



Department
for Education

Understanding Progress in the 2020/21 Academic Year

**Findings from the summer term and
summary of all previous findings**

October 2021

**Renaissance Learning, Education Policy
Institute**

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About the research team

About the Education Policy Institute

The Education Policy Institute is an independent, impartial, and evidence-based research institute that promotes high quality education outcomes, regardless of social background. We achieve this through data-led analysis, innovative research, and high-profile events. Education can have a transformative effect on the life chances of young people, enabling them to fulfil their potential, have successful careers, and grasp opportunities. As well as having a positive impact on the individual, good quality education and child wellbeing also promotes economic productivity and a cohesive society. Through our research, we provide insight, commentary, and a constructive critique of education policy in England – shedding light on what is working and where further progress needs to be made. Our research and analysis spans a young person's journey from the early years through to entry to the labour market. For more information, visit www.epi.org.uk

About Renaissance Learning

Renaissance is a leading provider of assessment and practice solutions that put learning analytics to work for teachers, saving hours of preparation time while making truly personalised learning possible. Almost 7,000 schools nationwide use data-driven Renaissance solutions to analyse students' abilities and guide high-quality instruction to improve academic outcomes. Founded by parents, upheld by educators, and enriched by data scientists, Renaissance knows learning is a continual journey – from year to year, and for a lifetime. For more information, visit www.renlearn.co.uk

The results in this report have been given clearance at a publication level by the Office for National Statistics (ONS) Secure Research Service.¹

¹ This work was produced using statistical data from ONS. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates.

Summary

This report presents the Education Policy Institute and Renaissance Learning's fifth assessment of the learning loss experienced by pupils in England as a result of the COVID-19 pandemic. It is based on assessment data from Renaissance Learning's Star Reading and Star Maths. Star Assessments are computer-adaptive in nature and adapt to the individual, providing an assessment that identifies gaps in learning from the entirety of the curriculum independent of their current year group. Star assessments also include a standardised measure which takes account of the pupil's age in years and months.

This data has been linked with data held by the Department for Education in the National Pupil Database which has enabled us to carry out analysis by pupil characteristics. In this report we provide estimates of the overall level of learning loss by the end of the summer term in the 2020/21 academic year which is then broken down by various characteristic groups. Furthermore, for the first time, we provide estimates of learning loss by the second half of the autumn term split by degree of pupil-level absence in the autumn term to determine if there is any association between absence and our estimates of learning loss. We also look at the association between school level absence and our estimates of learning loss in the second half of the autumn term and spring term.

Summary table 1 outlines the estimates of learning loss by the first half of the autumn term (what we refer to as 'Autumn 1'), by the second half of the autumn term (what we refer to as 'Autumn 2'), by the spring term and by the summer term for primary aged pupils in reading.² The table also includes estimates of learning loss by autumn 1 and summer for all secondary aged pupils in reading. Estimates broken down by disadvantage, region and the interaction between area and pupil-level disadvantage are also included. Summary table 2 presents the equivalent estimates of learning loss for primary mathematics.

To aid with visualising and understanding the concept of learning loss, we present in **Error! Reference source not found.** our reading learning loss estimates in 2020/21, in months, measured against 2019/20 average learning trajectory. This reiterates that pupils are still making progress in their learning during the pandemic but at a slower rate than would be expected in a normal year. Effectively we are saying "what would pupils have achieved in 2020/21 if they had progressed at the same rate as pupils in 2019/20" (for the summer term, we are saying "what would pupils have achieved in 2020/21 if they had progressed at the same rate as pupils in 2018/19"), and the difference is what we refer to as "learning loss".

² When estimating learning loss by the spring term, we had two different approaches in the previous report however, for simplicity, when we refer to learning loss in the spring term we are referring to the "second half of spring term" approach.

In order to ensure that we are comparing the same pupils over time, the analysis presented in the tables and figure below is restricted to the pupils that undertook assessments in all four time periods (two time periods for secondary reading). This allows us to build a consistent picture of how pupils have been affected by the pandemic and then how they were impacted by the re-opening of schools for all pupils. It is important to note that in the main body of the report we also provide estimates of learning loss just for pupils in the summer term and the figures may differ slightly due to the different cohort of pupils included in the analysis.

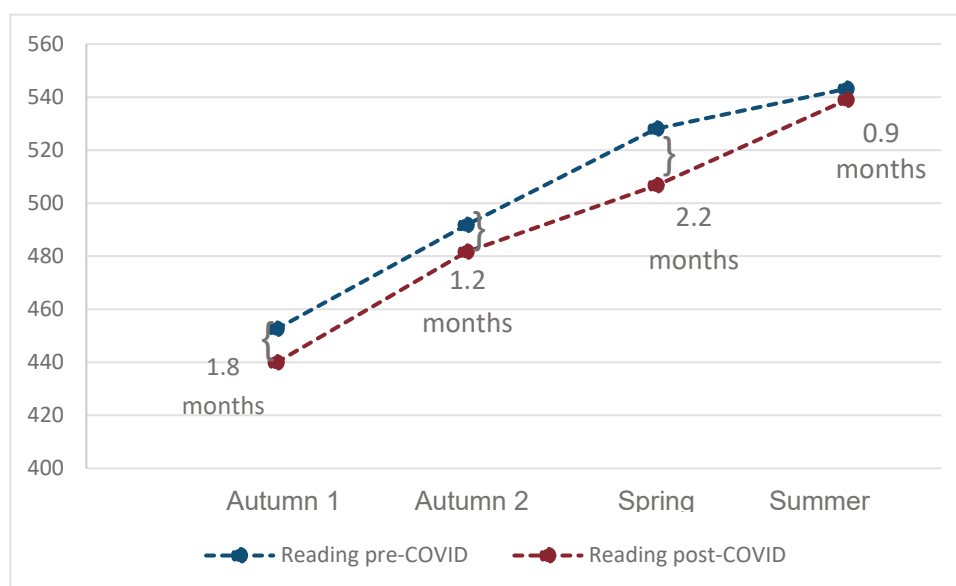
Extent of learning loss and recovery

The first national lockdown and the lack of in-person learning for most children was associated with pupils making less progress in reading and mathematics than would have been expected given historic outcomes. The academic year 2020/21 might then be characterised as involving some catch-up, further losses, and further catch-up through the second half of the autumn term, the spring term, and the summer term respectively.

By using assessments taken during the first half of the autumn term we estimate that, in reading, primary aged pupils had experienced an average learning loss of around 1.8 months. Then by looking at outcomes throughout 2020/21 we find that:

- By the end of the autumn term, primary aged pupils had lost on average around 1.2 months of learning in reading, meaning catch-up of just over half a month in comparison to the start of the academic year.
- By the end of the spring term, primary aged pupils had experienced a total learning loss in reading equivalent to around 2.2 months of progress on average, implying losses were around their early autumn level as a result of pupils missing out on in-person learning in early 2021.
- By the summer term, there was notable catch-up for primary aged pupils in reading with the learning loss for this cohort improving by around 1.3 months on average from our estimate of learning loss by the spring term, resulting in an average learning loss by the summer term of around 0.9 months.

Figure S.1: Reading learning loss estimates in 2020/21, in months, for primary aged pupils measured against 2019/20 average learning trajectory



Learning losses in mathematics for primary aged pupils followed a similar pattern, though losses were larger at around 3.6 months by the first half of the autumn term. We find that:

- By the end of the autumn term, there was greater catch-up in mathematics than in reading (around a month) though overall there was still a notable learning loss of approximately 2.6 months in mathematics by that point.
- By the end of the spring term, learning losses remained larger in mathematics than in reading with a total learning loss in mathematics of around 3.4 months.
- By the summer term, there was notable catch-up for primary aged pupils in mathematics with the learning loss for this cohort improving by around 1.2 months from our estimate of learning loss by the spring term, resulting in an estimate of learning loss by the summer term of around 2.2 months.

Analysis for secondary aged pupils is more limited due to sample sizes and robust estimates can only be determined in reading. By the first half of the autumn term secondary aged pupils had experienced an average learning loss of around 1.5 months in reading. By the summer term, secondary aged pupils had caught up only slightly, resulting in an estimate of learning loss by summer term of around 1.2 months.

The effect of economic disadvantage

Throughout the academic year 2020/21, we find that pupils from disadvantaged backgrounds (primarily those eligible for free school meals (FSM) at some point in the last six years) experienced greater learning losses than their more affluent peers as a result of the pandemic.

By the end of the first half of the autumn term, pupils from disadvantaged backgrounds had lost, on average, approximately 1.9 months in reading amongst both primary and secondary aged pupils, and around 4.5 months in mathematics for primary aged pupils. In comparison to their peers this means that early in the 2020/21 academic year, disadvantaged pupils had:

- experienced similar learning losses to non-disadvantaged pupils in primary reading;
- lost about half a month more learning than non-disadvantaged pupils in secondary reading; and
- lost around a month more learning in primary mathematics.

As we observed in the overall results, outcomes for disadvantaged and non-disadvantaged pupils then both followed a pattern of some catch-up, further losses, and further catch-up through the second half of the autumn term, the spring term, and the summer term respectively. The extent of this recovery and further losses were not always consistent between the two groups. For example, by the end of the second half of the autumn term, pupils from disadvantaged backgrounds had recovered around 0.4 months of learning in reading amongst primary aged pupils, compared with non-disadvantaged pupils who recouped 0.6 months of learning.

Our latest analysis shows that by the summer term, the gap in learning loss between disadvantaged pupils and their more affluent peers in reading was around 0.4 months for primary aged pupils and around 1.6 months for secondary aged pupils. The gap in mathematics for primary aged pupils was around half a month.

These learning losses are relative to the progress pupils usually make. We know that on average, pupils from disadvantaged backgrounds make less progress than other pupils. The pandemic has exacerbated a situation in which pupils from disadvantaged backgrounds achieve lower progress and lower outcomes than their peers.

As well as variation by pupil disadvantage, we find variation by the level of deprivation of the area in which pupils live. In fact, non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar or greater degree of learning loss to disadvantaged pupils in areas with low levels of deprivation. This is important to note as

disadvantage clearly impacts learning losses at both an area-level as well as at pupil-level.

Regional variation

The pandemic has resulted in regional disparities in the degree of learning loss, with pupils in some regions experiencing greater learning losses than other parts of the country.

By the end of the first half of the autumn term, in reading, both primary and secondary aged pupils in the North East and in Yorkshire and the Humber experienced the greatest learning loss (around 2.4 and 2.3 months respectively in primary, and around 1.6 and 2.5 months respectively in secondary). In primary mathematics the differences between regions were larger. Again, it was the North East and Yorkshire and the Humber that experienced the greatest learning loss – around 5.1 and 5.7 months respectively; more than double the loss experienced in the South West and in London.

After the re-opening of schools to in-person learning for all pupils, the majority of regions appeared to show some degree of recovery in reading amongst primary aged pupils, though due to sample sizes these are not all statistically significant. The same trend was found in mathematics for primary aged pupils. Most regions then experienced some further learning losses during the spring term (though due to sample sizes these are not statistically significant).

Our latest analysis shows that by the summer term, primary aged pupils have shown some degree of catch-up in reading since spring. The greatest recovery was in Yorkshire and the Humber where pupils experienced recovery of around 2.1 months. The trend in primary mathematics is similar, with most regions appearing to have shown some degree of catch-up in learning loss since spring, though due to sample sizes these are not statistically significant. The greatest recovery in lost learning was again for pupils in Yorkshire and the Humber (around 3.8 months).

Table 1: Estimated mean learning loss in months, in reading (primary and secondary schools) by autumn 1, autumn 2, spring and summer by disadvantage, region and area/pupil-level disadvantage

		Primary Reading					Secondary Reading		
		Autumn 1	Autumn 2	Spring	Summer	Count	Autumn 1	Summer	Count
All pupils		-1.8	-1.2	-2.2	-0.9	74,329	-1.5	-1.2	105,327
Disad- vantage	Non- FSM pu- pils	-1.7	-1.1	-2.0	-0.8	55,969	-1.3	-0.8	77,786

	FSM pupils									
		-1.9	-1.5	-2.7	-1.2	18,360	-1.9	-2.4	27,541	
Region	East Midlands									
		-1.1	-1.2	-2.1	-1.3	6,080	-1.7	-1.4	11,030	
	East of England									
		-1.9	-0.9	-2.1	-0.7	9,313	-1.2	-0.8	13,241	
	London									
		-1.3	-0.5	-1.7	-0.2	5,339	-1.3	-0.2	9,025	
	North East									
		-2.4	-1.7	-2.5	-0.9	6,363	-1.6	-1.6	6,084	
	North West									
		-1.9	-1.9	-2.4	-1.4	8,278	-1.4	-1.1	11,935	
South East										
	-1.8	-1.1	-1.9	-0.8	15,042	-1.0	-0.7	21,992		
South West										
	-1.7	-0.7	-1.9	-0.8	10,727	-1.4	-1.1	12,057		
West Midlands										
	-1.6	-1.0	-2.6	-1.7	7,564	-2.1	-1.7	11,446		
Yorkshire and the Humber										
	-2.3	-1.5	-2.6	-0.5	5,623	-2.5	-2.9	8,517		
Low IDACI area	Non-FSM pupils									
		-1.5	-0.8	-1.6	-0.7	20,963	-1.0	-0.2	35,964	
	FSM pupils									
		-1.6	-1.2	-2.0	-0.9	2,493	-2.0	-1.7	4,977	
Medium IDACI area	Non-FSM pupils									
		-1.9	-1.2	-2.1	-0.9	23,561	-1.6	-1.2	28,787	
	FSM pupils									
		-1.9	-1.4	-2.6	-1.2	7,227	-1.9	-2.4	10,913	
High IDACI area	Non-FSM pupils									
		-1.8	-1.3	-2.4	-0.9	11,445	-1.7	-1.4	13,035	
	FSM pupils									
		-2.1	-1.6	-2.9	-1.2	8,640	-1.9	-2.7	11,651	

Note: Asterisks denote the sub-groups where the achieved sample is fewer than 500 pupils and as a result some caution should be taken with interpretation and estimates should be taken as indicative of likely patterns.

Table 2: Estimated mean learning loss in months, in mathematics (primary schools) by autumn 1, autumn 2, spring and summer by disadvantage, region and area/pupil-level disadvantage

		Primary Mathematics				
		Autumn 1	Autumn 2	Spring	Summer	Count
All pupils		-3.6	-2.6	-3.4	-2.2	6,485
Disadvantage	Non-FSM pupils	-3.3	-2.4	-3.1	-2.1	4,889
	FSM pupils	-4.5	-3.3	-4.2	-2.6	1,596
Region	East Midlands	-4.4*	-2.8*	-4.9*	-6.0*	454
	East of England	-3.3*	-2.8*	-4.0*	-3.0*	418
	London	-2.5	-1.2	-3.0	-0.8	778
	North East	-5.1*	-4.4*	-6.0*	-4.1*	212
	North West	-3.9	-2.1	-1.3	-3.6	634
	South East	-3.6	-2.8	-2.7	-1.9	1,982
	South West	-1.4	-0.6	-1.6	0.2	893
	West Midlands	-4.8*	-3.9*	-7.0*	-3.6*	463
	Yorkshire and the Humber	-5.7	-5.0	-5.6	-1.9	651
Low IDACI area	Non-FSM pupils	-2.9	-1.6	-2.1	-1.6	1,705
	FSM pupils	-5.6*	-2.4*	-3.1*	-1.8*	195
Medium IDACI area	Non-FSM pupils	-3.2	-2.5	-3.3	-2.2	2,141
	FSM pupils	-3.9	-2.8	-3.9	-2.4	666
High IDACI area	Non-FSM pupils	-3.9	-3.5	-4.5	-2.5	1,043
	FSM pupils	-4.8	-3.9	-4.8	-3.0	735

Note: Asterisks denote the sub-groups where the achieved sample is fewer than 500 pupils and as a result some caution should be taken with interpretation and estimates should be taken as indicative of likely patterns.

Association between pupil absence and learning loss

One of the key factors that may have had influence on our estimates of learning loss was the amount of time that pupils were absent from school despite schools being open for in-person learning. We found that for both reading and mathematics, the proportion of days that pupils were absent from school were correlated with our estimates of learning loss (i.e. the more time pupils spent in school when schools re-opened for all pupils, the smaller the degree of learning loss was).

It is important to note that there are other factors that influence the relationship between the degree of absence and learning loss (e.g. absence may be linked with disadvantage, less engagement with school, parental involvement, extenuating medical circumstances etc.), and therefore this analysis is by no means causal and should not be treated as such.

Conclusion

Periods in which there were restrictions to in-person learning created and exacerbated learning losses in both reading and mathematics. These were partially counterbalanced by periods where schools re-opened for in-person learning for all pupils and there was some catch-up. Our analysis suggests certain characteristic groups experienced greater learning losses, notably pupils from disadvantaged backgrounds and pupils from particular regions of the country, and that the degree of absence during periods when schools were open to in-person learning are associated with how severe learning losses were during the pandemic.

Background: Star Assessments from Renaissance Learning

The data analysed in this report is drawn from assessment data from Renaissance Learning's Star Reading and Star Maths. These provide criterion-based scores that run on a singular scale from Year 1 to Year 13. Star Assessments are computer-adaptive in nature and adapt to the individual, providing an assessment that identifies gaps in learning from the entirety of the curriculum independent of their current year group. Star assessments also include a standardised measure which takes account of the pupil's age in years and months.

The Star Reading assessment measures students' performance on key reading skills via a brief standards-based test of general reading achievement, administering 34 questions that students complete, on average, in less than 20 minutes. The Star Maths assessment similarly comprises a brief assessment of 24 questions that students complete, on average, in less than 25 minutes. Reading draws on item banks of just under 4,000 items and under 2,000 items for mathematics.³

In August 2021, Renaissance Learning provided data to the Education Policy Institute comprising all assessments undertaken in schools and at home in England between August 2017 and August 2021 (the end of the summer term in 2020/21). The data was then subsequently matched by the Department for Education to data held in the National Pupil Database to enable us to take account of contextual pupil information. This allowed us to estimate learning loss by these pupil-level characteristics for the first half of the autumn term and estimate the degree of catch-up in pupil outcomes towards the end of 2020, as well as provide estimates of overall learning loss by the spring term. The latest analysis that has been published are estimates of learning loss by the spring term split by characteristic groups. Those results were published in October 2021 and covered pupils in years 3 to 9.

³ A more detailed discussion of Star assessments is available in '*Research Foundation for Star Adaptive Assessments – Science of Star*', Renaissance White Paper, September 2020.

Chapter 1 : Learning loss methodology in the summer term

Method for estimating expected progress and learning loss

In our analysis of Star assessments in the autumn term, we calculated an expected outcome for pupils based on what they had previously achieved (broadly at the same point in the previous academic year) and the historic rates of progress for pupils with similar prior attainment and pupil characteristics. For our autumn and spring term estimates we used the first half of the autumn term in 2019/20 as our measure of prior attainment and our counterfactual group of pupils that we were comparing against was the progress of pupils in 2019/20.⁴

We retain the same principles in this analysis of summer term assessments. However, we were constrained by the effects of the first period of restrictions on in-person teaching on our preferred measure of prior attainment and the model for calculating expected progress. Restrictions to in-person learning began on 20th March 2020 and only ended for all year groups at the start of the 2020/21 academic year. We therefore do not have prior attainment data for all year groups that covers the summer term in the 2019/20 academic year. Because of this we have used results in the first half of the autumn term in the previous academic year, the academic year 2019/20, to measure prior attainment (i.e. one year and two terms previously) to ensure consistent coverage.

When we come to consider learning loss during 2020/21, we use the latest result for each pupil from the summer term. However, when we looked to compare the progress of this group with pupil progress in 2019/20 over the same time period, as illustrated above, we were unable to do so because we did not have outcomes in the summer term in the 2019/20 academic year to compare results. Therefore, we have used progress over the previous academic year, the academic year 2018/19, as our counterfactual instead. Therefore, in this report “learning loss” in the summer term can loosely be defined as the difference between what pupils achieved in 2020/21 and what pupils would have achieved in 2020/21 if they had progressed at the same rate as pupils in 2018/19.

We present measures of learning loss in terms of a ‘scaled score’ and in terms of months of progress.⁵

⁴ See our first report for full explanation of our methodology for estimates of learning loss by the first half term of the autumn term and please also refer to the annex of this report for further details.

⁵ The Star Assessments ‘scaled score’ is a continuous scale where pupil scores increase as they move through the school system. At the start of Key Stage 2, pupils taking an assessment typically achieve around 250 points on this scale. By the final year of primary school (year 6) this increases to around 550 points, and by year 9 to around 750 points on this scale.

Limitations of estimates of learning loss

The key limitations are:

- We have used a counterfactual group that is two years prior to the progress we were assessing in the academic year 2020/21. Progress has continually increased year-on-year for Renaissance assessments, hence the progress that pupils have made during the academic year 2018/19 may be slightly lower than the progress in the academic year 2019/20, which may result in an underestimate of learning loss by the summer term.

Because of the much smaller sample sizes, estimates for secondary aged pupils were sensitive to the exact model specification. Unfortunately, we are unable to present estimates of learning loss for secondary aged pupils in mathematics due to sample sizes being too small to derive robust estimates.

Chapter 2 : Estimated learning loss by the summer term 2020/21

Figure 2.1 shows our estimates in scaled score terms for assessments taken during the summer term of 2020/21.

In Star Reading:

- primary aged pupils achieved 6.5 scaled score points lower than similar pupils in 2018/19;
- this is equivalent to a shift in the primary attainment distribution of 0.03 standard deviations;
- secondary aged pupils achieved 14.1 scaled score points lower than similar pupils in 2018/19;
- this is equivalent to a shift in the secondary attainment distribution of 0.05 standard deviations.

In Star Maths:

- primary aged pupils achieved 24.1 scaled score points lower than similar pupils in 2018/19;
- this is equivalent to a shift in the primary attainment distribution of 0.20 standard deviations.

Figure 2.2 translates these estimates into months of progress.⁶ By the end of the summer term, primary aged pupils had experienced a learning loss in reading equivalent to around 0.9 months of progress and secondary aged pupils had experienced a learning loss equivalent to around 1.8 months of progress. In mathematics, primary aged pupils experienced a much greater learning loss of around 2.8 months.

⁶ See appendix for details of conversion of estimated learning loss in scaled score points terms to a months of progress measure.

Figure 2.1: Estimated mean learning loss by summer term, in scaled score points, in reading (primary and secondary schools) and mathematics (primary schools only)⁷

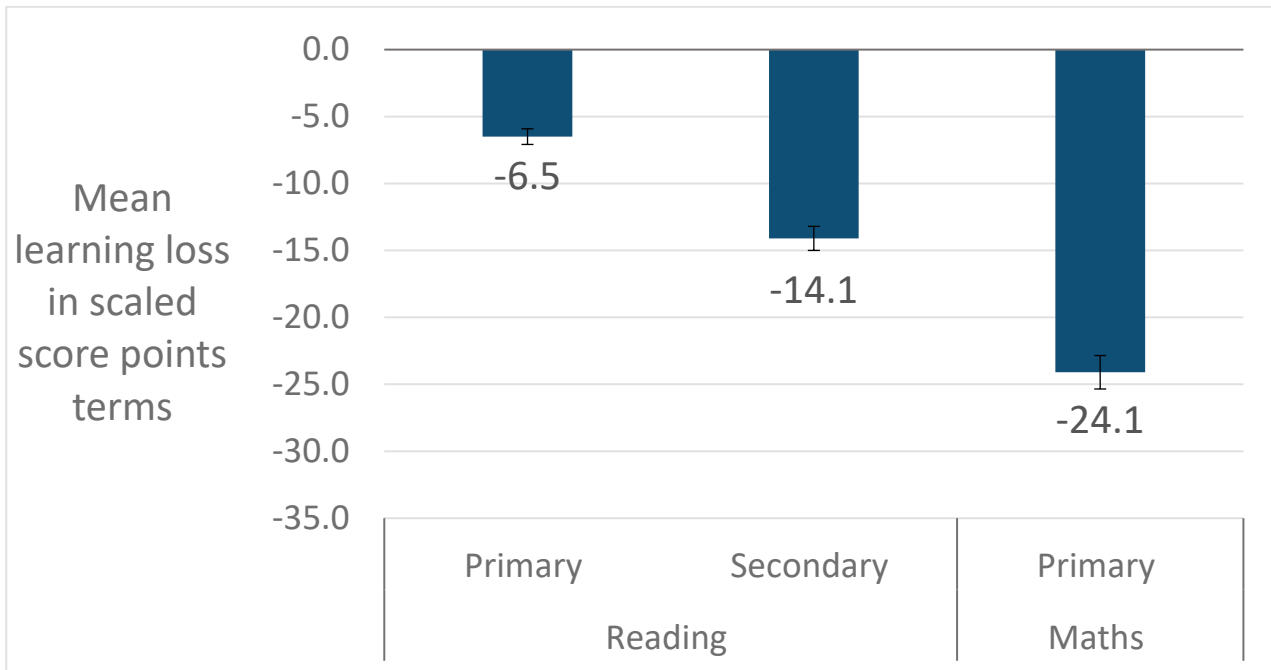
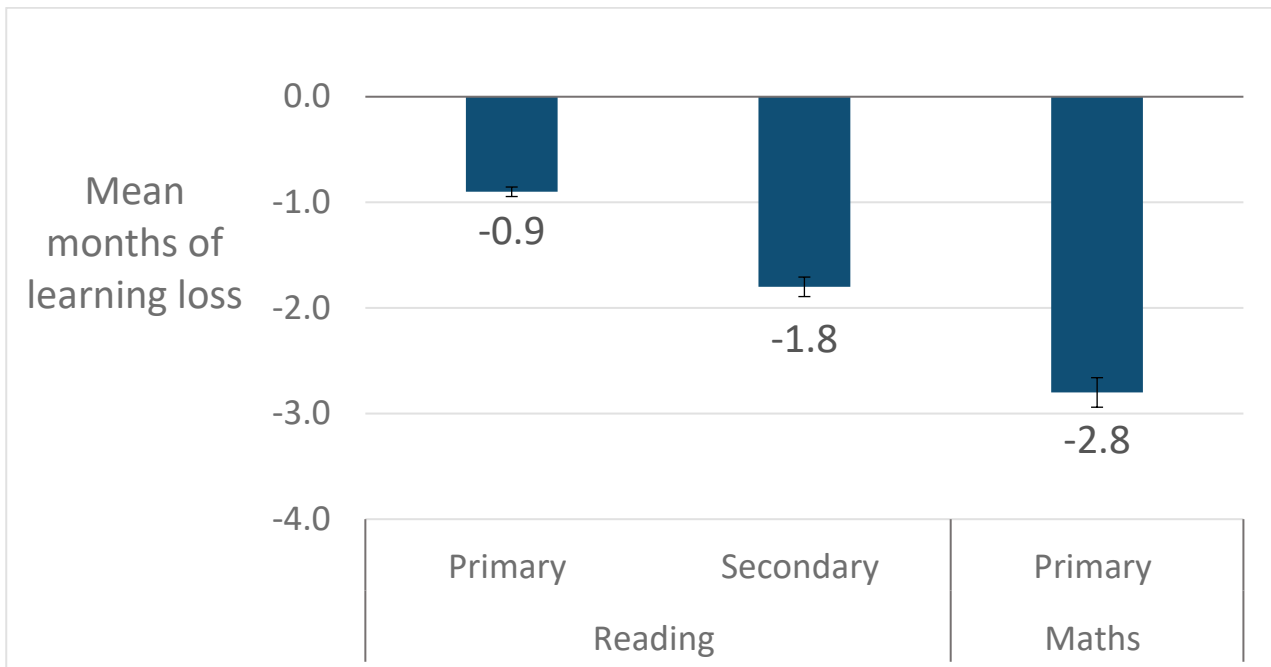


Figure 2.2: Estimated mean learning loss by summer term, in months, in reading (primary and secondary schools) and mathematics (primary schools only)



⁷ The vertical lines on each chart represent the 95% confidence interval for the estimate of learning loss.

Estimates of learning loss by summer term 2020/21 by pupil characteristics

Estimates of learning loss in scaled score points terms

Figure 2.3 shows estimates of learning loss in scaled score points terms for reading by pupil characteristics and by region for primary and secondary aged pupils. The grey vertical lines indicate the average learning loss for all primary and secondary aged pupils respectively. As we are breaking results down into various sub-groups, it is important to note that the sample size is smaller within these groups and hence the confidence intervals on these estimates will be wider than for the average learning loss estimates. Any differences that we highlight in this section are statistically significant.

When we look at learning loss in reading by characteristics, amongst primary aged pupils we find:

- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) experienced, on average, 11.3 scaled score points learning loss, compared with 4.9 points for their more affluent peers;
- differences in learning loss by ethnic group were generally not statistically significant;⁸
- pupils from English as an additional language (EAL) backgrounds do not appear to have been disproportionately affected by restrictions to in-person learning but they still experienced lost learning of 7.8 scaled score points;
- there were a number of regional disparities in the level of learning loss. In particular, pupils in the North West and West Midlands experienced the greatest learning loss; and
- regions such as the East of England, South West and London have fared much better than other regions.

⁸ It is important to note here that the results for Chinese pupils are from a particularly small sample and also affected by the limitations of a model that does not fully reflect the rates of progress that these pupils make in a year not impacted by the pandemic.

Amongst secondary aged pupils in reading we find:

- pupils from disadvantaged backgrounds experienced, on average, 23.8 scaled score points learning loss, compared with 10.5 points for their more affluent peers;
- differences in learning loss by ethnic group were generally not statistically significant;
- pupils with an identified special educational need or disability (SEND) experienced, on average, a learning loss of 23.2 scaled score points, compared with 12.6 points for their peers;
- pupils identified as Children In Need (CIN) experienced a learning loss of 27.3 scaled score points, compared with 14.1 points for all secondary-aged pupils in reading;⁹
- there were a number of regional disparities in the level of learning loss. In particular, pupils in Yorkshire and the Humber experienced greater learning losses than other areas of the country; and
- pupils in regions such as London, the East of England and the South East have fared much better than other regions.

Figure 2.4 shows estimates of learning loss in mathematics by pupil characteristics and by region for primary aged pupils. We find that:

- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years), on average, had an estimated learning loss of 27.6 scaled score points. This is relative to 23 points for their more affluent peers;
- similar to the findings for reading, there were no differences by ethnic group that were statistically significant;
- pupils from English as an additional language backgrounds do not appear to have been disproportionately affected by restrictions to in-person learning but they still experienced lost learning of 25.2 scaled score points;
- pupils with an identified SEND experienced, on average, 16.4 scaled score points learning loss, compared with 25.2 scaled score points for their peers;
- pupils identified as CIN experienced a learning loss of 16 scaled score points, compared with 24.1 points for all primary-aged pupils in mathematics;

⁹ Children In Need are a legally defined group of children, assessed by social workers as needing help and protection as a result of risks to their development or health, or who are disabled.

- there were a number of regional disparities in the level of learning loss. It was pupils in the North West, East of England and East Midlands, who experienced the greatest learning losses (39.1, 39.0 and 46.9 scaled score points respectively).

Figure 2.3: Estimated mean learning loss by summer term, in scaled score points, in reading (primary and secondary schools) by characteristics

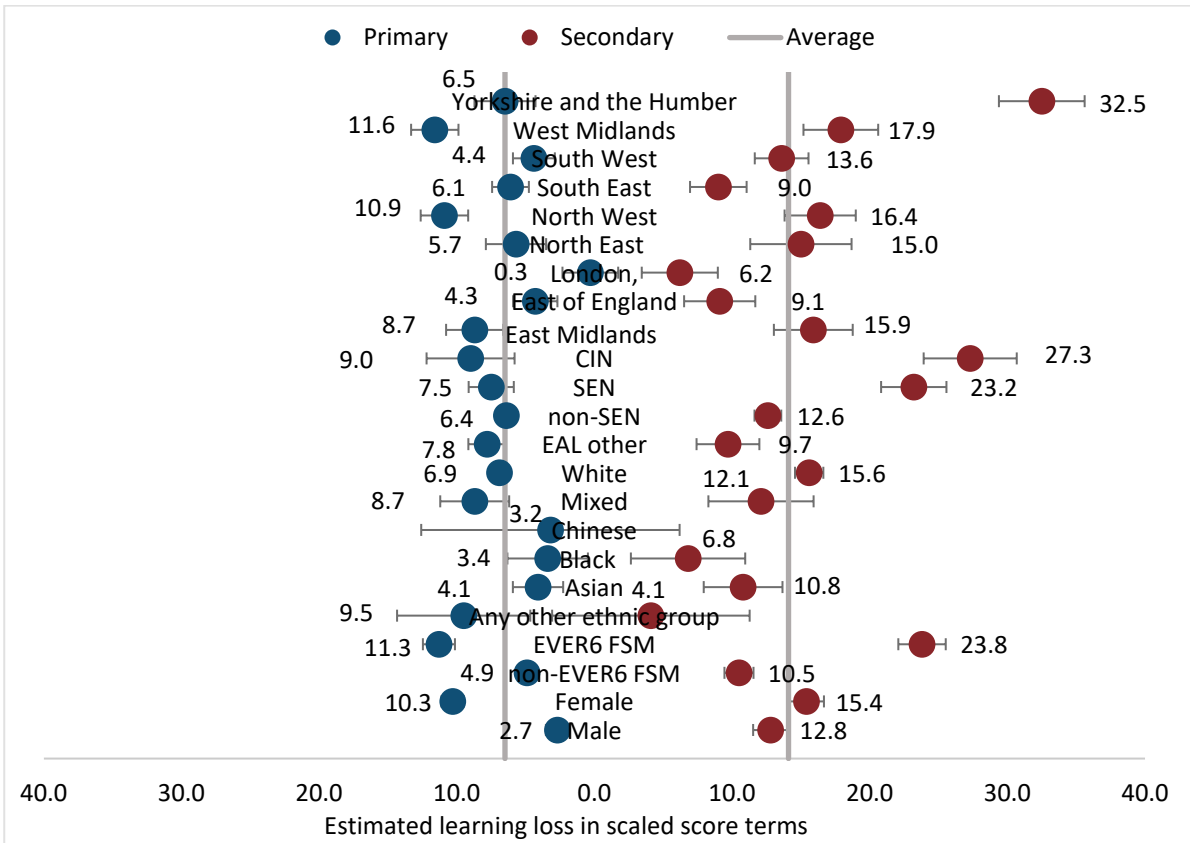


Figure 2.4: Estimated mean learning loss by summer term, in scaled score points, in mathematics (primary schools only) by characteristics

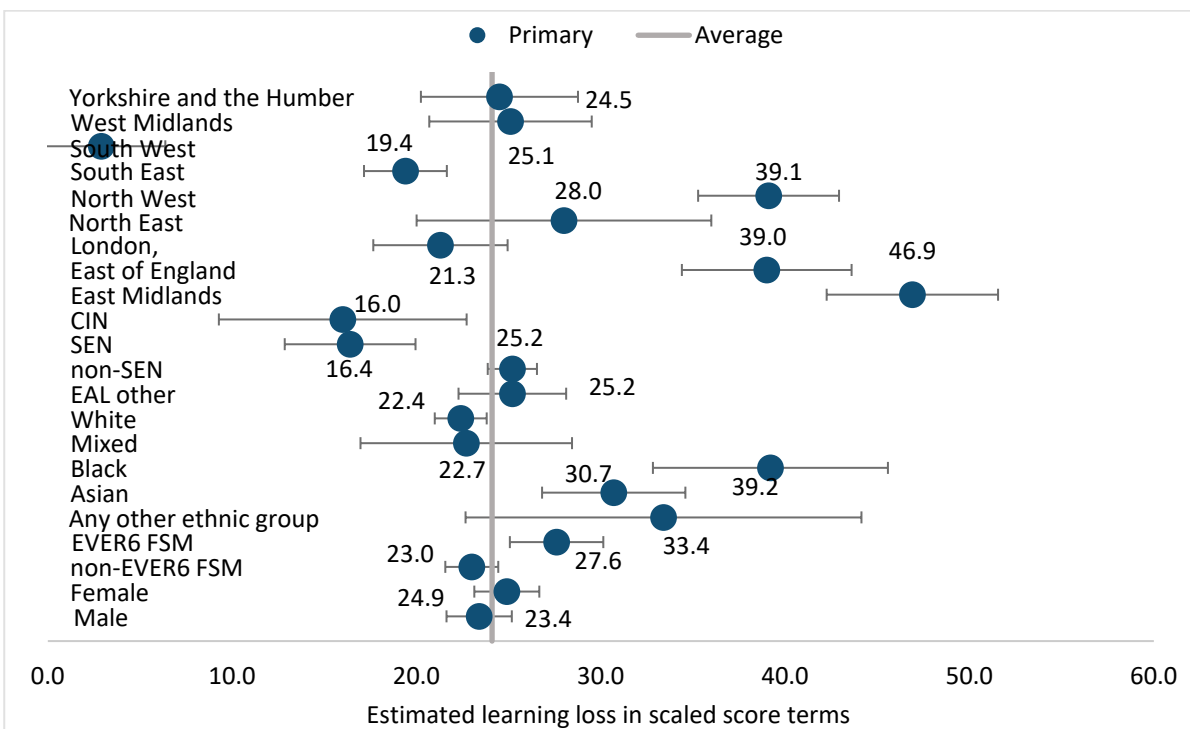


Figure 2.5 presents estimates of learning loss in scaled score terms in reading for both primary and secondary aged pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) and their more affluent peers split by the level of deprivation within the local area (defined by IDACI score¹⁰). Figure 2.6 presents the equivalent for primary aged pupils in mathematics.

For primary aged pupils in reading, we find:

- non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar degree of learning loss to disadvantaged pupils in areas with low levels of deprivation;
- pupils from disadvantaged backgrounds within areas with a low level of deprivation experienced, on average, 8.2 scaled score points learning loss, compared to 0.6 points for their more affluent peers (this is 10.5 and 6.5 points respectively for pupils in areas with a medium level of deprivation); and
- non-disadvantaged pupils within areas with a low level of deprivation experienced, on average, 0.6 scaled score points learning loss, compared to 6.5 and 9.7 points in areas with medium and high levels of deprivation.

For secondary aged pupils in reading, we find:

- non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar degree of learning loss to disadvantaged pupils in areas with low levels of deprivation;
- pupils from disadvantaged backgrounds within areas with a low level of deprivation experienced, on average, 20 scaled score points learning loss, compared to 5.3 points for their more affluent peers (this is 23.4 and 14.2 points respectively for pupils in areas with a medium level of deprivation and 25.5 and 15.2 points respectively for pupils in areas with a high level of deprivation).

For primary aged pupils in mathematics, we find:

- non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a greater degree of learning loss to disadvantaged pupils in areas with low levels of deprivation;
- disadvantaged pupils within areas with a low level of deprivation experienced, on average, 12.8 scaled score points learning loss, compared to 26.8 and 32.9 points in areas with medium and high levels of deprivation, and this was also the case for

¹⁰ IDACI score denotes Income Deprivation Affecting Children Index score, which can be interpreted as the proportion of families in a local area, with children aged under 16, which are income deprived. We define the levels of deprivation in the area as follows: Low IDACI area (0-12.5%), Medium IDACI area (12.5%-30%) and High IDACI area (30%+).

their more affluent peers (18.8 points learning loss in areas with a low level of deprivation, compared to 24.4 and 28 points in areas with medium and high levels of deprivation).

This analysis suggests that the mixture of disadvantage at the pupil and area-level results in greater learning losses for the most disadvantaged pupils. Furthermore, both pupil and area level deprivation have an influence on the level of learning loss experienced by pupils as non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar, if not greater, degree of learning loss to disadvantaged pupils in areas with low levels of deprivation.

Figure 2.5: Estimated mean learning loss by summer term, in scaled score points, in reading (primary and secondary schools) by pupil and area-level disadvantage

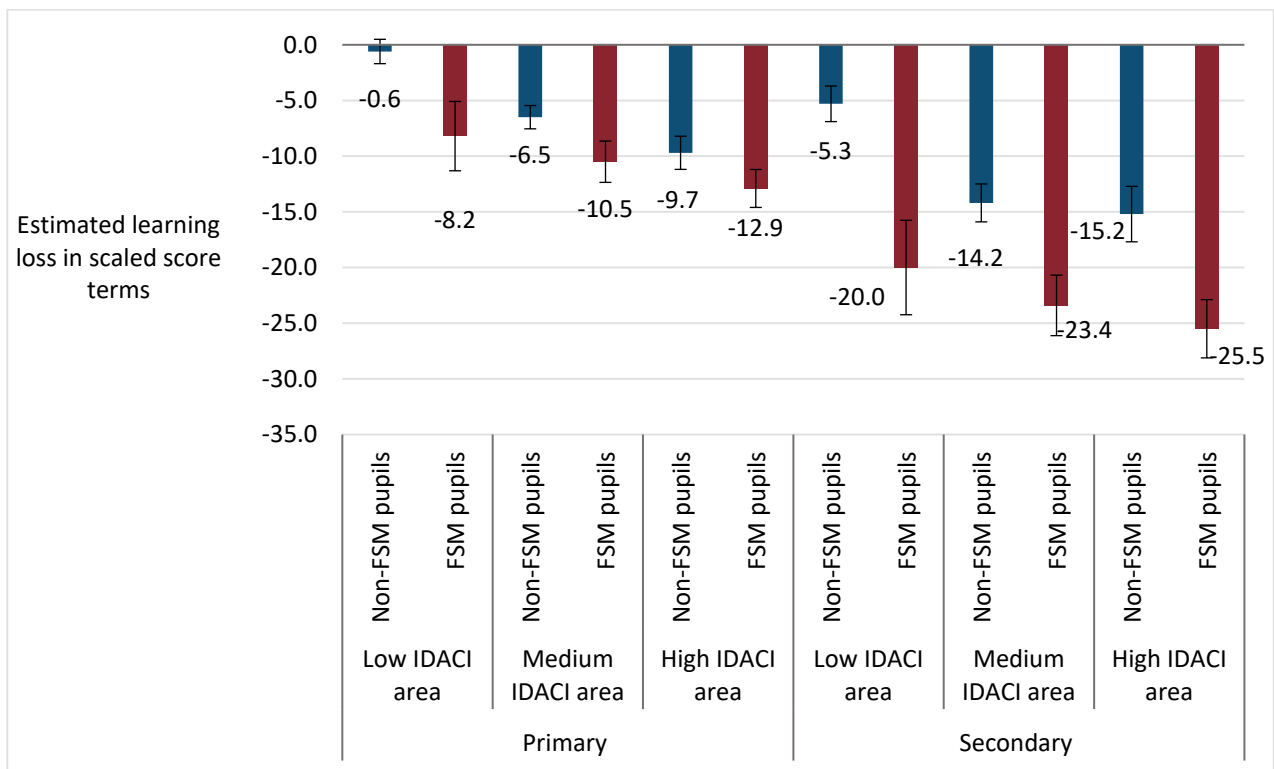
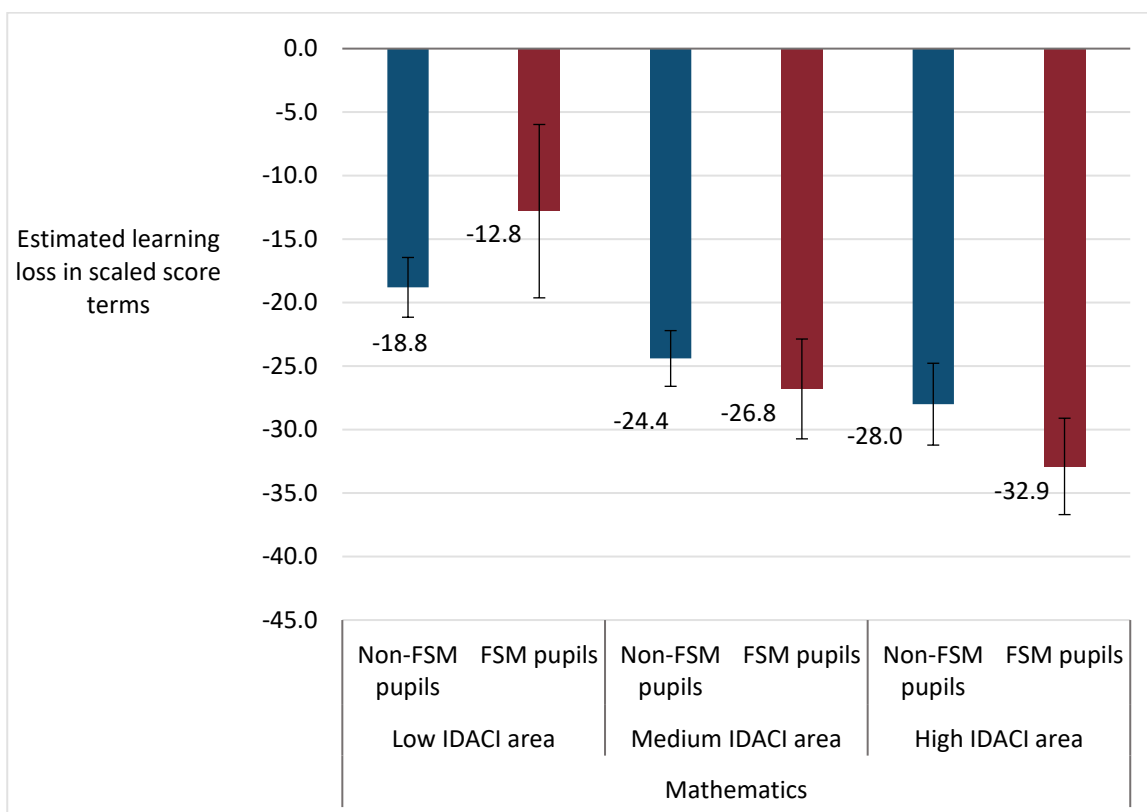


Figure 2.6: Estimated mean learning loss by summer term, in scaled score points, in mathematics (primary schools only) by pupil and area-level disadvantage



Estimates of learning loss in months of learning

Figure 2.7 shows estimates of learning loss in reading by pupil characteristics and by region for primary and secondary aged pupils in terms of months of learning. The grey vertical lines indicate the average learning loss for all primary and secondary pupils respectively. Any differences that we report in this section are statistically significant.

We find that amongst primary aged pupils in reading:

- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) experienced, on average, approximately 1.3 months of learning loss. This means that disadvantaged pupils have lost about half a month more than non-disadvantaged pupils;
- pupils from English as an additional language backgrounds do not appear to have been disproportionately affected compared to their peers by restrictions to in-person learning but they still experienced lost learning of around a month;
- pupils identified as Children in Need experienced a learning loss of approximately 1.2 months, this compares to average learning loss in reading of around 0.9 months;
- pupils in North West and West Midlands experienced the largest learning losses of around 1.2 and 1.4 months respectively. Although it is important to note here that there is some degree of uncertainty in our estimates of learning loss that must be considered when interpreting these findings.

Amongst secondary aged pupils in reading:

- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) experienced, on average, approximately 3.0 months of learning loss. This means that disadvantaged pupils have lost almost two months more than non-disadvantaged pupils;
- pupils with an identified SEND experienced, on average, around 3.1 months learning loss, compared with around 1.5 months for their peers;
- pupils identified as Children in Need experienced a learning loss of approximately 3.3 months, this compares to average learning loss in reading of around 1.8 months;
- pupils in Yorkshire and the Humber experienced the largest learning losses of around 3.6 months. Although it is important to note here that there is some degree of uncertainty in our estimates of learning loss that must be considered when interpreting these findings.

The analysis suggests that restrictions to in-person learning in relation to the pandemic have led to a widening of the disadvantage gap in reading. Furthermore, pupils identified as Children in Need and pupils with an identified SEND experienced greater learning losses than their peers.

The gap in terms of learning loss between disadvantaged pupils and their peers is around the same as our estimates of learning loss by the first half of the autumn term. The extent to which disadvantaged pupils lost learning by the summer term appears to be equivalent to undoing a third of the progress made in the last decade on closing the gap in primary schools. This has been calculated using estimates of closing of the disadvantage gap in the last decade in EPI's annual report.¹¹

¹¹ This has been calculated using estimates of closing of the disadvantage gap in the last decade in Education Policy Institute's annual report: <https://epi.org.uk/publications-and-research/education-in-england-annual-report-2020/>

Figure 2.7: Estimated mean learning loss by summer term, in months, in reading (primary and secondary schools) by characteristics

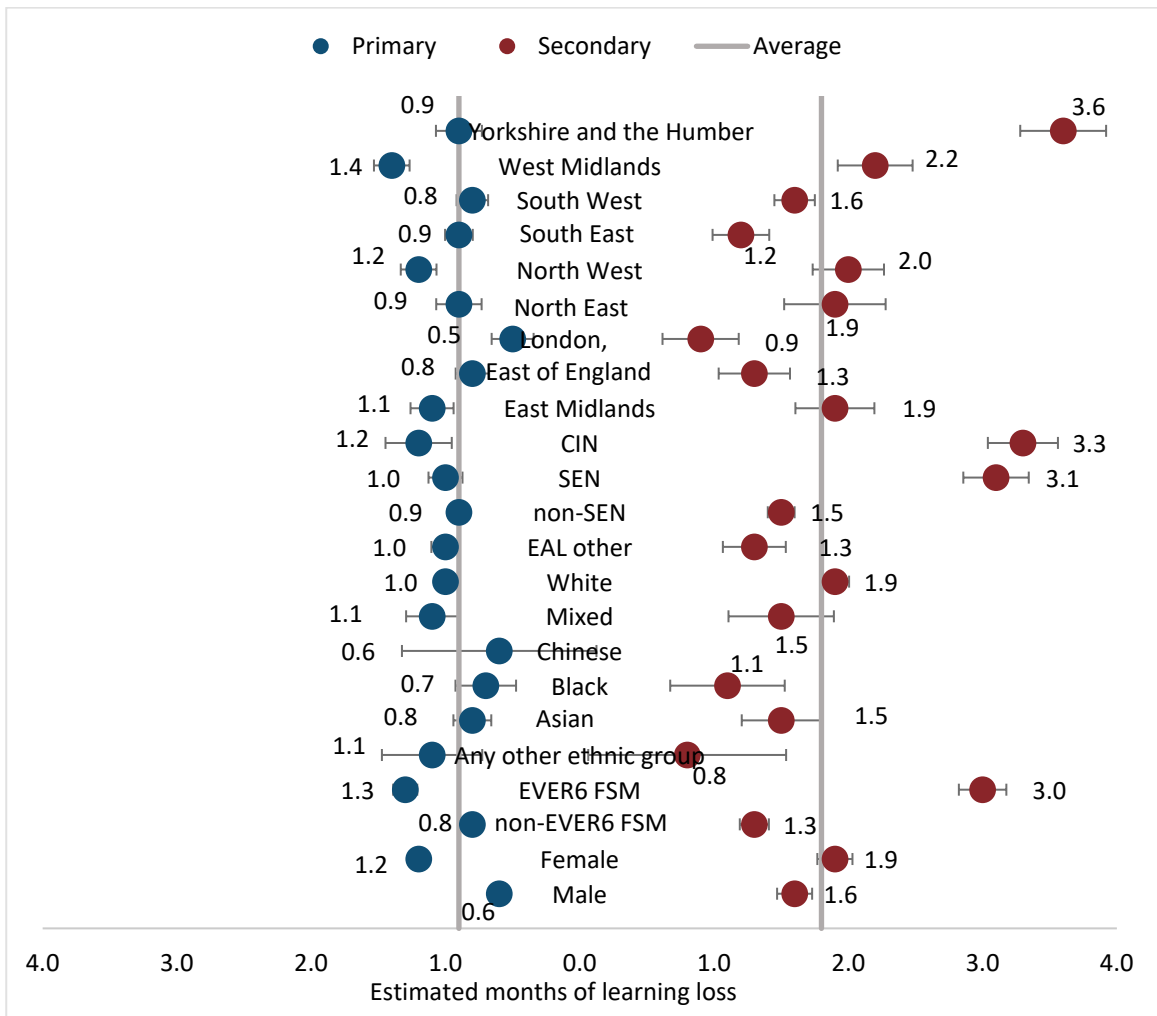


Figure 2.8 shows estimates of learning loss in mathematics by pupil characteristics and by region for primary aged pupils. We find that:

- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years), on average, had an estimated learning loss of approximately 3.3 months. This compares with around 2.6 months for their more affluent peers;
- pupils from English as an additional language backgrounds do not appear to have been disproportionately affected compared to their peers by restrictions to in-person learning but they still experienced lost learning of around 2.8 months;
- pupils with an identified SEND experienced, on average, around 2.1 months learning loss, compared with approximately 2.9 months for their peers; and

- there were a number of regional disparities in the level of learning loss. It was pupils in the North West, East of England and East Midlands, who experienced the greatest learning losses (around 4.3, 4.4, and 5.1 months respectively).

This analysis provides evidence that restrictions to in-person learning in relation to the pandemic have led to a widening of the disadvantage gap in mathematics compared to the gap before the pandemic. The difference of 0.7 months progress lost relative to other pupils would be equivalent to undoing around a half of the progress made over the past decade in closing the disadvantage gap in primary schools. This has been calculated using estimates of closing of the disadvantage gap in the last decade in EPI’s annual report.

Figure 2.8: Estimated mean learning loss by summer term, in months, in mathematics (primary schools only) by characteristics

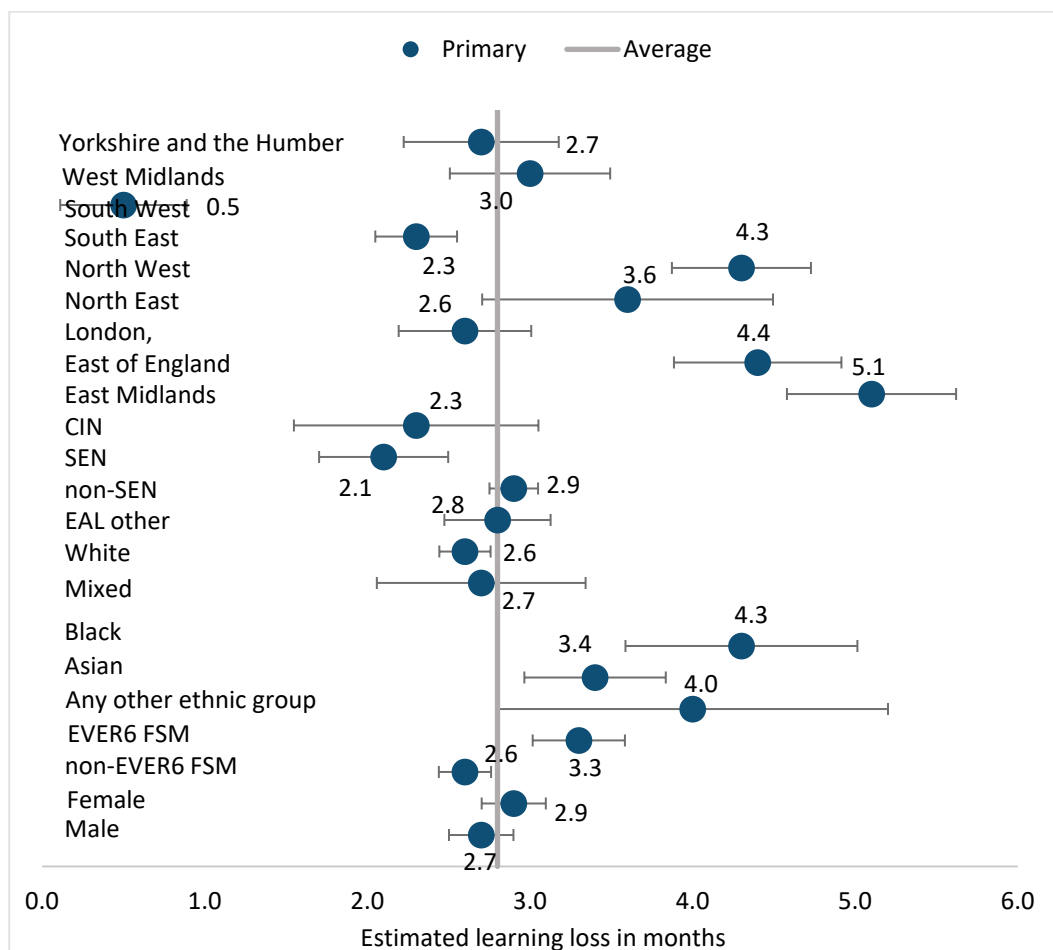


Figure 2.9 presents estimates of learning loss in months of learning in reading for both primary and secondary aged pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) and their more affluent peers split by the level of deprivation within the local area (defined by IDACI score). Figure 2.10 presents the equivalent for primary aged pupils in mathematics.

For primary aged pupils in reading, we find:

- non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar degree of learning loss to disadvantaged pupils in areas with low levels of deprivation;
- pupils from disadvantaged backgrounds within areas with a low level of deprivation experienced, on average, around 1.1 months learning loss, compared to around 0.5 months for their more affluent peers (this is around 1.3 and 0.9 months respectively for pupils in areas with a medium level of deprivation and around 1.5 and 1.2 months respectively for pupils in areas with a high level of disadvantage); and
- non-disadvantaged pupils within areas with a low level of deprivation experienced, on average, around 0.5 months learning loss, compared to around 0.9 and 1.2 months in areas with medium and high levels of deprivation.

For secondary aged pupils in reading, we find:

- non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar degree of learning loss to disadvantaged pupils in areas with low levels of deprivation;
- pupils from disadvantaged backgrounds within areas with a low level of deprivation experienced, on average, around 2.5 months learning loss, compared to around 0.7 months for their more affluent peers (this is around 3.0 and 1.7 months respectively for pupils in areas with a medium level of deprivation and around 3.3 and 1.9 months respectively for pupils in areas with a high level of deprivation).

For primary aged pupils in mathematics, we find:

- non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a greater degree of learning loss to disadvantaged pupils in areas with low levels of deprivation;
- pupils from disadvantaged backgrounds within areas with a high level of deprivation experienced, on average, around 3.9 months learning loss, compared to around 3.1 months for their more affluent peers;

- disadvantaged pupils within areas with a low level of deprivation experienced, on average, around 1.6 months learning loss, compared to around 3.3 and 3.9 months in areas with medium and high levels of deprivation, and this was also the case for their more affluent peers (around 2.1 months learning loss in areas with a low level of deprivation, compared to around 2.8 and 3.1 months in areas with medium and high levels of deprivation).

This analysis suggests that the mixture of disadvantage at the pupil and area-level results in greater learning losses for some disadvantaged pupils. Furthermore, both pupil and area-level disadvantage have an influence on the level of learning loss experienced by pupils as non-disadvantaged pupils in areas with medium and high levels of deprivation experienced a similar, if not greater, degree of learning loss to disadvantaged pupils in areas with low levels of deprivation.

Figure 2.9: Estimated mean learning loss by summer term, in months, in reading (primary and secondary schools) by pupil and area-level disadvantage

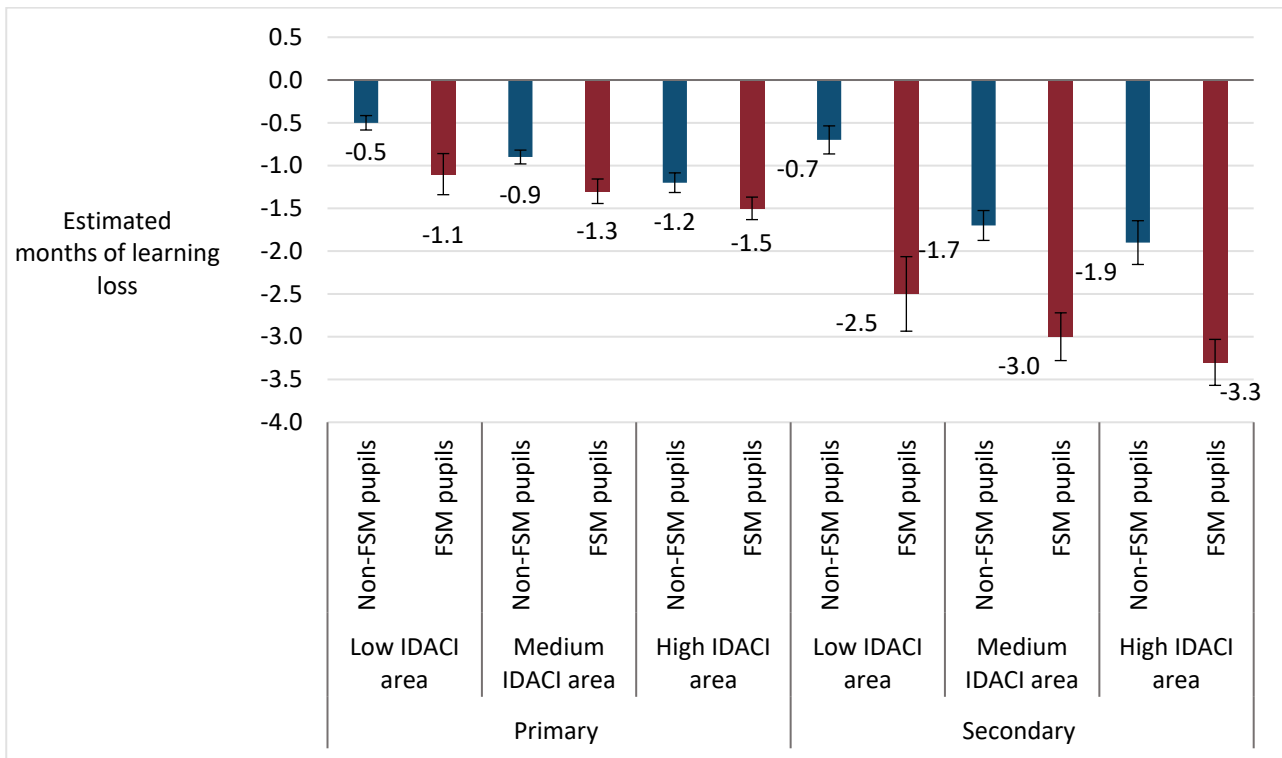
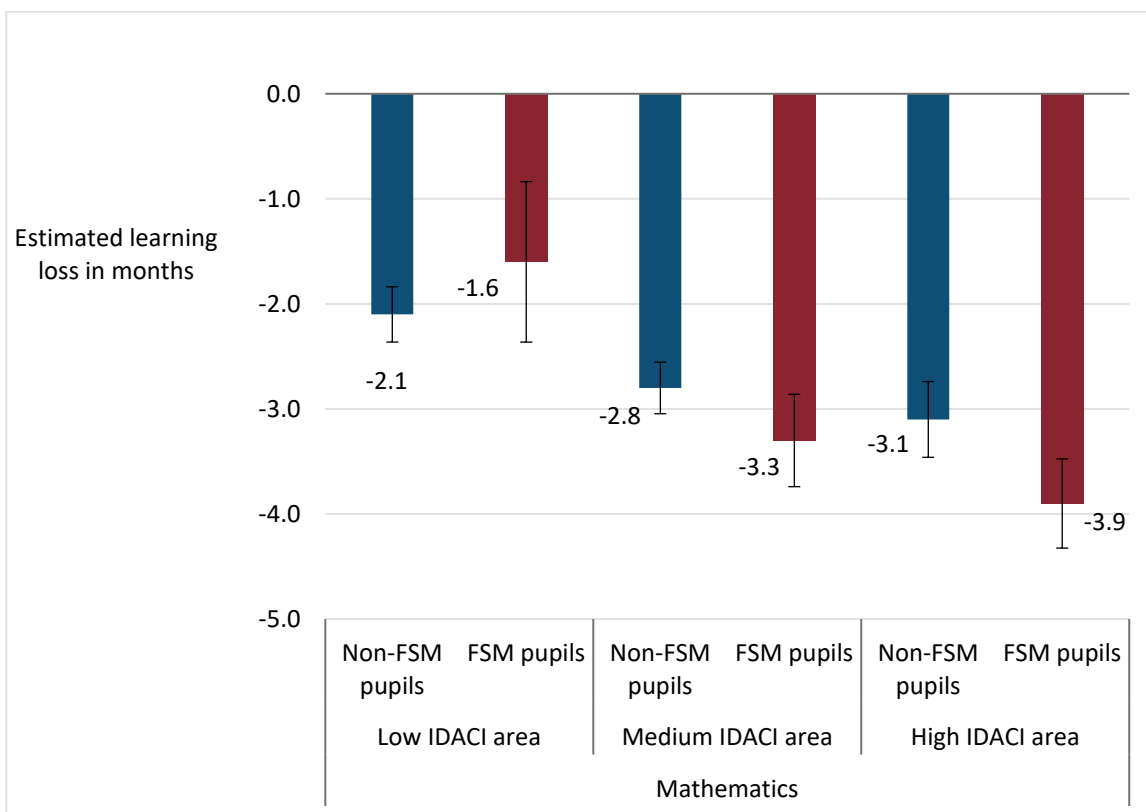


Figure 2.10: Estimated mean learning loss by summer term, in months, in mathematics (primary schools only) by pupil and area-level disadvantage



Chapter 3 : Estimates of learning loss throughout the academic year 2020/21

We now look at how estimates of learning loss by the summer term compare to previous terms during the year to understand how pupils' learning had changed throughout the 2020/21 academic year.

We compare our results in the summer term against the estimated learning loss by the first and second half-terms of autumn, and end of the spring term. To ensure that we are comparing the same pupils over time we have restricted this analysis to the pupils that undertook assessments in all four time periods (the first and second half of the autumn term, second half of the spring term and the summer term).¹² This allows us to build a consistent picture of how pupils have been affected by the pandemic and how they were affected by schools re-opening for all pupils.

However, it does mean that estimates of learning loss in this chapter may differ to those that only look at a single time period. For our estimates of learning loss in reading for secondary aged pupils, we are only able to compare the summer term to the first half term of autumn because including the second half of the autumn term and spring term estimates in the comparison reduced the sample size too greatly and impacted the robustness of our estimates.

Timeline of restrictions to in-person learning

Figure 3.1 shows the timeline of restrictions to in-person learning during the coronavirus (COVID-19) pandemic and how this relates to our previous estimates of learning loss.

Our first assessment of learning loss was based on assessments in the first half of the autumn term 2020/21 (which we refer to as autumn 1). It looked at the impact of the first period of restrictions on in-person teaching.

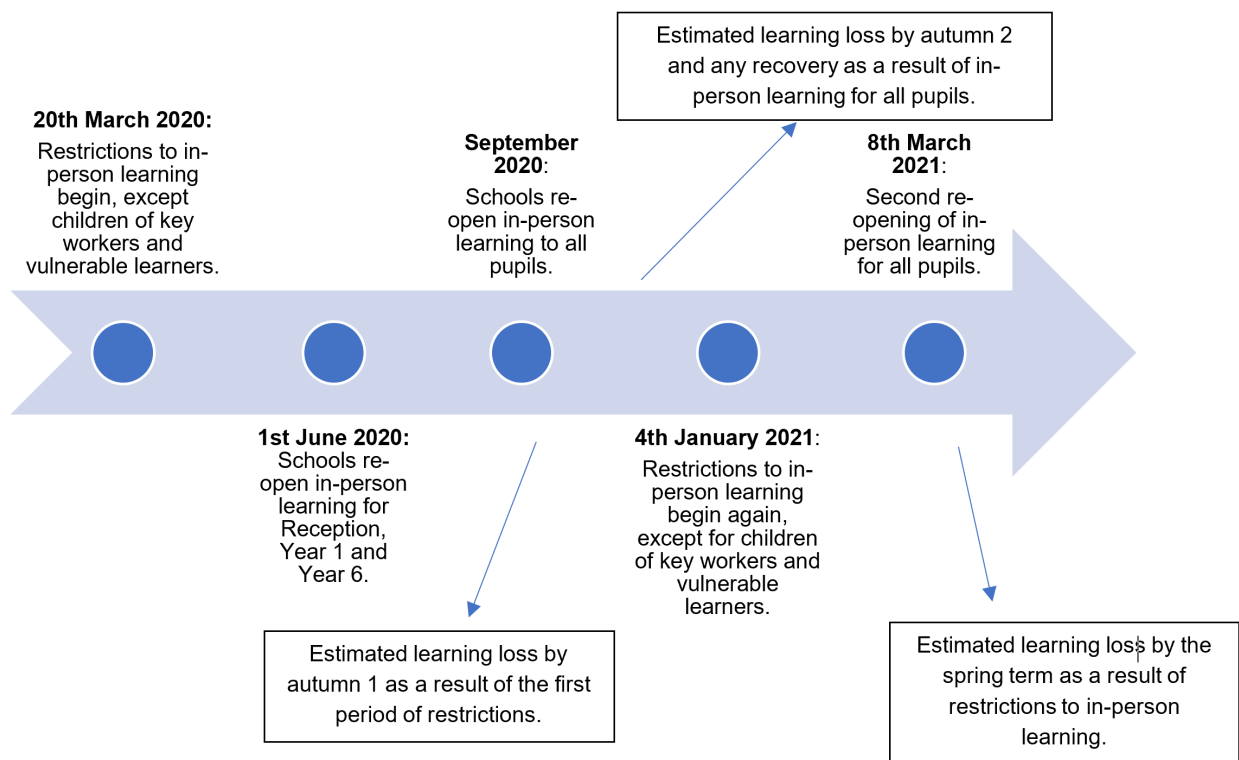
Our second assessment of learning loss was based on assessments in the second half of the autumn term 2020/21 (which we refer to as autumn 2). It looked at the extent to which any learning losses were recovered once schools were re-opened to in-person learning for all pupils in September 2020.

Our third assessment of learning loss was based on assessments in the spring term 2020/21. It looked at the impact of the second round of restrictions to in-person learning at the start of the spring term 2020/21.

¹² For simplicity, like-for like comparisons are only made using “the second half of the spring term” approach.

Our latest assessment of learning loss is based on assessments in the summer term 2020/21. It looked at the extent to which any learning losses were recovered once schools were re-opened to in-person learning for all pupils after the second round of restrictions to in-person learning.

Figure 3.1: Timeline of restrictions to in-person learning during the academic year 2020/21 and where estimates of learning loss fit within the timeline



Learning loss for all pupils throughout the academic year 2020/21

Periods in which there were restrictions to in-person learning created and exacerbated learning losses in both reading and mathematics. These were partially counterbalanced by periods where schools re-opened for in-person learning for all pupils and there was some recovery in learning losses.

Figure 3.2 presents the estimated learning loss in months by the summer term for Star Reading and Maths assessments for primary aged pupils, alongside the equivalent estimates of learning loss by autumn 1, autumn 2 and spring. Figure 3.3 presents the estimated learning loss in reading in months by the summer term for secondary aged pupils, we are only able to provide the equivalent estimates of learning loss by autumn 1 for this cohort.

By the end of the first half of the autumn term in 2020/21:

- learning loss in reading was similar amongst primary and secondary aged pupils and was higher in mathematics than in reading. The average learning loss in reading for primary aged pupils was around 1.8 months, for secondary aged pupils it was around 1.5 months. Learning losses in primary mathematics were greater at around 3.6 months.

By the end of the second half of the autumn term in 2020/21:

- Primary aged pupils had lost around 1.2 months of learning in reading, implying that primary aged pupils were able to catch-up over half a month of learning lost in one half-term.
- There was even greater catch-up in mathematics, where primary aged pupils caught-up around a month of progress. This catch-up in mathematics is from a lower base than reading, so there was still a notable learning loss by the second half of the autumn term of approximately 2.6 months for mathematics.

By the end of the spring term in 2020/21:

- Primary aged pupils had experienced a learning loss in reading equivalent to around 2.2 months of progress, implying losses returned to around their early autumn level as a result of pupils missing out on in-person learning in early 2021.
- In mathematics, primary aged pupils experienced a much greater learning loss in comparison to reading of around 3.4 months.

By the end of the summer term in 2020/21:

- there was notable recovery in learning loss in primary reading with the learning loss for this cohort improving by around 1.3 months from our estimate of learning loss by the spring term, resulting in an estimate of learning loss by the summer term of around 0.9 months;
- primary mathematics learning losses over the academic year 2020/21 have a similar pattern to what we find for primary aged pupils in reading – the learning loss for this cohort improved by around 1.2 months from our estimate of learning loss by the spring term, resulting in an estimate of learning loss by the summer term of around 2.2 months.
- learning loss by the summer term in reading for secondary aged pupils had recovered slightly compared to the estimate of learning loss by autumn 1, resulting in an estimate of learning loss by summer term of around 1.2 months.

Figure 3.2: Estimated mean learning loss by autumn 1, autumn 2, spring and summer in months, in reading and mathematics (primary aged pupils only)

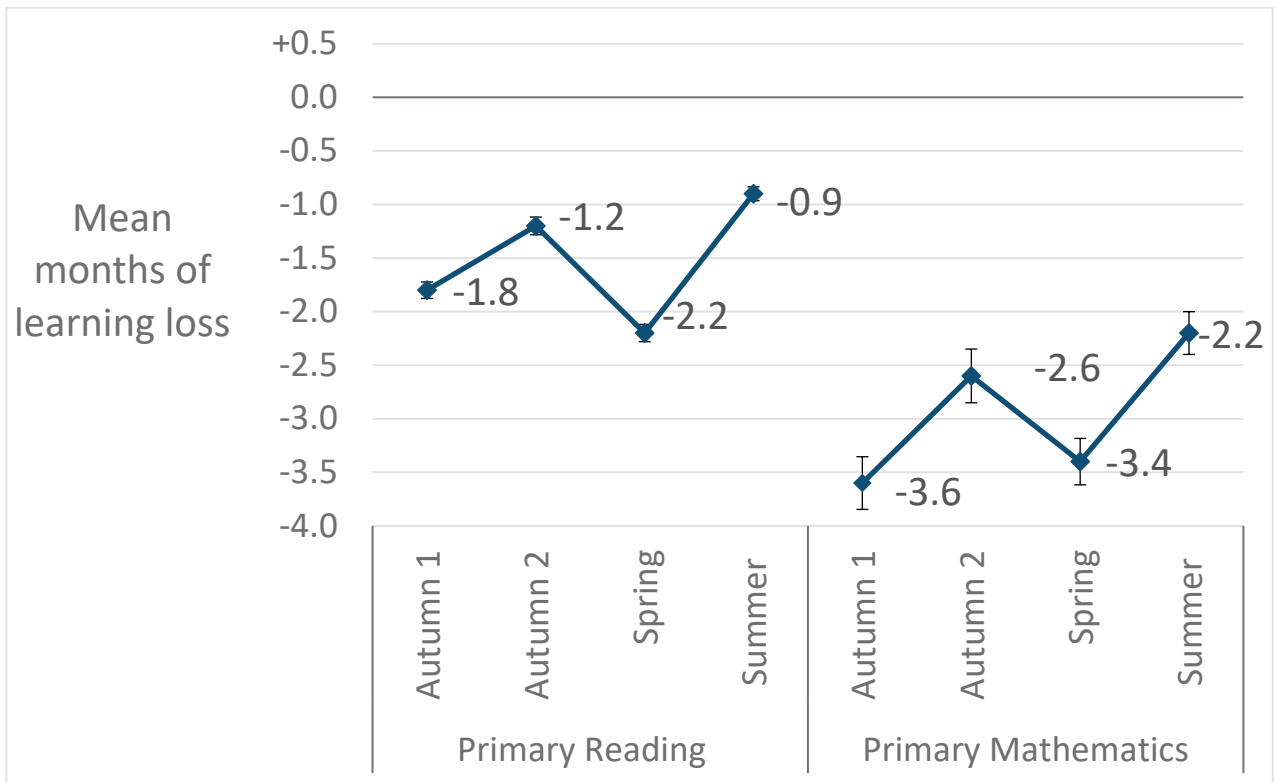


Figure 3.3: Estimated mean learning loss by autumn 1 and summer, in months, in reading (secondary aged pupils only)

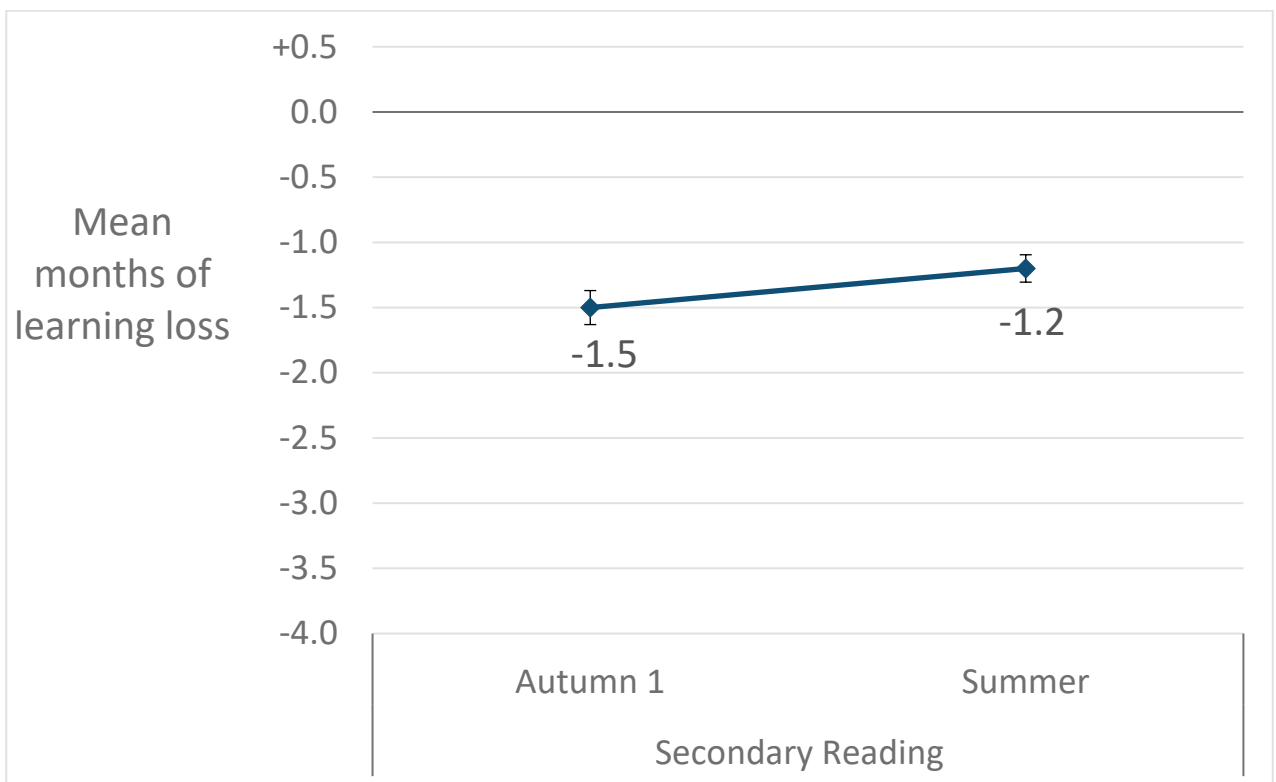


Figure 3.4, Figure 3.5 and Figure 3.6 present the average learning loss in months by characteristics for primary aged pupils in reading, secondary aged pupils in reading and primary aged pupils in mathematics throughout the academic year 2020/21. Once more it is important to note that as we are breaking results down into various sub-groups, the sample size is smaller within these groups and hence the confidence intervals on these estimates will be wider than for the average learning loss estimates.

Learning loss for disadvantaged pupils throughout the academic year 2020/21

During the academic year 2020/21, we estimate how the gap between disadvantaged pupils and their more affluent peers has grown as a result of the pandemic. We find that pupils from disadvantaged backgrounds typically lost around half a month in primary reading in comparison to their peers (central estimates ranged from 0.2 months in the first autumn half term to 0.7 months in spring) and for secondary reading the difference between disadvantaged pupils' learning loss and their peers appears to be growing. The disadvantage gap throughout 2020/21 has typically grown by a larger extent in mathematics than in reading.

By the end of the first half of the autumn term in 2020/21:

- Pupils from disadvantaged backgrounds have experienced greater learning loss as a result of the pandemic. Pupils from disadvantaged backgrounds (eligible for free school meals at any point in the last six years) lost, on average, approximately 1.9 months in reading amongst both primary and secondary aged pupils, and around 4.5 months in mathematics for primary aged pupils.
- This means that disadvantaged pupils lost around 0.6 months more than non-disadvantaged pupils in reading for secondary aged pupils and around 1.2 months more in primary mathematics.

By the end of the second half of the autumn term in 2020/21:

- pupils from disadvantaged backgrounds recovered around 0.4 months of learning in reading amongst primary aged pupils, compared with non-disadvantaged pupils who recouped 0.6 months of learning.
- both disadvantaged pupils and non-disadvantaged pupils in mathematics recovered just over a month of learning; hence the gap in learning loss between disadvantaged pupils and their more affluent peers remained at around a month in mathematics amongst primary aged pupils, despite schools re-opening for all pupils.

By the end of the spring term in 2020/21:

- pupils from disadvantaged backgrounds lost 1.2 months of learning since autumn 2, compared with non-disadvantaged pupils who lost around 0.9 months of learning in reading amongst primary aged pupils. Furthermore, we estimate that by the spring term the gap in learning loss between disadvantaged pupils and their more affluent peers remained at over half a month.
- pupils from disadvantaged backgrounds and their more affluent peers lost similar levels of learning between autumn 2 and spring in mathematics amongst primary aged pupils, however we estimate that, by the spring term, the gap in learning loss between disadvantaged pupils and their more affluent peers is around a month.

By the end of the summer term in 2020/21:

- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) recovered around 1.5 months of learning since the spring in reading amongst primary aged pupils, compared with non-disadvantaged pupils who recovered only around 1.2 months of lost learning. Although, we estimate that by the summer term the gap in learning loss between disadvantaged pupils and their more affluent peers remained at around half a month.
- pupils from disadvantaged backgrounds (defined as pupils eligible for free school meals at any point in the last six years) had a similar level of learning loss to our estimates of learning loss by autumn 1 in reading amongst secondary aged pupils, compared with non-disadvantaged pupils who recovered around half a month of lost learning. Furthermore, we estimate that by the summer term the gap in learning loss between disadvantaged pupils and their more affluent peers was around a month and a half in secondary reading.
- For primary aged pupils in mathematics, we estimate that by the summer term the gap in learning loss between disadvantaged pupils and their more affluent peers was around half a month.

Learning loss for EAL pupils throughout the academic year 2020/21

During the academic year 2020/21, pupils with English as an additional language (EAL) do not appear to have been affected by the pandemic to a greater extent in reading and mathematics than the average pupil.

By the end of the first half of the autumn term in 2020/21:

- pupils from English as an additional language backgrounds do not appear to have been disproportionately affected compared by restrictions to in-person learning in reading or mathematics in comparison to the average pupil.

By the end of the second half of the autumn term in 2020/21:

- primary aged pupils with English as an additional language experienced a similar amount of catch-up in reading and mathematics as all primary aged pupils.

By the end of the spring term in 2020/21:

- primary aged pupils with English as an additional language appear to have been slightly more affected by the second round of restrictions to in-person learning than the average pupil in reading and mathematics with learning losses of around 2.4 and 3.9 months respectively.

By the end of the summer term in 2020/21:

- this trend has reversed from the end of the spring term, as pupils from English as an additional language backgrounds do not appear to have been disproportionately affected by restrictions to in-person learning in reading or mathematics in comparison to the average pupil.

Learning loss for SEND pupils throughout the academic year 2020/21

During the academic year 2020/21, pupils with an identified SEND do not appear to have been affected by the pandemic to a greater extent in reading and mathematics than the average pupil.

By the end of the first half of the autumn term in 2020/21:

- pupils with an identified SEND do not appear to have been disproportionately negatively affected by restrictions to in-person learning in either reading or mathematics.

By the end of the second half of the autumn term in 2020/21:

- primary aged pupils with special educational needs experienced catch-up of around 0.4 months in reading, compared with around 0.7 months for their peers.
- primary aged pupils with special educational needs experienced catch-up of around 1.5 months in mathematics, compared with around 0.9 months for their peers.

By the end of the spring term in 2020/21:

- pupils with an identified SEND do not appear to have been disproportionately negatively affected by the second round of restrictions to in-person learning in either reading or mathematics.

By the end of the summer term in 2020/21:

- primary aged pupils with an identified SEND do not appear to have been disproportionately negatively affected in terms of their recovery in learning loss in either reading or mathematics. Secondary aged pupils with special educational needs experienced greater learning losses than their peers in reading.

Learning loss for CIN pupils throughout the academic year 2020/21

During the academic year 2020/21, CIN pupils do not appear to have been affected by the pandemic to a greater extent in reading and mathematics than the average pupil.

By the end of the first half of the autumn term in 2020/21:

- CIN pupils in primary schools do not appear to have been disproportionately affected by restrictions to in-person learning in either reading or mathematics. CIN pupils in secondary schools experienced greater learning losses than their peers in reading.

By the end of the second half of the autumn term in 2020/21:

- CIN pupils in primary schools experienced catch-up of around 1.3 months in reading, compared with around half a month for all primary aged pupils.
- CIN pupils in primary schools experienced catch-up of around 0.2 months in mathematics, compared with around a month for all primary aged pupils.

By the end of the spring term in 2020/21:

- CIN pupils do not appear to have been disproportionately negatively affected by the second round of restrictions to in-person learning in either reading or mathematics.

By the end of the summer term in 2020/21:

- CIN pupils in primary schools do not appear to have been disproportionately affected in terms of their recovery in learning loss in either reading or mathematics. CIN pupils in secondary schools experienced greater learning losses than their peers in reading.

Figure 3.4: Estimated mean learning loss by autumn 1, autumn 2, spring and summer, in months, in reading (primary schools) by characteristics

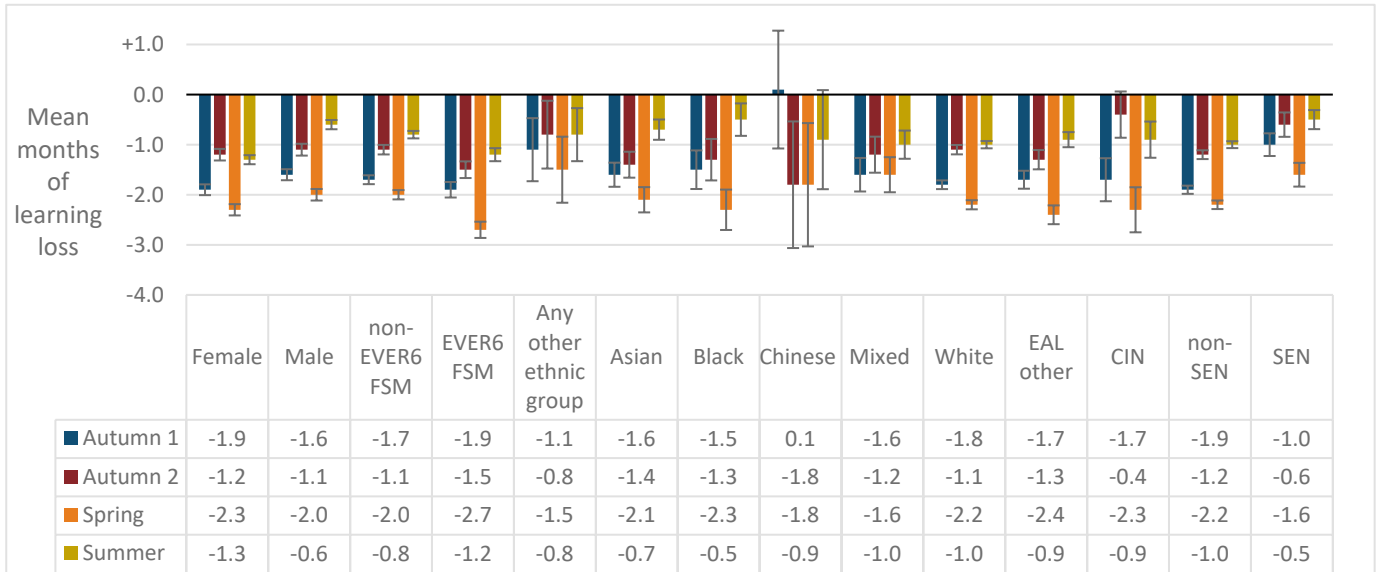


Figure 3.5: Estimated mean learning loss by autumn 1 and summer, in months, in reading (secondary schools) by characteristics

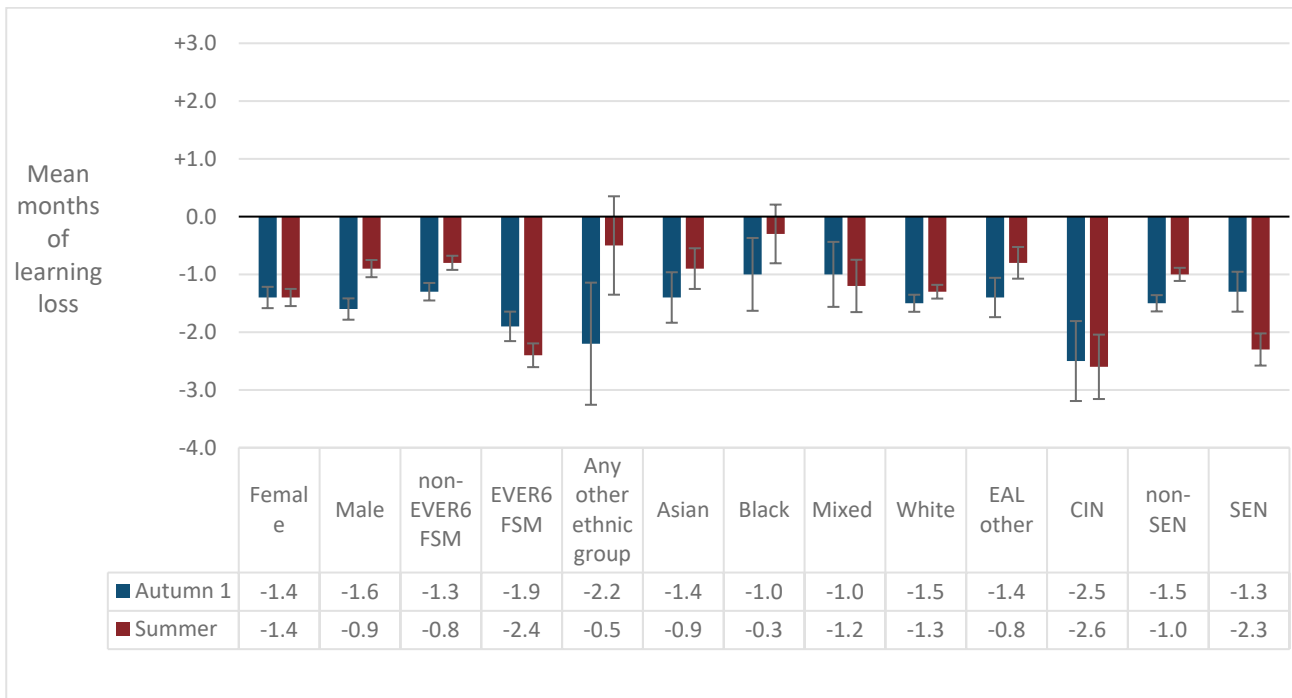
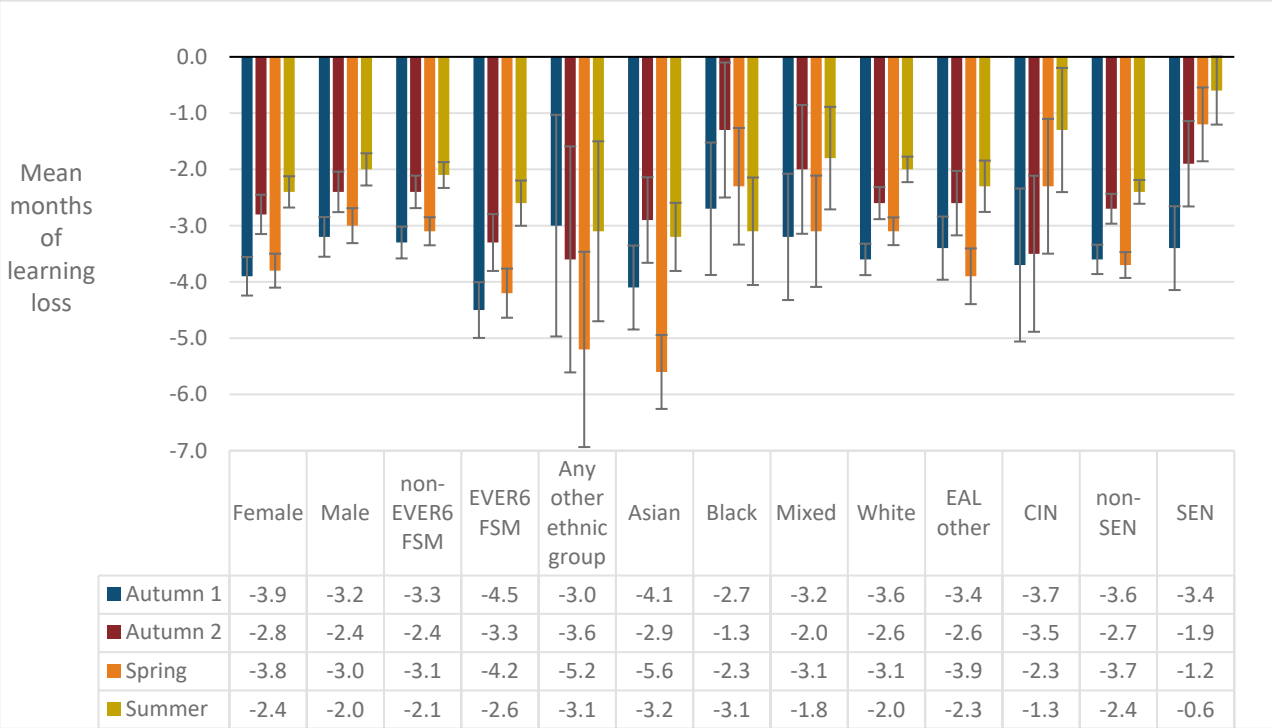


Figure 3.6: Estimated mean learning loss by autumn 1, autumn 2, spring and summer, in months, in mathematics (primary schools) by characteristics



Regional disparities in learning loss throughout the academic year 2020/21

During the academic year 2020/21, the pandemic has resulted in regional disparities in the degree of learning loss, with pupils in some regions experiencing greater learning losses than other regions of the country.

Figure 3.7, Figure 3.8 and Figure 3.9 present the average learning loss in months by region for primary aged pupils in reading, secondary aged pupils in reading and primary aged pupils in mathematics throughout the academic year 2020/21.

By the end of the first half of the autumn term in 2020/21:

- The analysis suggested regional disparities in the degree of learning loss. For primary aged pupils in reading, pupils in the North East and in Yorkshire and the Humber experienced the greatest learning loss (around 2.4 and 2.3 months respectively). This is also the case for secondary aged pupils in reading in Yorkshire and the Humber (around 2.5 months).
- In primary mathematics the differences between regions were larger. Again, it was the North East and Yorkshire and the Humber that experienced the greatest learning loss – around five months; more than double the loss experienced in the South West and London.

By the end of the second half of the autumn term in 2020/21:

- The majority of regions appear to have shown some degree of recovery in reading amongst primary aged pupils, though due to sample sizes these are not all statistically significant. The greatest recovery was in the East of England and the South West where pupils in these regions experienced greater recovery in learning than the average for all primary aged pupils (both around a month).
- all regions appear to have shown some degree of recovery in mathematics amongst primary aged pupils, though due to sample sizes these are not all statistically significant. The greatest recovery was in the North West (around 1.8 months).

By the end of the spring term in 2020/21:

- primary aged pupils in reading in all regions appear to have shown some degree of further learning loss since autumn 2. The greatest loss was in the West Midlands where pupils in this region experienced greater learning loss than the average for all primary aged pupils (around 1.6 months).
- primary aged pupils in mathematics in most regions appear to have shown some degree of further learning loss since autumn 2, though due to sample sizes these

are not statistically significant. The greatest loss was for pupils in the West Midlands (around 3.1 months).

By the end of summer term in 2020/21:

- primary aged pupils in all regions appear to have shown some degree of recovery in learning loss in reading since spring. The greatest recovery was in Yorkshire and the Humber where pupils in this region experienced greater recovery in learning loss than the average for all primary aged pupils (around 2.1 months).
- secondary aged pupils in most regions appear to have shown some degree of catch-up in reading since autumn 1, though due to sample sizes these are not necessarily statistically significant. The greatest recovery in lost learning was in London where pupils in this region experienced greater recovery in learning loss than the average for all secondary aged pupils (around 1.1 months).
- primary aged pupils in most regions appear to have shown some degree of catch-up in mathematics since spring, though due to sample sizes these are not statistically significant. The greatest recovery in lost learning was for pupils in Yorkshire and the Humber (around 3.7 months).

Figure 3.7: Estimated mean learning loss by autumn 1, autumn 2, spring and summer, in months, in reading (primary schools) by region

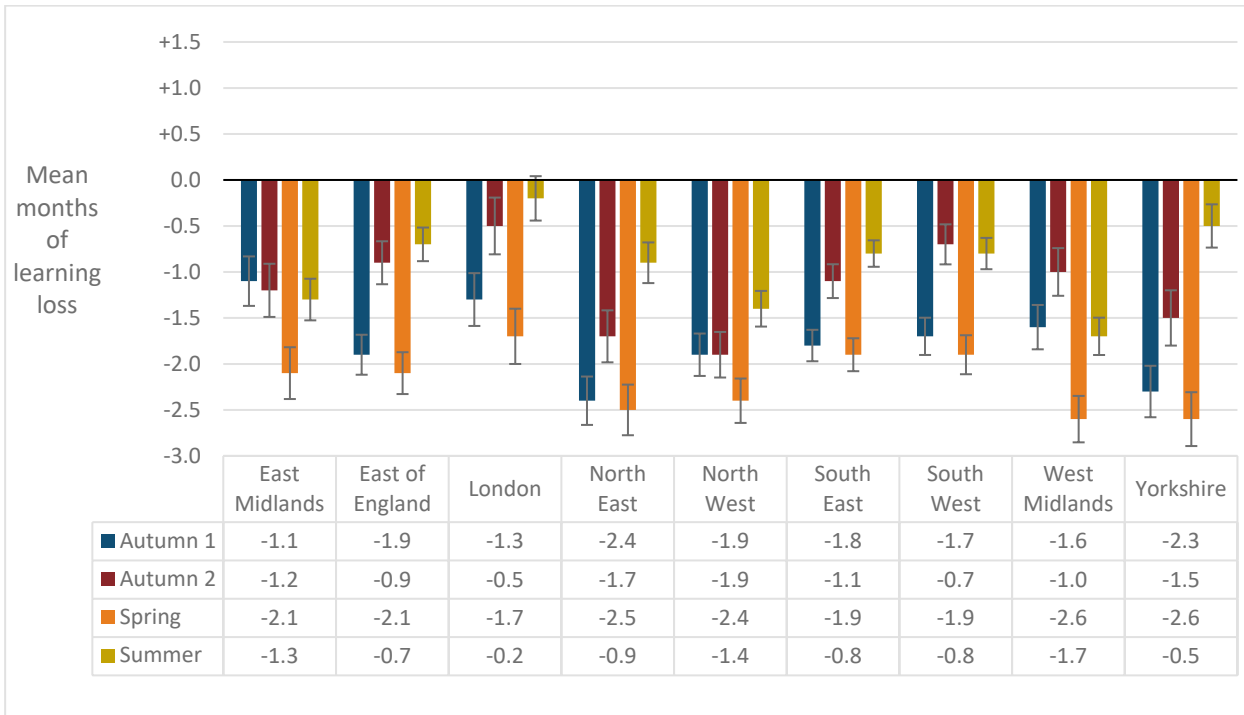


Figure 3.8: Estimated mean learning loss by autumn 1 and summer, in months, in reading (secondary schools) by region

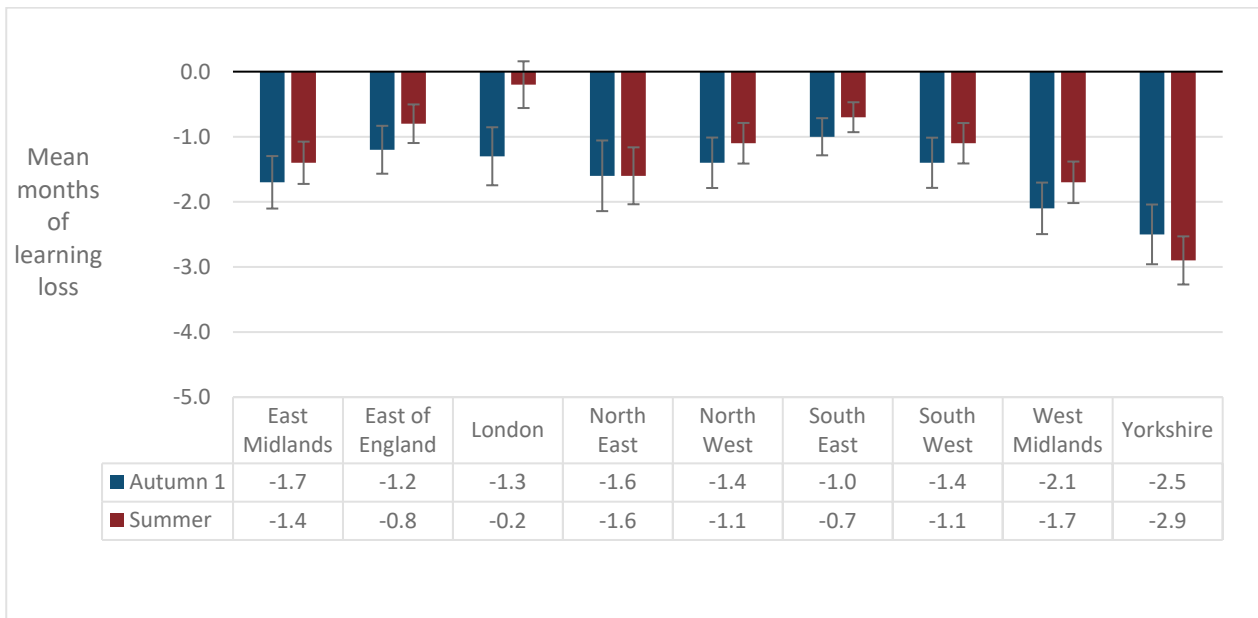
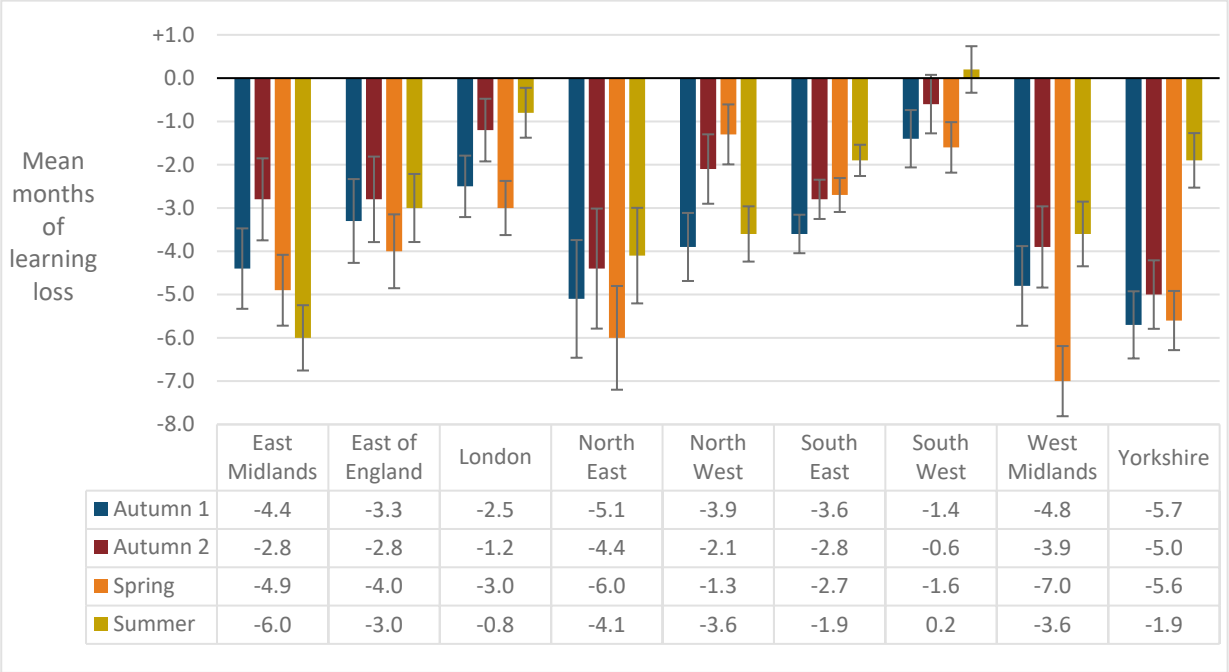


Figure 3.9: Estimated mean learning loss by autumn 1, autumn 2, spring and summer, in months, in mathematics (primary schools) by region



Chapter 4 : Association between estimates of learning loss and the level of absence

One of the key factors that may have had influence on our estimates of learning loss was the amount of time that pupils were absent from school despite schools being open for in-person learning. Data held by the Department for Education on absence at both pupil and school-level has now been linked to Renaissance assessments and enabled us to carry out analysis by the level of absence. It is important to note that there are other factors that influence the relationship between the degree of absence and learning loss (e.g. absence may be linked with disadvantage, less engagement with school, parental involvement, extenuating medical circumstances etc.), and therefore this analysis is by no means causal and should not be treated as such.

Estimated mean learning loss by the second half of the autumn term split by pupil-level absence

Figure 4.1 shows the learning loss in months for primary and secondary aged pupils in reading by autumn 2 split by the absence rate at pupil-level in the autumn term. Figure 4.2 shows the equivalent for primary aged pupils in mathematics.¹³ We find that:

- primary aged pupils in reading with a low level of absence experienced a learning loss of around 0.7 months by autumn 2, this compares to around 1.3 and 2.1 months for pupils with a medium and high level of absence respectively;
- secondary aged pupils in reading with a low level of absence experienced a learning loss of around a month by autumn 2, this compares to around 2.7 and 5.1 months for pupils with a medium and high level of absence respectively;
- there is a similar pattern of learning loss results for primary aged pupils in mathematics. Pupils with a low level of absence experienced a learning loss of around two months by autumn 2, this compares to around 3.3 and 5.3 months for pupils with a medium and high level of absence respectively;

This highlights that, for both reading and mathematics, the proportion of days that pupils were absent from school were correlated with our estimates of learning loss (i.e. the more time pupils spent in school when schools re-opened for all pupils, the smaller the degree of learning loss).

¹³ The absence rate is split into the following categories: Low level of absence (0-2.5%), Medium level of absence (2.5%-10%) and High level of absence (10%+), where the absence rate is defined as the proportion of all days absent in the autumn term (both authorised and unauthorised) out of all the possible days the pupil could have attended school in-person.

Figure 4.1: Estimated mean learning loss by autumn 2, in months, in reading (primary and secondary schools) by the absence rate at pupil-level

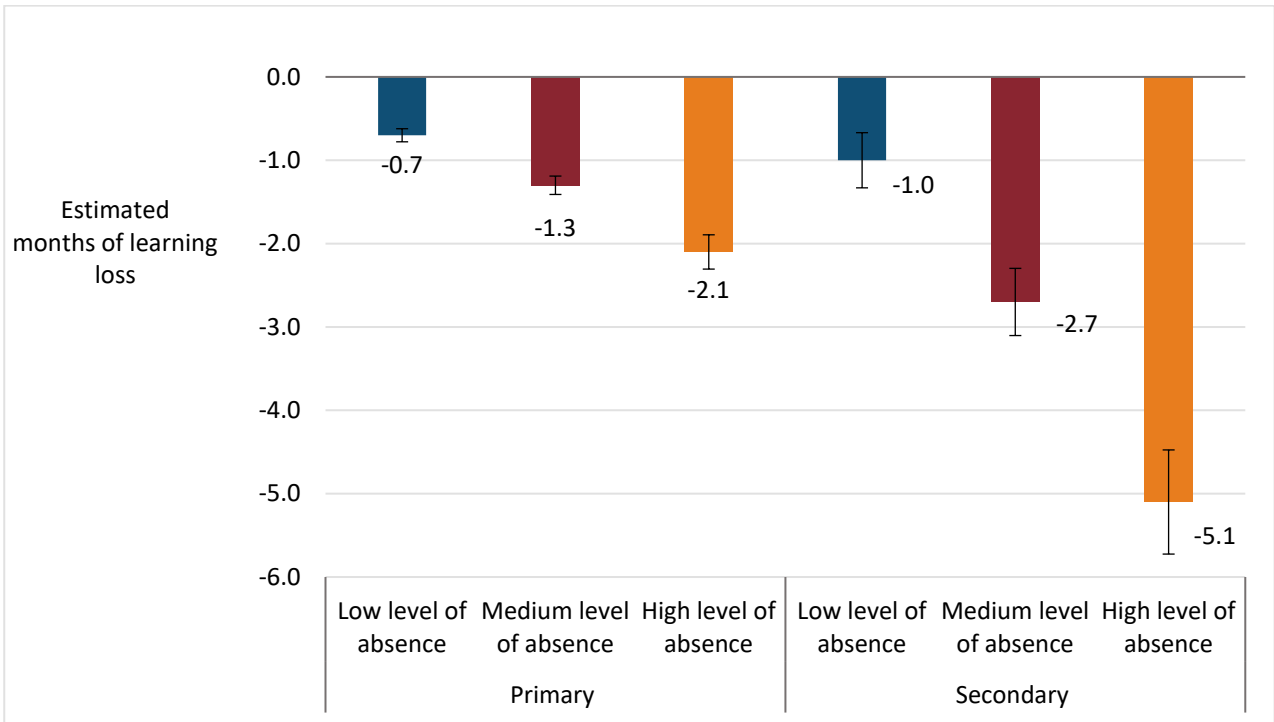
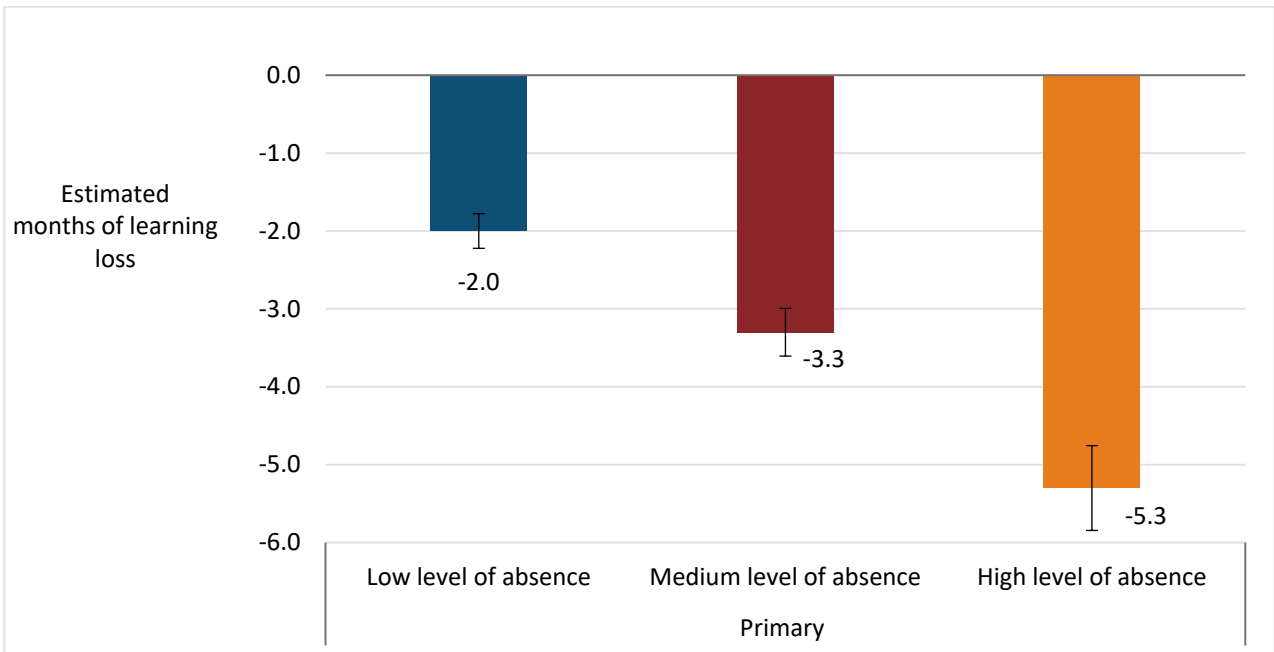


Figure 4.2: Estimated mean learning loss by autumn 2, in months, in mathematics (primary schools) by the absence rate at pupil-level



Estimated mean learning loss by the second half of the autumn term and spring term split by school-level absence

Figure 4.3 shows the learning loss in months for primary and secondary aged pupils in reading by autumn 2 split by the absence rate in the autumn term at school-level. Figure 4.4 shows the equivalent for primary aged pupils in mathematics.¹⁴ We find that:

- primary aged pupils in reading with a low level of absence in their schools experienced a learning loss of around 0.5 months by autumn 2, this compares to around 1.1 and 1.6 months for pupils with a medium and high level of absence in their schools respectively;
- secondary aged pupils in reading with a low level of absence in their schools experienced a learning loss of around 1.1 months by autumn 2, this compares to around 2.4 months for pupils with a high level of absence in their schools;
- primary aged pupils in mathematics with a low level of absence in their schools experienced a learning loss of around 2.1 months by autumn 2, this compares to around 3.8 months for pupils with a high level of absence in their schools;

This supports the finding from the pupil-level absence data, that for both reading and mathematics, absence rates are correlated with our estimates of learning loss in the second half of the autumn term. Although for secondary-aged pupils in reading and in mathematics the difference in estimates of learning loss between each of the absence groups were not necessarily statistically significant due to small sample sizes.

¹⁴ The absence rate is split into the following categories: Low level of absence (0-7.5%), Medium level of absence (7.5%-15%) and High level of absence (15%+), where the absence rate is defined at the school level as the proportion of the average number of pupils absent in the autumn/spring term out of the average number of pupils that are on roll in the school across the multiple daily records we have for each school in the term.

Figure 4.3: Estimated mean learning loss by autumn 2, in months, in reading (primary and secondary schools) by the absence rate at school-level

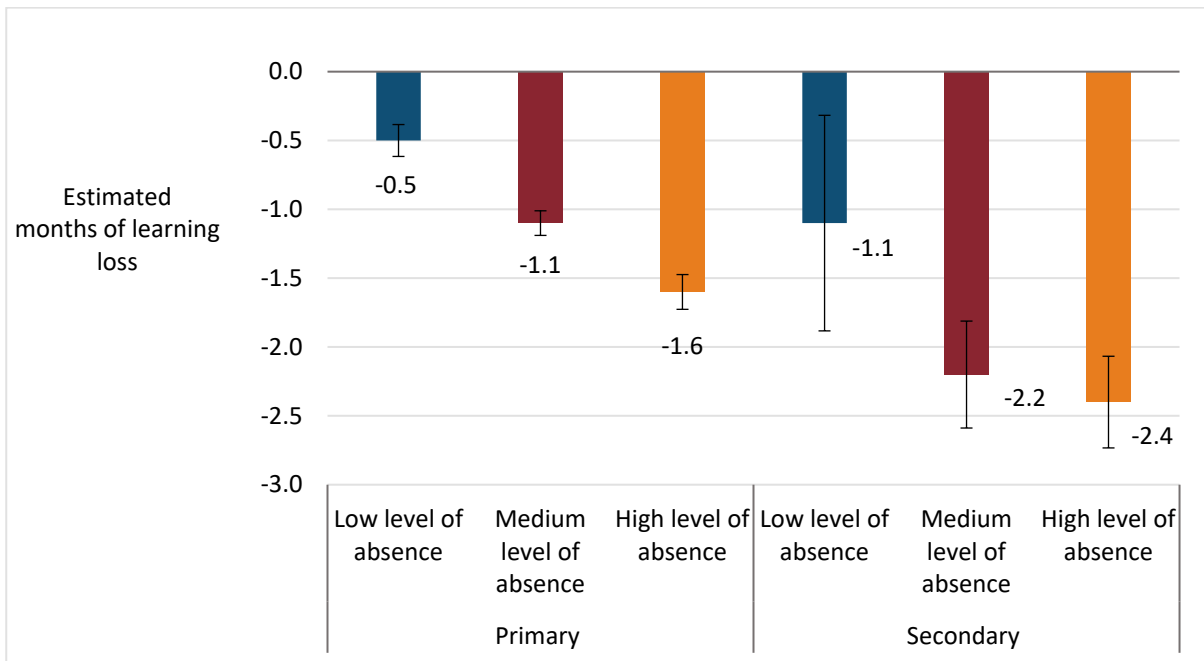


Figure 4.4: Estimated mean learning loss by autumn 2, in months, in mathematics (primary schools) by the absence rate at school-level

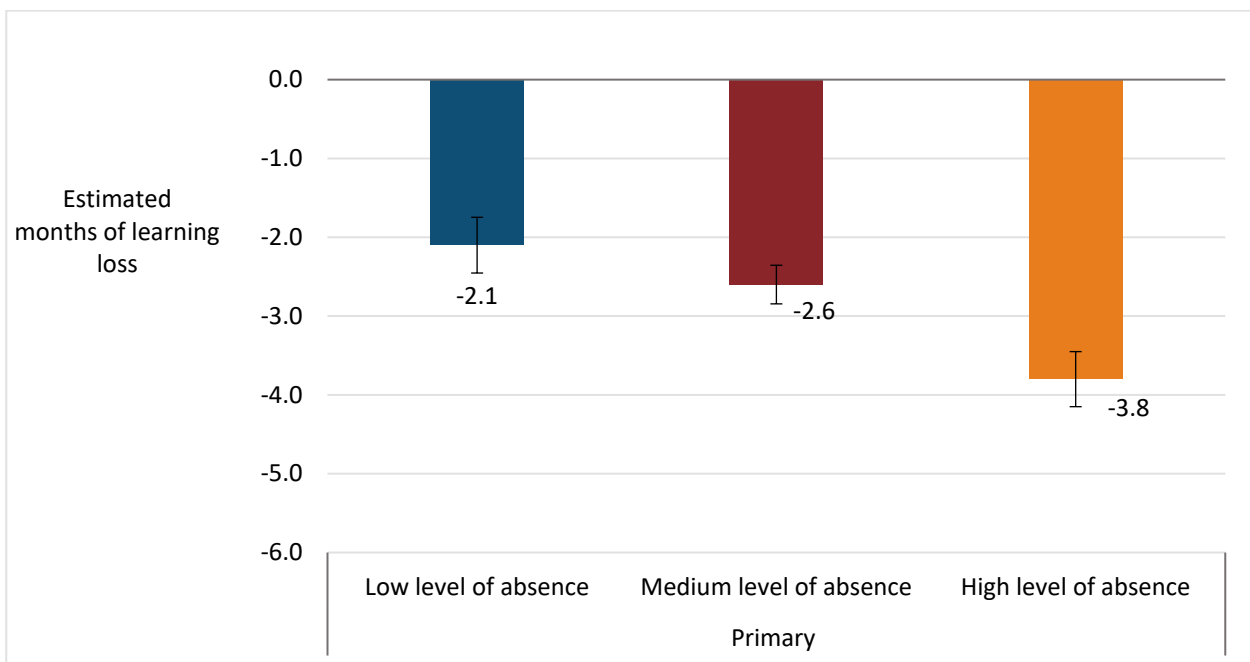


Figure 4.5 shows the learning loss in months for primary and secondary aged pupils in reading by spring split by the absence rate in the spring term (from the 8th March onwards) at school-level. Figure 4.6 shows the equivalent for primary aged pupils in mathematics.¹⁵ We find that:

- primary aged pupils in reading with a low level of absence in their schools experienced a learning loss of around two months by autumn 2, this compares to around 2.9 and 3.2 months for pupils with a medium and high level of absence in their schools respectively;
- there is no association between estimates of learning loss by spring term for secondary aged pupils in reading and the level of absence at the school level;
- primary aged pupils in mathematics with a low level of absence in their schools experienced a learning loss of around 3.2 months by spring, this compares to around 4.5 and 4.7 months for pupils with a medium and high level of absence in their schools respectively;

Except for secondary aged pupils in reading, these findings align with the findings from the pupil-level absence data and the school level absence data in the autumn term, that for both reading and mathematics, absence rates are correlated with our estimates of learning loss. However, in mathematics the difference in estimates of learning loss between each of the absence groups were not necessarily statistically significant due to small sample sizes.

¹⁵ The absence rate is split into the following categories: Low level of absence (0-7.5%), Medium level of absence (7.5%-15%) and High level of absence (15%+), where the absence rate is defined at the school level as the proportion of the average number of pupils absent in the autumn/spring term out of the average number of pupils that are on roll in the school across the multiple daily records we have for each school in the term.

Figure 4.5: Estimated mean learning loss by spring, in months, in reading (primary and secondary schools) by the absence rate at school level

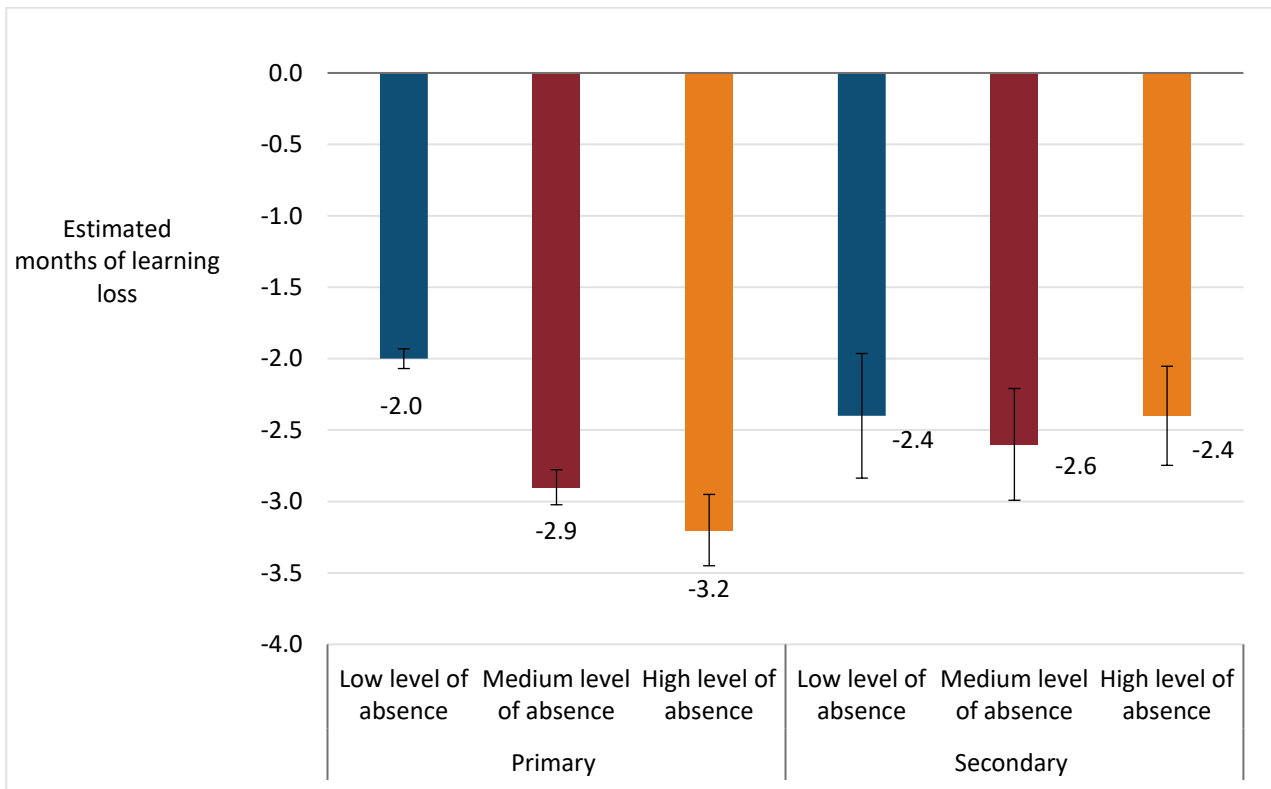
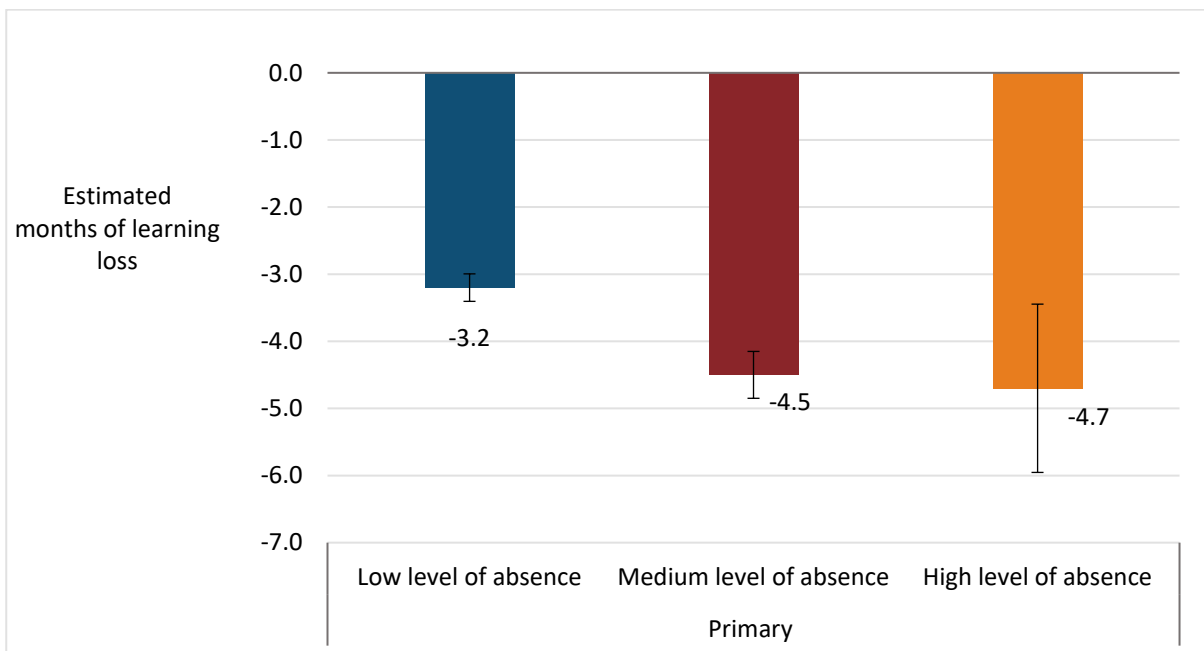


Figure 4.6: Estimated mean learning loss by spring, in months, in mathematics (primary schools) by the absence rate at school level



Annex

Table 3 presents the mean scaled scores in reading in the summer term for 2018/19 and 2020/21 for all year groups in our analysis split by pupil characteristics. Table 4 is the equivalent for mathematics.

Table 3: Mean scaled scores in reading in the summer term 2018/19 and 2020/21 for all year groups by characteristics

	2018/19							2020/21						
	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
All pupils	402	470	559	647	691	773	824	400	469	557	641	690	774	827
Male	394	461	551	635	675	756	804	397	464	554	635	678	760	810
Female	410	479	568	658	706	790	844	404	474	561	648	701	788	844
Non-FSM Ever 6	411	485	581	674	720	802	854	410	485	577	665	717	801	856
FSM Ever 6	365	426	506	586	626	704	758	358	416	500	580	616	699	753
EAL - other	389	466	555	648	688	749	809	382	454	551	642	693	763	816
No identified SEND	410	484	578	668	714	795	853	408	483	575	663	716	796	856
Identified SEND	317	365	440	505	553	629	661	317	359	443	513	551	632	667
Any other ethnic group	375	446	540	636	689	745	792	372	437	527	630	655	763	822
Asian and British Asian	394	470	567	657	696	762	820	385	463	561	653	700	779	816
Black and Black British	391	461	554	634	693	754	811	396	462	560	645	690	775	826
Chinese	439	552	681	756	774	836	923	478	542	641	730	800	880	948
Mixed	412	484	562	663	703	794	847	405	479	573	652	692	789	846

White	403	470	558	645	689	775	824	402	469	556	639	688	772	826
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Table 4: Mean scaled scores in mathematics in the summer term 2018/19 and 2020/21 all year groups by characteristics

	2018/19				2020/21			
	Year 3	Year 4	Year 5	Year 6	Year 3	Year 4	Year 5	Year 6
All pupils	561	636	709	765	556	620	691	745
Male	565	644	717	766	562	628	696	750
Female	558	628	702	763	551	612	686	740
Non-FSM Ever 6	571	645	717	780	564	629	702	756
FSM Ever 6	532	609	692	737	528	585	655	716
EAL - other	570	641	717	772	552	621	698	758
No identified SEND	571	646	721	778	563	629	701	757
Identified SEND	491	557	630	683	497	551	615	674
Asian and British Asian	571	638	729	780	545	619	692	749
Black and Black British	585	637	703	773	530	598	684	749
Mixed	545	636	712	766	554	637	694	738
White	559	634	704	761	559	619	691	744

Modelling approach and outputs

For the summer data, slightly different to previous reports, we construct a model of the relationship between outcomes, prior attainment and a range of contextual factors using historic data from 2017/18 and 2018/19. This is because we do not have summer data available for the academic year 2019/20. We run regression models for both primary and secondary reading, and for primary mathematics. This is to allow for any different rates of progress in different phases of education from otherwise similar starting points.¹⁶ A full set of regression coefficients for our estimates of learning loss by the summer term are provided in Table 5 and **Error! Reference source not found.** for primary and secondary aged pupils in reading respectively, and in Table 7 for primary aged pupils in mathematics.

Table 5: Regression coefficients, standard errors, statistical significance tests and 95% confidence intervals for primary reading regression

Current attainment	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
Year group						
4	-21.03	2.78	-7.56	0.00	-26.48	-15.57
5	-43.92	3.01	-14.61	0.00	-49.81	-38.03
6	-80.30	3.75	-21.43	0.00	-87.64	-72.96
Interaction between year group and prior attainment						
3	0.98	0.01	81.44	0.00	0.95	1.00
4	0.96	0.01	167.36	0.00	0.95	0.98
5	1.02	0.01	194.61	0.00	1.01	1.03
6	1.09	0.01	171.97	0.00	1.08	1.10
Male	0.77	0.76	1.00	0.32	-0.73	2.27
Spring born	0.60	0.93	0.65	0.52	-1.22	2.43
Summer born	0.48	0.93	0.52	0.60	-1.34	2.30
Days between tests	0.31	0.01	22.20	0.00	0.28	0.34
Ethnicity major						
AOEG	-1.21	3.20	-0.38	0.70	-7.48	5.05
ASIA	-2.91	1.62	-1.80	0.07	-6.09	0.26
BLAC	-1.87	1.99	-0.94	0.35	-5.78	2.03
CHIN	47.63	6.02	7.92	0.00	35.84	59.41

¹⁶ Prior to calculating the models, we remove the top and bottom 5 per cent of the prior attainment distribution to minimise the effect of extreme values.

MIXD	6.66	1.75	3.81	0.00	3.24	10.09
UNCL	-5.01	4.40	-1.14	0.26	-13.65	3.62
Ever 6 FSM	-21.98	2.22	-9.91	0.00	-26.32	-17.63
Persistent FSM	-6.50	2.40	-2.71	0.01	-11.20	-1.79
SEND	-23.67	1.24	-19.17	0.00	-26.09	-21.25
EAL - other	7.96	1.31	6.06	0.00	5.38	10.54
EAL – recent arrival	55.96	4.78	11.71	0.00	46.59	65.33
East Midlands	-5.11	1.68	-3.04	0.00	-8.41	-1.81
East of England	-6.83	1.34	-5.10	0.00	-9.45	-4.20
London	-3.37	1.59	-2.12	0.03	-6.49	-0.25
North East	-5.08	1.67	-3.04	0.00	-8.36	-1.81
North West	-3.07	1.49	-2.07	0.04	-5.98	-0.16
South West	-1.74	1.33	-1.31	0.19	-4.35	0.86
West Midlands	-0.49	1.44	-0.34	0.73	-3.31	2.32
Yorkshire and the Humber	-13.16	1.80	-7.33	0.00	-16.67	-9.64
Reading KS2 progress (school level)	2.04	0.17	11.92	0.00	1.70	2.38
IDACI score	-55.41	3.60	-15.41	0.00	-62.46	-48.36
Interaction between Ever 6 FSM and IDACI score	35.25	6.33	5.57	0.00	22.84	47.65
Children In Need status	-10.83	2.14	-5.07	0.00	-15.01	-6.64
Children looked after status	8.73	6.06	1.44	0.15	-3.14	20.60
constant	175.24	4.59	38.15	0.00	166.24	184.25

Table 6: Regression coefficients, standard errors, statistical significance tests and 95% confidence intervals for secondary reading regression

Current attainment	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
8	6.34	5.24	1.21	0.23	-3.94	16.61
9	39.88	5.77	6.91	0.00	28.57	51.18
Interaction between year group and current attainment						
7	1.02	0.01	117.78	0.00	1.01	1.04
8	1.02	0.00	310.32	0.00	1.01	1.02
9	0.94	0.00	211.21	0.00	0.94	0.95
Male	-15.48	0.94	-16.51	0.00	-17.32	-13.64
Spring born	2.43	1.15	2.10	0.04	0.16	4.69
Summer born	3.22	1.13	2.84	0.01	1.00	5.44
Days between tests	0.16	0.02	9.43	0.00	0.12	0.19
Ethnicity major						
AOEG	-1.99	4.06	-0.49	0.63	-9.95	5.98
ASIA	1.03	1.82	0.57	0.57	-2.54	4.60
BLAC	4.13	2.37	1.74	0.08	-0.52	8.78
CHIN	32.02	8.93	3.59	0.00	14.53	49.52
MIXD	11.05	2.21	5.01	0.00	6.73	15.37
UNCL	2.62	3.76	0.69	0.49	-4.76	9.99
Ever 6 FSM	-19.86	2.47	-8.04	0.00	-24.70	-15.02
Persistent FSM	-11.73	2.83	-4.14	0.00	-17.28	-6.18
SEND	-19.60	1.43	-13.74	0.00	-22.40	-16.81
EAL - other	13.61	1.65	8.26	0.00	10.38	16.84
EAL – recent arrival	76.71	5.34	14.35	0.00	66.24	87.19
East Midlands	3.55	1.88	1.89	0.06	-0.14	7.23
East of England	-5.79	1.80	-3.21	0.00	-9.33	-2.26
London	1.30	1.95	0.67	0.51	-2.53	5.13
North East	-17.99	2.18	-8.27	0.00	-22.26	-13.73
North West	-9.49	1.74	-5.45	0.00	-12.90	-6.08
South West	-0.94	1.79	-0.52	0.60	-4.43	2.56
West Midlands	-1.80	1.80	-1.00	0.32	-5.32	1.72
Yorkshire and the Humber	-2.41	1.91	-1.26	0.21	-6.16	1.34

IDACI score	-51.69	4.66	-11.10	0.00	-60.81	-42.56
Interaction between Ever 6 FSM and IDACI score	26.33	7.60	3.46	0.00	11.43	41.22
Children In Need status	-19.45	2.66	-7.32	0.00	-24.66	-14.24
Children in looked after status	2.60	6.43	0.40	0.69	-9.99	15.19
constant	126.42	6.84	18.48	0.00	113.01	139.83

Table 7: Regression coefficients, standard errors, statistical significance tests and 95% confidence intervals for primary mathematics regression

Current attainment	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
Year group						
4	-55.80	14.36	-3.89	0.00	-83.94	-27.65
5	-65.72	15.61	-4.21	0.00	-96.32	-35.11
6	-17.14	19.77	-0.87	0.39	-55.89	21.61
Interaction between year group and prior attainment						
3	0.59	0.03	21.37	0.00	0.54	0.64
4	0.72	0.02	31.81	0.00	0.68	0.77
5	0.78	0.02	34.30	0.00	0.73	0.82
6	0.72	0.03	25.18	0.00	0.66	0.77
Male	10.26	1.97	5.20	0.00	6.39	14.12
Spring born	-2.29	2.41	-0.95	0.34	-7.00	2.43
Summer born	-3.66	2.39	-1.53	0.13	-8.34	1.02
Days between tests	0.31	0.05	6.18	0.00	0.21	0.40
Ethnicity major						
AOEG	4.95	7.89	0.63	0.53	-10.52	20.43
ASIA	10.53	4.29	2.46	0.01	2.13	18.93
BLAC	15.99	4.71	3.40	0.00	6.76	25.22
CHIN	49.18	15.67	3.14	0.00	18.46	79.91
MIXD	1.48	4.40	0.34	0.74	-7.14	10.10
UNCL	19.35	12.83	1.51	0.13	-5.81	44.51
Ever 6 FSM	-23.23	5.97	-3.89	0.00	-34.93	-11.53
Persistent FSM	-0.61	5.80	-0.11	0.92	-11.98	10.76
SEND	-41.54	3.15	-13.20	0.00	-47.71	-35.37
EAL - other	1.04	3.49	0.30	0.77	-5.80	7.88
EAL – recent arrival	20.26	8.59	2.36	0.02	3.42	37.09
East Midlands	10.84	5.19	2.09	0.04	0.67	21.01
East of England	8.11	3.19	2.55	0.01	1.87	14.36
London	-13.98	3.91	-3.57	0.00	-21.66	-6.31
North East	-2.43	6.40	-0.38	0.71	-14.98	10.12
North West	9.11	12.18	0.75	0.46	-14.78	32.99

South West	-4.84	3.22	-1.51	0.13	-11.15	1.46
West Midlands	-8.70	7.22	-1.20	0.23	-22.86	5.46
Yorkshire and the Humber	2.89	5.35	0.54	0.59	-7.61	13.39
Maths KS2 progress (school level)	2.68	0.56	4.79	0.00	1.58	3.77
IDACI score	-38.98	10.81	-3.61	0.00	-60.17	-17.78
Interaction between Ever 6 FSM and IDACI score	42.62	18.24	2.34	0.02	6.86	78.38
Children In Need status	-20.05	5.27	-3.80	0.00	-30.39	-9.71
Children looked after status	34.84	13.32	2.62	0.01	8.74	60.95
constant	289.23	16.96	17.06	0.00	255.98	322.47

The regression models give an “expected outcome” for each pupil based on their prior attainment and characteristics, which allows us to calculate an expected progress, which is simply the expected outcome minus the prior attainment score. Our estimates of learning loss in scaled score points terms are the difference between expected progress and actual progress. But we can also convert this into months of learning. For our estimates of learning loss by the first and second half of the autumn term we are considering the progress from one year to the next therefore this is the expected progress over a 12-month period. Hence, the learning loss in months is given by:

$$\text{Learning loss in months} = \frac{\text{actual progress} - \text{expected progress}}{\text{expected progress}} \times 12$$

But for the estimates of learning loss by the spring and summer term the time period is longer, thus we adjust this calculation for the length of the time period over which we are measuring progress. For example, for the summer term we multiplied by 20 months to calculate learning loss in months. In order to protect our estimates of months of learning loss from extreme cases in our months of lost learning measure we cap predictions at the 10th and 90th percentile for each year group for reading (1st and 99th percentile for mathematics) to ensure that extreme values are not overly impacting our months of learning loss estimates.

Table 8 to 18 provide the table format of the figures that present estimates of learning loss by characteristics in chapters 2 and 3.

Table 8: Estimated learning loss in reading, in scaled score points, with pupil numbers and confidence interval by sub-group for figure 2.3

	Primary			Secondary		
	Mean scaled score	Count	Confidence Interval	Mean scaled score	Count	Confidence Interval
Yorkshire and the Humber	-6.5	12,350	2.22	-32.5	12,171	3.11
West Midlands	-11.6	20,510	1.72	-17.9	16,015	2.72
South West	-4.4	26,191	1.52	-13.6	15,926	1.95
South East	-6.1	34,025	1.34	-9.0	27,947	2.06
North West	-10.9	20,394	1.73	-16.4	17,643	2.59
North East	-5.7	12,653	2.19	-15.0	8,716	3.68
London	-0.3	14,815	2.02	-6.2	15,455	2.76
East of England	-4.3	23,434	1.61	-9.1	17,648	2.59
East Midlands	-8.7	14,048	2.08	-15.9	14,390	2.86
CIN	-9.0	5,937	3.20	-27.3	5,308	3.38
SEND	-7.5	22,574	1.64	-23.2	20,958	2.37
non-SEND	-6.4	155,846	0.62	-12.6	124,953	0.97
EAL other	-7.8	32,765	1.36	-9.7	22,662	2.28
White	-6.9	138,767	0.66	-15.6	111,340	1.03
Mixed	-8.7	9,681	2.50	-12.1	8,082	3.82
Chinese	-3.2	689	9.39			
Black	-3.4	7,099	2.92	-6.8	6,844	4.15
Asian	-4.1	18,170	1.83	-10.8	14,420	2.86
Any other ethnic group	-9.5	2,591	4.84	-4.1	2,293	7.18
EVER6 FSM	-11.3	44,774	1.16	-23.8	39,792	1.72
non-EVER6 FSM	-4.9	133,646	0.67	-10.5	106,119	1.05
Female	-10.3	90,037	0.82	-15.4	72,789	1.27
Male	-2.7	88,383	0.83	-12.8	73,122	1.27

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 9: Estimated learning loss in mathematics, in scaled score points, with pupil numbers and confidence interval by sub-group for figure 2.4

	Mean scaled score	Count	Confidence Interval
Yorkshire and the Humber	-24.5	1,137	4.26
West Midlands	-25.1	1,063	4.41
South West	-2.9	1,709	3.48
South East	-19.4	4,088	2.25
North West	-39.1	1,413	3.82
North East	-28.0*	323	7.99
London	-21.3	1,555	3.64
East of England	-39.0	974	4.60
East Midlands	-46.9	955	4.65
CIN	-16.0*	457	6.72
SEND	-16.4	1,640	3.55
non-SEND	-25.2	11,577	1.34
EAL other	-25.2	2,421	2.92
White	-22.4	10,400	1.41
Mixed	-22.7	627	5.74
Black	-39.2	508	6.37
Asian	-30.7	1,366	3.89
Any other ethnic group	-33.4*	179	10.74
EVER6 FSM	-27.6	3,212	2.53

non-EVER6 FSM	-23.0	10,005	1.44
Female	-24.9	6,640	1.76
Male	-23.4	6,577	1.77

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 10: Estimated learning loss in reading, in scaled score points, and pupil numbers for reading by sub-group for figure 2.5

			Mean scaled score	Count	Confidence Interval
Primary	Low IDACI area	Non-FSM pupils	-0.6	50,788	1.09
		FSM pupils	-8.2	6,261	3.11
	Medium IDACI area	Non-FSM pupils	-6.5	55,441	1.05
		FSM pupils	-10.5	17,630	1.86
	High IDACI area	Non-FSM pupils	-9.7	27,417	1.49
		FSM pupils	-12.9	20,883	1.70
Secondary	Low IDACI area	Non-FSM pupils	-5.3	46,281	1.60
		FSM pupils	-20.0	6,561	4.24
	Medium IDACI area	Non-FSM pupils	-14.2	40,821	1.70
		FSM pupils	-23.4	15,980	2.72
	High IDACI area	Non-FSM pupils	-15.2	19,017	2.49
		FSM pupils	-25.5	17,251	2.62

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 11: Estimated learning loss in mathematics, in scaled score points, and pupil numbers for reading by sub-group for figure 2.6

		Mean scaled score	Count	Confidence Interval
Low IDACI area	Non-FSM pupils	-18.8	3,727	2.35
	FSM pupils	-12.8*	443	6.83
Medium IDACI area	Non-FSM pupils	-24.4	4,290	2.19
	FSM pupils	-26.8	1,336	3.93
High IDACI area	Non-FSM pupils	-28.0	1,988	3.22
	FSM pupils	-32.9	1,433	3.80

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 12: Estimated learning loss in reading, in months, with pupil numbers and confidence interval by sub-group for figure 2.7

	Primary			Secondary		
	Mean months	Count	Confidence Interval	Mean months	Count	Confidence Interval
Yorkshire and the Humber	-0.9	12,350	0.17	-3.6	12,171	0.32
West Midlands	-1.4	20,510	0.13	-2.2	16,015	0.28
South West	-0.8	26,191	0.12	-1.6	15,926	0.15
South East	-0.9	34,025	0.10	-1.2	27,947	0.21
North West	-1.2	20,394	0.13	-2.0	17,643	0.27
North East	-0.9	12,653	0.17	-1.9	8,716	0.38
London	-0.5	14,815	0.16	-0.9	15,455	0.28
East of England	-0.8	23,434	0.12	-1.3	17,648	0.27
East Midlands	-1.1	14,048	0.16	-1.9	14,390	0.29
CIN	-1.2	5,937	0.25	-3.3	5,308	0.26
SEND	-1.0	22,574	0.13	-3.1	20,958	0.24

non-SEND	-0.9	155,846	0.05	-1.5	124,953	0.10
EAL other	-1.0	32,765	0.11	-1.3	22,662	0.23
White	-1.0	138,767	0.05	-1.9	111,340	0.11
Mixed	-1.1	9,681	0.19	-1.5	8,082	0.39
Chinese	-0.6	689	0.72			
Black	-0.7	7,099	0.23	-1.1	6,844	0.43
Asian	-0.8	18,170	0.14	-1.5	14,420	0.29
Any other ethnic group	-1.1	2,591	0.37	-0.8	2,293	0.74
EVER6 FSM	-1.3	44,774	0.09	-3.0	39,792	0.18
non-EVER6 FSM	-0.8	133,646	0.05	-1.3	106,119	0.11
Female	-1.2	90,037	0.06	-1.9	72,789	0.13
Male	-0.6	88,383	0.06	-1.6	73,122	0.13

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 13: Estimated learning loss in mathematics, in months, with pupil numbers and confidence interval by sub-group for figure 2.8

	Mean months	Count	Confidence Interval
Yorkshire and the Humber	-2.7	1,137	0.48
West Midlands	-3.0	1,063	0.49
South West	-0.5	1,709	0.39
South East	-2.3	4,088	0.25
North West	-4.3	1,413	0.43
North East	-3.6*	323	0.89
London	-2.6	1,555	0.41
East of England	-4.4	974	0.51

East Midlands	-5.1	955	0.52
CIN	-2.3*	457	0.75
SEND	-2.1	1,640	0.40
non-SEND	-2.9	11,577	0.15
EAL other	-2.8	2,421	0.33
White	-2.6	10,400	0.16
Mixed	-2.7	627	0.64
Black	-4.3	508	0.71
Asian	-3.4	1,366	0.43
Any other ethnic group	-4.0*	179	1.20
EVER6 FSM	-3.3	3,212	0.28
non-EVER6 FSM	-2.6	10,005	0.16
Female	-2.9	6,640	0.20
Male	-2.7	6,577	0.20

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 14: Estimated learning loss in reading, in months, with pupil numbers and confidence interval by sub-group for figure 2.9

			Mean months	Count	Confidence Interval
Primary	Low IDACI area	Non-FSM pupils	-0.5	50,788	0.08
		FSM pupils	-1.1	6,261	0.24
	Medium IDACI area	Non-FSM pupils	-0.9	55,441	0.08
		FSM pupils	-1.3	17,630	0.14
	High IDACI area	Non-FSM pupils	-1.2	27,417	0.11
		FSM pupils	-1.5	20,883	0.13

Secondary	Low IDACI area	Non-FSM pupils	-0.7	46,281	0.16
		FSM pupils	-2.5	6,561	0.44
	Medium IDACI area	Non-FSM pupils	-1.7	40,821	0.17
		FSM pupils	-3.0	15,980	0.28
	High IDACI area	Non-FSM pupils	-1.9	19,017	0.26
		FSM pupils	-3.3	17,251	0.27

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 15: Estimated learning loss in mathematics, in months, with pupil numbers and confidence interval by sub-group for figure 2.10

		Mean months	Count	Confidence Interval
Low IDACI area	Non-FSM pupils	-2.1	3,727	0.26
	FSM pupils	-1.6*	443	0.76
Medium IDACI area	Non-FSM pupils	-2.8	4,290	0.25
	FSM pupils	-3.3	1,336	0.44
High IDACI area	Non-FSM pupils	-3.1	1,988	0.36
	FSM pupils	-3.9	1,433	0.42

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 16: Estimated learning loss in primary reading, in months, with pupil numbers and confidence interval by sub-group for figures 3.4 and 3.7

	Autumn 1		Autumn 2		Spring 2		Summer		Count
	Mean months	Confidence Interval	Mean months	Confidence Interval	Mean months	Confidence Interval	Mean months	Confidence Interval	
Female	-1.9	0.11	-1.2	0.12	-2.3	0.11	-1.3	0.09	37,975
Male	-1.6	0.11	-1.1	0.12	-2.0	0.12	-0.6	0.09	36,354
non- EVER6 FSM	-1.7	0.09	-1.1	0.10	-2.0	0.09	-0.8	0.07	55,969
EVER6 FSM	-1.9	0.15	-1.5	0.17	-2.7	0.16	-1.2	0.13	18,360
Any other ethnic group	-1.1	0.63	-0.8	0.68	-1.5	0.66	-0.8	0.53	1,109
Asian	-1.6	0.24	-1.4	0.26	-2.1	0.25	-0.7	0.20	7,585
Black	-1.5	0.39	-1.3	0.41	-2.3	0.40	-0.5	0.32	2,964
Chinese	0.1*	1.18	-1.8*	1.26	-1.8*	1.23	-0.9*	0.99	318
Mixed	-1.6	0.33	-1.2	0.36	-1.6	0.35	-1.0	0.28	3,926
White	-1.8	0.09	-1.1	0.09	-2.2	0.09	-1.0	0.07	57,895
EAL other	-1.7	0.18	-1.3	0.19	-2.4	0.19	-0.9	0.15	13,692
CIN	-1.7	0.43	-0.4	0.46	-2.3	0.45	-0.9	0.36	2,382
non- SEND	-1.9	0.08	-1.2	0.09	-2.2	0.09	-1.0	0.07	65,750
SEND	-1.0	0.23	-0.6	0.24	-1.6	0.24	-0.5	0.19	8,579
East Mid- lands	-1.1	0.27	-1.2	0.29	-2.1	0.28	-1.3	0.23	6,080
East of England	-1.9	0.22	-0.9	0.23	-2.1	0.23	-0.7	0.18	9,313
London	-1.3	0.29	-0.5	0.31	-1.7	0.30	-0.2	0.24	5,339
North East	-2.4	0.26	-1.7	0.28	-2.5	0.28	-0.9	0.22	6,363
North West	-1.9	0.23	-1.9	0.25	-2.4	0.24	-1.4	0.19	8,278
South East	-1.8	0.17	-1.1	0.18	-1.9	0.18	-0.8	0.14	15,042

South West	-1.7	0.20	-0.7	0.22	-1.9	0.21	-0.8	0.17	10,727
West Midlands	-1.6	0.24	-1.0	0.26	-2.6	0.25	-1.7	0.20	7,564
Yorkshire	-2.3	0.28	-1.5	0.30	-2.6	0.29	-0.5	0.24	5,623

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 17: Estimated learning loss in secondary reading, in months, with pupil numbers and confidence interval by sub-group for figures 3.5 and 3.8

	Autumn 1		Summer		Count
	Mean months	Confidence Interval	Mean months	Confidence Interval	
Female	-1.4	0.18	-1.4	0.15	52,705
Male	-1.6	0.18	-0.9	0.15	52,622
non-EVER6 FSM	-1.3	0.15	-0.8	0.12	77,786
EVER6 FSM	-1.9	0.26	-2.4	0.21	27,541
Any other ethnic group	-2.2	1.06	-0.5	0.85	1,604
Asian	-1.4	0.44	-0.9	0.35	9,381
Black	-1.0	0.63	-0.3	0.51	4,510
Mixed	-1.0	0.56	-1.2	0.45	5,666
White	-1.5	0.15	-1.3	0.12	82,087
EAL other	-1.4	0.34	-0.8	0.27	15,465
CIN	-2.5	0.69	-2.6	0.56	3,745
non-SEN	-1.5	0.14	-1.0	0.11	90,322
SEN	-1.3	0.35	-2.3	0.28	15,005
East Midlands	-1.7	0.40	-1.4	0.32	11,030
East of England	-1.2	0.37	-0.8	0.30	13,241
London	-1.3	0.45	-0.2	0.36	9,025
North East	-1.6	0.54	-1.6	0.44	6,084
North West	-1.4	0.39	-1.1	0.31	11,935
South East	-1.0	0.29	-0.7	0.23	21,992
South West	-1.4	0.39	-1.1	0.31	12,057
West Midlands	-2.1	0.40	-1.7	0.32	11,446
Yorkshire	-2.5	0.46	-2.9	0.37	8,517

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.

Table 18: Estimated learning loss in mathematics, in months, with pupil numbers and confidence interval by sub-group for figures 3.6 and 3.9

	Autumn 1		Autumn 2		Spring 2		Summer		Count
	Mean months	Confidence Interval	Mean months	Confidence Interval	Mean months	Confidence Interval	Mean months	Confidence Interval	
Female	-3.9	0.34	-2.8	0.35	-3.8	0.30	-2.4	0.28	3,337
Male	-3.2	0.35	-2.4	0.36	-3.0	0.31	-2.0	0.29	3,148
non- EVER6 FSM	-3.3	0.28	-2.4	0.29	-3.1	0.25	-2.1	0.23	4,889
EVER6 FSM	-4.5	0.50	-3.3	0.51	-4.2	0.44	-2.6	0.40	1,596
Any other ethnic group	-3.0*	1.97	-3.6*	2.01	-5.2*	1.74	-3.1*	1.60	101
Asian	-4.1	0.75	-2.9	0.76	-5.6	0.66	-3.2	0.61	704
Black	-2.7*	1.18	-1.3*	1.20	-2.3*	1.04	-3.1*	0.96	283
Mixed	-3.2*	1.12	-2.0*	1.14	-3.1*	0.99	-1.8*	0.91	311
White	-3.6	0.28	-2.6	0.28	-3.1	0.25	-2.0	0.23	5,018
EAL other	-3.4	0.56	-2.6	0.57	-3.9	0.49	-2.3	0.46	1,242
CIN	-3.7*	1.36	-3.5*	1.39	-2.3*	1.20	-1.3*	1.10	212
non- SEND	-3.6	0.26	-2.7	0.27	-3.7	0.23	-2.4	0.21	5,778
SEND	-3.4	0.74	-1.9	0.76	-1.2	0.66	-0.6	0.60	707
East Mid- lands	-4.4*	0.93	-2.8*	0.95	-4.9*	0.82	-6.0*	0.75	454
East of England	-3.3*	0.97	-2.8*	0.99	-4.0*	0.85	-3.0*	0.79	418
London	-2.5	0.71	-1.2	0.72	-3.0	0.63	-0.8	0.58	778
North East	-5.1*	1.36	-4.4*	1.39	-6.0*	1.20	-4.1*	1.10	212
North West	-3.9	0.79	-2.1	0.80	-1.3	0.69	-3.6	0.64	634
South East	-3.6	0.44	-2.8	0.45	-2.7	0.39	-1.9	0.36	1,982
South West	-1.4	0.66	-0.6	0.68	-1.6	0.58	0.2	0.54	893
West Mid- lands	-4.8*	0.92	-3.9*	0.94	-7.0*	0.81	-3.6*	0.75	463
York- shire	-5.7	0.78	-5.0	0.79	-5.6	0.68	-1.9	0.63	651

Note: Asterisks indicate sub-groups where the sample is less than 500 pupils and as a result some caution should be taken with interpreting the estimate.



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