

## **Title**

The Long Run Intergenerational Impacts on Health and Education of Gestational Exposure to the Introduction of the National Health Service in the UK

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## **Abstract**

### **Background:**

The introduction of the National Health Service on the 5th of July 1948 in the UK meant free access to healthcare for all residents. This free access to healthcare would have made healthcare more accessible especially to those of the lower socioeconomic status.

In this paper I study the intergenerational health impacts of gestational exposure to the introduction of the National Health Service by studying the impact on the health outcomes of the second and third generations of those born around the introduction of the NHS. The main research question the paper will try to answer is if policy interventions or programs can reduce the disparities by socioeconomic group in the persistence of poor health outcomes across generations. Recent work in epidemiology finds that environmental factors can affect the gene expression (phenotype to phenotype transmission) This strengthens the case for investigating how policies, which proxy the environment, can impact second and third generations health outcomes.

### **Methods:**

Using linked census data, I construct multi-generational family units and using a fuzzy regression discontinuity design, using the date of birth and year of birth to assign treatment, I study the impact on the education and birth outcomes, self-reported health outcomes and cancer incidence of the treated, the children and grandchildren of those exposed during gestation to the NHS introduction.

### **Results:**

In the second generation, I find poorer education outcomes for those of the lower socioeconomic status. I will explore this by which parent was treated to understand the differences if the mother or father was treated. Next, in order to understand these outcomes, I also look at the first generation effects. I find positive impacts on the first generations health and education outcomes overall, but mixed effects by gender. I also find positive impacts for females of the lower socioeconomic status, but negative impacts for males of the lower socioeconomic status and negative effects overall for those of the lower socioeconomic status. I find no effects on the birth outcomes of the third generation. I also attempt to analyse the mechanisms by exploring biological as opposed to income effects by looking at biological children compared to adopted children to better understand which effects dominate across generations.

I also analyse the impact it would have had on health mobility across generations by analysing how the parents health and education outcomes would impact those of their children and to study if there was indeed persistence of outcomes across generations, if this persistence would be impacted by the introduction of the NHS, since the persistence of poor health and educational outcomes are more prevalent in those of the lower socio-economic status and

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since the NHS introduction would have disproportionately benefitted this group, I would expect an increase in educational and health mobility across generations.

**Conclusions:**

Policies that target the period of gestation and early childhood, can impact health and educational outcomes across generations, and while it would not be possible to claim causality through biological or income effects through this paper, the paper does illustrate the long run impacts across generations and the persistence of outcomes across generations.

**Keywords: Foetal Origins, Health and Inequality, Social Mobility, Health Insurance- Public and Private, Birth Outcomes, Self-Reported Health, Cancer Incidence**