



# Children's places:

**How they shape health and  
influence social and economic  
outcomes**

Briefing report

## Overview

**Places in which children live, learn and play are important determinants of their health, but we lack knowledge about the magnitude and scale at which place-based factors act and interact.**

Childhood is a critical stage in life for human capital development.

Places and communities in which children spend their time influence their health and cognitive development, for example, through social norms driving behaviours, family traditions, exposure to pollutants, access to substances, environments conducive to unhealthy eating and sedentary lifestyles.

Spending time in places that generate less healthy influences on children can hinder their human capital development and is a barrier to economic productivity and social development in later life.

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## What we know so far

**Previous studies showed a consistent link between some place-based factors and children's educational attainment.**

Strongest evidence exists for green space and air pollution exposure at school and home.



Positive effect on educational attainment



Negative effect on educational attainment

Other place-based factors are less studied, or evidence is inconclusive, for example, for transport noise.

## What we don't know

### ■ What is the relative importance of different places?

Children split their time across multiple and diverse places, which have different influences on their behaviours, educational development, and health. Little is known about the relevance of different places, such as home, school and third places.

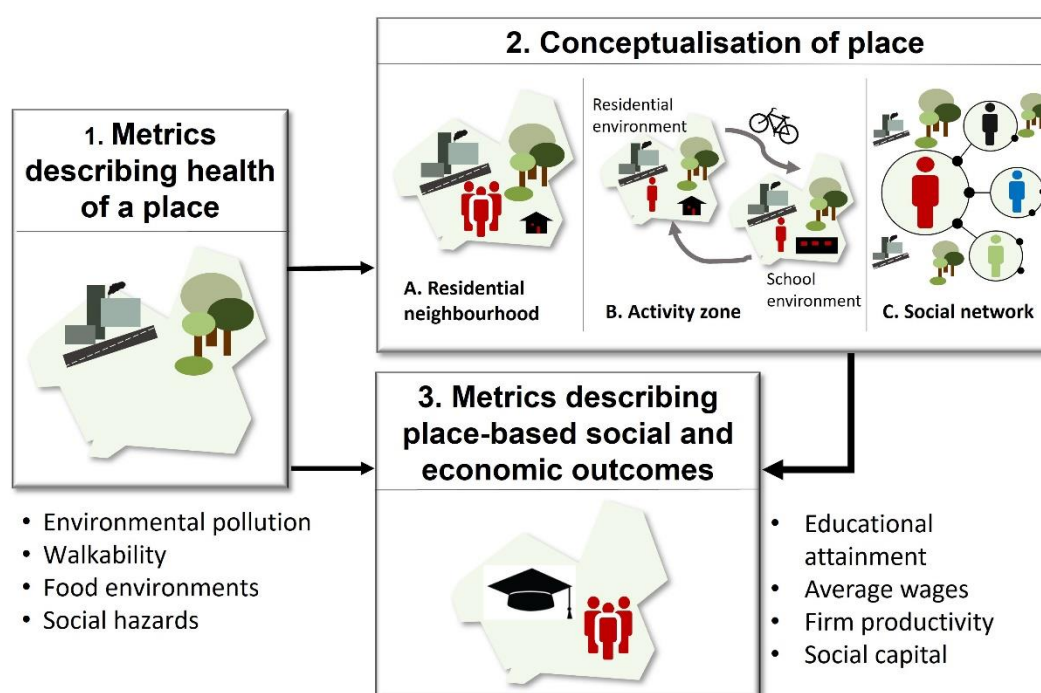
### ■ How can we measure the impact of 'online' places?

Widespread participation in social networks creates 'online' places via connections of followers. The flow of information and conversation amongst followers generates influences and social norms that can spread health-promoting or harmful behaviours and influences. Little is known about the impact of 'online' places on children's educational development.

### ■ Do places with better educational outcomes have higher wages?

Human capital, such as educational development, is a key driver of local economic growth, and narrowing disparities in human capital development is a pathway to an inclusive model of economic growth. Little is known about the 'spill over' effects in human capital development, meaning that place-based outcomes are not simply the sum of individual outcomes.

## What we have done





## About this research

- Our study design and research questions were informed by reviewing the existing evidence and focus groups with young people.
- We used routinely collected and publicly available data from Ordnance Survey, Department of Education, National Pupil Database, Understanding Society, and Twitter.
- We focused on health-relevant determinants of places related to environmental pollution (air pollution), physical environment (walkability), food environment (unhealthy food outlets) and social hazards (betting).
- We defined places as the neighbourhood of residence, the school neighbourhood and the school social media sphere (constructed using Twitter data).
- We assessed the effect of place characteristic on educational attainment using information from 180,000 pupils (510 schools) in London and Newcastle.
- We assessed the effect of educational attainment on human capital using information from Understanding Society.
- This study was funded by the Health Foundation under the Social and Economic Value of Place programme.

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## What we learned

**We found important influences of place-based characteristic on children's educational attainment.** The school, both as a physical place (i.e., the school neighbourhood) and as an online place (i.e., the school's social media sphere), has a critical role in affecting children's educational outcomes.

### We found strong evidence that:



Children attending a school in a highly walkable area are less likely to be absent from school.



Children attending school with an online presence that is indicative of unhealthy eating are more likely to be absent from school.

**We found some evidence that:**



Children attending school in a health promoting area, with fewer fast-food outlets, corner shops and betting shops are less likely to be absent from school.



Children living in an area with fewer fast-food outlets, corner shops and betting shops are less likely to be absent from school.



Children attending school in a highly walkable area or live in a highly walkable area are more likely to do well at GCSE (achieving 5 or more grades 4-9).

We did not find evidence of an effect of environmental pollution on educational attainment.

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**We found a negative effect of neighbourhood-average educational attainment on neighbourhood gross annual earnings.**



A 1% increase in the proportion of people with a university degree in an area is correlated to 12% higher wages in that area, indicating a human capital 'spill over' effect.



A 1% increase in university degrees is associated with 2% drop in wages, when accounting for area-level characteristics such as crime rates and air pollution.



This effect is stronger for higher paid jobs with a 3% drop in wages per 1% increase in university degrees.



Human capital 'spill over' effect might be hampered by skill incompatibility in areas of higher education.

## What does this mean?

- Place-based characteristics have important influences on educational attainment for children living and learning in these places.
  - Place-based interventions have a crucial role in reducing the educational gap.
  - Policy makers should prioritise the importance of the social context in recommendations to ensure inclusivity and to maximise public health benefits.
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- Schools have a strong online presence, which represents an opportunity for positive public health messaging via their Twitter and other social media accounts.
  - Knowledge of the extent to which gambling and fast-food accounts are followed by followers of each school may be used by schools to guide public health messaging, and by local authorities to allocate resources of public health campaigns.
  - As the online realm becomes an increasingly important medium by which public health influences are conveyed, it is important that mechanisms by which to study these influences are developed in tandem.
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- The magnitude of social returns to education is crucial to address the efficiency of public investments in education and for local development policies.
  - We showed a potential skill mismatch for high-paid jobs, highlighting the need for a better communication within the labour market.
  - Our results feed into the debate on the UK geographical disparities and the drivers and potential approaches to it, such as the levelling-up agenda.

# Who we are

**Dr Daniela Fecht** is a Senior Lecturer in Geospatial Health at the MRC Centre for Environment & Health, School of Public Health, Imperial College London. She studies geographical variations in population health, with focus on urban systems, place-based health determinants and health inequalities.

**Prof Franco Sassi** holds a Chair in International Health Policy and Economics and is the Director of the Centre for Health Economics and Policy Innovation at the Imperial College Business School. His body of work is aimed at assessing the impacts of public policies to tackle major chronic diseases and their predisposing risk factors.

**Prof Mauricio Barahona** holds a Chair in Biomathematics at the Department of Mathematics, Imperial College London. His research focuses on the links between dynamics and graph-theoretical properties aimed at the analysis of network dynamics.

**Dr Weiyi Wang** is a Research Associate in Environmental Epidemiology at the MRC Centre for Environment & Health, at the School of Public Health, Imperial College London. Her research focuses on environmental epidemiology and the development of spatio-temporal exposure models.

**Dr Veronica Toffolutti** is a Lecturer in Health Economics at the Wolfson Institute of Population Health, Queen Mary University of London. Her main research interest is to understand how policy can affect health.

**Dr Jonathan Clarke** is a Sir Henry Wellcome Postdoctoral Fellow at the EPSRC Centre for Mathematics of Precision Healthcare, Imperial College London. He applies data science and network analysis to explore healthcare in the NHS and internationally as a complex system.

**Dr Lan Wang** is a Research Associate in the Department of Mathematics, Imperial College London. Her research focuses on data science in, machine learning and data analytics for improving the quality of healthcare services.

**The MRC Centre for Environment & Health** brings together leading groups conducting research on diverse fields of environment and health at Imperial College London and other partner research institutes in the UK. The Centre is generously funded by the Medical Research Council and has strong links with the National Institute for Health Research Health Protection Research Units (NIHR HPRU) in Chemical and Radiation Threats and Hazards and in Environmental Exposures and Health. Research at the MRC Centre for Environment and Health focusses on the study of the health effects of ubiquitous environmental hazards of major public health and scientific importance, such as air pollution, noise pollution, non-ionising radiation and other agents.

**The Centre for Health Economics & Policy Innovation** (CHEPI) is build around a distinctive programme of multi-disciplinary research and teaching on health economics, policy and management at Imperial College Business School. CHEPI's mission is to research incentives and environments that encourage individuals and organisations to make health-enhancing decisions. CHEPI supports the development of business and government policies that embed those incentives and crease those environments.

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