How Redistributive are Public Healthcare Systems? Evidence from the English NHS

Public health insurance systems represent huge expenditures for most developed countries. For example, the UK spent 8.2% of GDP on publicly providing healthcare in 2022-23. However, despite these massive expenditures, little is known about how redistributive such systems are: who pays into, and who benefits from these systems over their lifetime?

In this paper, we estimate the distribution of lifetime medical transfers received from the English National Health Service and the lifetime distribution of tax paid for that care. To do this, we use a unique dataset that is a representative sample of the English population born between 1930 and 1955 from the English Longitudinal Study of Ageing matched to 20 years of administrative hospital records (1997 to 2017) and 55 years of earnings tax records (1948 to 2003). This detailed panel of healthcare costs and taxes paid allows us to produce the first estimates of lifetime redistribution achieved by a public health insurance system covering all ages, extending previous work studying US health programmes for the elderly (McClellan and Skinner, 2006; Lakdawalla and Bhattacharya, 2006; Rettermaier, 2012).

We compute individual tax payments in each year by applying the prevailing income and payroll tax schedules to estimated individual earnings. To estimate income, we use observed earnings from payroll tax ('National Insurance') records between 1948 and 2003, and predict future earnings and pension income for the post-2003 period based on age, sex and individual fixed effects. Lifetime tax payments are calculated by taking a weighted average of these payments, with weights based on individual survival probabilities each year up to age 110.

We estimate lifetime medical spending by taking the discounted sum of annual public medical spending over the lifecycle. We observe actual hospital spending at the individual level between 1997 and 2017. For years before and after this we apply average hospital spending by age, sex and permanent income (PI) group, under the assumption that the relative gradient of spending does not change across these groups over time. For each year, we also estimate average non-hospital costs by age, sex and PI group based on a number of data sources, and medical 'overheads' (such as capital spending) so that overall health spending matches national aggregates. Spending is deflated to 2022 prices using the GDP deflator and discounted by 3% per year.

We show these transfers and tax payments across three PI measures: lifetime earnings, local area deprivation and educational attainment. The results show that the NHS is progressive, with the net present value of lifetime tax payments rising across PI groups while the net present value of lifetime medical transfers is broadly flat. This result holds regardless of the PI measure used but we find that the NHS is slightly more progressive when looking across deprivation groups rather than across lifetime income groups.

References

1. Bhattacharya, J. and Lakdawalla, D., N. (2006), `Does Medicare Benefit the Poor?', *J Pub Econ*, 90(1-2): 277-292.
2. McClellan, M and Skinner, J (2006), `The Incidence of Medicare', *J Pub Econ*, 90: 257-276.
3. Retteinmaier, A. (2012), `The distribution of lifetime Medicare benefits, taxes and premiums: Evidence from individual level data', *J Pub Econ*, 96: 760-772.

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