

Ethnic differences in reading and mathematical test performance in primary schools in England

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ADR conference, 16 November 2023

Question

- ▶ The dynamic of ethnic gaps in school attainment (test scores) in England from 2007 to 2018
- ▶ The discussion of ethnic inequalities in education is often framed in terms of disadvantage of ethnic minorities
- ▶ But we know that in some ethnic categories pupils outperform the White majority in education

Previous research

- ▶ Several studies published mostly about a decade ago. All based on the National Pupil Database (NPD) from even an earlier period (Dustmann et al. 2010, Plewis 2011, Strand 2015, Wilson et al. 2011)
- ▶ More recent descriptive data are available on GOV.UK
- ▶ Main conclusion: British Indian and British Chinese students on average demonstrated better test results than White British; British Pakistani and Black Caribbean pupils performed worse

Aims of this paper

- ▶ Update previous results with more recent data
- ▶ Show the dynamics of test performance by ethnic category
- ▶ The paper is descriptive; no attempt to empirically explore the reasons for ethnic gaps

National Pupil Database

- ▶ Maintained by the Department for Education
- ▶ Data from annual school censuses (state schools only)
- ▶ Attainment data (key stage 1 to 5 tests)
- ▶ Exclusions, absences, pupil referral units etc.
- ▶ Each pupil has a unique ID that allows to link data over time
- ▶ Analysis conducted in the ONS secure research environment

Data

- ▶ The annual spring school census data (for the data on ethnicity) for 2007 and 2018
- ▶ The school census includes every pupil in state schools in England (therefore excluding 6-7% of pupils in independent schools)
- ▶ Key stage 2 reading and maths attainment data (Year 6, age 10-11)
- ▶ About 588,000 children in 2007 and 620,000 children in 2018

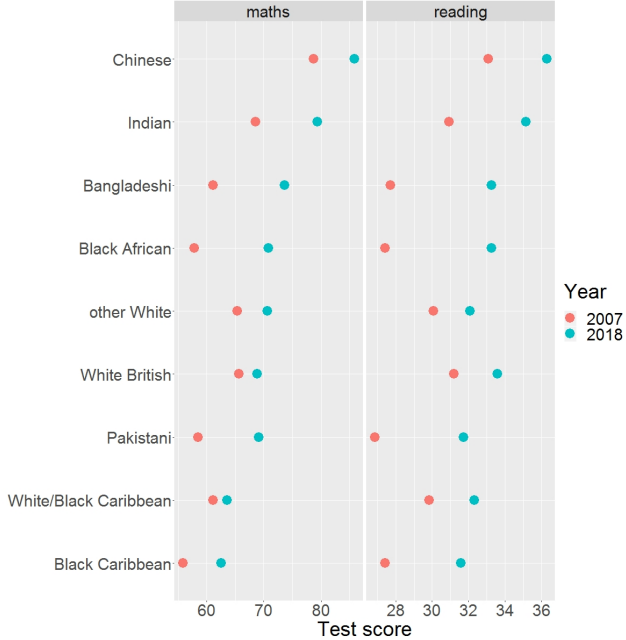
Method

- ▶ Descriptive analysis, mostly with visualisations
- ▶ Focus on the entire distributions rather than the means (as the data size allows for this)
- ▶ Relative distribution (a method for comparing two distributions) (Handcock and Morris 2006)

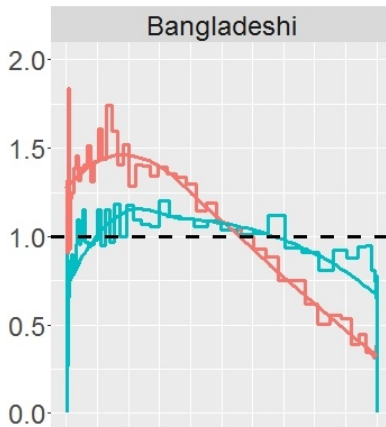
Ethnic distributions in 2007 and 2018 (Year 6)

Ethnic group	2007	2018
White British	448,344	416,495
other White	15,102	38,459
Pakistani	17,352	27,312
Black African	14,499	25,202
Indian	13,140	18,162
Bangladeshi	7,494	10,959
White/Black Caribbean	6,830	9,601
Black Caribbean	8,403	7,234
Chinese	1,998	2,542

Mean test scores: 2007 and 2018

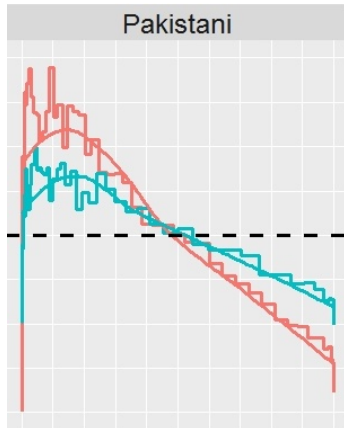


Reading: Bangladeshi

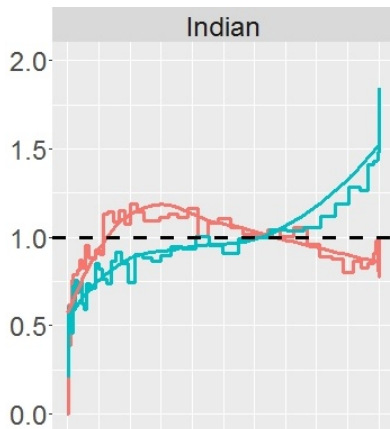


- ▶ The reference group is always the White British. Red line: 2007; blue line: 2018. Percentiles of the White British test distribution on the x-scale.

Reading: Pakistani



Reading: Indian

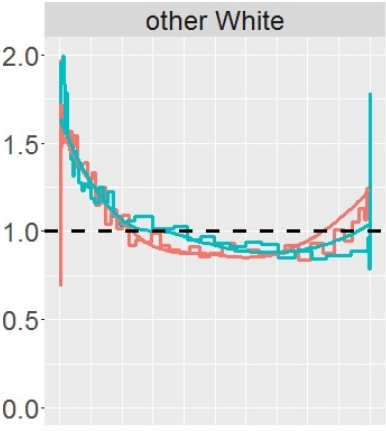


Reading: Chinese

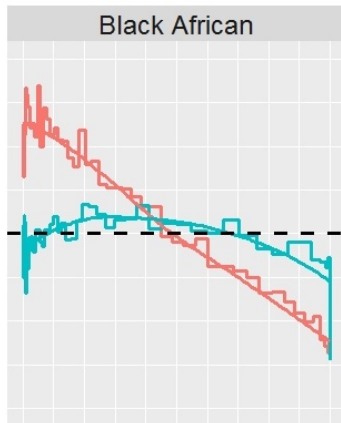


- ▶ For the Chinese, the relative distribution for 2018 (blue line) was top censored to fit the scale; the value was about 5 for the maximum test score.

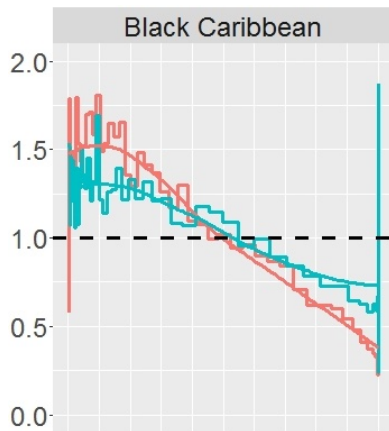
Reading: other White



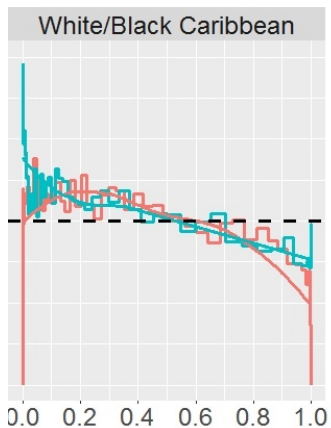
Reading: Black African



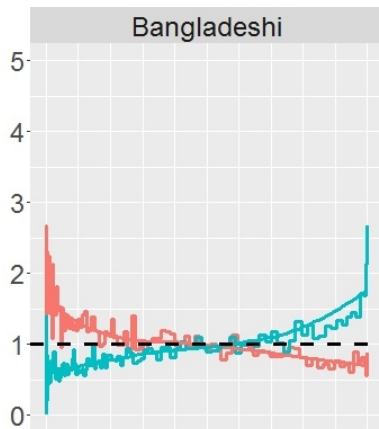
Reading: Black Caribbean



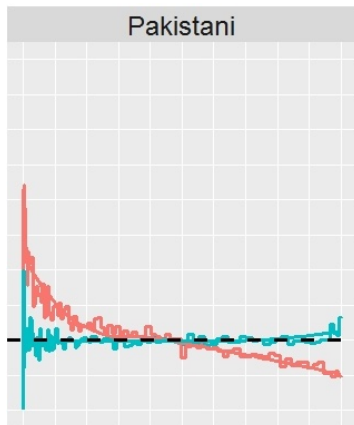
Reading: White / Black Caribbean



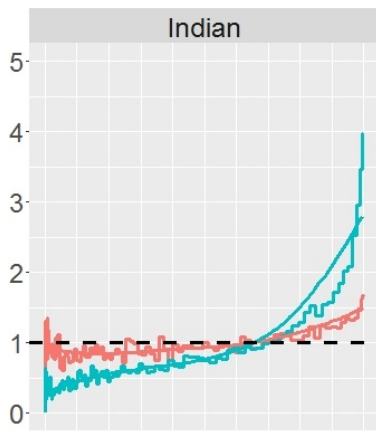
Maths: Bangladeshi



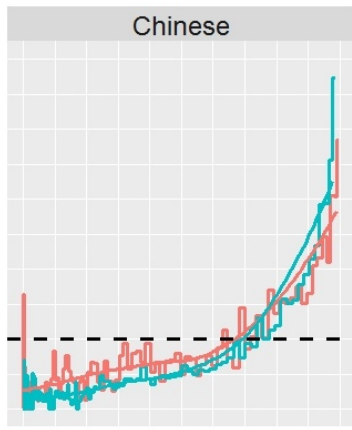
Maths: Pakistani



Maths: Indian

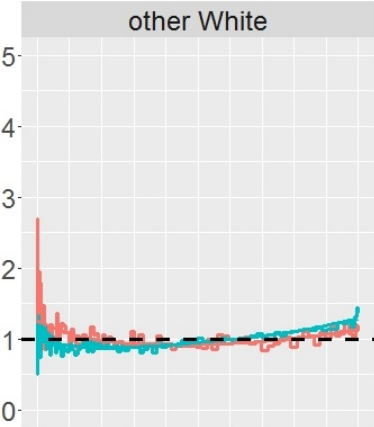


Maths: Chinese

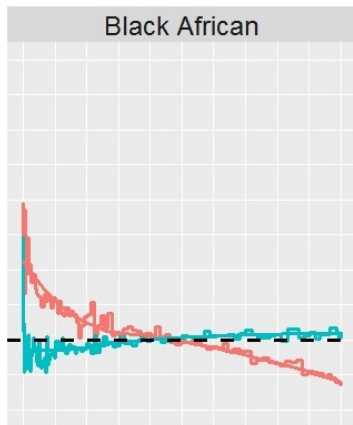


- ▶ For the Chinese, the relative distribution for 2018 (blue line) was top censored to fit the scale; the value was about 12 for the maximum test score.

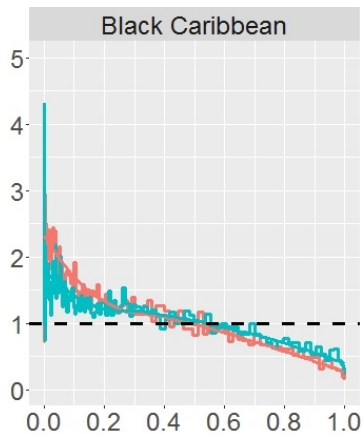
Maths: other White



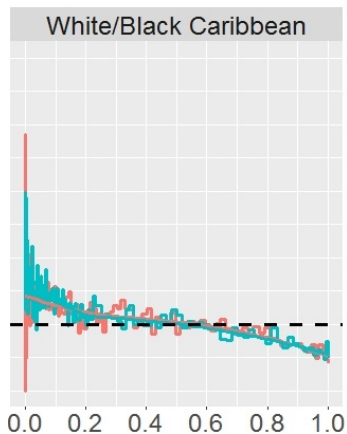
Maths: Black African



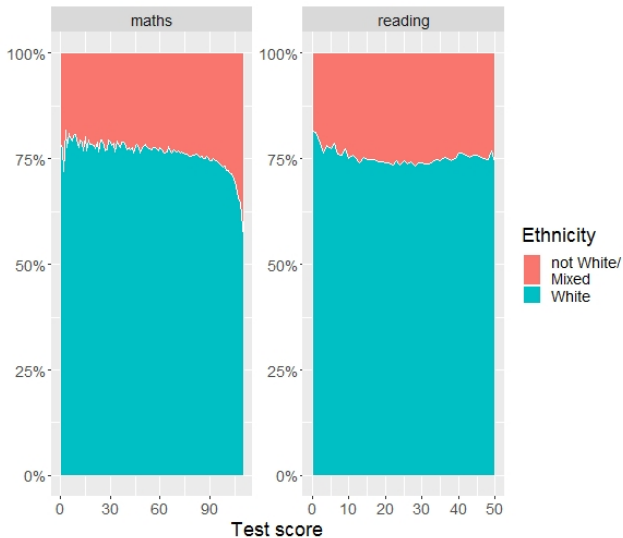
Maths: Black Caribbean



Maths: White / Black Caribbean



The White/non-White proportion across the test distributions (2018)



Summary of results

- ▶ Previous results confirmed: test performance highest in the British Chinese and Indian categories, lowest in the British Black Caribbean category.
- ▶ Differential dynamics between 2007 and 2018: relative to the White British, improvement in the British Bangladeshi, Black African, Indian, Chinese and Pakistani categories. Note that improvement happened in the categories that increased in size between 2007 and 2018 (except other White).
- ▶ No or little relative change in the other White, Black Caribbean and white / Black Caribbean categories

Discussion

- ▶ What explains differential dynamics by ethnic category?
- ▶ 'Culture' and inherent group characteristics do not change quickly
- ▶ Selective migration to the UK (my favourite explanation, but needs to be shown empirically)
- ▶ 'BAME' doesn't make sense

Limitations

- ▶ Independent schools are missing from the data (but note that the proportion of ethnic minority students in independent schools is about the same as in state schools)
- ▶ The definition and measurement of ethnicity

Reference

- ▶ A.Bessudnov. (2023.) “Ethnic differences in reading and mathematical test performance in primary schools in England”. SocArXiv. April 20. <https://doi.org/10.31235/osf.io/5wvx2>