The Teacher Supply Model for England

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What are we going to talk about?

- What is the TSM?
- The EBacc policy and it's effect on the TSM
- What does the TSM tell us about the future?
- What are the biggest challenges facing the TSM?

What is the TSM?

- Used by DfE to estimate the **no. of postgrad ITT (Initial Teacher Training) places needed each year.**
  - The 2018/19 TSM estimates ITT place requirements for the 2018/19 training year.
  - To recruit enough Newly Qualified Teachers (NQTs) in England to meet demand.
  - For those teachers entering schools as NQTs in 2019/20.
  - Established and used for over a decade.

- The scope of the model covers **state-funded primary and secondary schools** (including academies and free schools) in England.
  - Teaching for 16-18 year olds in secondary schools is also included.
  - Pupil Referral Units, special schools, 6th forms, Scottish/Welsh, and independent schools are 'out of scope' but are covered *indirectly*.

How is it used?

- Feeds into the allocations process to allocate ITT places to providers.
- To assess how well the department has been performing at recruiting teachers, and…
- To model ITT bursaries.

- We have an internal steering group and an external technical user group.

The model is published

- We publish alongside the allocations: https://www.gov.uk/government/statistics/tsm-and-initial-teacher-training-allocations-2018-to-2019

- We have to publish because of a ministerial commitment.

- If we can't publish something in the model we can't do it in the model...

How does it work?

- The TSM is a stocks and flows model.
  - *Stocks* – how many teachers we have now and in the future.
  - *Flows* – how many teachers are expected to leave the stock (and require replacement) and how many are expected to enter.
  - We don't really have the data to do anything else.
  - It uses *historical* and *current data* to inform what we think is going to happen in *future*.
    - Bases assumptions on *evidence* and *data.*
- User testing available.
- The model accounts for:
  - Pupil numbers and demographics changes.
  - Numbers of teachers leaving.
  - Teacher demographics.
  - New policies.
  - Teachers entering the stock via different routes other than as NQTs.
  - Not all trainees completing training and gaining posts in the state-funded sector in the following year.

Information sources used in the TSM

- The **School Workforce Census** (November 2016).
  - Data on current stock, including numbers, demographics, QTS status, secondary subject, and the no. of sessions taught in each subject at Key Stage 3, 4, and 5.
  - Data on teacher flows (entrants/leavers), including overall numbers, route, and their age & gender.
- **Econometric wastage projections** (Econometric Wastage Model).
  - Forecasting how wastage rates are expected to change over time from current levels, based on changes in unemployment, GDP and relative pay.
- **Data on the % of trainees that complete ITT** and **the % successfully enter teaching posts afterward** (ITT performance profiles).
- **Pupil population projections** from the Pupil Projections Model.
- **Assumptions on the impact of teacher-related policies** on future teacher need.

The key assumptions behind the model are those on future PTRs

- Historically **Pupil:Teacher Ratios** have *risen* and *fallen* as pupil numbers have.

- In other words, as pupil numbers have risen in the past, part of the additional demand for teachers has been met by increasing PTRs, and therefore class sizes.

Historical Primary Pupil:Teacher Ratio and pupil numbers (FTE).
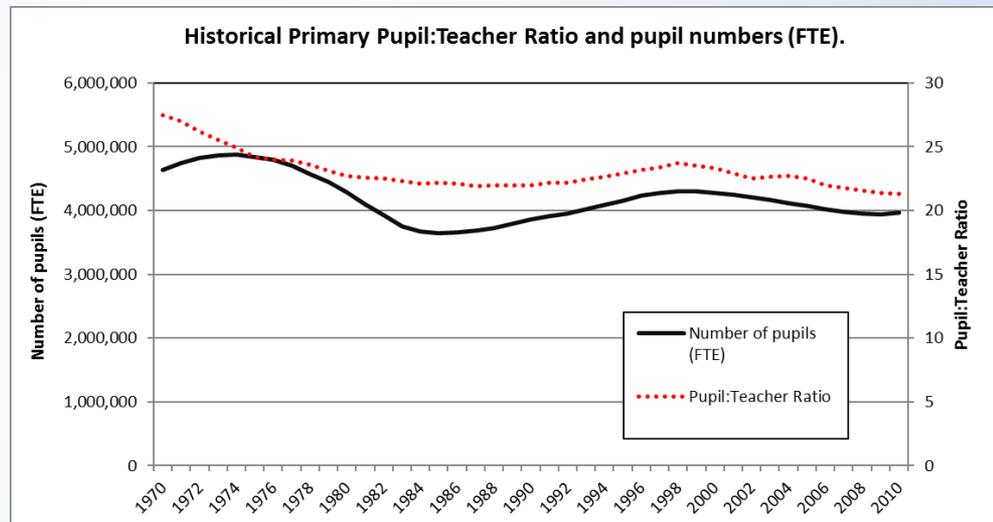
- The TSM uses this historical data on PTRs and pupil numbers to make assumptions as to how PTRs (and therefore teacher numbers) will change in future (individual assumptions are used for primary and secondary).
- We estimate numbers of secondary teachers in each subject using pupil numbers and subject-level teaching & teachers data.

What is the EBacc?

- English Baccalaureate (EBacc)
  - Was introduced in 2010 and defined an academic core including GCSE-level (normally age 15/16) examinations in English, Mathematics, science, humanities, and languages.
- To enter the EBacc, pupils are required to take GCSE-level examinations in **English Language and English Literature, Mathematics, two or three science subjects, History or Geography, and an ancient or a modern language.**

Increased EBacc take-up

- The 2017/18 model (last year's) included a planning assumption of increased EBacc take-up from 'current' levels up to 70% for GCSE examinations in the summer of 2020.

- By comparison, the 2018/19 model (following the July 2017 publication of the EBacc consultation response) now uses an assumption that take-up rates (in mainstream education) will increase up to **75% for GCSE examinations in the summer of 2024.**

  - Therefore, the shift towards the greater amount of MFL teaching required for increased EBacc take-up is *slower*, occurring over *six* years rather than *two*.
  - Take-up for the Geography and History pillar is already at 75% (mainstream).
  - We have not modelled the increase up to 90% after 2024, for now, we have assumed take-up will stay at 75% after 2024.
  - EBacc consultation response published at:
    - https://www.gov.uk/government/consultations/implementing-the-english-baccalaureate

What impact has this had on the TSM?

- This assumptions change impacts upon MFL (MFL teaching doesn't need to increase quite so rapidly as assumed last year) but also effects the non-EBacc subjects.
  - As the 2018/19 TSM assumes that the quantity of MFL teaching is not expected to increase as rapidly as previously thought it also assumes that the quantity of non-EBacc subject teaching will not decrease as much in the short term as we assumed last year. Therefore, the new EBacc assumptions have had a *positive impact on ITT places for the non-EBacc subjects*.
  - This year, ITT places have increased for all non-EBacc subjects apart from RE which has seen a fall of 76 places (this is protected against).
- Last year we made a starting estimate of the number of MFL ITT places required for 2017/18 of 1,514.
  - This year we have made an *actual* estimate of ITT places taking into account the impact of increased EBacc and recruitment via some new, non-conventional MFL recruitment routes.

The other policy assumptions

- The following assumptions are used in the TSM this year:
  - Sources of MFL teachers,
  - New Mathematics GCSE,
  - Increases in Mathematics teaching requirements at KS5 (normally age 16-18),
  - Removal of option to take Core Science GCSE,
  - Compulsory study of RE pre-16,
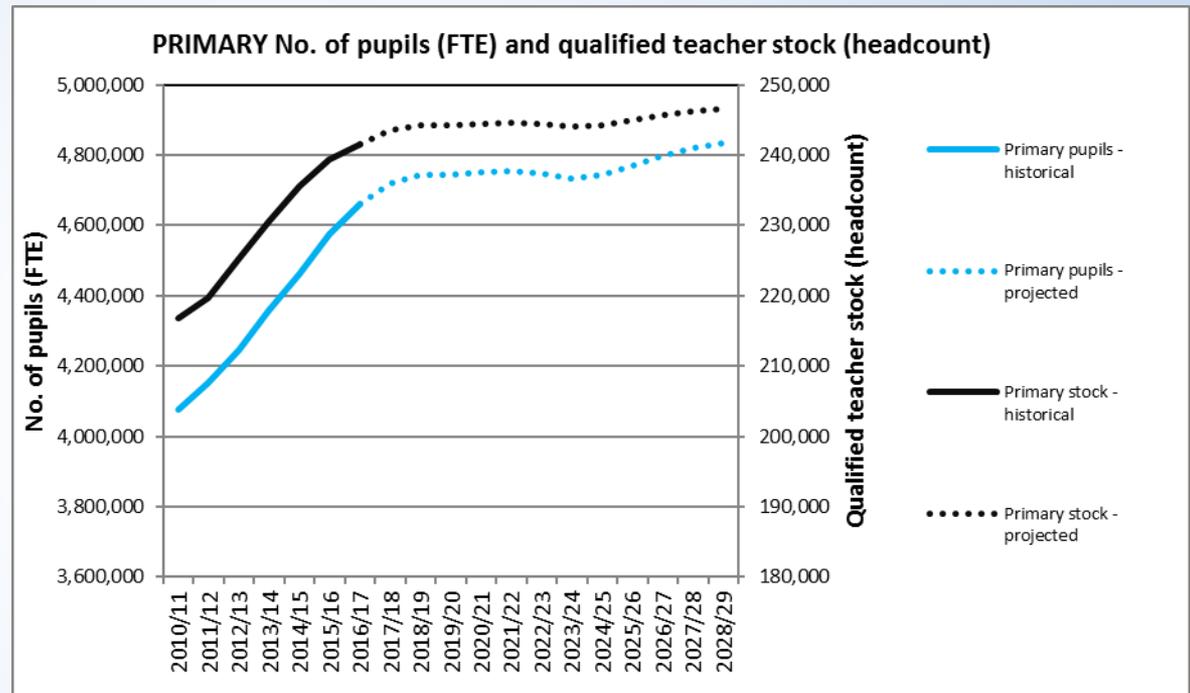 - The obesity strategy (PE).

2018/19 TSM outputs

- The model estimates that **12,552** primary ITT trainees are required for the 2018/19 training year, an increase of **431 (4%)** compared to 2017/18 estimate.

- The model estimates that **19,674** secondary ITT trainees are required for the 2018/19 training year, an increase of **948 (5%)** compared to the 2017/18 estimate.

- There are <u>no subjects</u> that have a fall in ITT places.

| Subject (EBacc in red)	TSM outputs (postgraduate ITT places)			Difference between 2017/18 and 2018/19
	2016/17 TSM	2017/18 TSM	2018/19 TSM	
Primary	11,489	12,121	12,552	431
Art & Design	633	577	646	68
Biology	1,178	1,188	1,188	0
Business Studies	252	218	241	23
Chemistry	1,053	1,053	1,053	0
Classics	69	69	69	0
Computing	723	723	723	0
Design & Technology	848	751	949	198
Drama	347	345	357	12
English	2,253	2,426	2,558	132
Food	186	166	218	52
Geography	778	1,531	1,531	0
History	816	1,160	1,180	20
Mathematics	3,102	3,102	3,116	13
Modern Foreign Languages	1,514	1,514	1,600	86
Music	399	393	409	16
Others	938	812	896	84
Physical Education	999	999	1,078	79
Physics	1,055	1,055	1,219	165
Religious Education	544	643	643	0
Secondary total	17,688	18,726	19,674	948
Total	29,176	30,847	32,226	1,379

Primary pupils and teacher numbers

- Between 2016/17 and 2022/23 the no. of primary pupils will increase by **1.9%.**

- During the same period the no. of primary teachers will increase by **1.2%.**

PRIMARY No. of pupils (FTE) and qualified teacher stock (headcount)

Legend:
— Primary pupils - historical
...... Primary pupils - projected
— Primary stock - historical
...... Primary stock - projected

# Secondary pupils and teacher numbers

- Between 2016/17 and 2022/23 the no. of secondary pupils will increase by **14.1%**.

- During the same period the no. of secondary teachers will increase by **5.7%**.

- The difference in growth rates is a result of PTR growth.

SECONDARY No. of pupils (FTE) and qualified teacher stock (headcount)
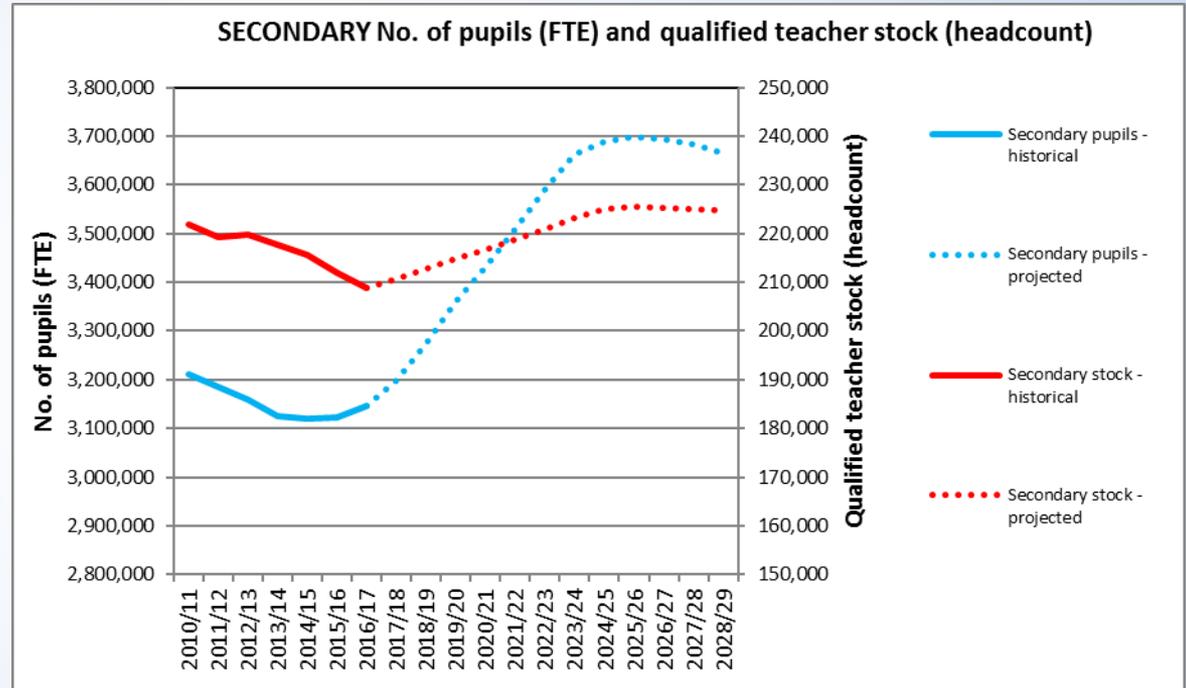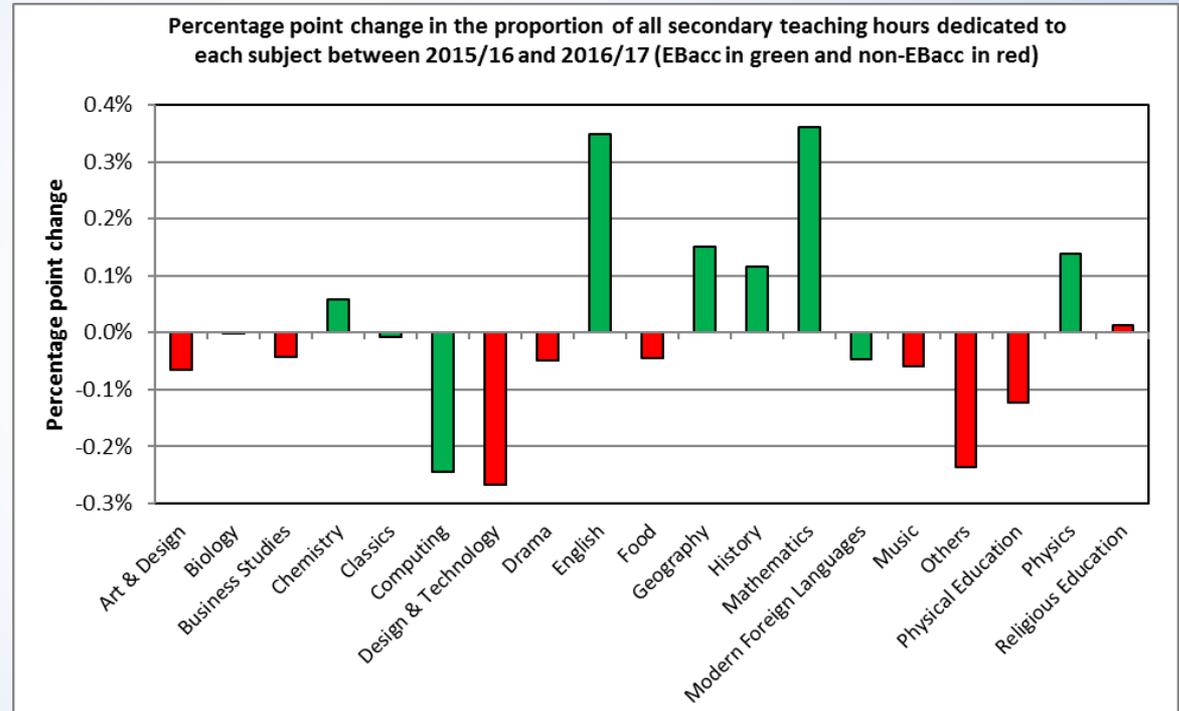
For key EBacc subjects…

The 2018/19 TSM estimates that the teacher stock will need to increase between 2017/18 and 2022/23 by:

- **7.0%** for English,
- **6.3%** for Maths,
- **4-5%** for both Geography & History,
- **24.1%** for MFL,
- **~5%** for all three of the individual sciences.

Teacher need by subject for EBacc subjects
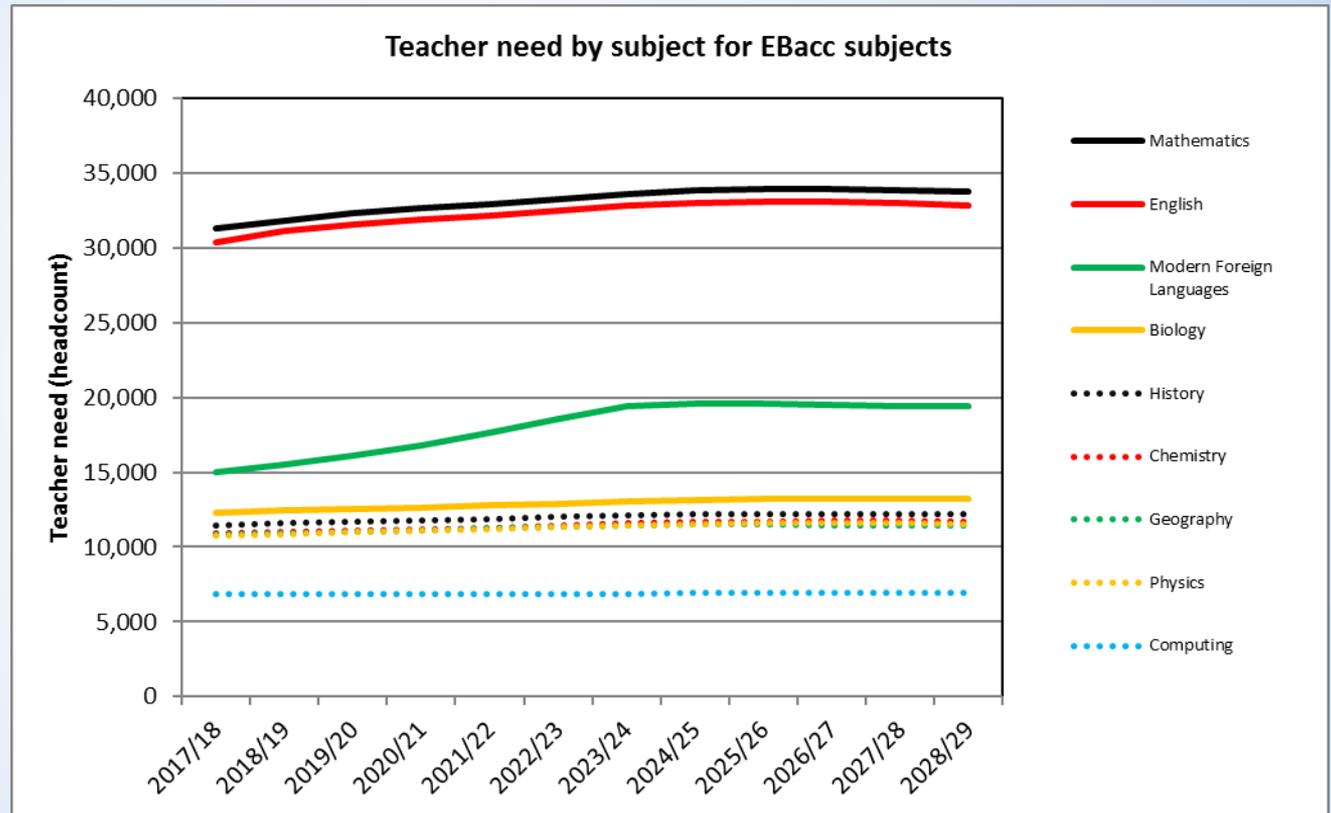
Subject teaching time balance

- The balance of secondary teaching time has continued to shift towards English, Geography, History, and Maths.

Percentage point change in the proportion of all secondary teaching hours dedicated to each subject between 2015/16 and 2016/17 (EBacc in green and non-EBacc in red)

Potential Challenges facing the TSM

- Both primary and secondary pupil numbers are growing.
- It may be harder to recruit teachers as:
  - Economy growing.
  - Lower teacher wages *relatively speaking* compared to professional averages.
- More churn in the system, with teachers moving between schools.
- EBacc means that we need to recruit more teachers in the subjects that have historically been harder to recruit to.

Any questions?

Department for Education