Inequality

The IFS Deaton Review

Socio-economic inequality in the distribution of healthcare in the UK

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Introduction

This short commentary offers a parallel examination of inequality in healthcare to the detailed examination given by Case and Kraftman (2022) in their chapter for the IFS Deaton Review of Inequalities. In three parts, it begins with a discussion of how healthcare is modelled in a human capital approach and what that implies for inequality in the distribution of healthcare. This is followed by an outline some of the key issues in trying to measure inequalities in healthcare. It ends with a brief review of what the empirical literature shows on inequality in healthcare utilisation in the UK by socio-economic status (SES).[2]

Health production

An economics perspective stresses that healthcare is an input into the production of health rather than a final good (Grossman, 1972).[3] Medical care is combined with other inputs to produce health, and it is health that individuals value, both to enjoy current consumption of other goods and as an investment to extend healthy life years. Healthcare is not valued as a direct input as, unlike some other inputs whose distribution society cares about (e.g. education), consuming healthcare is not generally an enjoyable experience, though some aspects of preventative care may be (going running, eating well, having massages). Healthcare is beneficial because it builds up and rectifies falls in the stock of health and allows enjoyment of other consumption.

While the basic Grossman model is not focused on the issue of socio-economic inequalities in health (and ignores any causal link between health and future income), its components make clear that inequality in the distribution of healthcare (however defined) may arise for (at least) two different types of reason.

First, individuals will vary in their taste for health and consumption. Variation in taste means individuals will choose different levels of investment in health (including medical care) depending on their tastes as well as their resource constraints. This is not necessarily inequitable. Second, as stressed in Case and Kraftman (2022), health production involves many inputs. Other inputs include health-related consumption such as diet, physical activity, smoking, drinking, narcotic use, etc. The ability to produce health from a given set of inputs will depend on the individual's knowledge and the environment they face, including health-related factors such as living and working conditions, stressful aspects of the social and economic environment, air pollution, noise pollution, water pollution, transport safety, violent crime, etc. Thus, even if healthcare prices are set to zero, there are many other factors that may lead to socio-economic inequality in the receipt of healthcare (and in health).

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[1] My thanks to Angus Deaton and James Banks for helpful discussion and comments.

[2] This commentary draws heavily on Cookson et al. (2015).

[3] The model has been developed to accommodate the growing body of evidence about the importance of physiological and skills development in early life (Almond and Currie, 2011; Galama and van Kippersluis, 2013).

First, as noted by Case and Kraftman, poorer/socio-economically disadvantaged individuals will have fewer resources (wealth, human and social capital) to invest in the production of health. If these resources are complements to medical care, then a unit of medical care will be less beneficial than for a richer individual who will have more resources to utilise alongside that medical care. If these other inputs are substitutes, then a unit of medical care will be more beneficial for the richer person. It is likely that in many cases these inputs are complements – for example, higher social capital may allow a wealthier person to be better able to negotiate the healthcare system.

Second, the nature of some low-income individual's lives may also mean they are heavily time constrained. If so, this will raise the relative prices of time inputs for them and they may therefore value the opportunity costs from using healthcare (e.g. time away from domestic and work duties, travel costs) more highly than the potential health gains, particularly when considering investments in health such as preventative care. Thus, poorer individuals may use less preventive healthcare when facing no immediate pain or disability, and present to healthcare providers at a later stage of illness. This will mean that when they finally access healthcare they will be in greater need and require more healthcare inputs.

Third, less-educated people may use their bodies for work, entertainment and leisure because they have less other kinds of capital, and thus must wear down their bodies more rapidly (Muurinen and Legrand, 1985).

Fourth, the quality of care received may depend in part upon the intensity and effectiveness of care-seeking behaviour, for example in navigating through a complex healthcare system and lobbying providers for the best quality care. Again, individuals with fewer resources will be less equipped to undertake such activity.

All these reasons mean that we would expect, even in a system with zero monetary prices, to see poorer individuals having a greater need for care, and to require more healthcare relative to that need. And to the extent that any measures of inequality in healthcare utilisation do not take into account the resources required by the individual to use healthcare inputs, they will present an overly positive picture of inequities in the receipt of care.[4]

Regardless of the fact that some healthcare differences across individuals may not be the result of inequality, or that investment in healthcare may be less beneficial than other investments, in almost all countries there is a concern about the distribution of healthcare. This is for a variety of reasons. Some are more focused on efficiency (e.g. a range of market failures in healthcare markets or the fact that individuals who are sick are less productive in all aspects of their life); one way of raising productivity is to invest in health – and one such investment is healthcare. Others are driven by more distributional concerns. For example, the argument that access to healthcare

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[4] There is a related question about the effectiveness of healthcare in producing health. There is widespread agreement that there have been large reductions in mortality rates as a result of public health investments (e.g. clean water, sanitation, vaccines), as discussed in Case and Kraftman (2022). There have been important innovations in particular areas of healthcare (e.g. cancer treatment and cardiovascular health) that have affected mortality rates. There is also a literature that shows that expansion of healthcare to groups that did not have it before does increase health even in systems such as that in the United States (as discussed by Currie, 2022, in her commentary in this Review), and widespread agreement that early life healthcare investments in health improve later life. But as Case and Kraftman point out, there are many other important factors that produce health and the relative strength of these is the matter of considerable academic debate. And what has been rarely attempted and is hard to establish is to compare the causal gains in health across different kinds of investment (e.g. education, healthcare or improvements in work conditions).

is a basic right, as access to healthcare provides reassurance, and that this is something society feels should be equally accessed by all. Or that even if healthcare is not a major determinant of health, it is one that is under social control, and society therefore cares more about health inequalities that are caused by healthcare than about ones that are not.

Almost all countries intervene in healthcare markets to provide public funding for healthcare. Such funding generally follows some kind of vertical equity principle. For example, individuals who are richer pay more (though not necessarily proportionally more) in tax-funded or social insurance systems whilst, in other systems, those who have less income receive public funding whilst those above some threshold income do not (e.g. Medicaid in the US). However, a common arrangement in many systems is that there are also certain groups who may receive funding regardless of their income (e.g. pregnant women, the elderly, civil servants). And in systems in which employers are the main provider of healthcare, if (as in the US) healthcare costs vary little with income, an important element of healthcare is financed in a regressive way.

In many systems, there is also public provision of healthcare. Public healthcare provision is again often targeted at individuals with fewer resources (e.g. the poor, the old, those living in rural areas, veterans). In some systems (e.g. the National Health Systems of the Nordic countries, the UK, some Southern European countries, Australia), public provision is the dominant form of provision and is available to all, though private provision, allocated according to ability to pay, often exists alongside public provision (OECD, 2019).

However, exactly what equity goals governments wish to meet by these interventions is less well articulated. The academic literature draws attention to the fact that there are several definitions of equity relating to healthcare, including equal access, equal treatment for equal need or equal outcomes. All of these give different policy recommendations in terms of where and how the government should intervene in healthcare markets.

Measuring inequality in healthcare

The empirical literature on social inequality in healthcare usually adopts a normative perspective that seeks to distinguish 'appropriate' or 'fair' inequalities in healthcare from 'inappropriate' or 'unfair' inequalities. To mark this distinction, it is common in the literature to use the word 'inequities' (in Europe) or 'disparities' (in the US) to mean 'unfair' social inequalities in healthcare; though there is considerable variation in usage (Gravelle, Morris and Sutton, 2006; O'Donnell and van Doorslaer, 2008; Fleurbaey and Schokkaert, 2009). The basic idea is to measure departures from 'horizontal equity' – the appropriately equal treatment of people who are alike in relevant respects. Most authors in this literature define horizontal equity in healthcare in terms of the principle of 'equal access for equal need' – that is, citizens with equal need for healthcare should have equal access to high-quality care. Some authors argue that the appropriate objective should be the more demanding one of equal utilisation for equal need (Sen, 2002; O'Donnell and van Doorslaer, 2008). However, other authors argue that it is important to respect individual preferences about how far to seek, accept and adhere to needed healthcare (Fleurbaey and Schokkaert, 2011).

In practice, the empirical literature has focused on equality of utilisation, and interpreted this either as the relevant equity objective or as a proxy for equality of access. To measure departures from horizontal equity, the basic research strategy has generally been to measure cross-sectional associations between a socio-economic variable (e.g. income) and a healthcare variable (e.g. doctor visits) after adjusting for 'appropriate' or 'fair' differences due to differences in individual needs and, in some cases, preferences (Fleurbaey and Schokkaert, 2011). Even

restricting attention to the association between current measures of ability to pay and current need (so ignoring the fact that current needs are likely to be the product of past healthcare and that there is a causal relationship between need and income), this exercise is methodologically challenging for several reasons.

The appropriate magnitude of adjustment for 'fair' differences requires a potentially contestable normative assumption about how far people with different needs and preferences should be treated differently (Sutton, 2002). This is an assumption about 'vertical equity' – the appropriately different treatment of people who differ in relevant respects. Except in rare cases where it is reasonable to assume that all individuals have identical needs and preferences for healthcare, it is not possible to measure horizontal equity in healthcare without making a normative assumption about vertical equity. The simplest and most common vertical equity assumption is that the current population average relationship between need and utilisation is appropriate (i.e. 'on average, the system gets it right'). This assumption implies that need adjustment should be performed by estimating needed healthcare using population average reference values of non-need characteristics. An alternative assumption is that the need–utilisation relationship among socio-economically advantaged individuals is appropriate (i.e. 'the system gets it right for socio-economically advantaged patients').

Another problem is that data on healthcare needs are often limited and may underestimate the additional needs of socio-economically disadvantaged individuals (Cookson et al., 2015). Data for the empirical studies of departures from equity in healthcare tend to be drawn either from household survey data or administrative data (primarily routine hospital data, but also care in primary settings and specialised clinical registry data for particular conditions). One common limitation in both kinds of data is lack of detailed information on either stage of illness or multi-morbidity (the combination of multiple diseases in the same individual), both of which tend to be more severe in deprived individuals. A particular limitation in survey data is reporting bias in measures of self-reported health, whereby disadvantaged individuals tend to self-report better subjective health despite having worse 'objective' disease status from an external clinical perspective. This applies both to general measures of health and to reports of specific health conditions (Bago D'Uva et al., 2008; Bago d'Uva, Jones and van Doorslaer, 2009; Johnston, Propper and Shields, 2009; Johnston et al., 2014). Another limitation of household survey data is that sample size limitations often preclude studies of inequalities in the use of healthcare for specific conditions (Cookson, Laudicella and Donni, 2012).

Although administrative data have larger sample sizes, as Case and Kraftman point out, they have limited measures of ability to pay. Standard hospital discharge data sets do not contain measures of education or income. For example, UK administrative data on health do not include measures of patient or household ability to pay and have not been matched to other administrative data that provide measures such as tax records, though this has been done in other countries.

Another challenge is heterogeneity in needs and preferences between individuals. This can mean, for example, that the degree of horizontal inequity may vary between groups of individuals depending on their level of medical need.[5] Aggregation at too coarse a level may hide such inequalities. Finally, almost all analyses to date take income and need (however defined) as given and have examined departures from equity at one point in time. If there is pro-rich inequality at all ages, then a cross-sectional snapshot will underestimate the extent to which healthcare is pro-

[5] For example, there might be substantial horizontal inequity between rich and poor patients with mildly elevated blood pressure (a 'low' level of need) but no horizontal inequity among patients with severe heart disease (a 'high' level of need).

rich. More broadly, such analyses do not take into account the dynamic relationship between health and ability to pay: the fact that being in poor health and being unable to work leads to lower income in the future. As a result of these methodological challenges, it is often hard to draw clear normative conclusions about the extent of 'horizontal inequity' as opposed to positive conclusions about inequality.

Inequality in healthcare in the UK by socio-economic status

The UK National Health Service (NHS) is tax-funded and provision of care is free at the point of demand and provided by the public sector (in the case of hospital care) and a mixture of private contractors and public sector providers in care in community settings.[6] The NHS provides a relatively generous package of healthcare, which makes up nearly 85% of national healthcare expenditure. Whilst the level of public funding is high, however, the UK is not an outlier. As noted above, all high-income countries offer their citizens a package of publicly funded healthcare, though in some countries, the United States being one notable example, the publicly provided package for those who are not elderly or who meet other criteria (such as being in poverty and being a child) may be very limited. Despite this, all healthcare systems in wealthy countries have equity goals relating to access to, and/or delivery of, healthcare as well as its financing. The NHS version of this is 'equal treatment for equal need' and financing according to ability to pay (Ministry of Health, 1948).[7]

Most of the large body of literature on inequality in healthcare in the UK focuses on the 'equal treatment for equal need' goal though there is also a literature on vertical equity in financing (initiated in van Doorslaer et al., 1999). In terms of the assessments of 'equal treatment for equal need', as in the literature on health inequalities discussed by Case and Kraftman (2022), the more medical and sociological literature tends to focus on measures of SES to define ability to pay. While the general economics literature on inequality measurement focuses more on income or education, the lack of income data in many of the relevant healthcare and health administrative data sets for the UK means that economists have also used SES measures as their measure of ability to pay.[8] Thus, the approach taken in almost all administrative healthcare and health data studies in England is to proxy ability to pay by measures of the SES of the population of the area in which the patient lives. This is the index of multiple deprivation (IMD) based on just over 32,000 English small area neighbourhoods of approximately 1,500 people, introduced in the 2001 Census. As Case and Kraftman discuss (a discussion not repeated here), this composite measure has several limitations for the study of both health and healthcare inequality.

Cookson et al. (2015) provide a review of the economics literature, focusing on England. They present studies of departures from equality in healthcare supply, utilisation, expenditure and quality, and they also examine a smaller literature on inequality in patient experience and outcomes. Their review indicates the following set of stylised facts about the socio-economic distribution of healthcare, after some kind of adjustment for need:

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[6]   Around 80% of prescription drugs are provided free of charge (for example, all over-60s do not pay for these). For those who do pay, there is a fixed fee per prescription.

[7]   The English NHS is unusual in also having explicit policy objectives relating to reducing inequalities in healthcare outcomes, established in the Health and Social Care Act of 2012; see the Department of Health web page, https://www.gov.uk/government/publications/health-and-social-care-act-2012-fact-sheets, which links to a series of fact sheets explaining aspects of the Health and Social Care Act 2012.

[8]   There is also a large body of literature on social inequality in the distribution of healthcare by other individual characteristics such as ethnicity, geographical location, age, gender, type of illness and other aspects of disadvantage or vulnerability (Cookson et al., 2015).

- lower SES individuals consume a greater quantity of publicly funded NHS healthcare in terms of overall expenditure and utilisation;

- higher SES patients tend to achieve better healthcare outcomes (e.g. surgical mortality, preventable hospitalisation) even after adjusting for observable risk factors;

- higher SES individuals tend to present to healthcare providers at an earlier stage of disease progression; to consume more medical specialist visits including privately funded visits; to consume more preventative NHS care, such as screening and vaccination services; are more likely to receive a needed NHS hip or knee replacement operation and to be referred by their doctor for specialist investigation of hip pain; have shorter waiting times for heart bypass surgery and angioplasty; may receive slightly better NHS quality of care for some conditions as measured by clinical process quality indicators; and report slightly better patient experiences.

The picture is thus one of an overall 'pro-poor' distribution of quantity but a 'pro-rich' distribution of quality, experience and access to services including waits for treatment. However, in terms of magnitude, the pro-rich inequity gaps are generally slight and it is unusual to find a need- or risk-adjusted gap of greater than 10% in use of healthcare between the richest and poorest fifth of the IMD distribution. More recent work (e.g. OECD, 2019) confirms these broad patterns, though there is some indication that the impact of austerity on the NHS budget has perhaps worsened inequalities in hospital care use in the older population (e.g. Stoye et al., 2021). More generally, the patterns seen in England and other UK countries are not dissimilar to those for other European countries with social insurance or tax-funded systems.[9]

These stylised facts make sense in the context of a health production approach where healthcare is only one input into health and the costs of other inputs differ systematically with income. Individuals who have fewer resources will tend to have worse health at all stages of life. This helps to explain the finding under the first point above, as people with worse health need more healthcare and generally demand more healthcare in a universal health system such as the English NHS, which sets prices at or close to zero. It also helps to explain the second finding, as people with worse health are at risk of worse healthcare outcomes. It also helps rationalise the set of findings under the third point. Poorer individuals invest less time and money in improving their health because they have fewer resources to invest, face higher opportunity costs in terms of lost income and household production relative to their limited resources, and may value future health benefits less if they have a higher rate of time preference.

Finally, the literature cited above focuses on distribution by ability to pay. But there are also concerns around the spatial distribution of resources relative to need and how this is related to the distribution of resources by SES. It is well documented that there are large disparities in health across spatial areas (see, e.g. Department of Health and Social Care, 2022), and the allocation of general tax funding to the NHS on the basis of measures of need is intended to give more funding to areas where the population is in poorer health. However, there are factors that may work against this distributional objective. For example, the measures of need used in the resource allocation formulae may not fully reflect the health of the population. The measures of need are also not updated every year, so population change may mean that some areas receive more than they should, based on current need, and others receive less. In addition, funding decisions are devolved to local areas so as to better reflect local needs and priorities.

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[9] Wagstaff et al. (1999) provide an early international comparative assessment of the UK.

These factors can all lead to variation in both quantity and quality of services across local areas, a classic example of which is known as 'postcode lotteries' for care – that is, certain services have longer waiting lists in some areas than others, or certain services may not be available in some areas at all. For example, there have been long-standing concerns over differences in the quantity and quality of family doctors across areas, which have persisted over many decades, despite government attempts to tackle them (inter alia, Care Quality Commission, 2019; Fisher et al., 2022).

However, it is also likely that shortages of one type of service are not correlated with shortages of others. For example, teaching hospitals tend to be located in large cities and thus in areas where many low-income individuals live. In contrast, shortages of family doctors are more likely in areas of higher deprivation. To date, there have not been comprehensive analyses of such spatial inequalities – a task that remains to be done.

In conclusion, important gaps in knowledge remain. There are few UK studies that compare change over time, or that compare performance on equity in healthcare between different sub-national areas. It has been argued that the selection of condition-specific study topics is skewed by political priorities and available data (Cookson et al., 2015). A more systematic approach would place greater emphasis on conditions involving high disease burden, high expenditure and high potential health gains through more vigorous implementation of cost-effective healthcare. There is a dominance of papers on physical health and much less on mental health, even though mental health imposes a high burden on individuals and society. Studies of inequalities in healthcare could usefully be integrated with studies of wider inequalities in health.[10] Another useful research direction is to link survey data with administrative data (e.g. Stoye et al., 2021) to allow researchers to use measures of ability to pay, such as education and income, rather than a composite measure of SES. And importantly, studies rarely provide detailed information about how far these pro-rich inequities are attributable to the behaviour of healthcare suppliers as opposed to demand-side socio-economic differences in healthcare seeking and self-care behaviour. Yet for policymaking purposes, such information is important.

Finally, as noted above, most of the research on whether healthcare is allocated according to need has focused on appropriate adjustment for need, taking resources as given. But to the extent that ill health drives both health and socio-economic factors, particularly employment, earnings and income, it is no surprise that the poor use more healthcare. A life-cycle perspective, in which attention is given to the relationship between income and need (health), would allow a fuller assessment of the extent to which any distribution of healthcare resources is inequitable.

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[10] An example is Bajekal et al. (2012) who study trends in inequality in cardiovascular mortality and examine the contributions of trends in treatment uptake and risk factors.

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