

London

Is there a correlation
between air pollution
and educational
outcomes?



Consultants

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Data

A faded, light-colored background image of the Tower Bridge in London, showing its two towers and suspension cables. The bridge is reflected in the water below.

Open Data London:
<https://data.london.gov.uk>

Compare School Performance in England:
<https://www.compare-school-performance.service.gov.uk/>

Education

Exam results for years 2016-2019:

KS1 age 7/8

KS2 age 10/11

GCSE age 15/16



Pollution

Summary data by borough for years 2010, 2013, 2016 for the following pollutants: CO₂*, NO_x*, PM_{2.5}* and PM₁₀*

NO₂** data for individual schools for 2013 and 2016

PM_{2.5}** data for population weighted average concentration by borough for 2016

* tonnes/year

** annual mean µg/m³

Context

A faded, light-colored background image of the Tower Bridge in London, showing its two towers and suspension cables. The bridge is reflected in the water below.

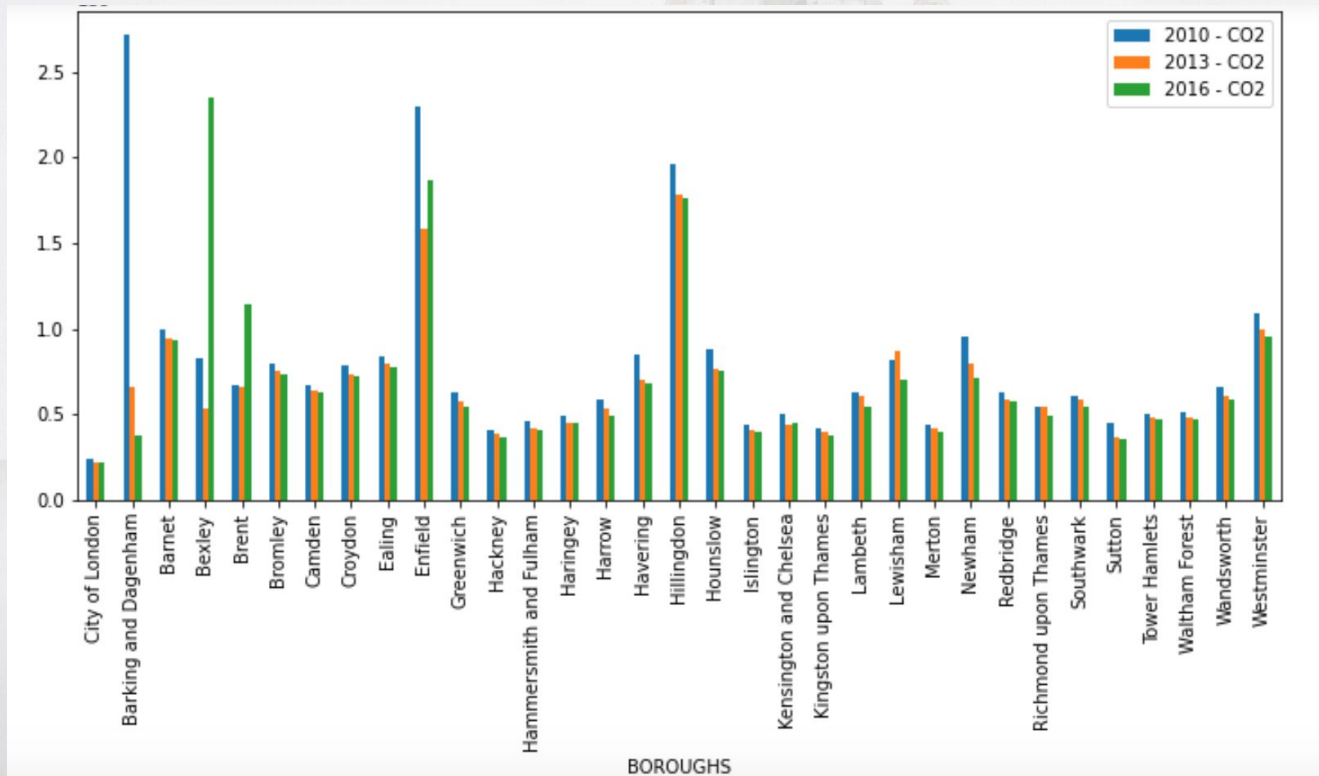
World Health Organisation's recommended max pollution levels are exceeded:

in ~25% of schools for NO_2^*

in all boroughs for $\text{PM}_{2.5}^*$

*annual mean, $\mu\text{g}/\text{m}^3$

Context



Findings

A faded, light-colored background image of the Tower Bridge in London, showing its two towers and suspension cables. The bridge is reflected in the water below, and the overall image has a soft, hazy appearance.

No strong correlation observed between educational outcomes and pollution.

However:

Moderate negative correlation between CO₂ levels and KS1 and KS2 grades per borough

Constraints

A faded, light-colored background image of the Tower Bridge in London, showing its two towers and suspension cables. The bridge is reflected in the water below, and the overall image has a soft, hazy appearance.

Pollutants other than NO_2 only available at Borough level

Large number of uncontrollable variables

Correlation \neq causality

Recommendations

The background of the slide is a faded, misty image of the Tower Bridge in London. The bridge's two towers and suspension cables are visible, and their reflection is clearly seen in the water below. The overall atmosphere is hazy and grey.

Evidence to suggest that further study is justified

Further investigation at individual school level for pollutants other than NO₂