Department for Education

School Capacity (SCAP) Survey 2021

Guide to forecasting pupil numbers in school place planning

April 2021

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Introduction

Effective pupil place planning is a fundamental element of the local authority's role as strategic commissioner of good school places. Each local authority has a legal sufficiency duty to ensure that every child has access to a school place. This is underpinned by using relevant data drawn from a wide range of sources.

Local authorities need to produce forecasts of pupil numbers so that they have up to date information on the number of places required in the school systems in the area, and so that place planning decisions can be taken accordingly. School place planning plays a crucial role in developing the local authority's strategy for capital programmes, allowing strategic decisions about investment to be made based on robust evidence.

As well as securing sufficient school places, local authorities should manage the school estate efficiently and reduce or find alternative uses for high levels of surplus capacity, to avoid detriment to schools' educational offer or financial position.

Robust forecasts are important for:

- identifying short, medium and long term capacity requirements of the school system
- planning other children's services
- agreeing investment from other services and housing developers for infrastructure projects.

Accurate and consistently derived forecasts of pupil numbers are also essential in providing the Department for Education (DfE) with information to support basic need capital allocations and other strategic decisions (for example placement of free schools).

Pupil numbers in any local authority can be influenced by a wide range of factors, for example:

- Changes in government policy, for example changes to the school leaving age
- Demographic changes within your local authority, for example rising birth rates or inward migration
- Changes in structure or school organisation, for example transforming from a three tier to a two-tier local authority
- Changes in travel to school behaviours, for example due to revised admissions policies
- Changes in numbers of pupils educated in the independent sector
- Changes in neighbouring local authorities which affect cross border flows.

This guidance provides advice to local authorities in order to ensure that forecasts produced are robust.

DfE reporting requirements

Forecasts of mainstream pupil numbers must be submitted to DfE each summer as part of the annual School Capacity (SCAP) Survey.

You must be as accurate as possible in forecasting future pupil numbers when providing data to the department. Where we cannot adequately understand your methodology from your submitted forecasting methodology documentation, we may ask for additional evidence to satisfy ourselves that your forecasts are robust and well-evidenced. In some cases, this may include asking for a copy of your forecast model and underlying data.

The Office for National Statistics core forecasting model has also been created to assist local authorities with their forecasting methodologies and will be used by the department to check your assumptions.

Year groups

Primary projections must cover Reception to Year 6. The DfE requires forecasts for five years ahead at primary.

Secondary projections must cover Year 7 to Year 11 (plus Years 12 and 13 where schools have sixth forms). The DfE requires forecasts for seven years ahead at secondary.

Planning areas

We expect local authorities to forecast demand for school places based on “planning areas”: mutually exclusive groups of schools that represent admissions patterns and reasonable alternatives to one another. We would usually expect this to mean geographic clusters of schools within reasonable travel distance of one another. Planning areas may be reviewed by local authorities in the winter prior to each SCAP collection, with the planning area structure for each local authority being confirmed by DfE in early spring. Guidance on planning areas is available at https://www.gov.uk/guidance/local-authority-pupil-planning-areas.

Each local authority will have a set of primary planning areas which cover Reception to Year 6 forecasts and a set of secondary planning areas which cover Year 7 to Year 11 (or Years 12 to 14 where schools have sixth forms).

Your forecasts should represent the pupils you expect to be educated in each planning area in each year. As such, if a number of pupils who live in Town A routinely attend a school in Town B and you expect this to continue, they should be forecast in the Town B planning area.

Planning areas should not normally contain only schools of a certain characteristic (for example, only selective, faith or UTC schools). Proposals to create a separate pupil planning area for these schools are only approved in exceptional circumstances by the department where the local authority can provide clear evidence that it would be unreasonable to include the schools in the existing pupil planning areas. In such cases we would expect that forecast demand above the current capacity in the planning area would be redistributed to schools which are a reasonable alternative for those pupils in other planning areas.

You may have a planning area within your local authority which is particularly popular. This planning area may be bordered by planning areas in a neighbouring authority or by your own planning areas. You should not project pupil numbers higher than the capacity of school places in that area when you fully expect excess pupil numbers to be redistributed to the neighbouring planning areas with available places. If this planning area is on a local authority border, you will need to check with the neighbouring authority to ensure that they have sufficient capacity to accommodate all the projected pupils who will need to be redistributed. This is to ensure the pupil redistribution will not create a shortfall for them.

You should however only ‘redistribute’ pupils based on knowledge of established patterns of pupil attendance where these are expected to continue. This should not reflect any temporary redistribution of pupils which you do not expect to continue because of, for example, excessive home to school distances, transport issues or pending projects to add places in the preferred planning area.

Assessing the accuracy of previous forecasts

Before producing a new set of forecasts, you should assess the accuracy of your previous forecasts in order to identify and correct any issues. You can do this by comparing your previous forecasts to actual pupil numbers.

The accuracy of historic forecasts can be measured as:

$$\left(\frac{Forecast\ pupil\ number - actual\ pupil\ number}{Actual\ pupil\ number}\right) \times 100$$

This will give you a figure for the percentage over forecast or under forecast. For example, if the calculation yields a figure of 3, this means there was a 3% over forecast. Similarly, a figure of -2 means a 2% under forecast.

This value will enable you to test whether inaccuracies exist. You can then investigate your forecasting methodologies in further detail to find the possible source of the inaccuracy. You should consider the accuracy of your forecasts at overall local authority level, as well as at planning area and year group levels. The latter may help you to identify any specific areas or year groups where your forecasts are less accurate, in order to target particular areas for improvement.

The starting point for assessing accuracy of pupil forecasts should be at planning area level. If you require school level forecasts, you can work back from planning area level forecasts. You should avoid starting with school level forecasts to work up to planning area forecasts. This is because trends are more volatile at school level than at planning area level, which is more likely to lead to less accurate forecasting.

You should consider how accuracy changes the further ahead you project. For example, you could consider how accurate your forecasts historically have been for five years ahead.

You should also consider changes in forecast accuracy over time as well as just looking at your last set of forecasts. This will enable you to check whether any changes you have made are making your forecasts more or less accurate so you can adjust your assumptions appropriately.

Forecasting accuracy at LA level is published each year in the School Places Scorecards: https://www.gov.uk/government/collections/school-places-scorecards.

Forecasting reception pupil numbers

The following section describes a suggested method for forecasting pupils in the Reception year group.

Population data

You will need population-based data for the number of children who live in your local authority as well as other local authorities that may contribute pupils to your reception cohort (due to students travelling into your LA to attend school). You should be mindful of the fact that your forecasts need to represent the pupils who will be educated in your schools so should include the populations of areas of other local authorities which contribute pupils to your schools.

Potential sources of population data include:

- Office for National Statistics - Live Birth Data
- GP registration data[1]
- Early Years census data

For the final year of reception forecasts required by DfE, you will need to produce a population estimate or use an external source of population or birth forecasts, as some of these children will not yet be born when you produce your forecasts.

Suppose you receive the following data for registrations at GP surgeries in Town A

Academic Year	Age group	GP registrations
2017 to 2018	Aged 4 as at 31st August 2017 (birth in 2012 to 2013 academic year)	514
2018 to 2019	Aged 4 as at 31st August 2018 (birth in 2013 to 2014 academic year)	516
2019 to 2020	Aged 4 as at 31st August 2019 (birth in 2014 to 2015 academic year)	520

[1] We are currently working with NHS Digital to obtain more consistent access to this data across local authorities. The first data reports should be available by mid-2021.

Academic Year	Age group	GP registrations
2020 to 2021	Aged 4 as at 31st August 2020 (birth in 2015 to 2016 academic year)	536
2021 to 2022	Aged 4 as at 31st August 2021 (birth in 2016 to 2017 academic year)	540
2022 to 2023	Aged 4 as at 31st August 2022 (birth in 2017 to 2018 academic year)	556
2023 to 2024	Aged 4 as at 31st August 2023 (birth in 2018 to 2019 academic year)	590
2024 to 2025	Aged 4 as at 31st August 2024 (birth in 2019 to 2020 academic year)	612
2025 to 2026	Aged 4 as at 31st August 2025 (birth in 2020 to 2021 academic year)	To be estimated

You will need to estimate an underlying population figure for those aged 4 at 31st August 2025, as some of these children will not yet be born.

One way to do this would be to use the historic information about changes in population and assume trends will continue. You should use historic data which you think will best reflect the trends carrying forward.

Calculate the difference in population size between each year, as shown below.

Academic Year	GP registrations	Increase in size of population
2021 to 2022	540	
2022 to 2023	556	16
2023 to 2024	590	24
2024 to 2025	612	22

Next, take a weighted average of the increases as follows:

$$\frac{(22 \times 3) + (24 \times 2) + (16 \times 1)}{6} = \frac{130}{6} = 21.67$$

We may therefore assume that the population for 2025 to 2026 will be 22 higher than the previous year, so 634.

Calculate uptake factor

The next step is to calculate an uptake factor to determine what proportion of the children in your underlying population will require a mainstream, state-funded school place.

You may wish to base this on historical uptake. To determine the uptake factor for each year, calculate the actual number of pupils in the year group as a proportion of the total number of children of the appropriate age in your population data. For example, if there were 200 4-year-old children in the population and 164 children in your reception cohort, the uptake factor would be 82%.

Consider whether applying the historic uptake factor is accurate. You may wish to consider whether over the past few years the historic uptake factor has been stable, volatile, or shown a trend, and whether that trend is likely to continue. **Note: Numbers on roll for the 2020/21 academic year may be lower than they otherwise would have been without coronavirus (COVID-19), for various reasons. If you believe the uptake factor for September 2020 is not reflective of the trend and does not signify a long-term change in trend, then you may want to make adjustments in your calculations.**

The uptake factor is calculated as the actual number of pupils in the year group divided by the underlying population of the relevant age in the relevant year. The table below demonstrates an example of how to do this.

Academic Year	GP registrations	Actual pupil numbers	Uptake factor
2017 to 2018	514	430	83.7%
2018 to 2019	516	443	85.9%
2019 to 2020	520	448	86.2%
2020 to 2021	536	455	84.9%

In 2021 the department will publish data and guidance on estimating pupil yield from housing development. This may include a different approach for calculating early years yields for the purposes of securing developer contributions, as we recommend that requests for developer contributions reflect trends in the numbers of children living in recent housing developments who access childcare and school places year-on-year since the homes were occupied. This is not to be confused with the school uptake factor described here, for SCAP pupil forecasting.

Apply your chosen uptake factor

For each year of your forecast, multiply the number of children of the appropriate age from your population data by the uptake factor you chose in the previous step.

In this example, we can see that the uptake factor is relatively stable over time, at about 85%. We can therefore apply last year's uptake factor of 84.9% to the future data, as shown below, to give final forecast figures for the reception year group.

Academic Year	GP registrations	Forecast pupils
2021 to 2022	540	458
2022 to 2023	556	472
2023 to 2024	590	501
2024 to 2025	612	520
2025 to 2026	634	538

Forecasting pupil numbers for non-intake years

A suggested method for calculating forecast pupil numbers for year groups which are not the intake year of the school is to use a cohort progression technique.

This is based on the premise that the majority of children in a given year group at a school will progress into the next year group in the next academic year. For example, a good starting point to estimate the number of Year 5 pupils in academic year 2021 to 2022 would be to consider how many Year 4 pupils there are in academic year 2020 to 2021.

Obtain current pupil number data

To forecast using a cohort progression technique, you will need data on the current pupil numbers in each school or planning area.

It may be more robust to base pupil number forecasts on cohort progression over a number of years. In the example below, the past four years of pupil number data for a planning area is used to calculate cohort progression ratios for each year group in each year.

Note: Numbers on roll for the 2020/21 academic year may be lower than they otherwise would have been without coronavirus (COVID-19), for various reasons. If you believe the cohort progression ratios for 2019/20 to 2020/21 are not reflective of the trend and do not signify a long-term change in trend, then you may want to make adjustments in your calculations.

The table below gives data for pupil numbers in the current academic year and each of the last three years.

	2017 to 2018	2018 to 2019	2019 to 2020	2020 to 2021
R	430	443	448	455
1	432	440	456	460
2	435	437	443	458
3	480	486	492	509
4	478	485	495	510
5	470	472	485	495
6	469	471	471	488

In order to calculate cohort progression ratios, divide each pupil number by the number of pupils who were in that "cohort" the year before. So, for example, divide the number of pupils in Year 1 in 2018 to 2019 (440) by the number of pupils in Reception in 2017 to 2018 (430), to get the ratio 1.023.

The table below shows these ratios for each year group and each year.

	2017 to 2018	2018 to 2019	2019 to 2020	2020 to 2021	AVERAGE	WEIGHTED AVERAGE	TREND
R							
Year R to 1		1.023	1.029	1.027	1.026	1.027	1.029
Year 1 to 2		1.012	1.007	1.004	1.008	1.006	1.000
Year 2 to 3		1.117	1.126	1.149	1.131	1.136	1.165
Year 3 to 4		1.010	1.019	1.037	1.022	1.026	1.050
Year 4 to 5		0.987	1.000	1.000	0.996	0.998	1.007
Year 5 to 6		1.002	0.998	1.006	1.002	1.003	1.008

The table also gives an average, weighted average[2] and trend[3] calculation for each year group. At this stage you should consider whether using the most recent ratio, an average, a weighted average or a trended figure is the most appropriate.

In this example, progression from Year 2 to Year 3 and from Year 3 to Year 4 shows a clear trend (cohort progression ratios are steadily becoming higher, indicating that more children are joining this planning area at those year groups). You should consider what might be behind this where you see this is the case. For example, this might be the result of there being a poorly performing junior school in an adjacent planning area and resulting pupil movement away from that school into this area. You should consider this before applying the trended figure whether you believe this pattern is likely to continue.

[2] The weighted average is calculated by adding the following rates together and dividing by 6: 2018 to 2019 rate, 2 x 2019 to 2020 rate, 3 x 2020 to 2021 rate

[3] The trend rate is calculated by calculating the average growth in the rate over the 3 years (RateYr3 – RateYr1 / Yrs-1) and adding this average to the latest figure

The next step is to apply the calculated cohort progression rates to your current pupil numbers. Multiply the rate you chose for Year R to Year 1 progression by the current number of pupils in Year R to get a figure for the number of Year 1 pupils expected next year. You can then apply the Year 1 to Year 2 rate to this figure to get a figure for Year 2 pupils the year after, and so on.

In the table below, the results of applying the weighted average cohort progression to most year groups, with the trended cohort progression applied to Year 3 and Year 4. The grey cells show the results of the reception forecast calculated earlier.

	2017 to 2018	2018 to 2019	2019 to 2020	2020 to 2021	2021 to 2022	2022 to 2023	2023 to 2024	2024 to 2025	2025 to 2026
R	430	443	448	455	458	472	501	520	538
1	432	440	456	460	467	470	485	515	534
2	435	437	443	458	463	470	473	488	518
3	480	486	492	509	534	539	548	551	568
4	478	485	495	510	534	560	566	575	579
5	470	472	485	495	509	533	559	565	574
6	469	471	471	488	496	510	535	560	566

Forecasting Year 7 or other “intake year” pupil numbers

For other intake years, either of the methods previously described can be used. For example, you could either base forecasts on population data on 11 year-olds in your local authority, or cohort progression from Year 6 (see note on numbers on roll for 2020/21 above).

Taking account of other factors

The process described above is intended to give a basis for forecasts and is based largely on historical trends continuing. It may be that in your local authority, you need to make some manual adjustments to account for particular situations.

Migration

Changes to historic migration patterns as a result of **foreseeable events** should also be considered. Only include factors that have a degree of certainty and/or that indicate a long-term shift in trends, to avoid introducing volatility. Example factors to take account of could be:

- an expected increase in inward/outward migration to/from a local area, for example, as a result of the impact of **coronavirus (COVID-19),** on people re-locating;
- a change in general migration patterns, for example, due to the impact of Britain's exit from the EU; or
- a known influx of arrivals as a result of policies such as the visa offer that has been made to British Nationals Oversees BN(O)s in Hong Kong.

Data Sources

Local Authorities should exercise caution in using migration data from the coronavirus (COVID-19) period for medium-long term forecasts without any adjustment to account for a pick-up in later years.

Some of your usual data sources may have been suspended during coronavirus (COVID-19). For example, the international passenger survey (IPS) has been suspended, and EU citizens were not able to apply for national insurance numbers.

There are some datasets available to help get a sense of the short-term change in trends, including one by the Home Office on air passenger arrivals and Border Force's immigration statistics. These will show the impact of coronavirus (COVID-19) and the travel restrictions, however it is not known yet when traveller numbers will pick up again nor if and when they will return to pre-coronavirus (COVID-19) levels.

With internal migration, there may be some leading indicators of movement into or out of planning areas, such as: availability of homes to buy or rent; the value of the rental market (higher rents imply more demand); or GP registrations.

Housing

One situation where you may wish to manually adjust your forecasts is to account for inflow of pupils due to new housing being built. Housing developments can have a big impact on the demand for places in individual planning areas, or across entire local authorities.

The pupil forecasts you submit in SCAP should only include expected pupil yields from housing developments that have a high probability of being delivered within the timeframe of the forecasts. In most cases such developments will have full planning permission. If you believe a development that does not have full planning permission will proceed and will yield pupils within the forecasts timeframe, we expect that development to be present in the relevant planning authority's latest 5 year land supply. Wherever this is the case we may test the suitability of inclusion of such housing developments in SCAP forecasts by reviewing evidence on the site's deliverability and assessing delivery against previous 5 year land supply plans in the relevant planning authority.

The data you collect on housing developments is likely to come from many different sources. It should be as detailed as possible, enabling you to identify:

- Number of units
- Housing size and mix
- Location
- Completion timescale

In forecasting for housing developments, you should consider patterns of movement to these developments. You should consider if new developments are likely to be populated by families moving in from outside your local authority. If so, you should ensure that these pupils are only counted once and are not added both as part of your "housing yield" calculation and as inward migrants, where these are counted separately.

If new developments are more likely to be populated by local families moving a short distance, consider who will fill the houses they move out of. If there is a lot of local movement, consider that some of the pupils who move into the new developments might remain in their existing school places. This could mean the effect of the new development on school place need is spread over a wider area. Further data and guidance on estimating pupil yield from housing development will be published by the department later in 2021 and may provide further assistance, though the guidance is primarily to help you secure housing developer contributions.

One thing to consider is the rate at which houses are built in the area. If this is fairly steady over time (i.e. housing stock increases by x% each year) then it is likely that the pupil yield will already be captured in a migration factor or cohort progression rate. It is only if the speed of house building changes (up or down) that you may need to adjust your forecasts to take account of this. Consider the following examples:

> Planning area 1 has a large new housing development, which has planning permission but has not yet started. It is on the edge of the town and the planning area has not recently experienced significant levels of housing being built. It would be reasonable in this scenario to include all the forecast yield in future forecasts (assuming of course that the local authority's yield calculation already has a factor for local children taking up residence in the housing development)
>
> Planning area 2 has planned housing developments of around 800 units per year. This is following a period of similar levels of housing over the last five years. This means that many of the 'number on roll' figures used in the baseline forecasting already include cohort growth from housing. If the local authority was to include all pupil yield from each of the 800 units in future years, they may well be double counting, as the basic method is already accounting for this growth.

And there are lots of scenarios in between those two of course.

Where there is a demonstrable increase in the rate at which new housing is being delivered, an appropriate additional yield figure above that which is included in the forecasting models should be determined and the department's emerging data and guidance on estimating pupil yield from housing development may assist with these calculations in future.

Office for National Statistics core forecasting model

As part of a wider review of the school capacity collection, the department commissioned the Office for National Statistics (ONS) to develop a model to forecast local authority and planning area pupil numbers. The model is based upon nationally available data such as births and school census returns. It therefore provides a 'core' forecast that does not include local factors such as changes to housing yield, or planned school changes, that may influence the forecast.

Methodology

For primary planning areas, the model uses births data at local authority level to calculate the mean uptake ratio for a planning area over the last three years, that is the ratio of the number of pupils entering the reception year to the number of children born within the local authority five years prior. This mean uptake ratio is then used to predict reception numbers for the relevant year of the forecast. For non-intake years, a weighted average of the cohort progression ratio over the preceding three years is used. For secondary planning areas, the Year 7 intake numbers are forecast using a cohort progression method based on the ratio of Year 6 pupil numbers within the local authority to Year 7 pupil numbers within the planning area.

The core forecasting model is expected to work well for planning areas where trends are relatively 'steady state', i.e. births, internal migration, housing yields, and other factors tend to stay the same or change at a constant rate. It is expected to work less well for planning areas where a large change in trend occurs.

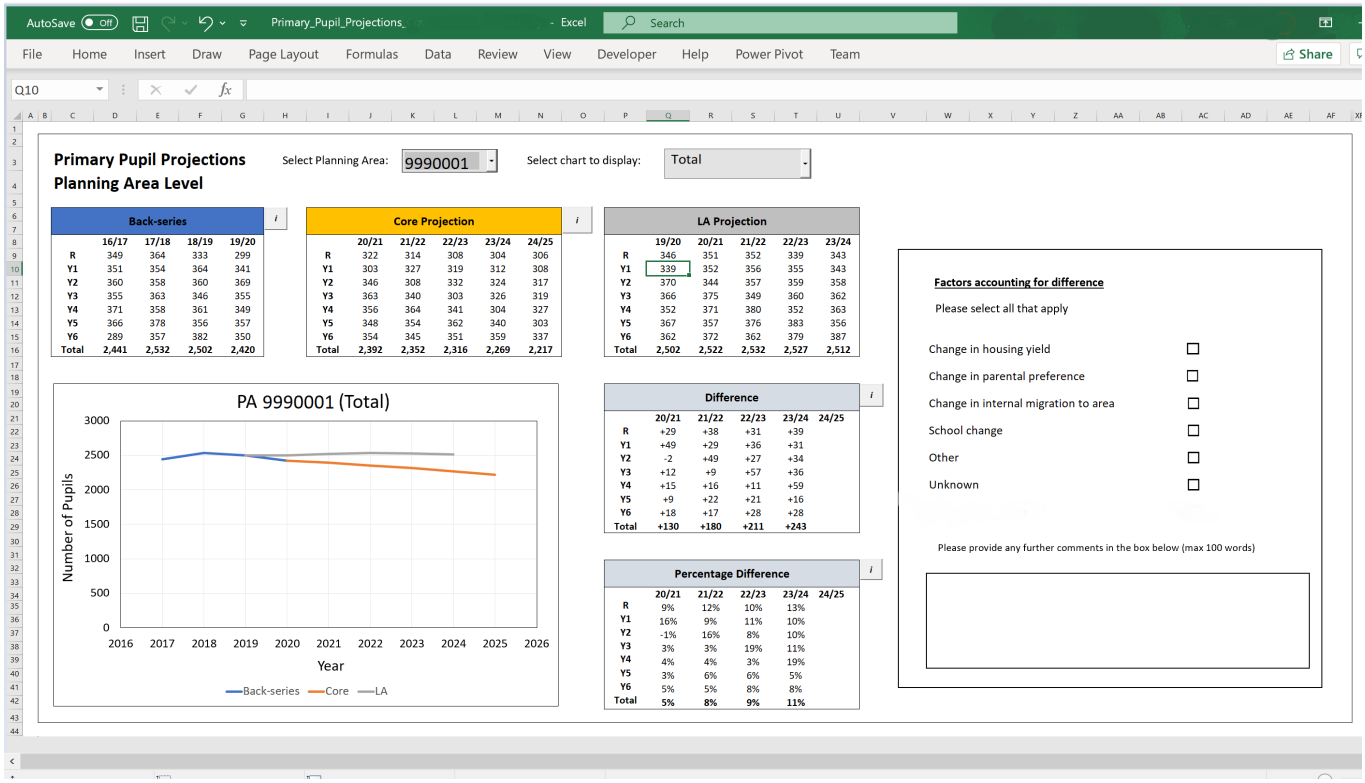
Currently, the core model does not provide a forecast for every planning area; around 95% of primary planning areas and 90% of secondary planning areas are included. The omission of some planning areas is due to issues such as school mergers and splits, or new provision within a planning area, that cause difficulties with the stability of the back-series data for the planning area. As the core model is refined further it is expected that it will be possible to include a greater number of planning areas.

Core Forecasting Tool

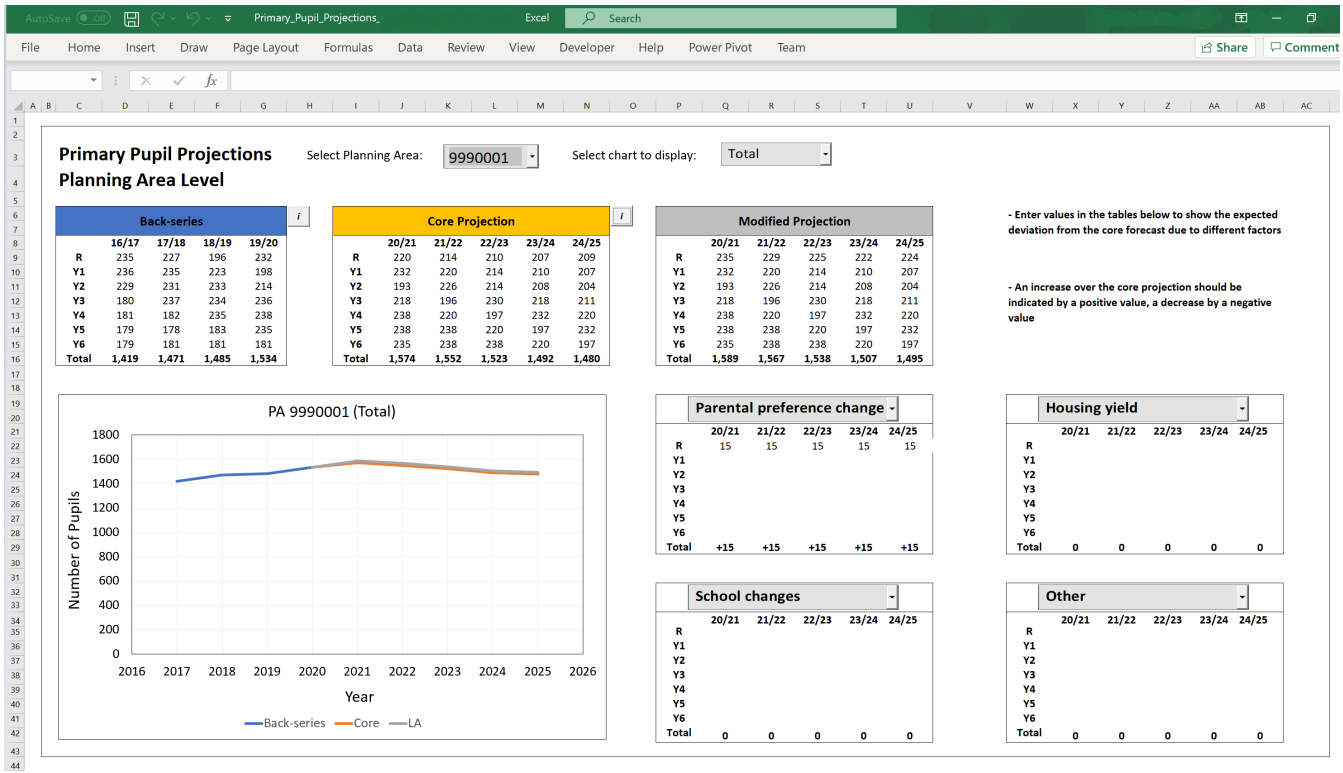
The core forecast is provided for use in an Excel based forecasting tool. The tool uses the same Excel XML template local authorities currently complete for the school capacity forecast blade.

Local authorities can use the tool in two ways,

1. Comparing to local authority forecasts and identifying factors forecast differences:



2. Modifying the core forecast to account for local factors:



Use of the forecast model

The model was tested by running forecasts from a historic base year (2015/16) using only the data that would have been available at the time, allowing the accuracy of the model to be assessed and compared with forecasts from the SCAP return. In many cases, the SCAP forecast was more accurate than the core forecast, suggesting that local factors had been applied and had improved the forecast. Equally there were many cases where the core forecast was more accurate than the SCAP forecast, possibly due to methodology problems such as including extra factors that are already accounted for within the cohort progression ratios.

It is intended that the core model will help within the forecasting process in the following ways:

- **Providing a baseline figure to local authorities for comparative purposes**
- **Aid common understanding of the factors that influence the forecast for a particular planning area**
- **Potentially highlight where it may be possible to improve the methodology used for certain planning areas**
- **Help identify where forecasts may need to be reviewed**

Some of these benefits may be realised over time, as data is built up for the core forecasting model over a number of years.

Validation

You should monitor your forecasting process rigorously to ensure it is fit for purpose and produces results that are accurate and based on sound evidence.

It is essential that forecasts are completed as you intended. Make sure that appropriate formulas are used, and that the correct data are referenced. You may wish to focus on one or two examples and work all the way through your forecast model to ensure that you can see that each step is working in the way intended and that the outcome is logical.

You should perform quality assurance checks on the input data you use for your forecasts to ensure it appears to be fit for purpose. The underlying assumptions you use in your forecasts should be realistic and evidence-based.

It is important to compare current forecasts to those of previous years to identify significant changes and ensure they make sense. For example, is an overall increase in pupil numbers the result of an increase in a particular year group, or planning area, and does this match your expectations?

You should also compare your forecasts to other data sources, for example data on admission applications for the upcoming September.

You should work closely with neighbouring local authorities, particularly where there are significant cross border flows. For example, your projections may need to take into account planned changes to school organisation in neighbouring authorities. You should check that your understanding of cross border flows matches that of your neighbours. For example, if you are forecasting significant inward migration from a neighbouring local authority, is this also reflected in their forecasts, or are pupils being counted twice?

If you are outsourcing your forecasting, you should still sense check the outputs and review the reason behind any changes to previous forecasts.

Department for Education

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