Research question

Do levels of environmental quality (EQ) affect Londoners’ happiness?

If so, how much do they? And what’s the (implicit) cost?

Novelty

A new microeconomic data set was collected for this study, including detailed happiness items and each respondent’s precise residential location to within a few metres.

GIS was used to associate respondents’ locations with EQ at much higher spatial resolution than previously attempted.

And multiple EQ parameters were considered, alongside additional spatial parameters, reducing the problem of omitted spatial covariates.

A spatial smoothing estimator, latent class regression, and an intermediate variables approach to characterising experienced EQ were also employed.

Methods

One thousand Londoners—representative by gender, age, and income brackets, and by residence in inner vs. outer London—filled out a web-based survey.

An advanced web surveying framework, websperiment, was developed for this purpose, which enabled the use of interactive, map-based location questions.

Measuring EQ

EQ levels were measured by taking very detailed spatial data on...

- Air quality (PM10 exceedence days)
- GLA LAEI 2006 (20m cells)
- Green space
- Landcover Map 2000 (25m cells), OpenStreetMap (vector)
- Traffic noise
- Defra (10m cells)
- Aircraft noise
- DfT (contours)
- Crime rate
- Met police (by sub-ward)

...and using GIS (Geographical Information System) software to calculate levels for the precise location of each respondent’s home and workplace (either point-based values, or kernel-weighted averages).

Controlling for other factors

All the major factors that have been significant in previous happiness research, and some others, were controlled for, including age, gender, marital status, work status, income, home ownership, education, housing quality and land values.

Measuring happiness

Happiness was measured with a standardised aggregate score of 30 self-reported wellbeing questions taken from the latest European Social Survey round.

Key findings

From a simple ordinary least squares regression (OLS), air quality had a significant effect on respondents’ happiness, both before and after controlling for other things. One additional day per year on which PM10 levels exceed the EU legal limit reduced happiness by 0.03 z-scores.

This size of this effect appears equivalent to the loss of about £5,000 per year. This seems rather high, although large monetary estimates for intangibles seem relatively common in the happiness economics literature.

A spatial smoothing estimator, latent class regression models estimated, and a model substituting intermediate experienced EQ variables for the EQ measures all gave qualitatively indistinguishable results from the basic OLS.