.0 per cent - 3,470) than STEM male first degree qualifiers from all other ethnic backgrounds.

These trends are also observed for non-STEM subjects, although the difference between females and males is smaller.

Chart 15 Percentage of UK domiciled STEM first degree qualifiers that achieved first or upper second class honours by ethnicity and sex 2007/08 to 2018/19²⁰



²⁰ Due to extremely small numbers, those qualifiers with a sex classified as 'Other' are not shown.

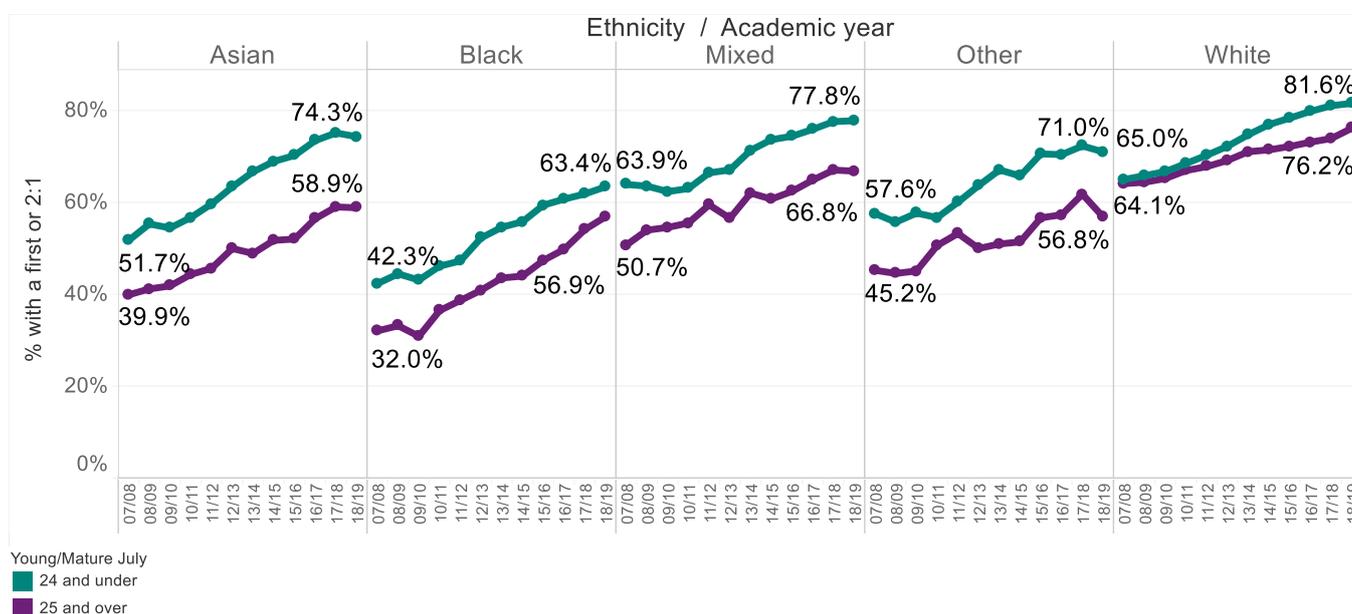
Chart 16 shows that STEM first degree qualifiers aged 25 and over across all ethnic groups achieve a lower percentage of 'good honours' compared to STEM first degree qualifiers aged 24 and under. This trend is also observed for non-STEM subjects.

In 2018/19 the widest gap between STEM first degree qualifiers aged 24 and under and 25 and over is for Asian qualifiers where the gap is 15.5 per cent. This compares with 6.5 per cent for Black STEM first degree qualifiers, 11.0 per cent for mixed ethnicity STEM qualifiers, 14.2 per cent for other ethnic background STEM qualifiers, and 5.4 per cent for white STEM qualifiers.

In 2018/19 74.3 per cent (11,395) of Asian STEM qualifiers aged 24 and under achieve good honours compared with 58.9 per cent (1,315) of Asian STEM qualifiers aged 25 and over.

Given that older STEM qualifiers are less likely to achieve 'good honours', we would expect a reduction in the percentage achieving 'good honours' for those ethnic groups with a higher proportion of older students (see Chart 5 for context). However, this will not be the only factor affecting the likelihood of achieving 'good honours'.

Chart 16 Percentage of UK domiciled STEM first degree qualifiers that achieved first class or upper second class honours by ethnicity and age at 31 July 2007/08 to 2018/19

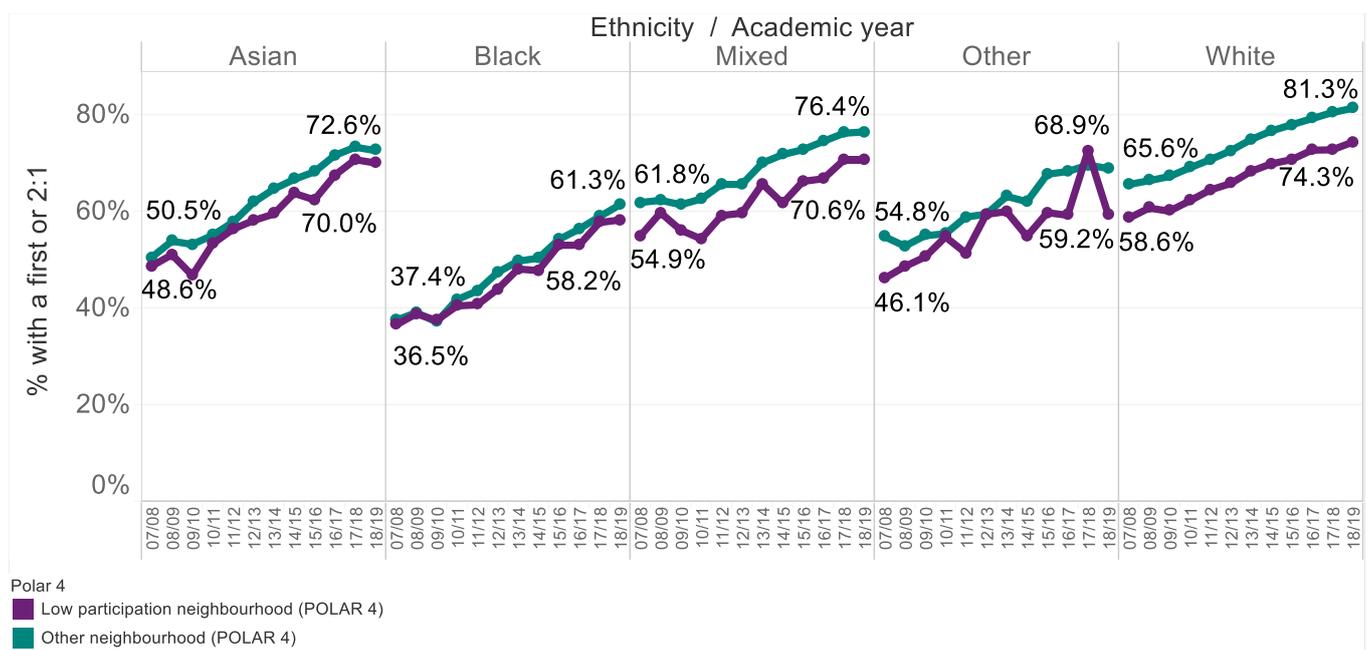


When taking into account those first degree qualifiers from the lowest areas in terms of participation in higher education, a lower percentage of Black first degree STEM qualifiers achieve 'good honours' in comparison to other ethnic groups.

58.2 per cent (870) of Black STEM qualifiers from low participation neighbourhoods achieve 'good honours' compared to 74.3 per cent (9,195) of white STEM qualifiers from low participation neighbourhoods.

It is important to note that the low participation neighbourhood represents the lowest 20 per cent in terms of the participation rate in higher education. Qualifiers from other ethnic groups will not be distributed evenly across the other four (higher participation) quintiles. This may help explain the gap size (or lack of) for particular ethnic groups between achievement of low and other neighbourhood participation qualifiers.

Chart 17 Percentage of UK domiciled STEM first degree qualifiers that achieved first or upper second class honours by ethnicity and POLAR4 marker 2007/08 to 2018/19²¹



²¹ Excludes students domiciled from Northern Ireland and those with an unknown POLAR 4 quintile.

The percentage of Black STEM first degree qualifiers achieving 'good honours' has decreased since 2016/17 at Russell Group universities, reducing from 74.7 percent (710) in 2016/17 to 72.8 per cent (875) in 2018/19. This contrasts with non-STEM subjects, where the figure has increased from 72.2 per cent (660) in 2016/17 to 78.2 per cent (815) in 2018/19.

Despite this decrease, the gap between the percentage of Black and white STEM first degree qualifiers achieving 'good honours' remains lower at Russell Group universities compared to other universities. The gap between these two cohorts at Russell Group universities is 14.8 per cent vs 18.6 per cent at other universities in 2018/19 (from 14.0 and 19.9 in 2017/18). These percentage differences are statistically significant at the 95% confidence level. This trend is also observed for non-STEM subjects.

Chart 18 Percentage of UK domiciled STEM first degree qualifiers that achieved first class or upper second class honours by ethnicity and Russell Group marker 2007/08 to 2018/19

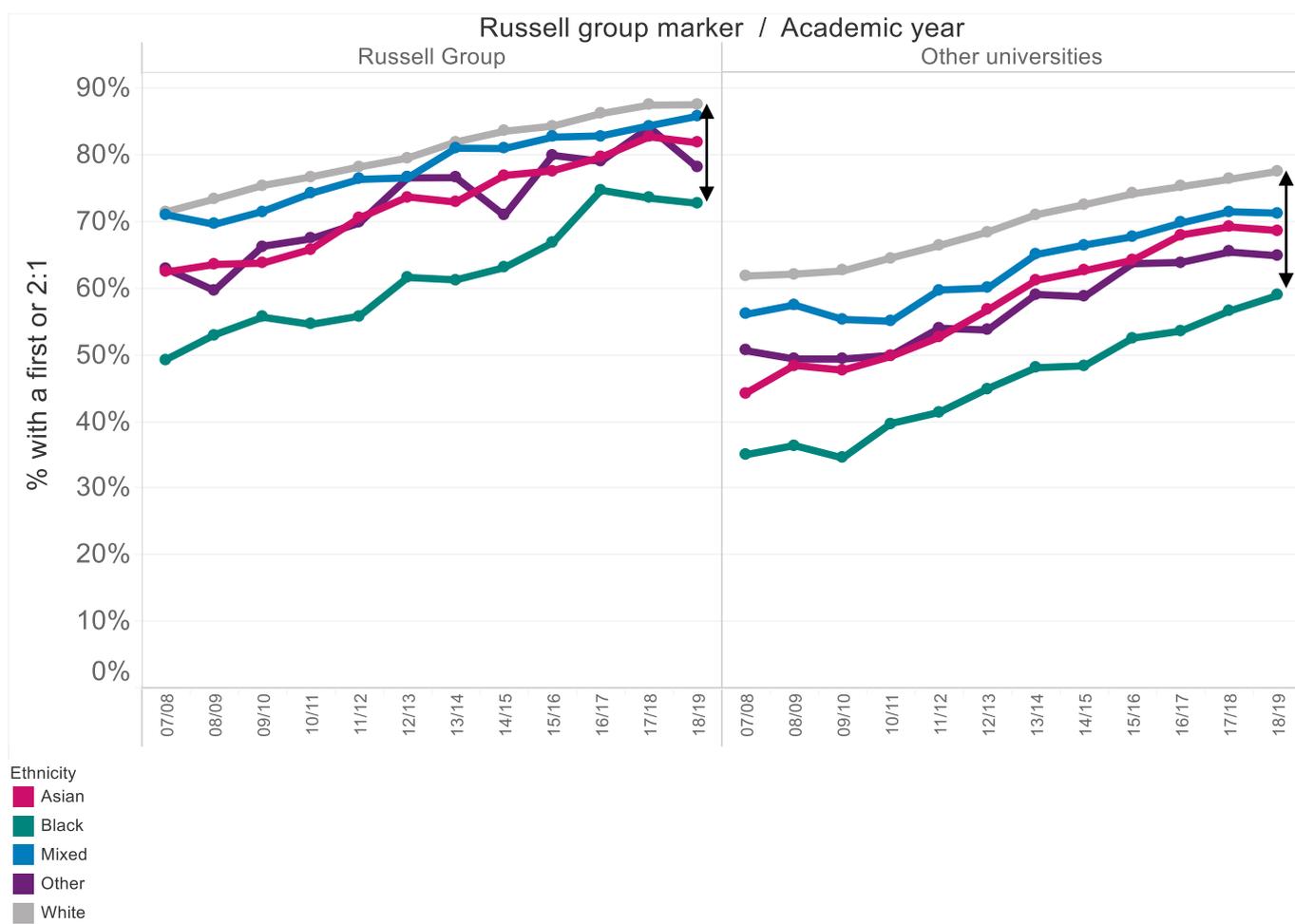


Chart 19 shows the breakdown by class of first degree and ethnicity. It shows there is small variation (3.8 per cent) between ethnic groups of STEM qualifiers achieving upper second class honours. 45.8 per cent (2,360) of mixed ethnicity STEM qualifiers achieved upper second class honours compared with 42.0 per cent (895) of other ethnicity STEM qualifiers.

The largest variation by ethnic group is for those achieving first class honours, where the gap is 17.8 percentage points between Black and white STEM qualifiers. This percentage difference is statistically significant at the 95% confidence level. Around 1 in 3 white STEM qualifiers achieve first class honours compared with around 1 in 6 Black STEM qualifiers. Chart 20 shows further breakdown by Russell Group and other universities. The overall pattern remains the same.

Chart 19 Proportion by class of first degree for UK domiciled STEM first degree qualifiers by ethnicity 2018/19

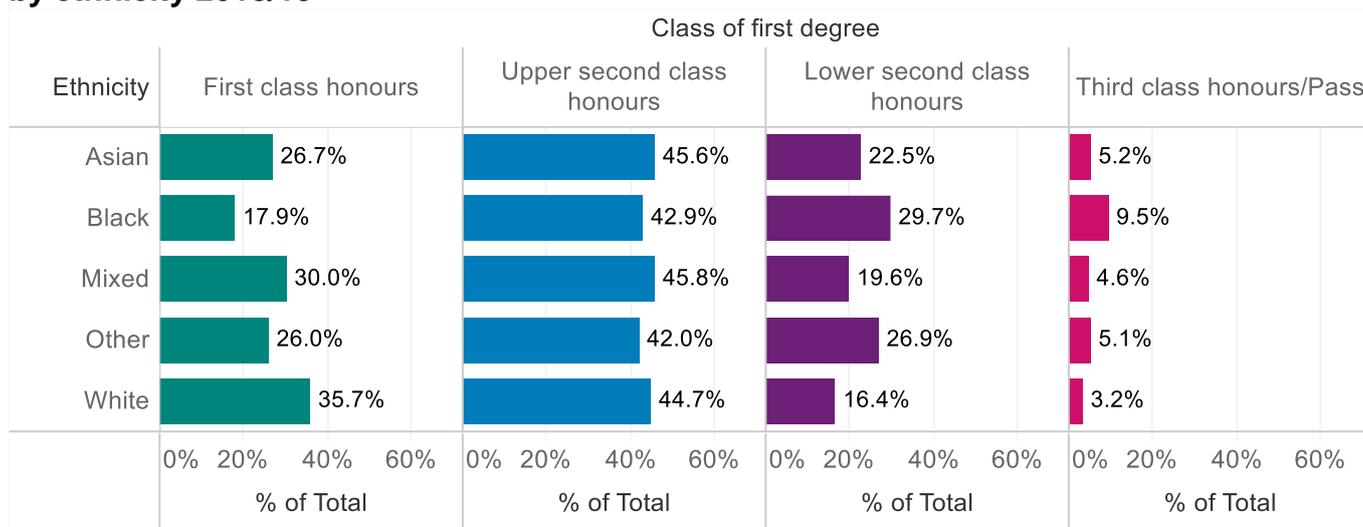
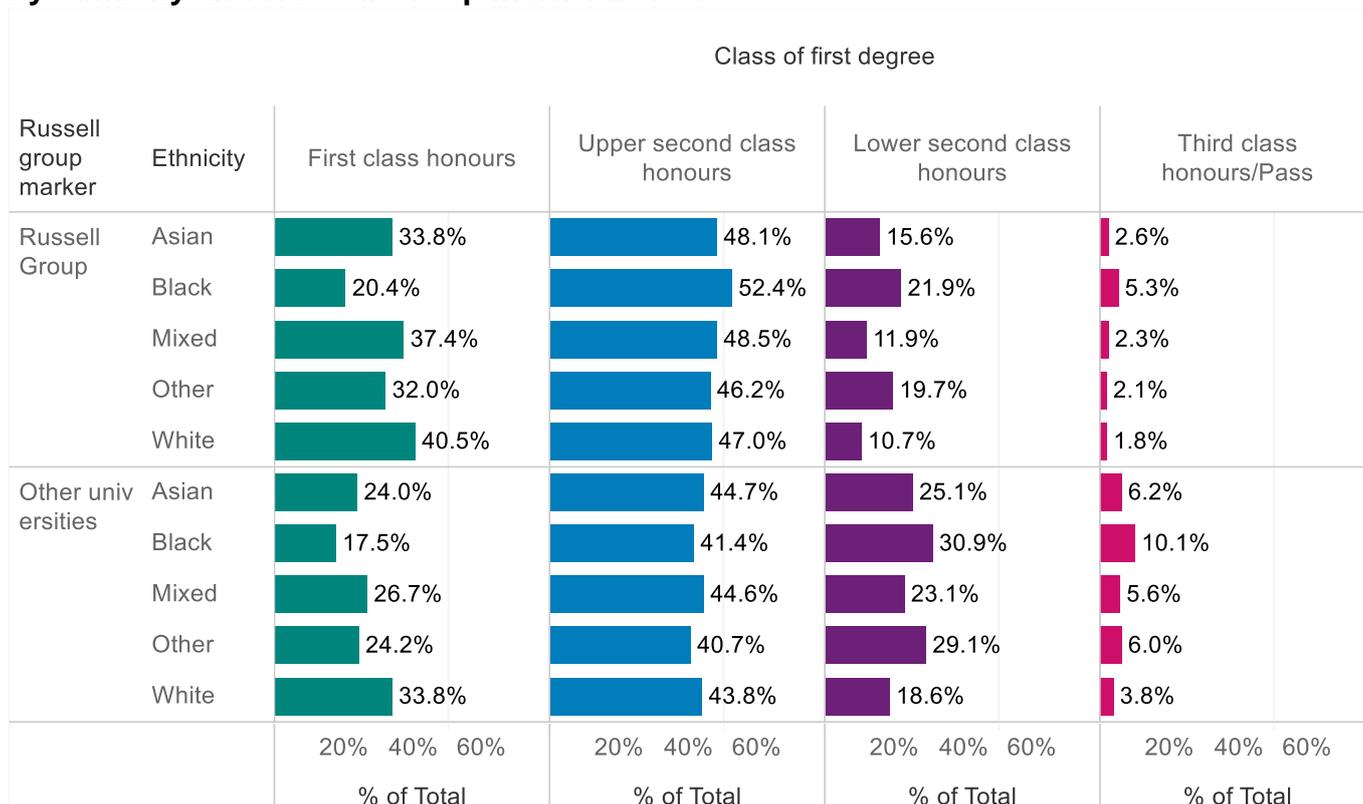


Chart 20 Proportion by class of first degree for UK domiciled STEM first degree qualifiers by ethnicity and Russell Group marker 2018/19



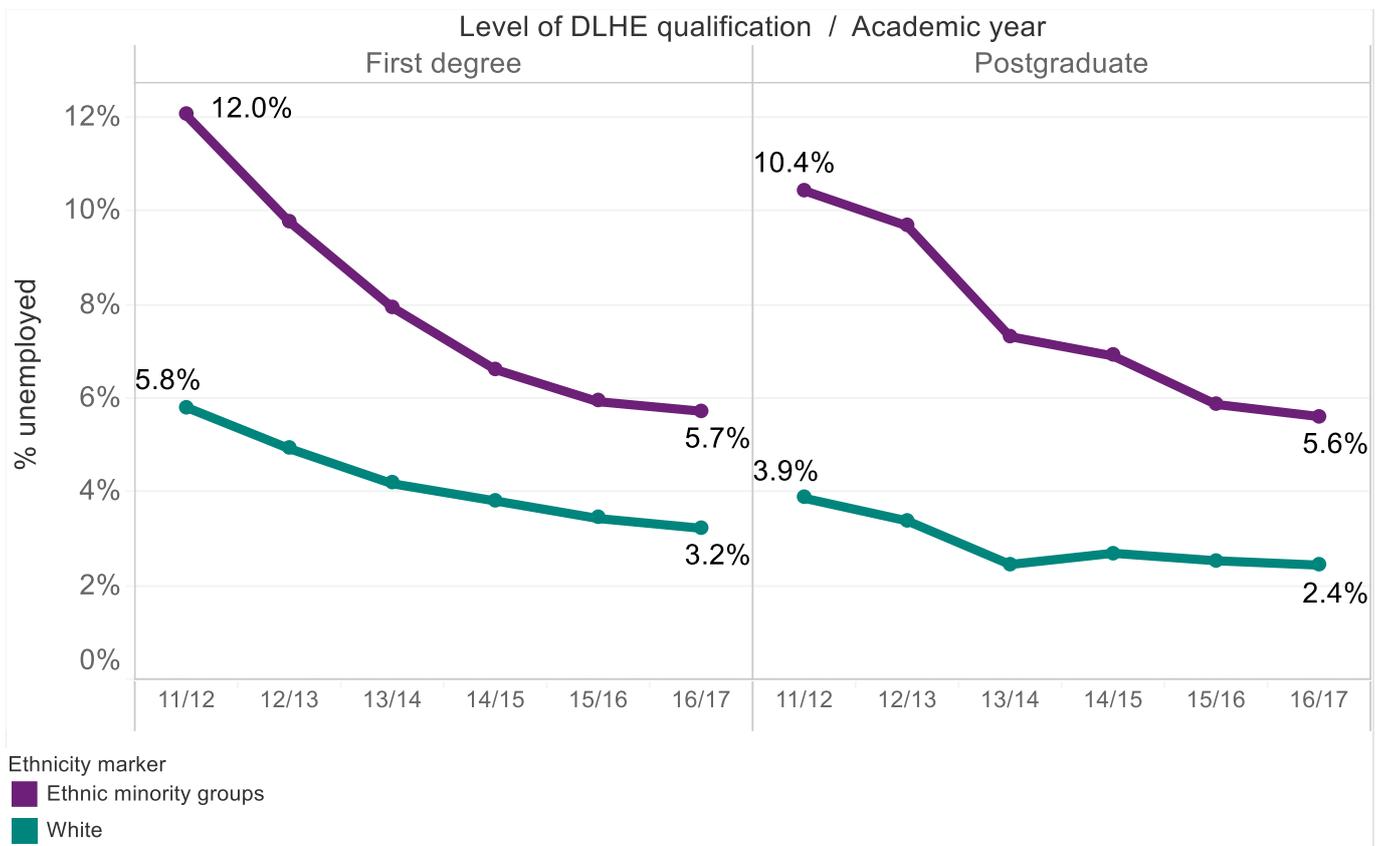
Employment

Information for this section is sourced from the HESA Destinations of Leavers from Higher Education (DLHE) survey. Please interpret small differences between cohorts with caution. Confidence intervals have not been calculated and any differences may not be statistically significant.

Graduates are surveyed 6 months after graduation and therefore the data reflects their outcomes at that point. In 2011/12 there were changes made to the DLHE survey²² so data before then may not be directly comparable. For this reason, only data from 2011/12 onwards is included.

Chart 21 shows that unemployment rates have fallen from 2011/12 to 2016/17 for both ethnic minority group and white STEM leavers, and the gap has narrowed over this time period across both levels of qualification.

Chart 21 Percentage of UK domiciled STEM leavers that were unemployed by level of qualification and ethnicity marker 2011/12 to 2016/17

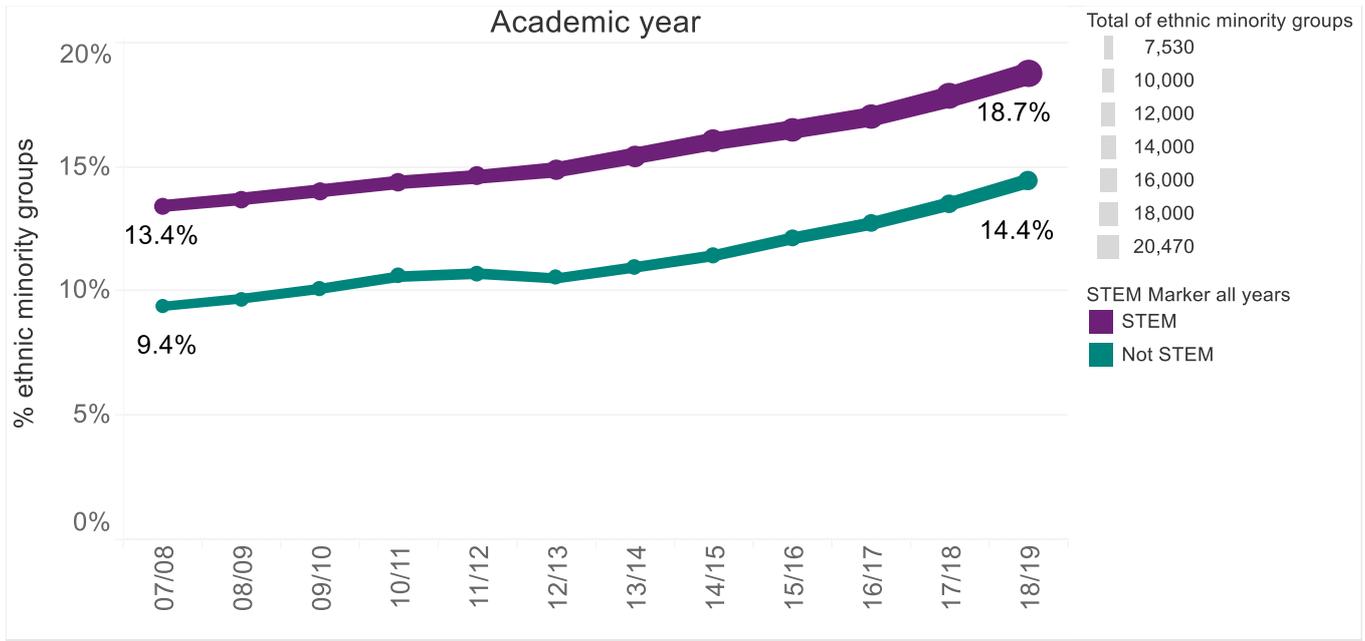


²² Before 2011/12 leavers could only return one activity. From 2011/12 leavers were able to return multiple activities and indicate which was their most important. Please see <https://www.hesa.ac.uk/collection/c11018/changesrecord.pdf> for more information about the changes.

Staff

The percentage of ethnic minority group academic staff is higher for staff working in STEM than non-STEM across all years. In 2018/19 18.7 per cent (20,470) of STEM academic staff are from ethnic minority groups vs 14.4 per cent (12,680) of non-STEM ethnic minority group academic staff.

Chart 23 Percentage of ethnic minority group academic staff by STEM marker 2007/08 to 2018/19



There is a large difference between the percentage of Asian STEM academic staff and the other ethnic groups. In 2018/19 13.2 per cent (14,445) of STEM academic staff are Asian compared with 1.7 per cent (1,880) who are Black. For non-STEM academic staff, in 2018/19 7.9 per cent are Asian (6,925) compared with 2.5 per cent (2,165) who are Black.

Compared to students, the percentage point gap between Asian STEM and Black STEM postgraduate entrants in 2018/19 is 4.8 (Chart 3, Asian 11.9 per cent, Black 7.1 per cent), whilst the gap is 11.5 percentage points for STEM academic staff (Asian 13.2 per cent, Black 1.7 per cent). Although not a direct comparison, it does show the disparity between students and staff.

There does appear to be a drop-off of Black STEM postgraduate students progressing to work in higher education compared to Asian STEM postgraduate students. The same is true for staff from a mixed ethnic background, but to a lesser extent.

Chart 24 Percentage of STEM academic staff by ethnicity 2007/08 to 2018/19

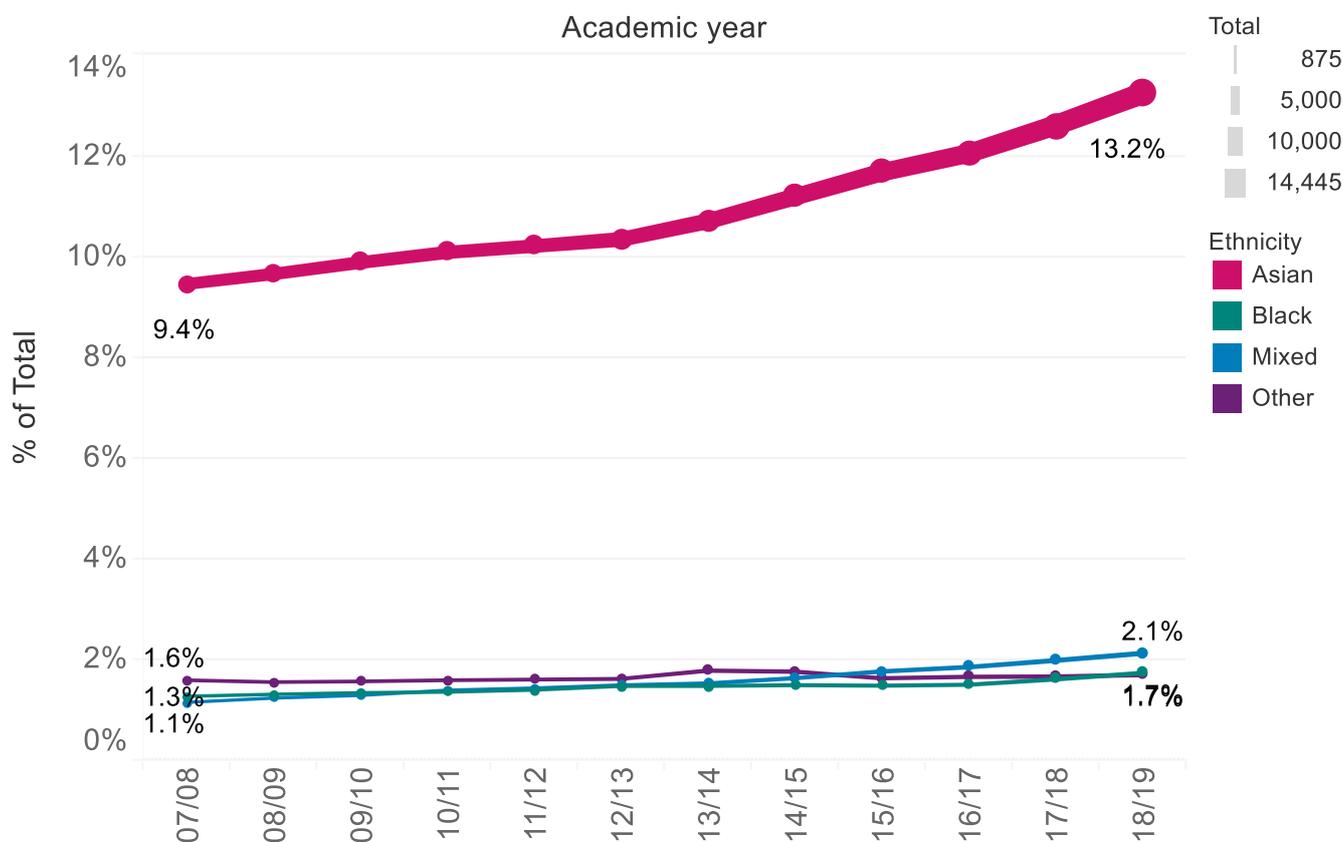
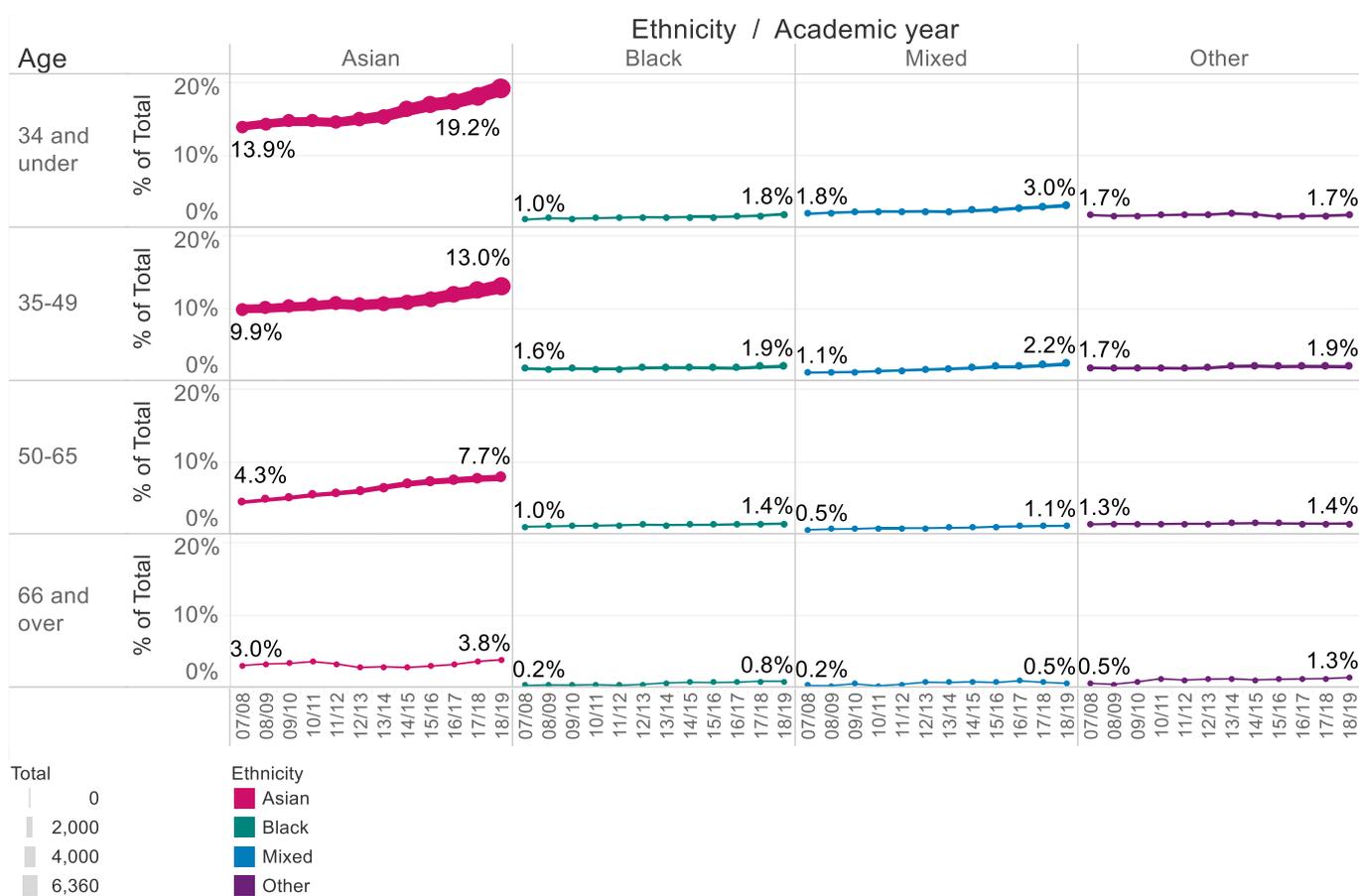


Chart 25 shows how the representation of each ethnic group differs by age. It shows that almost a fifth (19.2 per cent, 6,360) of STEM academic staff aged 34 and under are Asian compared to around 1 in 55 (1.8 per cent, 595) who are Black.

When analysing the data by sex, 21.6 (3,935) per cent of male STEM academic staff aged 34 and under are Asian in 2018/19 compared with 16.3 per cent (2,425) of female STEM academic staff aged 34 and under who are Asian. The same pattern is also observed in 2018/19 for Asian STEM academic staff who are 35-49 and 50-65.

The trend of a higher proportion of Asian STEM academic male staff to Asian STEM academic female staff is observed across all years for these age groups. Black, mixed and other ethnicity STEM academic staff have a more equal ratio of males to females.

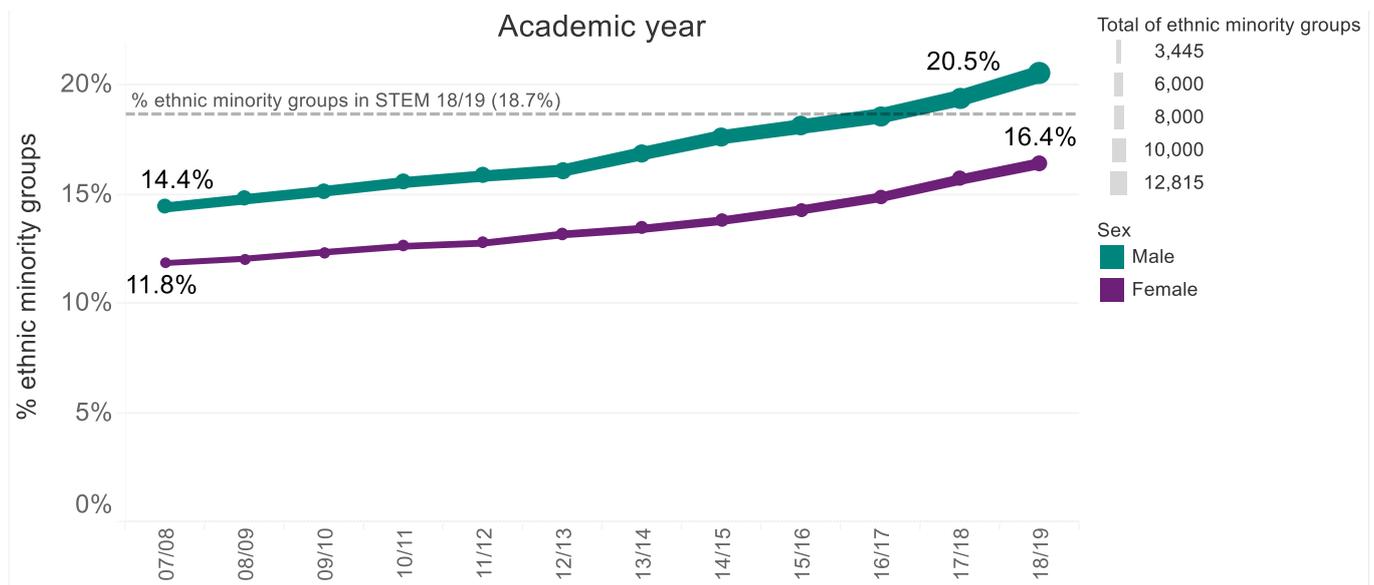
Chart 25 Percentage of STEM academic staff by ethnicity within each age group 2007/08 to 2018/19



A higher percentage of male STEM academic staff in 2018/19 are from ethnic minority groups (20.5 per cent, 12,815) compared to female STEM academic staff (16.4 per cent, 7,645).

In 2018/19 62.6 per cent (12,815) of ethnic minority group STEM academic staff are male and 37.4 per cent are female (7,645)²⁵. For white STEM academic staff, 56.0 per cent (49,730) are male and 43.9 per cent (39,005) are female.

Chart 26 Percentage of ethnic minority group STEM academic staff by sex 2007/08 to 2018/19²⁶



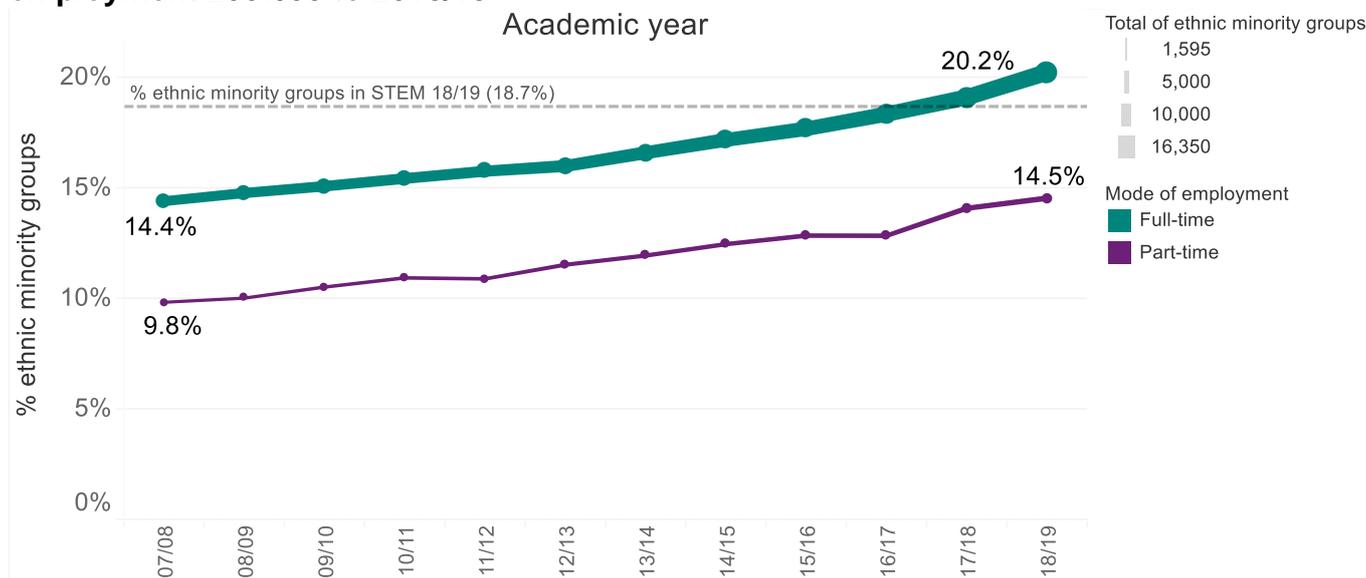
²⁵ Due to extremely small numbers, those staff with a sex classified as 'Other' are included in the percentage calculations, but not shown.

²⁶ Due to extremely small numbers, those staff with a sex classified as 'Other' are not shown.

A higher percentage of full-time STEM academic staff in 2018/19 are from ethnic minority groups (20.2 per cent, 16,350) compared to part-time (14.5 per cent, 4,120).

The majority of ethnic minority group STEM academic staff work full-time (79.9 per cent, 16,350) compared to part-time (20.1 per cent, 4,120) in 2018/19 (no change from 2017/18). For white STEM academic staff, 72.7 per cent (64,515) work full-time and 27.3 per cent (24,235) work part time.

Chart 27 Percentage of ethnic minority group STEM academic staff by mode of employment 2007/08 to 2018/19



A higher percentage of STEM academic staff working at Russell Group universities in 2018/19 are from ethnic minority groups (20.6 per cent, 11,845) compared to other universities (16.7 per cent, 8,625).

In 2018/19 57.9 per cent (11,845) of ethnic minority group STEM academic staff work at a Russell Group university and 42.1 per cent (8,625) work at other universities. For white STEM academic staff, 51.5 per cent (45,720) work at a Russell Group university and 48.5 per cent (43,030) work at other universities.

Chart 28 Percentage of ethnic minority group STEM academic staff by Russell Group marker 2007/08 to 2018/19

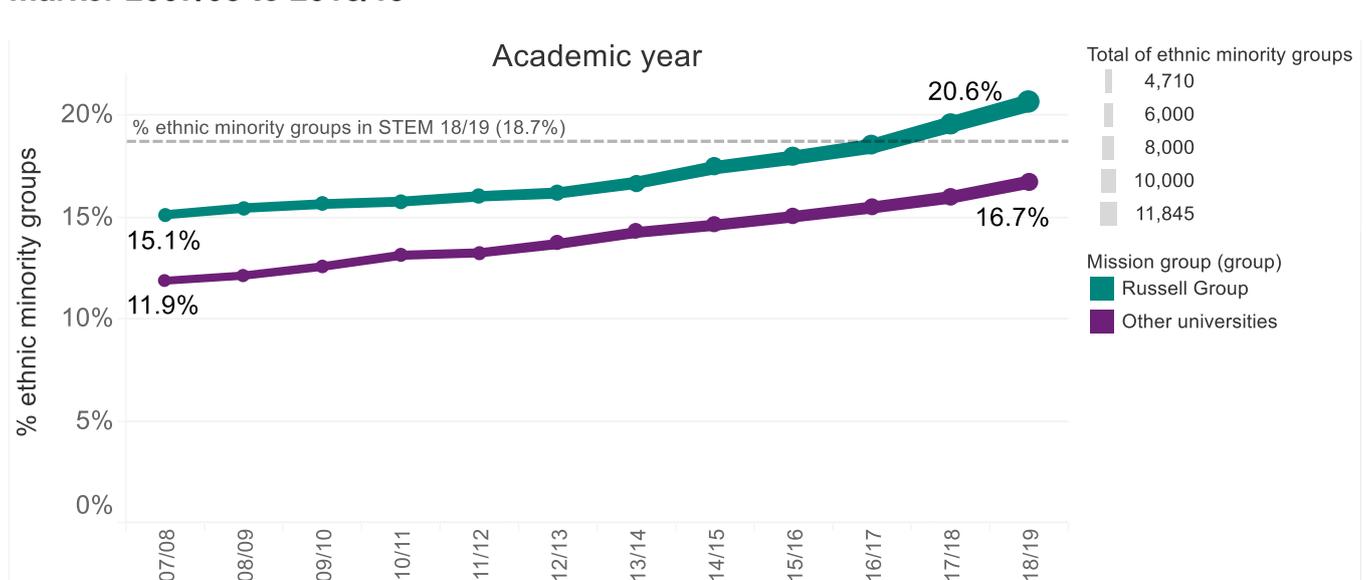
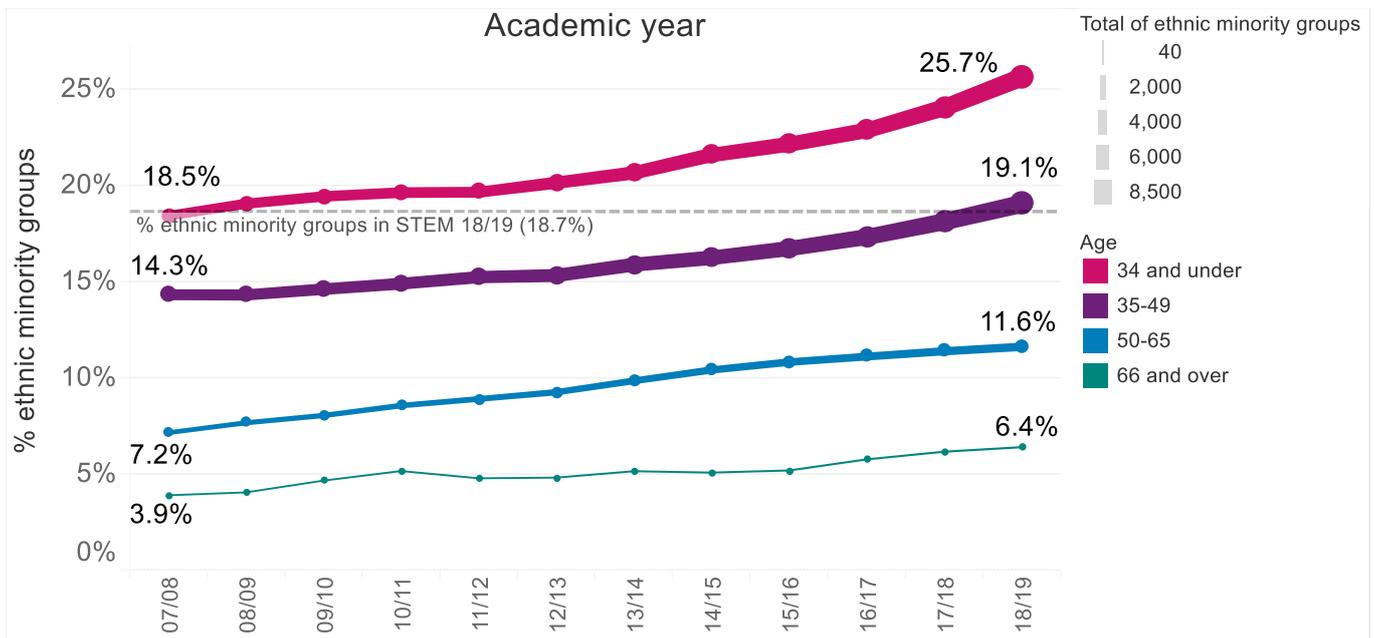


Chart 29 shows that as age increases, ethnic minority group representation decreases. 25.7 per cent (8,500) of STEM academic staff aged 34 and under are from ethnic minority groups in 2018/19 compared to 11.6 per cent (3,395) of STEM academic staff aged 50-65.

You would expect ethnic minority group representation within the overall staff population to increase over time as a more diverse workforce enters the profession, especially given the increasing percentage of ethnic minority group STEM students. With time you would expect the diversity of the staff population to approach parity with the diversity of the postgraduate STEM student population if ethnic minority groups and white STEM students progressed to academic employment in the same proportions.

However, as Chart 25 shows, this is not happening in equal proportions across the four ethnic groups. Unless this changes there will be unbalanced representation of academic staff from ethnic groups working in higher education in comparison to the ethnic breakdown of the general population.

Chart 29 Percentage of ethnic minority group STEM academic staff by age 2007/08 to 2018/19



In 2018/19 33.1 per cent (5,155) of academic staff working in Engineering & technology are from ethnic minority groups compared with only 7.5 per cent (50) of academic staff working in Veterinary science.

Chart 30 Percentage of ethnic minority group STEM academic staff by current academic discipline 1 2012/13 to 2018/19

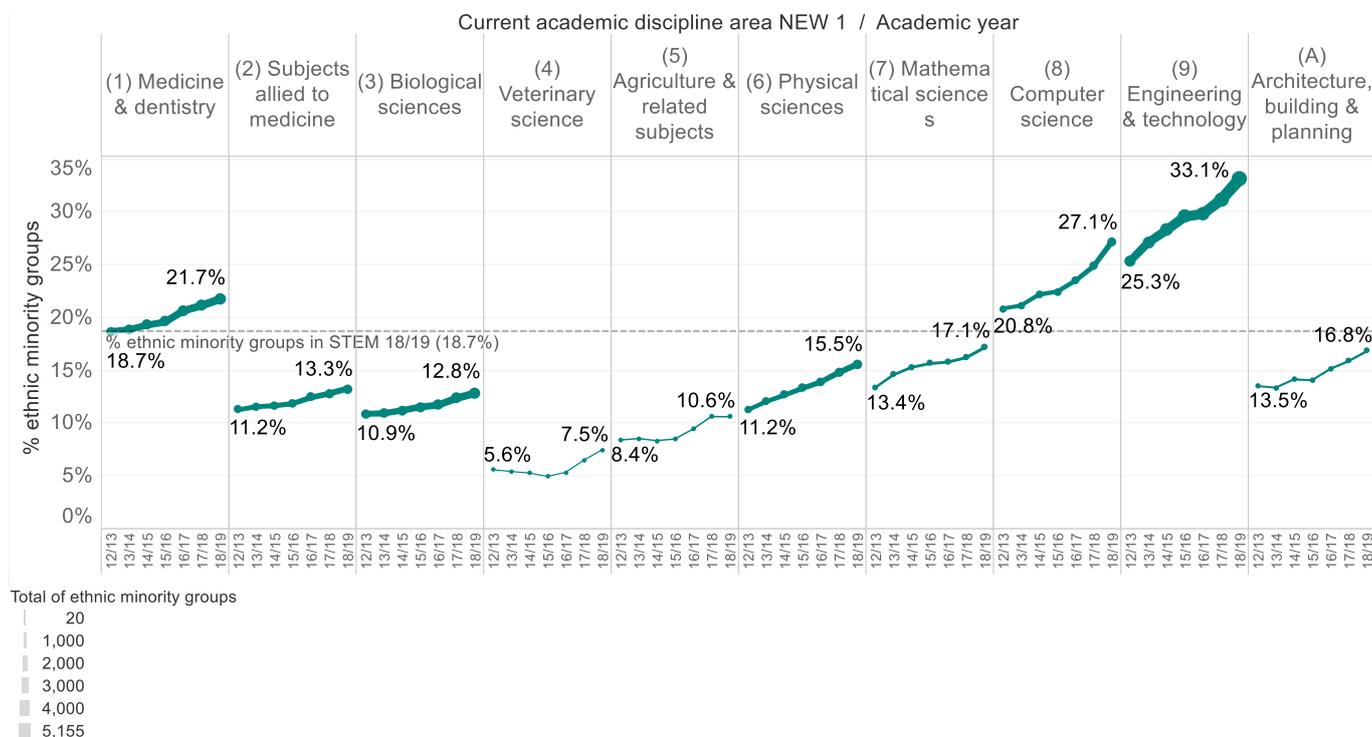
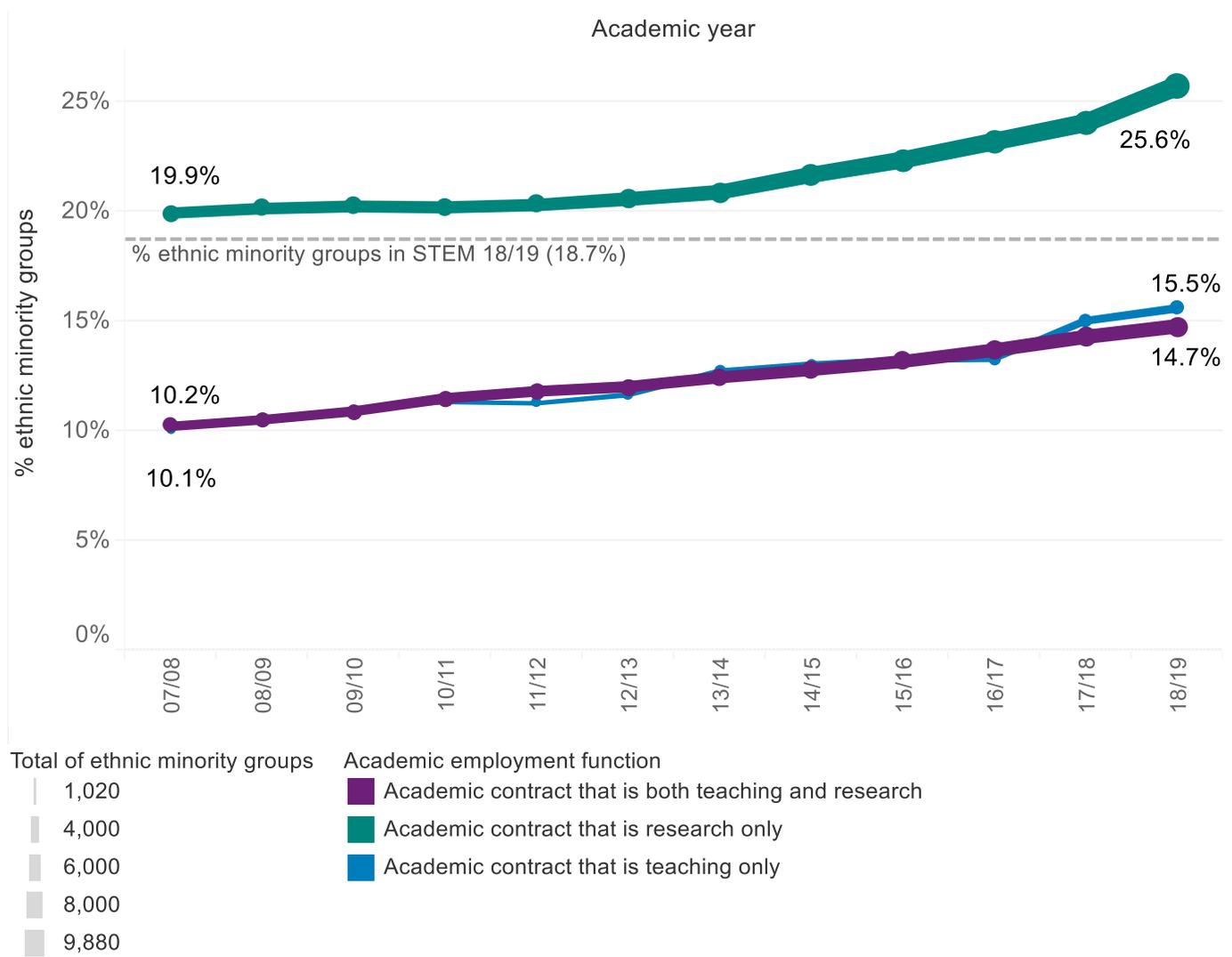


Chart 31 shows the representation of ethnic minority group STEM academic staff within each academic employment function. In 2018/19 25.6 per cent (9,880) of staff with an academic contract that is research only are from ethnic minority groups vs 15.5 per cent (3,675) with an academic contract that is teaching only.

It shows that ethnic minority group STEM research only academic staff are more highly represented compared to both ethnic minority group STEM academic teaching only staff and ethnic minority group STEM academic teaching and research staff.

In 2018/19 48.3 per cent (9,880) of ethnic minority group STEM academic staff have an academic contract that is research only, 33.8 per cent (6,910) both teaching and research, and 18.0 per cent (3,675) teaching only. In comparison 32.3 per cent (28,665) of white STEM academic staff have an academic contract that is research only, 45.2 per cent (40,050) both teaching and research, and 22.5 per cent (19,985) that is teaching only.

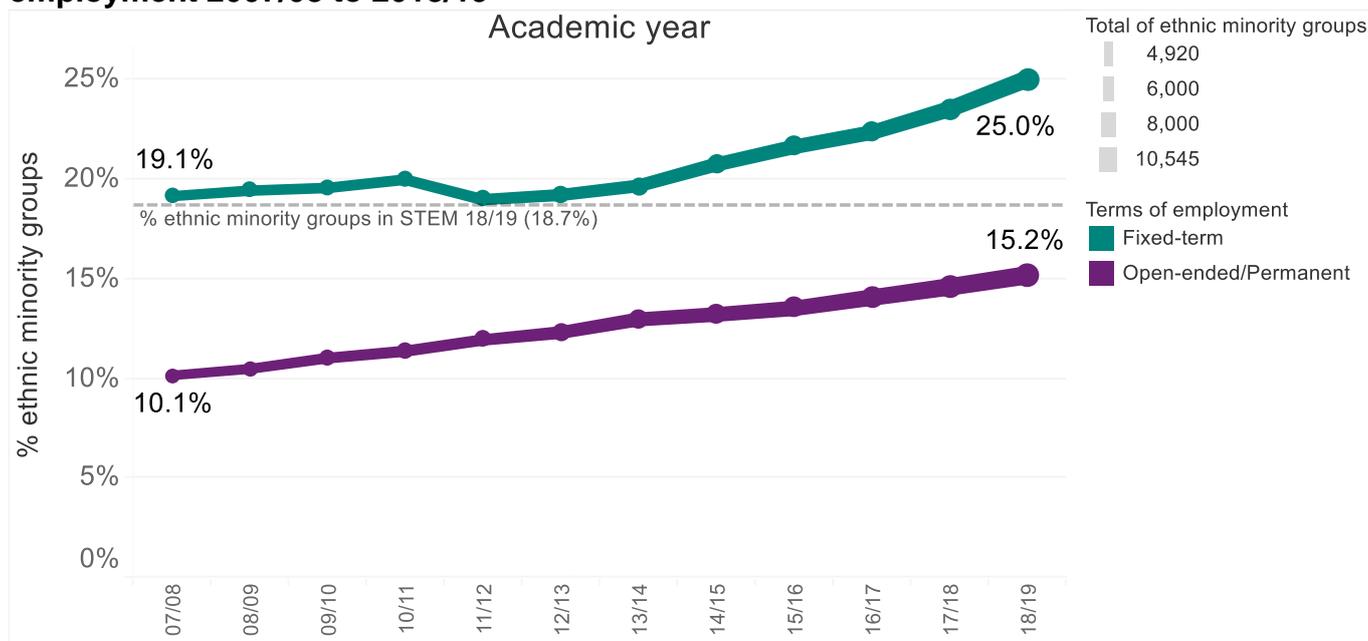
Chart 31 Percentage of ethnic minority group STEM academic staff by academic employment function 2007/08 to 2018/19



In 2018/19 a higher percentage of STEM academic staff with a fixed-term contract (25 per cent, 9,925) are from ethnic minority groups compared to an open-ended/permanent contract (15.2 per cent, 10,545). It shows that ethnic minority group STEM academic staff are more likely to be on a fixed term contract than white STEM academic staff.

In 2018/19 48.5 per cent of ethnic minority group STEM academic staff are employed on a fixed term contract and 51.5 per cent are employed on an open-ended/permanent contract. For white STEM academic staff, 33.5 per cent (29,730) are employed on a fixed term contract and 66.5 per cent (59,020) are employed on an open-ended/permanent contract.

Chart 32 Percentage of ethnic minority group STEM academic staff by terms of employment 2007/08 to 2018/19



Age is important when analysing terms of employment, as those aged 50-65 have the highest proportion of STEM academic staff employed on open-ended/permanent contracts. As shown in Chart 29, the percentage of ethnic minority group STEM academic staff differs by age, so Chart 33 helps provide further context when looking at terms of employment.

74.0 per cent (6,295) of ethnic minority group STEM academic staff aged 34 and under are on a fixed term contract compared to 64.9 per cent (15,980) of white STEM academic staff.

Ethnic minority group STEM academic staff aged under 49 are more likely to be on a fixed term contract than white STEM academic staff. Within the age group of 50-65 there is almost parity between ethnic minority groups and white STEM academic staff.

Chart 33 Proportion of STEM academic staff within terms of employment by age and ethnicity marker 2018/19

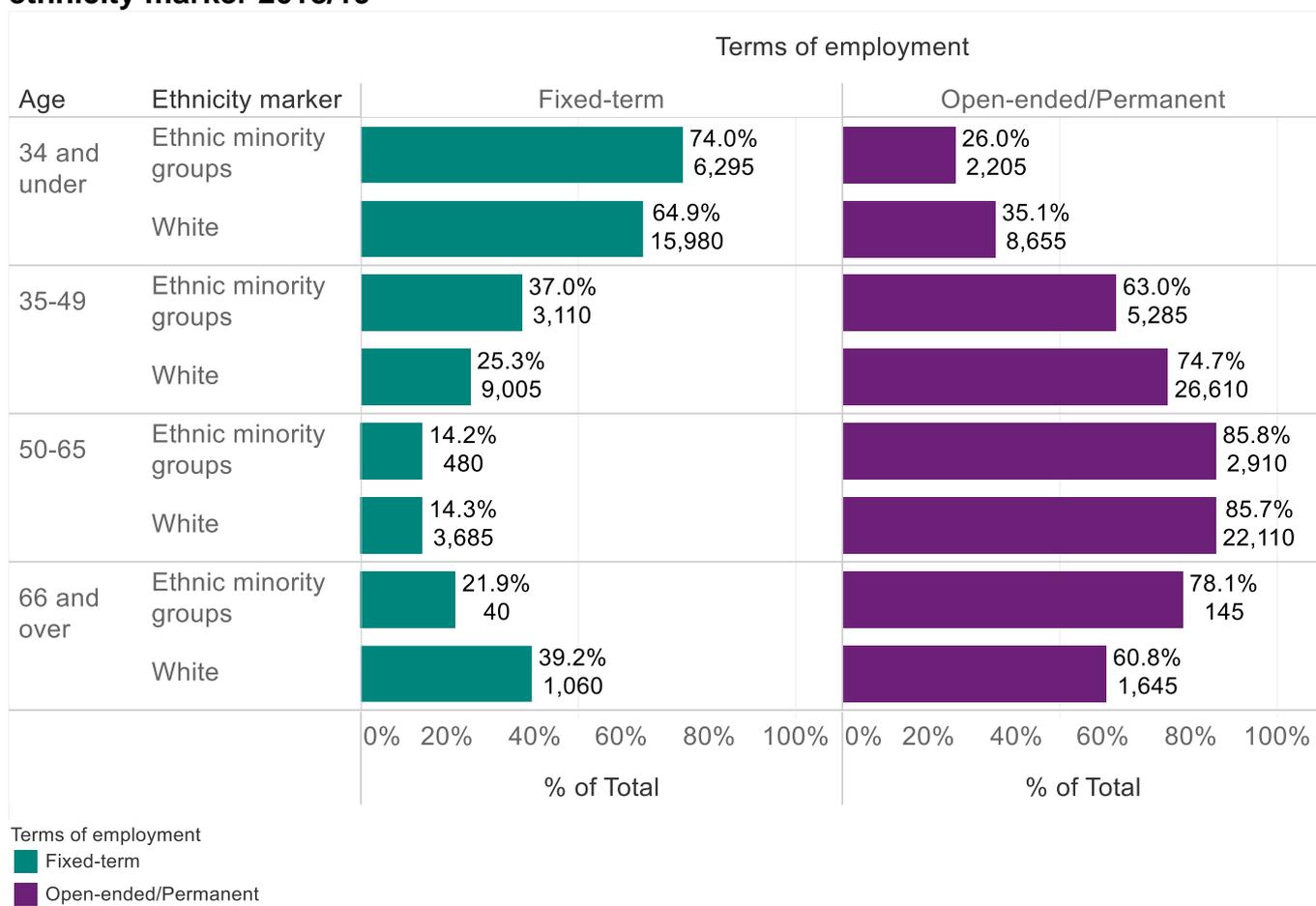


Chart 34 shows that ethnic minority group STEM academic staff become less represented the more senior the contract group becomes. It also shows that the highest number of ethnic minority group STEM academic staff are within K0 Senior Professional.

Between 2017/18 and 2018/19, the percentage of ethnic minority group STEM academic staff has increased for all contract levels aside from the two most junior categories. The number of ethnic minority group STEM academic staff within the most senior group has increased from 20 to 25. Please note that this is a small cohort, so year on year fluctuations will be more common than the K0 Senior Professional group (8,350 in 2018/19).

Chart 34 Percentage of ethnic minority group STEM academic staff by contract level 2012/13 to 2018/19

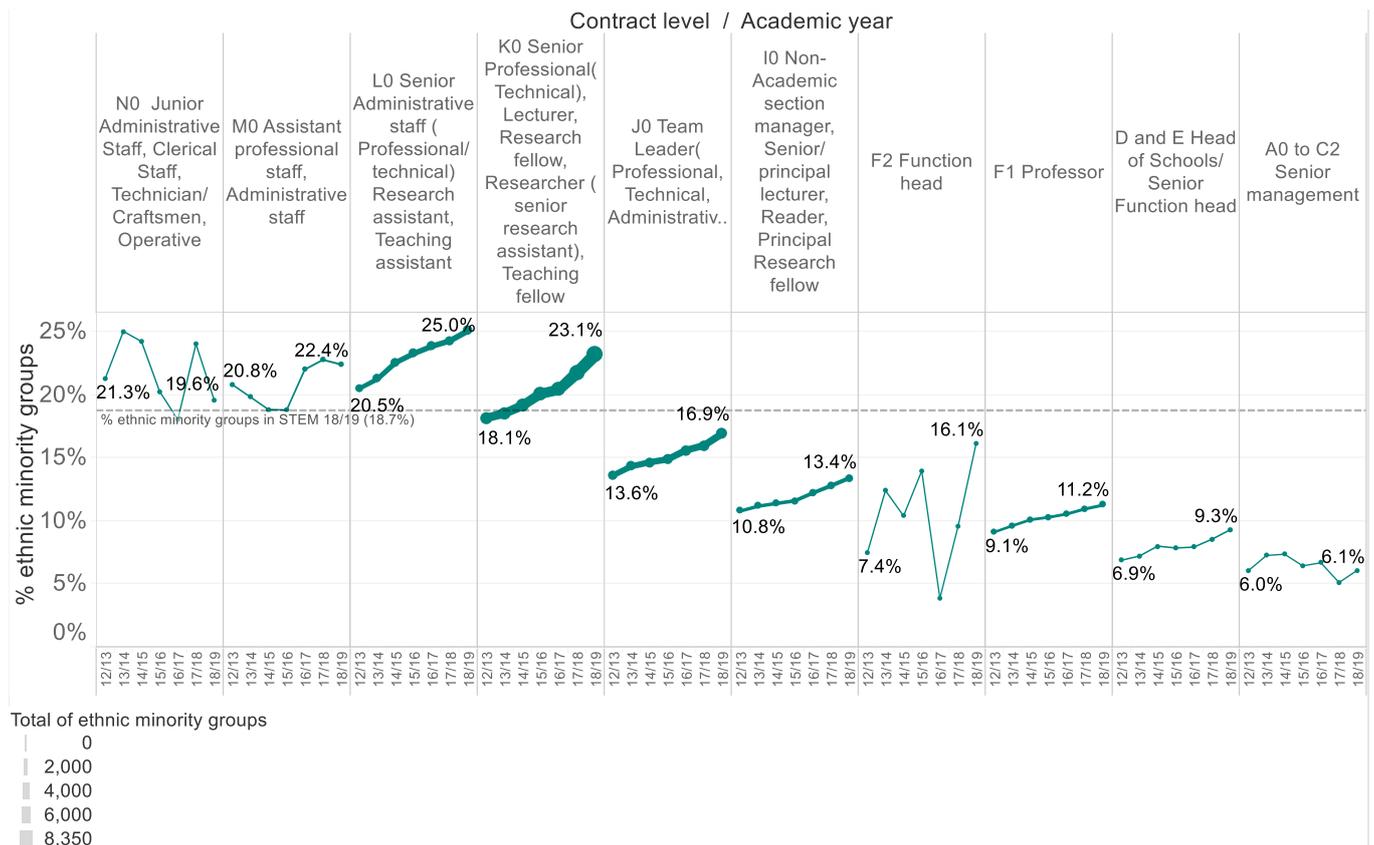
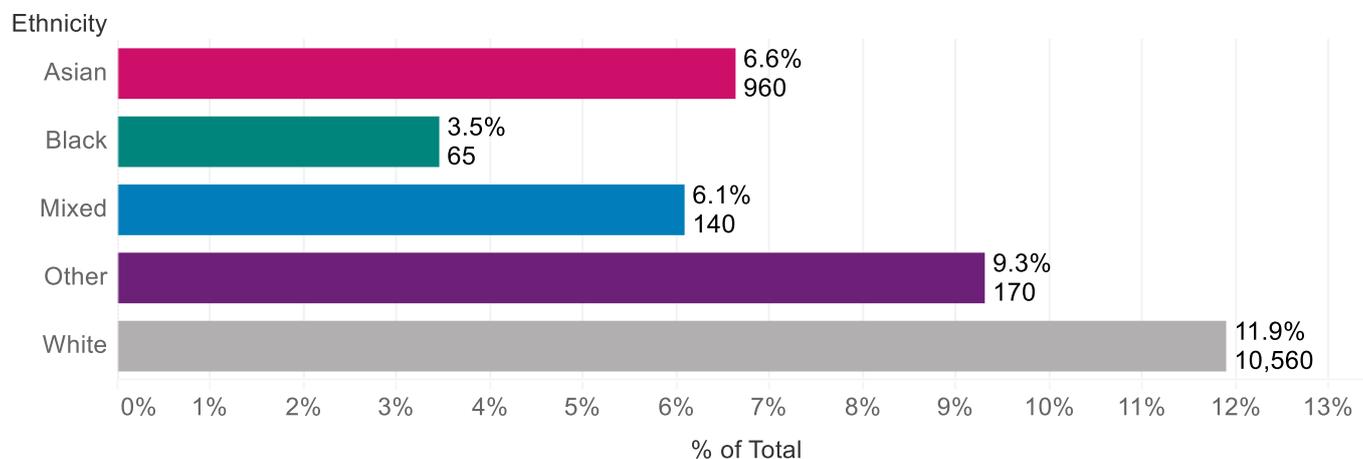


Chart 35 shows that in 2018/19, 3.5 per cent (65) of Black STEM academic staff work at the F1 Professor level compared to 11.9 per cent (10,560) of white STEM academic staff. A similar trend is observed for academic staff working in non-STEM.

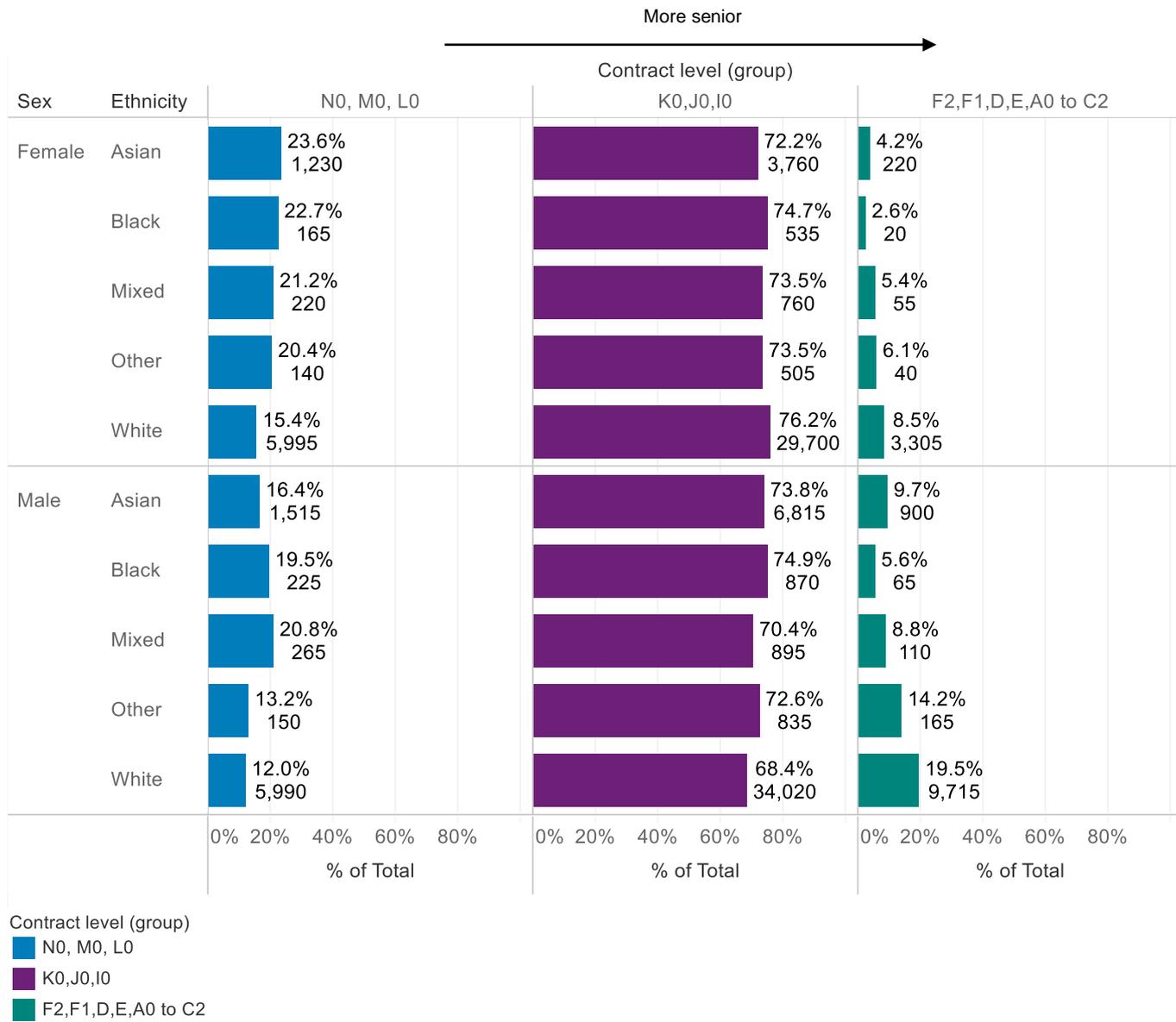
Chart 35 Percentage of STEM academic staff working at F1 Professor level by ethnicity 2018/19



It is to be expected that those working at professor level are more experienced, and therefore more likely to be older. When restricting to those STEM academic staff aged 50 and over in 2018/19, 11.9 per cent (50) Black STEM academic staff work at F1 Professor level compared to Asian (28.6 per cent, 675), mixed (26.2 per cent, 85), other ethnicity (27.2 per cent, 125), and white (26.7 per cent, 7,615).

The following chart combines the various contract levels into three groups to aid comparison between ethnic groups and sex. The data shows there is disparity between the sexes and ethnicity.

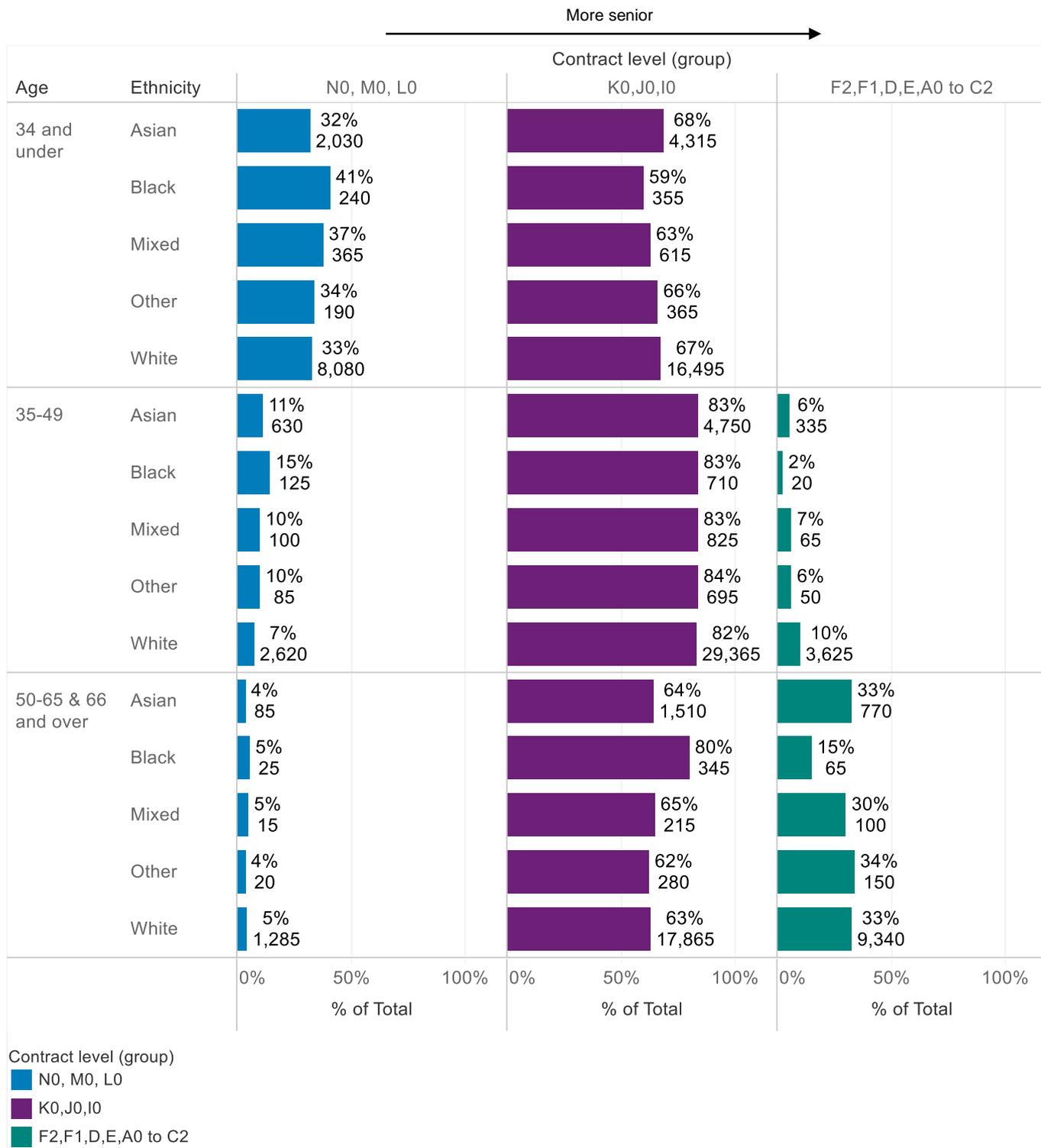
Chart 36 Proportion of STEM academic staff within contract groups by sex and ethnicity 2018/19²⁷



²⁷ Due to extremely small numbers, those staff with a sex classified as 'Other' are not shown.

As with terms of employment, age is also a factor that affects the percentage of STEM academic staff within particular contract levels. The following chart combines the various contract levels into three groups to aid comparison between ethnic groups and age. The data shows there is disparity within each age group and ethnicity.

Chart 37 Proportion of STEM academic staff within contract groups by ethnicity and age group 2018/19²⁸



²⁸ Values for the most senior group aged 34 and under have been suppressed due to small numbers. All percentages are displayed to 0.d.p. for data protection. The age groups 50-65 and 66 and over have been combined due to small numbers in the older age group.

Further research

Drafted jointly by Jisc and the Royal Society.

The following recommended research is intended to help build a robust evidence base for understanding some of the disparities identified in the data.

Further research should be undertaken into:

1. Reasons for disparity in degree outcomes for Black students, in order to understand the possible reasons that have been identified for this disparity.
2. Reasons for non-completion among Black STEM students in order to understand better the different causes and determine any action that could be taken to address non-completion.
3. The diversity profile of grant applicants and awards from a range of funders, which should include examining the proportion of applicants from different ethnic groups who obtain funding in their own name.
4. Regression modelling should be completed to understand which variables have the greatest impact on a first degree student's likelihood of achieving first or upper second class honours, and dropout rates at both first degree and postgraduate level. Further research should then be carried out to compare statistically similar cohorts to understand the impact ethnicity has on first degree achievement, and non-completion at both first degree and postgraduate level.
5. Understanding the factors affecting progression rates of different ethnic groups in STEM study and STEM academia.

Annex

Annex 1 Percentage by ethnic group and age from the 2011 England and Wales census

Age	Percentages					
	White	Ethnic minority groups	Asian	Black	Mixed	Other
Age 0 to 4	76.8%	23.2%	10.4%	5.1%	6.3%	1.4%
Age 5 to 9	78.2%	21.8%	10.3%	5.0%	5.2%	1.3%
Age 10 to 14	81.2%	18.8%	8.9%	4.5%	4.3%	1.1%
Age 15 to 17	82.4%	17.6%	8.5%	4.2%	3.8%	1.1%
Age 18 to 24	81.5%	18.5%	10.3%	3.7%	3.2%	1.3%
Age 25 to 29	80.2%	19.8%	11.7%	3.8%	2.6%	1.7%
Age 30 to 34	79.6%	20.4%	12.2%	4.3%	2.2%	1.8%
Age 35 to 39	82.6%	17.4%	10.1%	4.1%	1.7%	1.5%
Age 40 to 44	86.1%	13.9%	7.3%	4.2%	1.4%	1.0%
Age 45 to 49	88.7%	11.3%	5.4%	3.9%	1.2%	0.8%
Age 50 to 54	90.0%	10.0%	5.5%	2.9%	0.9%	0.7%
Age 55 to 59	91.7%	8.3%	5.2%	1.8%	0.6%	0.6%
Age 60 to 64	94.7%	5.3%	3.4%	1.0%	0.4%	0.4%
Age 65 to 69	95.1%	4.9%	2.9%	1.2%	0.4%	0.3%
Age 70 to 74	94.4%	5.6%	3.3%	1.6%	0.4%	0.3%
Age 75 to 79	95.1%	4.9%	2.8%	1.5%	0.4%	0.3%
Age 80 to 84	96.4%	3.6%	1.9%	1.1%	0.3%	0.2%
Age 85 and over	97.7%	2.3%	1.2%	0.6%	0.3%	0.2%

Annex 2 Russell Group universities

Cardiff University
Imperial College of Science, Technology and Medicine
King's College London
London School of Economics and Political Science
Newcastle University
Queen Mary University of London
Queen's University Belfast
The University of Birmingham
The University of Bristol
The University of Cambridge
The University of Edinburgh
The University of Exeter
The University of Glasgow
The University of Leeds
The University of Liverpool
The University of Manchester
The University of Oxford
The University of Sheffield
The University of Southampton
The University of Warwick
The University of York
University College London
University of Durham
University of Nottingham

Annex 3 Ethnicity definition

White includes White, White - Scottish, Irish Traveller, Gypsy or Traveller, plus Other White background.

Black includes Black or Black British - Caribbean, Black or Black British - African, and other Black background.

Asian includes Asian or Asian British - Indian, Asian or Asian British - Pakistani, Asian or Asian British - Bangladeshi, Chinese, and other Asian background.

Other includes Arab, plus other ethnic background.

Mixed includes mixed - White and Black Caribbean, mixed - White and Black African, mixed - White and Asian, other mixed background

Not known includes not known and information refused. Ethnic minority groups include all non-white categories excluding not known.

Annex 4 Number and percentage of UK domiciled STEM entrants with known ethnicity by level of study, ethnicity marker and ethnicity 2007/08 to 2018/19

Level of study	Ethnicity marker	Ethnicity	Academic year											
			07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
First degree	Ethnic minority groups	Asian	10.8%	10.7%	10.7%	10.8%	10.8%	11.3%	11.5%	11.8%	12.5%	13.0%	13.3%	13.6%
			17,425	18,690	19,880	20,020	21,655	20,905	23,000	24,105	26,295	27,485	28,425	29,145
		Black	5.8%	6.3%	6.4%	6.2%	6.8%	7.2%	7.0%	7.2%	7.6%	7.8%	8.3%	8.1%
			9,390	11,060	11,800	11,605	13,705	13,315	14,030	14,775	15,900	16,465	17,760	17,340
		Mixed	2.6%	2.8%	2.9%	3.0%	3.1%	3.2%	3.3%	3.5%	3.7%	4.0%	4.0%	4.2%
		4,225	4,840	5,305	5,520	6,290	5,940	6,665	7,155	7,835	8,345	8,630	8,925	
	Other	1.1%	1.0%	1.1%	1.0%	1.1%	1.4%	1.4%	1.5%	1.6%	1.8%	1.9%	1.9%	
		1,715	1,780	2,005	1,925	2,200	2,625	2,865	3,160	3,365	3,740	4,080	4,155	
	Total	20.3%	20.8%	21.1%	21.0%	21.9%	23.2%	23.4%	24.1%	25.5%	26.6%	27.5%	27.8%	
		32,750	36,370	38,990	39,070	43,850	42,785	46,560	49,195	53,395	56,040	58,895	59,565	
White	Total	79.7%	79.2%	78.9%	79.0%	78.1%	76.8%	76.6%	75.9%	74.5%	73.4%	72.5%	72.2%	
	128,735	138,150	146,180	146,795	156,580	141,675	152,620	155,035	156,360	154,845	155,220	154,365		
First degree total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	161,485	174,520	185,170	185,860	200,425	184,460	199,180	204,230	209,755	210,885	214,115	213,930		
Postgraduate	Ethnic minority groups	Asian	10.8%	11.0%	11.2%	11.1%	11.3%	11.6%	11.0%	10.7%	11.0%	11.0%	11.6%	11.9%
			5,545	6,475	7,315	6,930	7,385	7,375	7,435	7,725	8,515	9,775	10,655	10,980
		Black	5.2%	5.8%	5.8%	6.1%	6.2%	5.9%	6.1%	6.0%	6.4%	7.5%	7.4%	7.1%
			2,705	3,405	3,740	3,835	4,045	3,720	4,135	4,330	4,920	6,650	6,770	6,515
		Mixed	2.0%	2.1%	2.4%	2.5%	2.8%	2.7%	2.8%	2.8%	2.9%	3.1%	3.3%	3.4%
		1,030	1,240	1,545	1,565	1,800	1,695	1,860	2,000	2,270	2,750	2,995	3,145	
	Other	1.6%	1.6%	1.5%	1.6%	1.7%	1.8%	1.8%	1.7%	1.8%	1.8%	1.9%	1.9%	
		840	925	1,005	1,025	1,120	1,155	1,195	1,245	1,410	1,615	1,745	1,755	
	Total	19.6%	20.5%	20.9%	21.3%	22.0%	21.9%	21.7%	21.3%	22.1%	23.4%	24.1%	24.3%	
		10,120	12,050	13,605	13,350	14,350	13,950	14,630	15,300	17,115	20,790	22,165	22,395	
White	Total	80.4%	79.5%	79.1%	78.7%	78.0%	78.1%	78.3%	78.7%	77.9%	76.6%	75.9%	75.7%	
	41,425	46,620	51,435	49,205	50,860	49,605	52,655	56,550	60,210	68,010	69,820	69,795		
Postgraduate total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	51,550	58,665	65,040	62,555	65,210	63,550	67,280	71,845	77,330	88,800	91,980	92,195		
Total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
			213,030	233,190	250,210	248,415	265,640	248,010	266,460	276,075	287,085	299,685	306,100	306,125

Annex 5 Number and percentage of UK domiciled STEM students with known ethnicity by level of study, ethnicity marker and ethnicity 2007/08 to 2018/19

Level of study	Ethnicity marker	Ethnicity	Academic year											
			07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
First degree	Ethnic minority groups	Asian	11.3%	11.3%	11.2%	11.2%	11.2%	11.4%	11.6%	12.0%	12.3%	12.7%	13.2%	13.6%
			55,210	57,110	59,775	61,805	64,965	66,985	70,015	72,825	77,370	81,750	86,115	88,895
		Black	5.0%	5.4%	5.6%	5.7%	6.0%	6.3%	6.4%	6.6%	6.7%	6.9%	7.3%	7.3%
			24,265	27,430	29,935	31,560	34,805	36,855	38,570	39,885	42,205	44,515	47,430	47,980
		Mixed	2.4%	2.6%	2.7%	2.8%	2.9%	3.1%	3.2%	3.3%	3.5%	3.7%	3.9%	4.0%
		11,635	13,000	14,285	15,480	17,120	18,065	19,365	20,205	21,870	23,650	25,220	26,245	
	Other	1.0%	1.1%	1.1%	1.1%	1.1%	1.2%	1.3%	1.4%	1.5%	1.6%	1.7%	1.8%	
		5,110	5,375	5,695	5,865	6,410	7,180	7,910	8,695	9,455	10,295	11,295	11,945	
	Total	19.8%	20.4%	20.6%	20.8%	21.2%	21.9%	22.6%	23.3%	24.0%	24.9%	26.0%	26.7%	
			96,215	102,915	109,695	114,710	123,300	129,085	135,860	141,615	150,895	160,210	170,060	175,065
	White	Total	80.2%	79.6%	79.4%	79.2%	78.8%	78.1%	77.4%	76.7%	76.0%	75.1%	74.0%	73.3%
			390,680	402,135	421,910	436,100	457,420	459,950	466,350	467,230	476,975	482,245	482,910	479,715
	First degree total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			486,900	505,055	531,605	550,805	580,720	589,035	602,210	608,840	627,870	642,455	652,970	654,785
Postgraduate	Ethnic minority groups	Asian	9.9%	10.1%	10.5%	10.7%	10.7%	10.8%	10.7%	10.6%	10.7%	10.7%	11.0%	11.2%
			11,105	12,210	13,715	14,155	14,505	14,275	14,305	14,650	15,560	17,160	18,270	18,770
		Black	4.7%	5.1%	5.2%	5.6%	5.7%	5.6%	5.7%	5.8%	5.9%	6.6%	6.8%	6.7%
			5,315	6,165	6,825	7,340	7,740	7,390	7,590	8,035	8,585	10,510	11,305	11,295
		Mixed	1.8%	2.0%	2.2%	2.4%	2.6%	2.6%	2.6%	2.7%	2.9%	3.0%	3.2%	3.3%
		2,010	2,395	2,860	3,155	3,460	3,395	3,530	3,775	4,145	4,810	5,275	5,505	
	Other	1.5%	1.6%	1.6%	1.7%	1.7%	1.8%	1.8%	1.9%	1.8%	1.9%	1.9%	1.9%	
		1,700	1,945	2,115	2,195	2,280	2,330	2,425	2,570	2,675	3,000	3,210	3,250	
	Total	17.9%	18.9%	19.6%	20.3%	20.7%	20.8%	20.8%	21.0%	21.4%	22.2%	22.9%	23.2%	
			20,130	22,710	25,515	26,840	27,985	27,385	27,850	29,035	30,965	35,475	38,060	38,825
	White	Total	82.1%	81.1%	80.4%	79.7%	79.3%	79.2%	79.2%	79.0%	78.6%	77.8%	77.1%	76.8%
			92,330	97,700	104,840	105,425	107,325	104,310	106,050	109,405	114,030	124,295	128,175	128,565
	Postgraduate total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			112,460	120,415	130,350	132,265	135,310	131,695	133,900	138,440	144,995	159,770	166,235	167,390
Total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
			599,360	625,465	661,955	683,070	716,030	720,735	736,110	747,280	772,870	802,225	819,210	822,175

Annex 6 Number and percentage of UK domiciled STEM qualifiers with known ethnicity by level of study, ethnicity marker and ethnicity 2007/08 to 2018/19

Level of study	Ethnicity marker	Ethnicity	Academic year											
			07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
First degree	Ethnic minority groups	Asian	10.8%	11.0%	11.2%	11.1%	10.9%	11.1%	10.9%	11.5%	11.8%	11.9%	12.4%	12.9%
			12,525	12,750	13,460	13,980	14,370	15,465	16,095	16,400	17,110	18,235	19,250	19,845
		Black	4.1%	4.5%	4.7%	4.9%	5.3%	5.5%	5.6%	6.1%	6.0%	6.1%	6.4%	6.2%
			4,720	5,195	5,665	6,195	7,045	7,635	8,225	8,755	8,705	9,330	9,885	9,575
		Mixed	2.1%	2.3%	2.4%	2.5%	2.7%	2.7%	3.0%	3.1%	3.1%	3.2%	3.5%	3.7%
		2,420	2,660	2,845	3,165	3,550	3,835	4,360	4,370	4,515	4,950	5,455	5,640	
	Other	0.9%	1.0%	1.0%	1.0%	1.0%	1.1%	1.1%	1.2%	1.4%	1.4%	1.4%	1.6%	
		1,005	1,140	1,170	1,215	1,345	1,470	1,590	1,755	1,990	2,110	2,205	2,380	
	Total	17.8%	18.8%	19.2%	19.6%	19.9%	20.3%	20.6%	21.9%	22.3%	22.7%	23.7%	24.4%	
		20,670	21,750	23,140	24,555	26,310	28,405	30,270	31,280	32,320	34,620	36,800	37,440	
White	Total	82.2%	81.2%	80.8%	80.4%	80.1%	79.7%	79.4%	78.1%	77.7%	77.3%	76.3%	75.6%	
	95,695	94,130	97,405	100,850	106,010	111,275	116,890	111,470	112,675	118,065	118,345	115,935		
First degree total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	116,360	115,875	120,540	125,410	132,325	139,680	147,160	142,745	144,995	152,685	155,145	153,375		
Postgraduate	Ethnic minority groups	Asian	9.0%	9.6%	10.1%	10.7%	11.1%	10.5%	10.4%	10.3%	10.8%	10.9%	10.9%	11.1%
			2,935	3,330	3,800	4,525	4,680	4,600	4,585	4,710	5,080	5,435	6,320	6,665
		Black	4.3%	4.7%	5.0%	4.8%	5.5%	5.5%	5.3%	5.5%	5.4%	5.7%	6.2%	6.2%
			1,385	1,640	1,870	2,020	2,325	2,405	2,320	2,520	2,575	2,815	3,605	3,725
		Mixed	1.6%	1.9%	2.0%	2.3%	2.6%	2.7%	2.8%	2.8%	2.9%	3.0%	3.2%	3.3%
		530	650	750	985	1,100	1,185	1,245	1,290	1,385	1,485	1,865	2,000	
	Other	1.4%	1.3%	1.5%	1.7%	1.7%	1.6%	1.6%	1.9%	1.8%	1.9%	2.0%	1.9%	
		450	450	545	725	700	720	720	860	860	940	1,130	1,140	
	Total	16.3%	17.6%	18.6%	19.5%	20.9%	20.3%	20.2%	20.5%	21.0%	21.4%	22.4%	22.6%	
		5,300	6,075	6,965	8,260	8,800	8,910	8,865	9,380	9,900	10,680	12,920	13,525	
White	Total	83.7%	82.4%	81.4%	80.5%	79.1%	79.7%	79.8%	79.5%	79.0%	78.6%	77.6%	77.4%	
	27,240	28,510	30,475	34,145	33,385	35,070	35,085	36,265	37,340	39,150	44,845	46,400		
Postgraduate total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	32,540	34,580	37,440	42,405	42,185	43,980	43,950	45,645	47,240	49,825	57,765	59,930		
Total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
			148,900	150,460	157,985	167,815	174,510	183,660	191,110	188,390	192,235	202,510	212,910	213,305

Annex 7 Number and percentage of UK domiciled STEM DLHE respondents with known ethnicity by level of study, ethnicity marker and ethnicity 2011/12 to 2016/17

Level of study	Ethnicity marker	Ethnicity	Academic year					
			11/12	12/13	13/14	14/15	15/16	16/17
First degree	Ethnic minority groups	Asian	10.6%	11.0%	11.0%	11.4%	11.7%	11.8%
			10,545	11,875	12,620	12,565	13,120	13,860
		Black	4.5%	4.8%	5.1%	5.7%	5.7%	5.9%
			4,485	5,210	5,820	6,275	6,375	6,915
		Mixed	2.6%	2.6%	2.9%	3.0%	3.0%	3.2%
		2,560	2,860	3,320	3,320	3,340	3,715	
	Other	0.9%	1.0%	1.0%	1.2%	1.3%	1.3%	
		940	1,070	1,155	1,305	1,435	1,535	
	Total	18.5%	19.4%	20.0%	21.3%	21.7%	22.2%	
		18,530	21,015	22,920	23,465	24,270	26,020	
White	Total	81.5%	80.6%	80.0%	78.7%	78.3%	77.8%	
		81,375	87,380	91,690	86,615	87,505	91,055	
First degree total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			99,910	108,395	114,610	110,080	111,775	117,075
Postgraduate	Ethnic minority groups	Asian	10.0%	9.8%	9.5%	9.8%	10.5%	10.4%
			2,550	2,755	2,665	2,860	3,175	3,310
		Black	4.6%	4.8%	4.8%	5.0%	5.1%	5.4%
			1,165	1,365	1,340	1,450	1,540	1,720
		Mixed	2.4%	2.8%	2.8%	2.8%	2.9%	3.0%
		615	780	780	810	890	955	
	Other	1.5%	1.5%	1.4%	1.7%	1.6%	1.7%	
		380	410	390	505	470	550	
	Total	18.4%	18.8%	18.4%	19.3%	20.0%	20.5%	
		4,715	5,310	5,175	5,625	6,075	6,540	
White	Total	81.6%	81.2%	81.6%	80.7%	80.0%	79.5%	
		20,925	22,890	22,925	23,505	24,285	25,410	
Postgraduate total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			25,640	28,195	28,100	29,130	30,360	31,950
Total			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
			125,550	136,590	142,710	139,210	142,135	149,025

Annex 8 Number and percentage of STEM academic staff with known ethnicity by ethnicity marker and ethnicity 2007/08 to 2018/19

Ethnicity marker	Ethnicity	Academic year											
		07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Ethnic minority groups	Asian	9.4%	9.6%	9.9%	10.1%	10.2%	10.3%	10.7%	11.2%	11.7%	12.0%	12.6%	13.2%
		7,240	7,610	7,965	8,230	8,475	9,445	10,260	11,110	11,860	12,470	13,530	14,445
	Black	1.3%	1.3%	1.3%	1.3%	1.4%	1.5%	1.5%	1.5%	1.5%	1.5%	1.6%	1.7%
		965	1,025	1,075	1,100	1,150	1,340	1,405	1,475	1,495	1,545	1,715	1,880
	Mixed	1.1%	1.2%	1.3%	1.4%	1.4%	1.5%	1.5%	1.6%	1.8%	1.8%	2.0%	2.1%
	875	965	1,035	1,125	1,180	1,350	1,455	1,610	1,780	1,905	2,115	2,305	
	Other	1.6%	1.5%	1.6%	1.6%	1.6%	1.6%	1.8%	1.7%	1.6%	1.6%	1.7%	1.7%
		1,210	1,215	1,255	1,290	1,325	1,470	1,700	1,740	1,645	1,705	1,775	1,840
	Total	13.4%	13.7%	14.0%	14.4%	14.6%	14.9%	15.4%	16.0%	16.5%	17.0%	17.8%	18.7%
		10,285	10,820	11,330	11,745	12,125	13,605	14,820	15,935	16,780	17,625	19,135	20,470
White	Total	86.6%	86.3%	86.0%	85.6%	85.4%	85.1%	84.6%	84.0%	83.5%	83.0%	82.2%	81.3%
		66,365	68,135	69,410	69,980	70,980	77,845	81,175	83,540	84,945	86,015	88,305	88,750
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		76,655	78,955	80,740	81,725	83,110	91,445	95,990	99,480	101,725	103,640	107,435	109,220