The economics of health inequalities in the English NHS

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Overview

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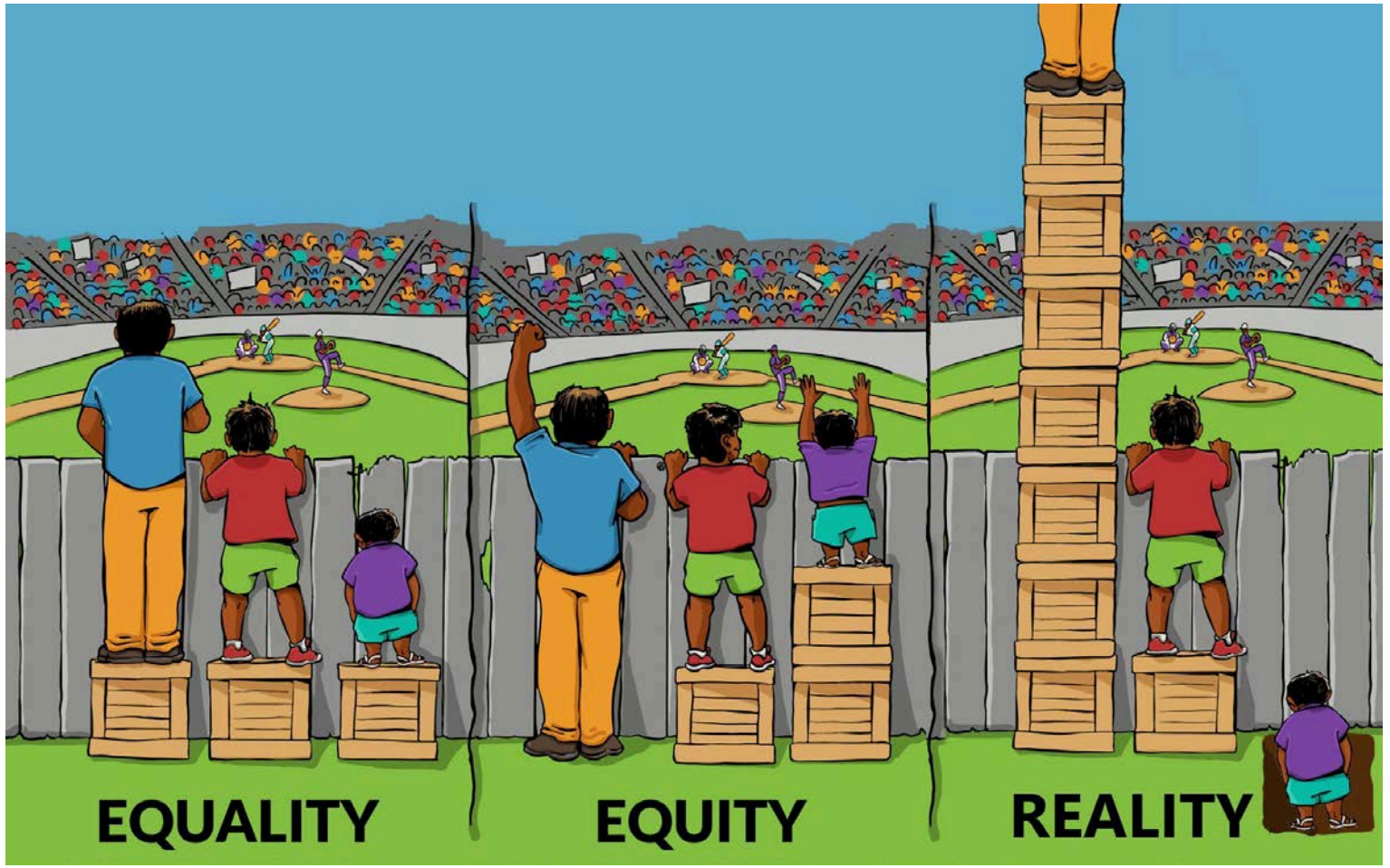
2) Cost of inequality
3) Inequality indicators
4) Distributional CEA
5) Conclusion

1. Introduction

Equity is Normative

- **Inequality** to economists just means **variation** or differences
- **Equity** refers to a **fair** or socially just allocation
  - Defining what we mean by fair requires us to make **social value judgements**
  - Equity does not always imply equality

Equality vs Equity



Source: The Partnership for Southern Equity (PSE) http://psequity.org/

Equality Measured How?

- **Relative** inequality
  - *Difference between 40 years and 50 years equivalent to difference between 80 years and 100 years*
- **Absolute** inequality
  - *Difference between 40 years and 50 years equivalent to difference between 80 years and 90 years*

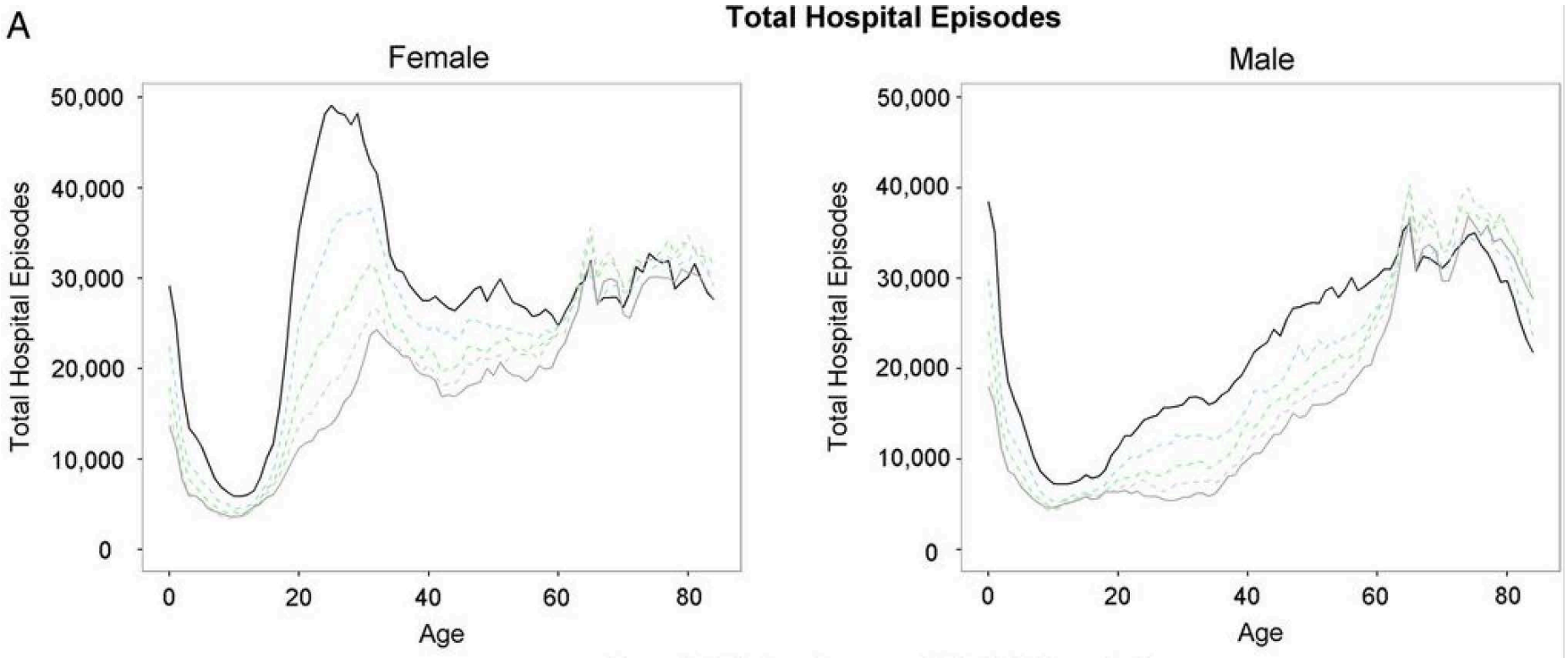
Horizontal & Vertical Equity

- Horizontal equity means the **equal treatment of equals** in relevant respects
- Vertical equity means the **unequal treatment for those who are unequal** in relevant respects

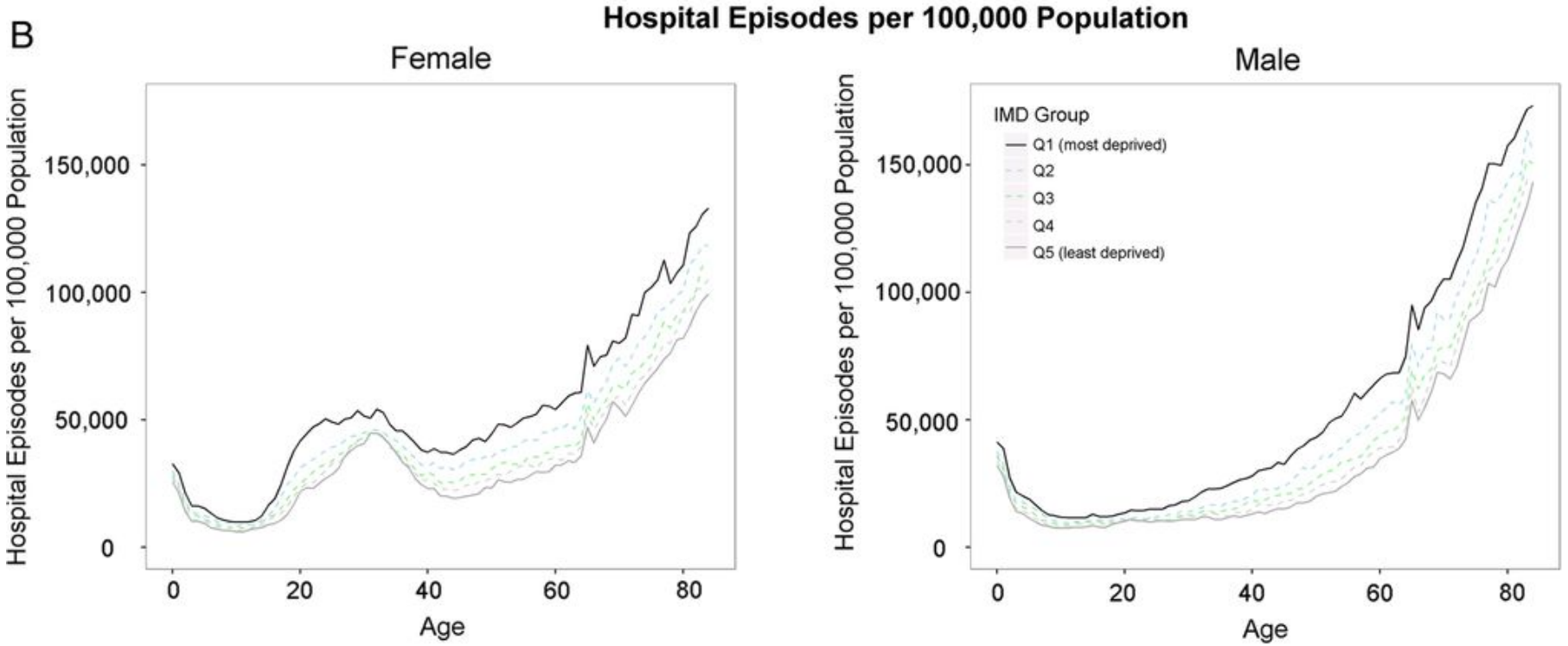
2. Cost of Inequality

Imagine if poor people were as healthy as rich people

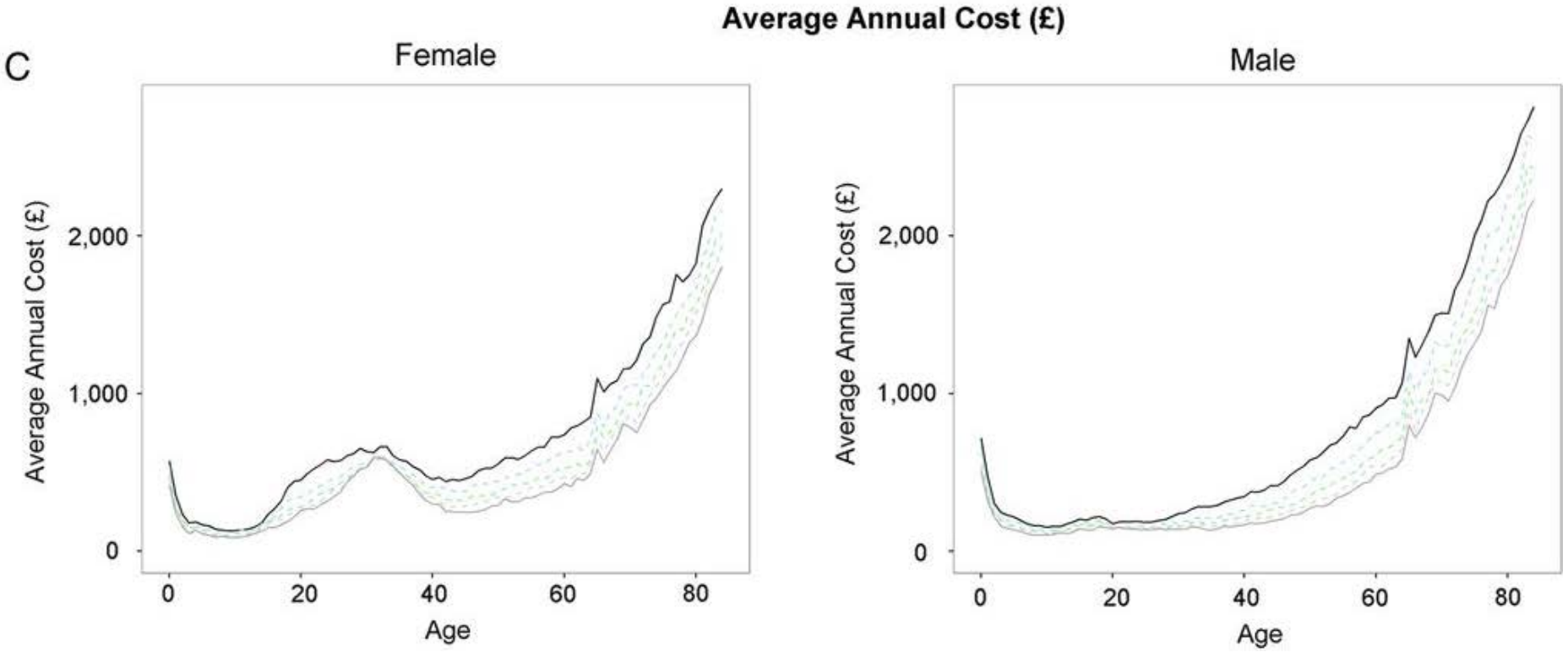
Inpatient Hospital Episodes 2011/12



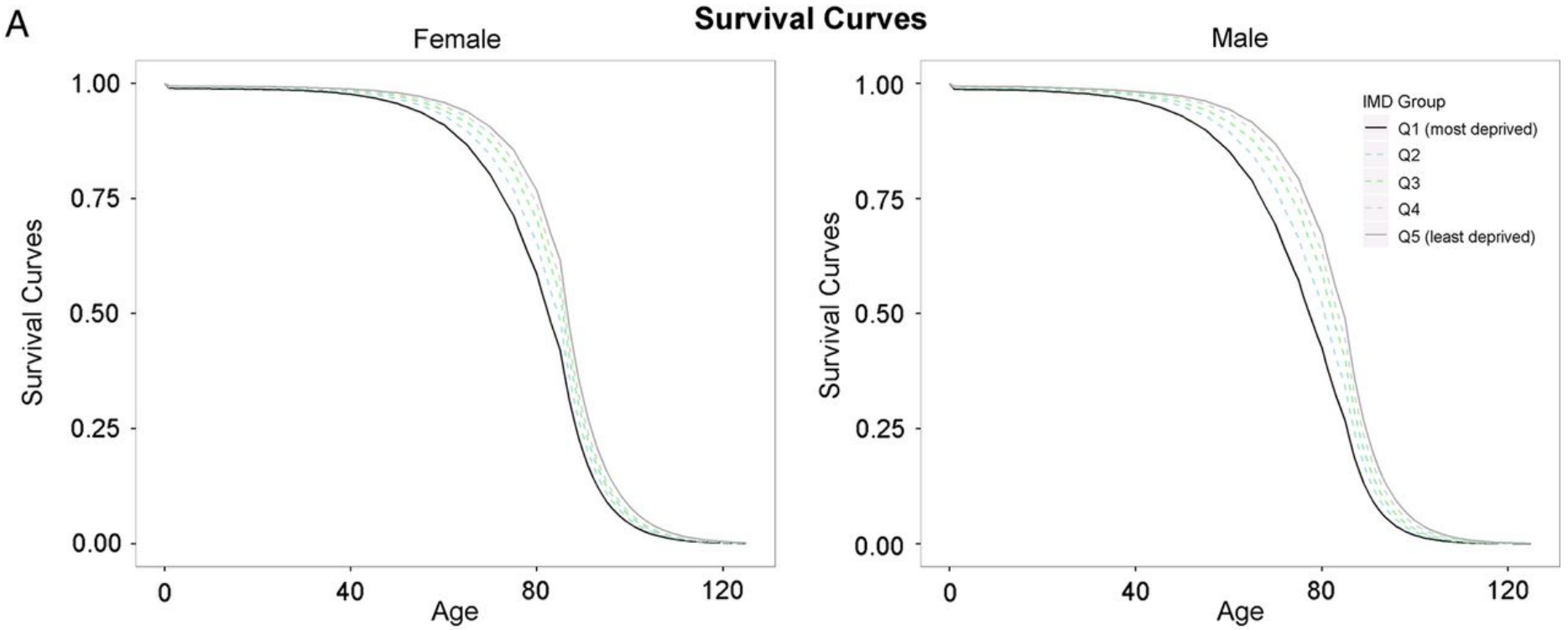
Inpatient Hospitalisation Rate 2011/12



Inpatient Hospital Cost 2011/12

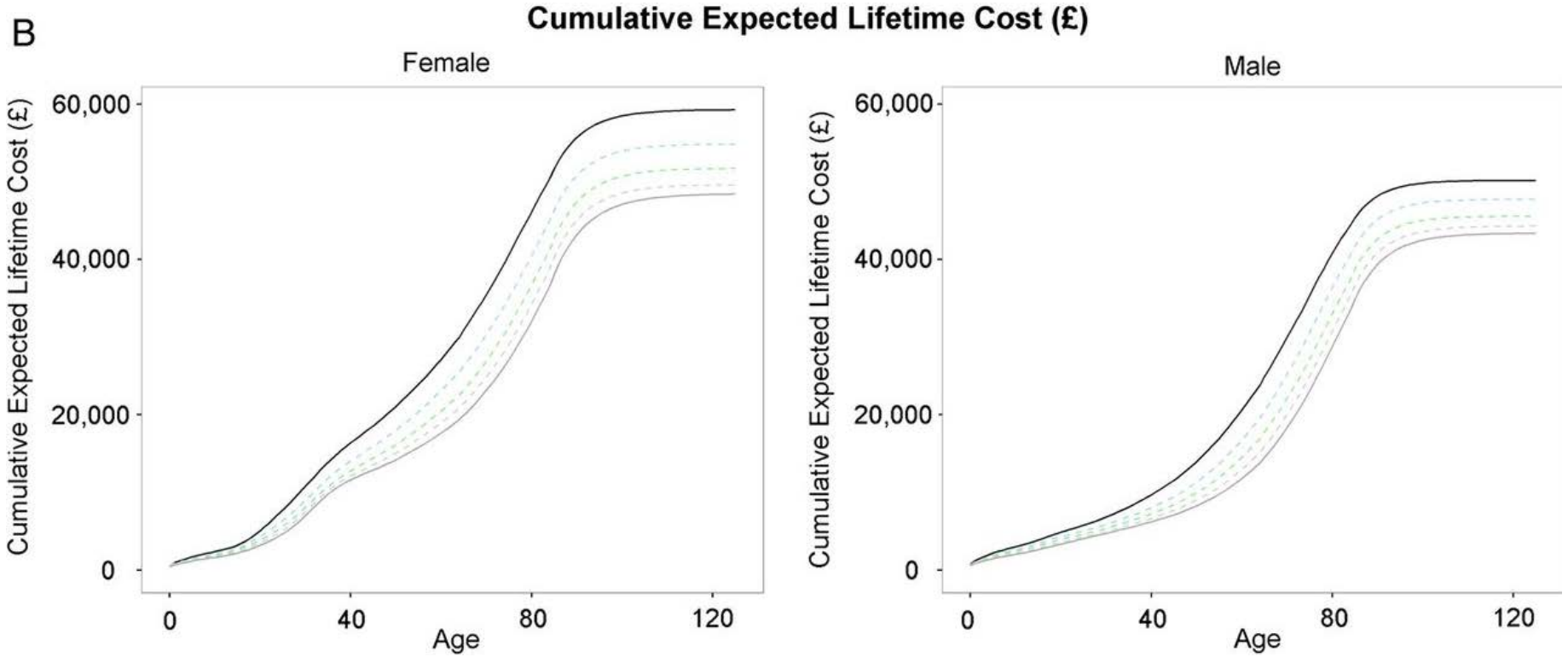


Survival Curves 2011/12



Source ONS	Poorest	Richest
Men	73.9 years	83.3 years
Women	78.8 years	86.2 years

Expected Lifetime Costs



The numbers (2011/12)

- Cost of inequality in inpatient admissions: **£4.8 billion** per year
- Cost of lifetime inpatient healthcare use

	Poorest	Richest
Men	£50,200	£43,400
Women	£59,300	£48,400

- Cost of overall inequality in healthcare estimated at **£12.52 billion**
- Total NHS budget 2011/12 was approx. **£100 billion**

Summary

- **Poor people use more health care** at any point in their lives than rich people
- **Poor people die earlier** than rich people
- If poor people were to live as healthy lives as rich people they would
  - use less health care every year of their lives
  - live longer accumulating health care use over more years
- On balance our analysis suggests **longer healthier lives require less aggregate health care** than shorter sicker lives
- However **reducing health inequalities** is **not** necessarily **easy** or **cheap**
- Our estimates are **not causal** - only associations

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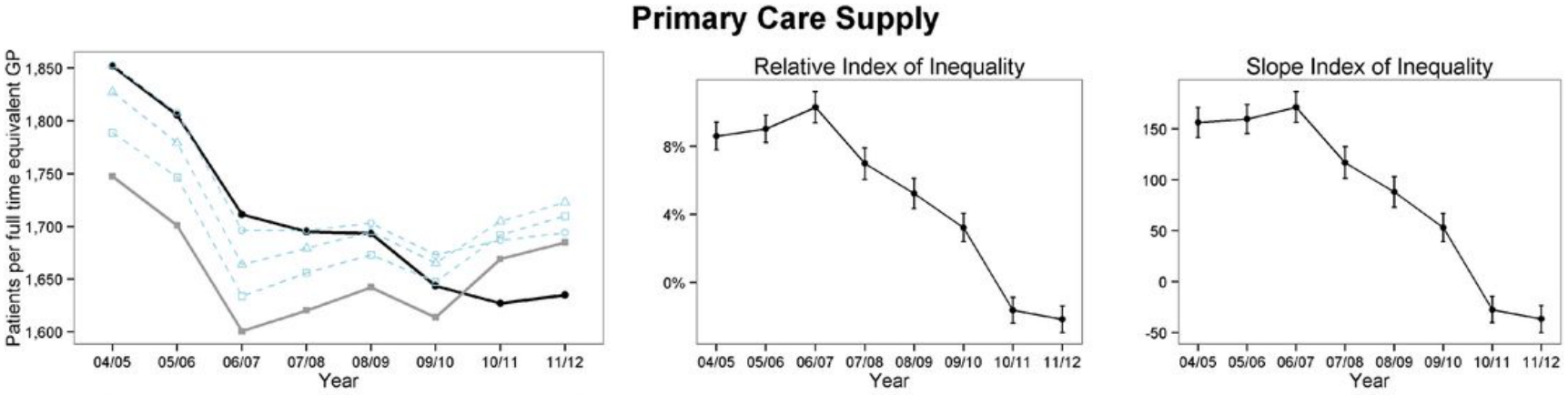
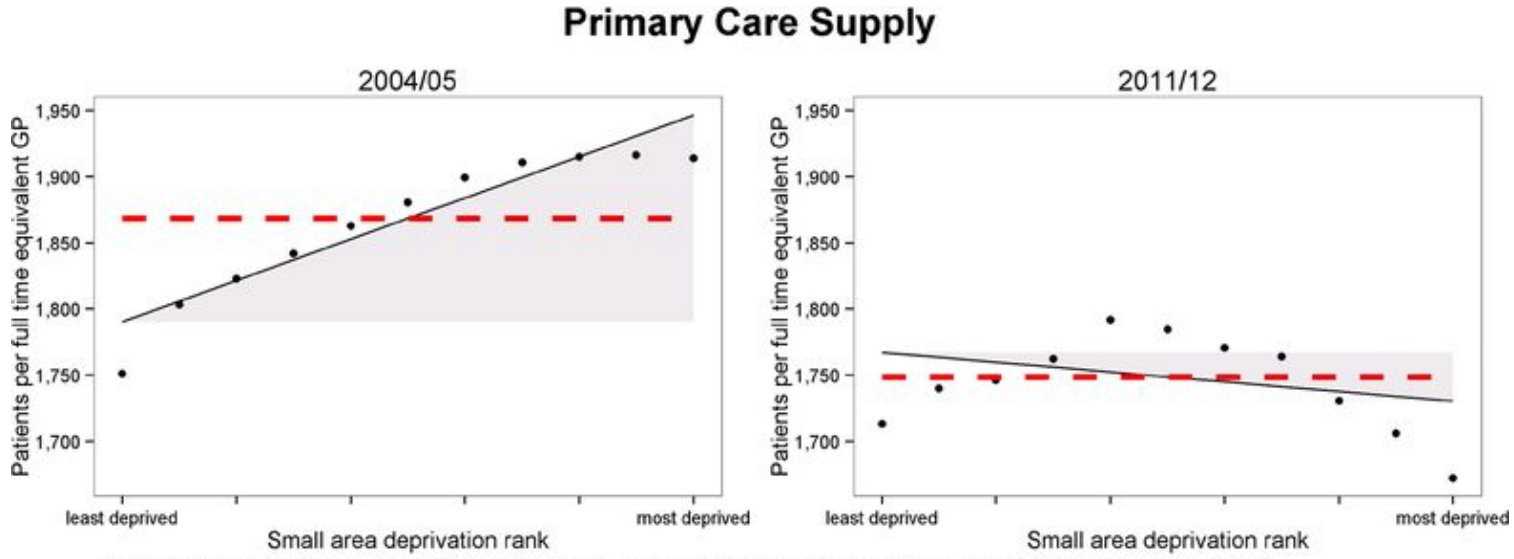
3. Inequality Indicators

2004/5 - 2011/12

Primary care supply

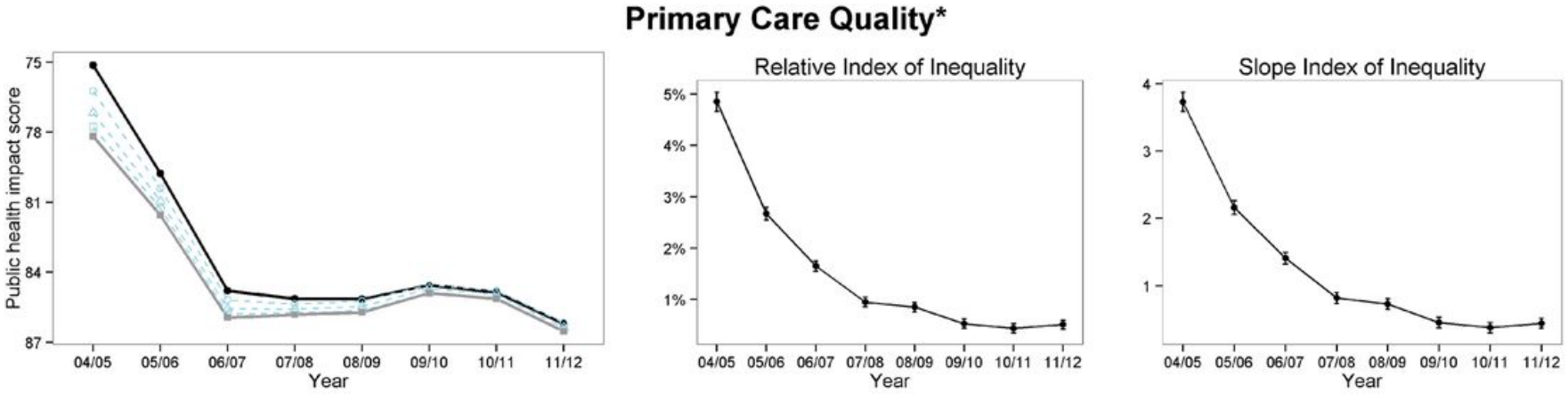


Primary Care Supply: Patients per full time equivalent GP, excluding registrars and retainers, adjusted for age, sex and health deprivation

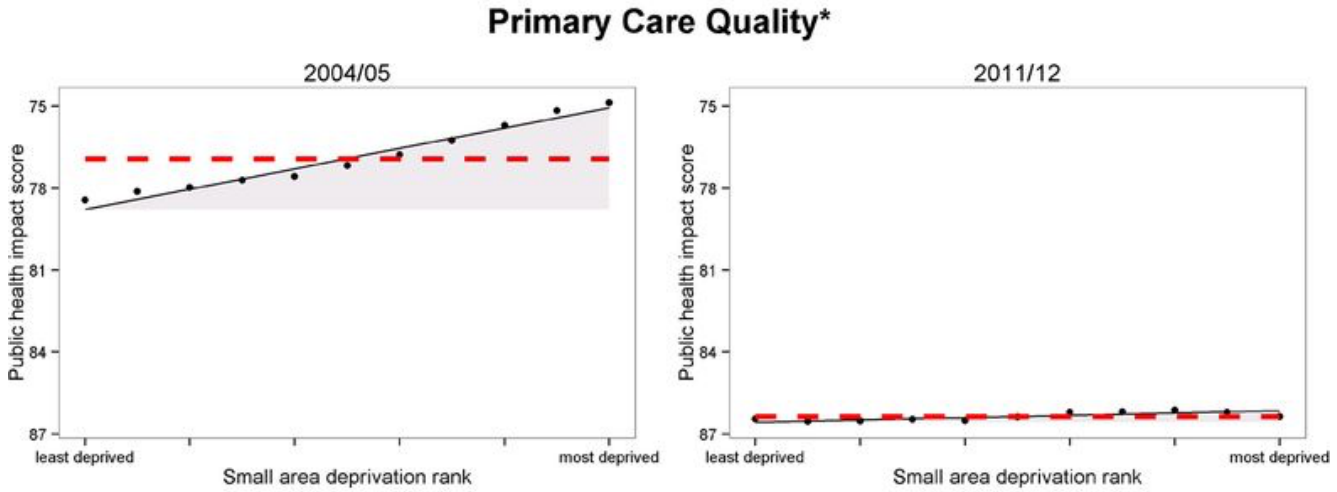


Primary Care Supply: Patients per full time equivalent GP, excluding registrars and retainers, adjusted for age, sex and health deprivation

Primary care quality

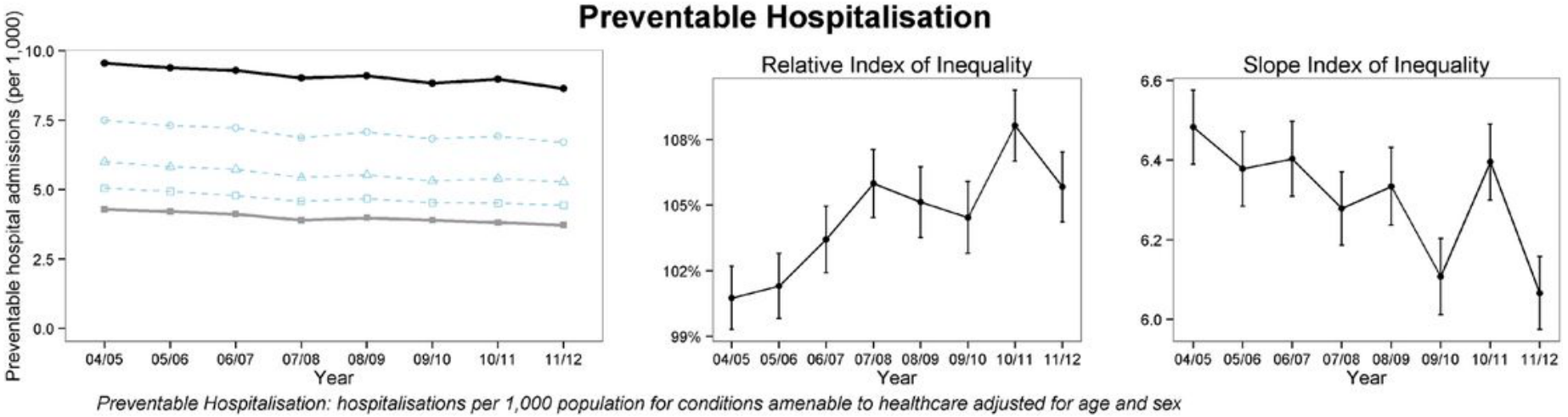


Primary Care Quality: clinical performance in the quality and outcomes framework as reported (weighted by public health impact)

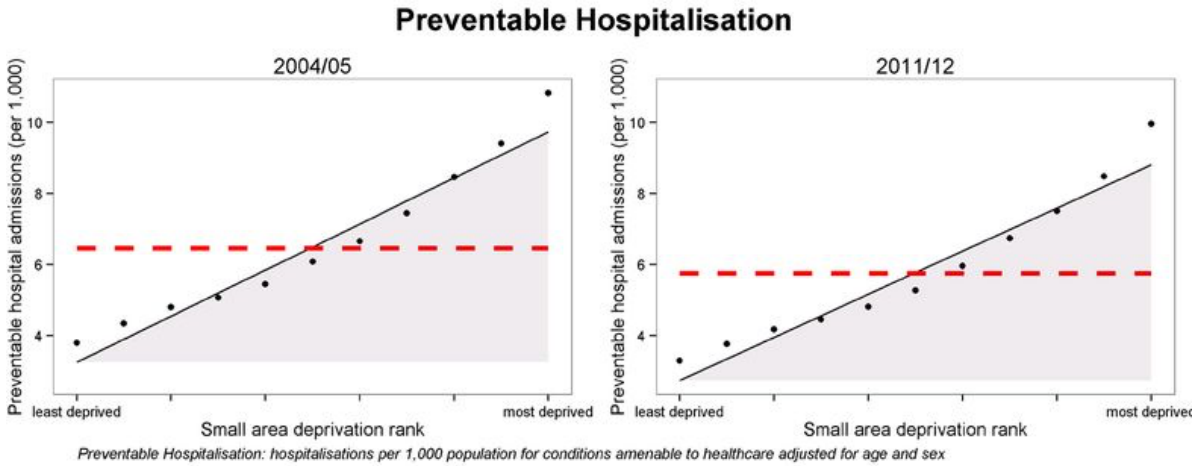


Primary Care Quality: clinical performance in the quality and outcomes framework as reported (weighted by public health impact)

Preventable hospital admissions

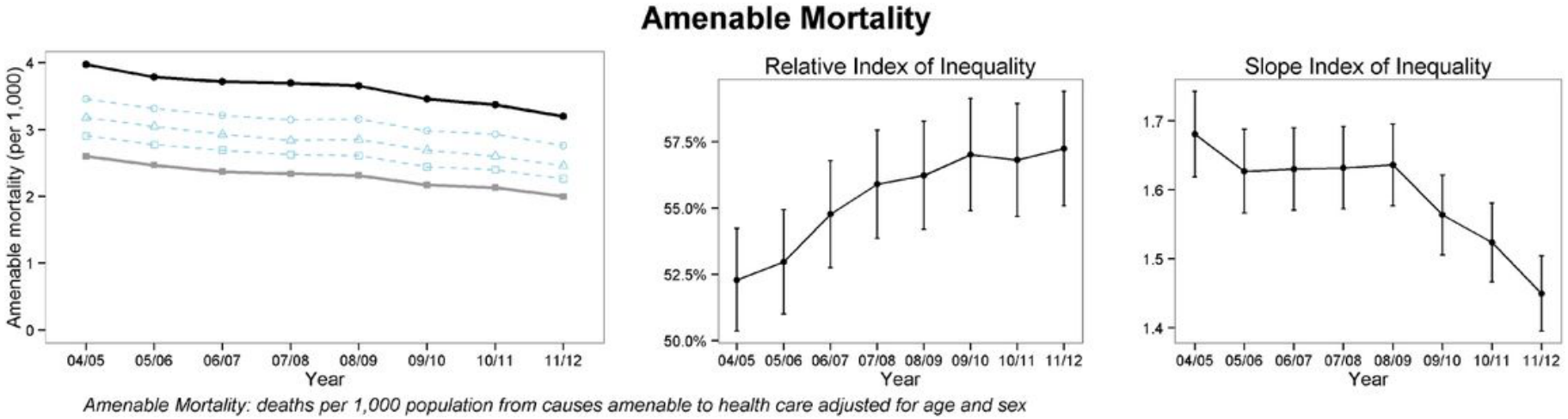


Preventable Hospitalisation: hospitalisations per 1,000 population for conditions amenable to healthcare adjusted for age and sex

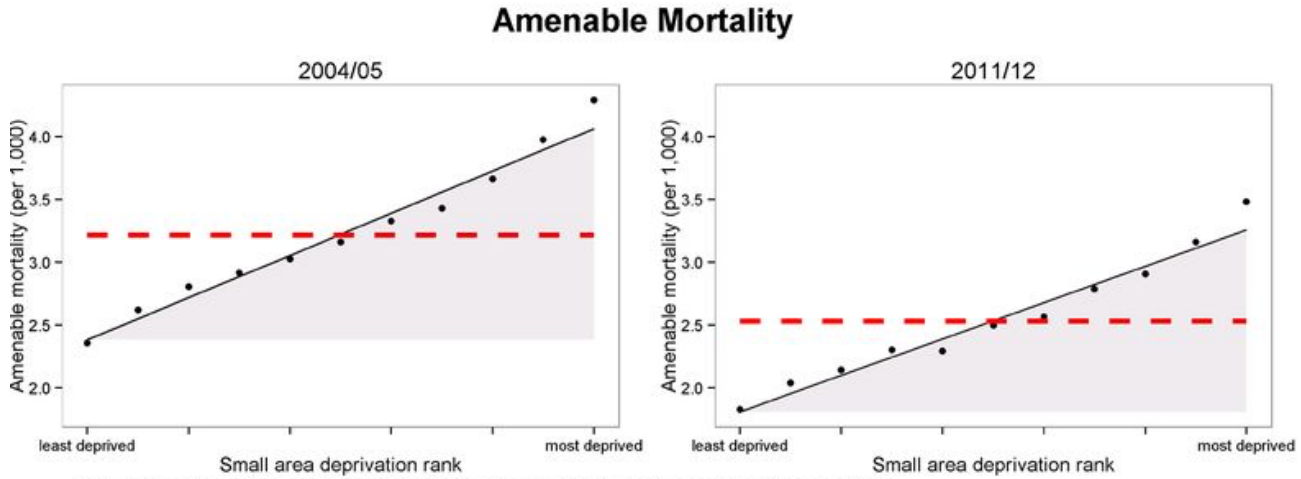


Preventable Hospitalisation: hospitalisations per 1,000 population for conditions amenable to healthcare adjusted for age and sex

Amenable mortality



Amenable Mortality: deaths per 1,000 population from causes amenable to health care adjusted for age and sex

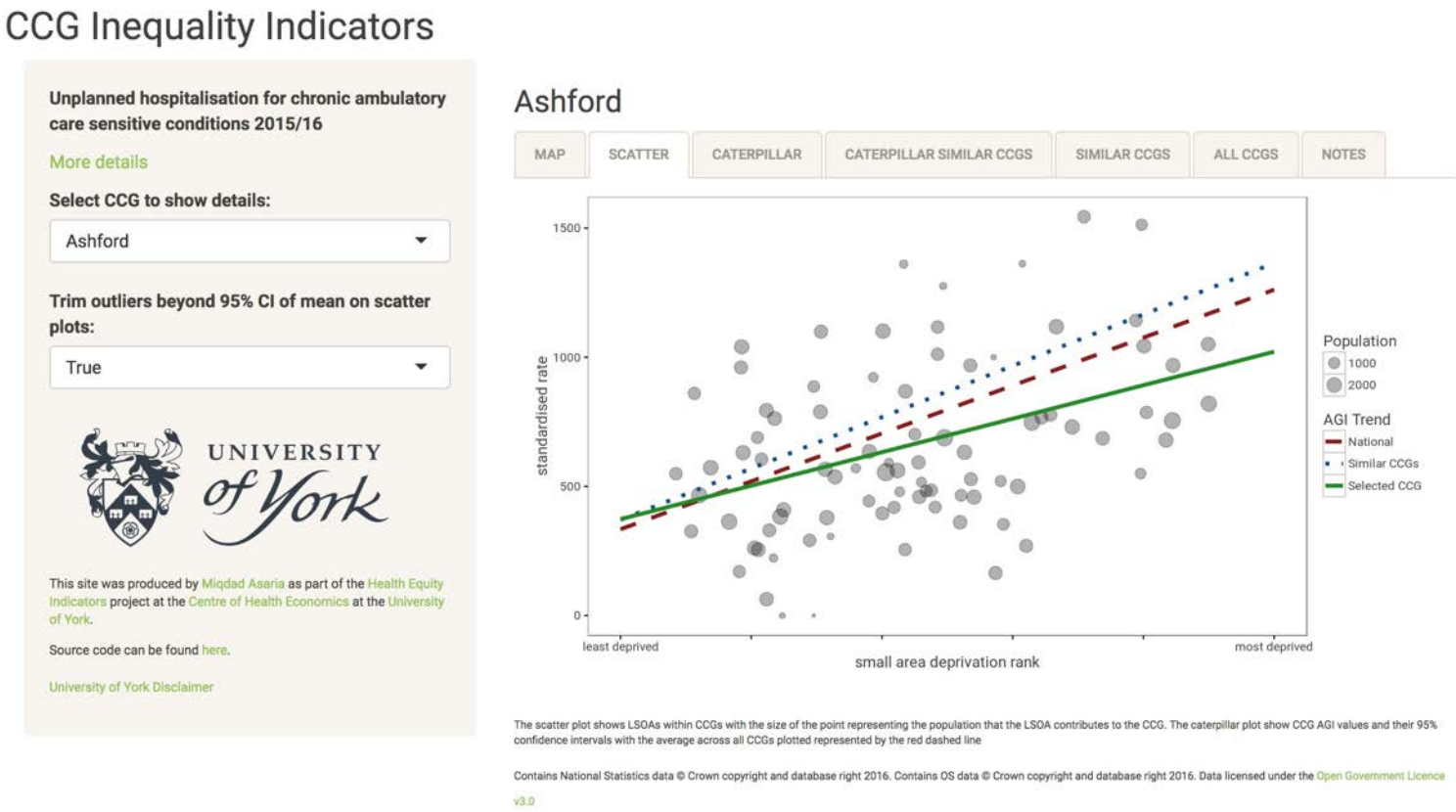


Amenable Mortality: deaths per 1,000 population from causes amenable to health care adjusted for age and sex

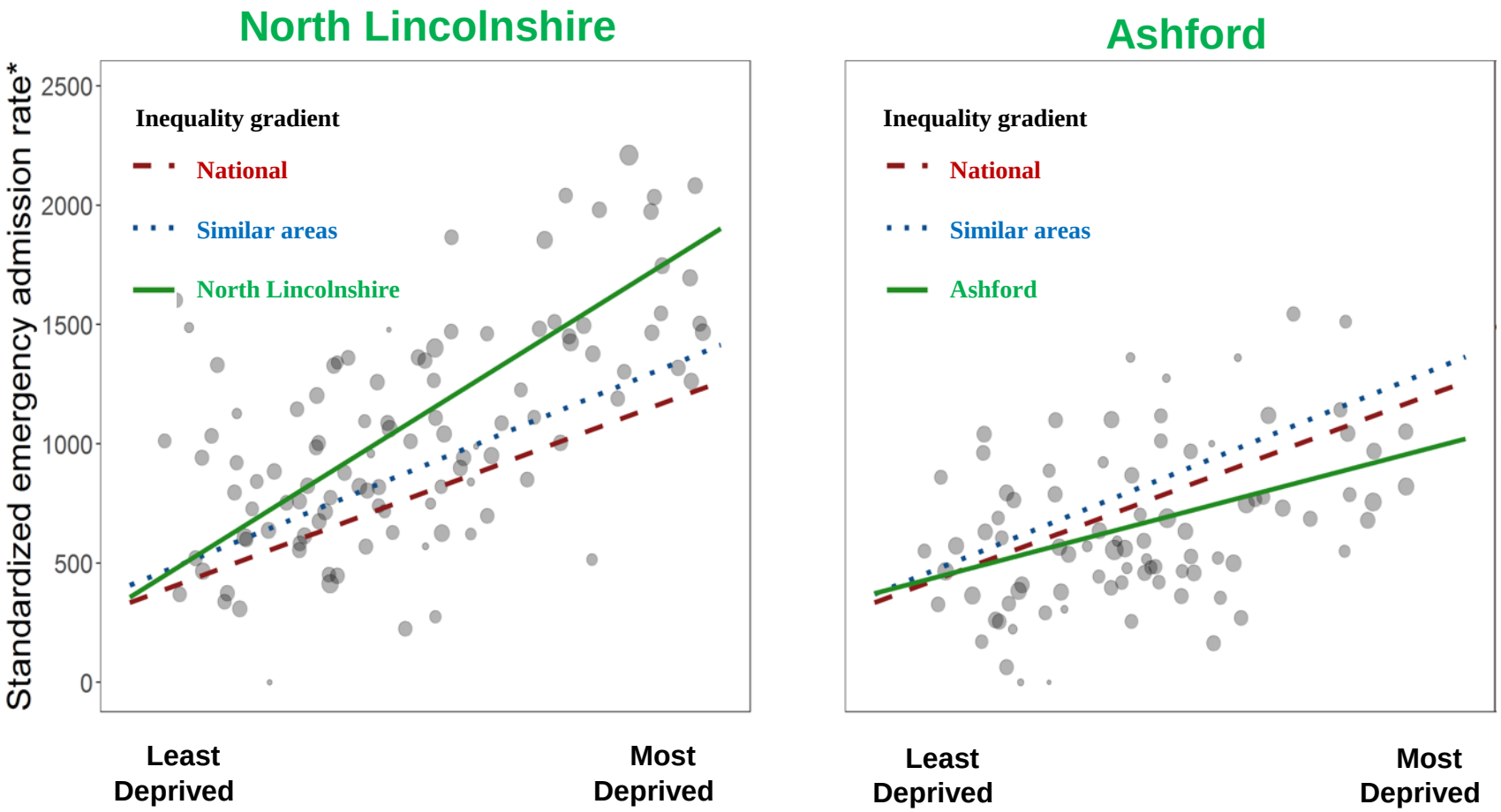
What is the counterfactual?

- We did some additional work to compare England with Ontario
- England invested a lot to reduce inequality in access to primary care over this period
- Ontario also invested in primary care but without a specific focus on inequality
- We find that inequalities in amenable mortality in both places were reducing at similar rates prior to the investment made in England
- After the inequality reducing primary care investment in England inequality in amenable mortality in Ontario widened whilst it stayed the same in England
- Perhaps things would have evolved similarly in England without this investment as the distributions of risk factors such as obesity, smoking etc. become increasingly concentrated in poor populations

ccg-inequalities.co.uk



Compare inequalities at CCG level



Summary

- Inequalities in **primary care** supply and quality **reduced** over the period
- Inequalities in **preventable hospitalisation** and **amenable mortality** stayed **constant**
- Unclear what happened to inequality in underlying **need** over the period
- Comparison with Ontario suggests **inequality in need widened**
- Some areas (CCGs and LAs) performed better in terms of equity than others and **lessons** could be learnt

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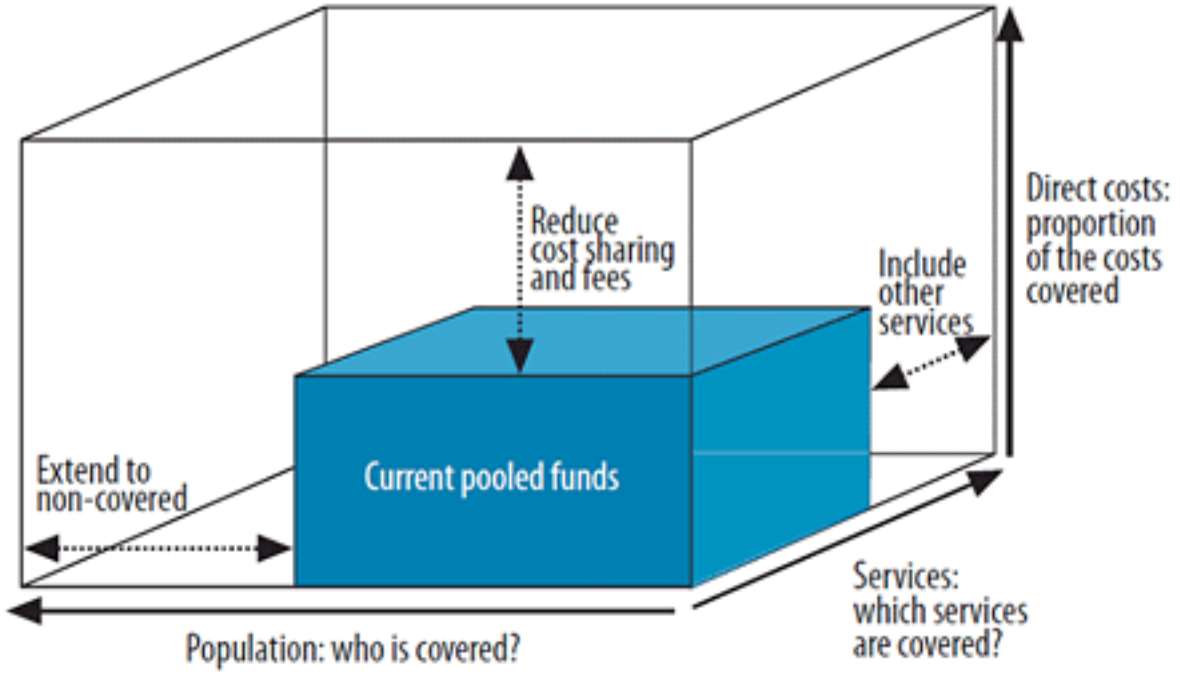
4. Distributional CEA

The WHO UHC Cube

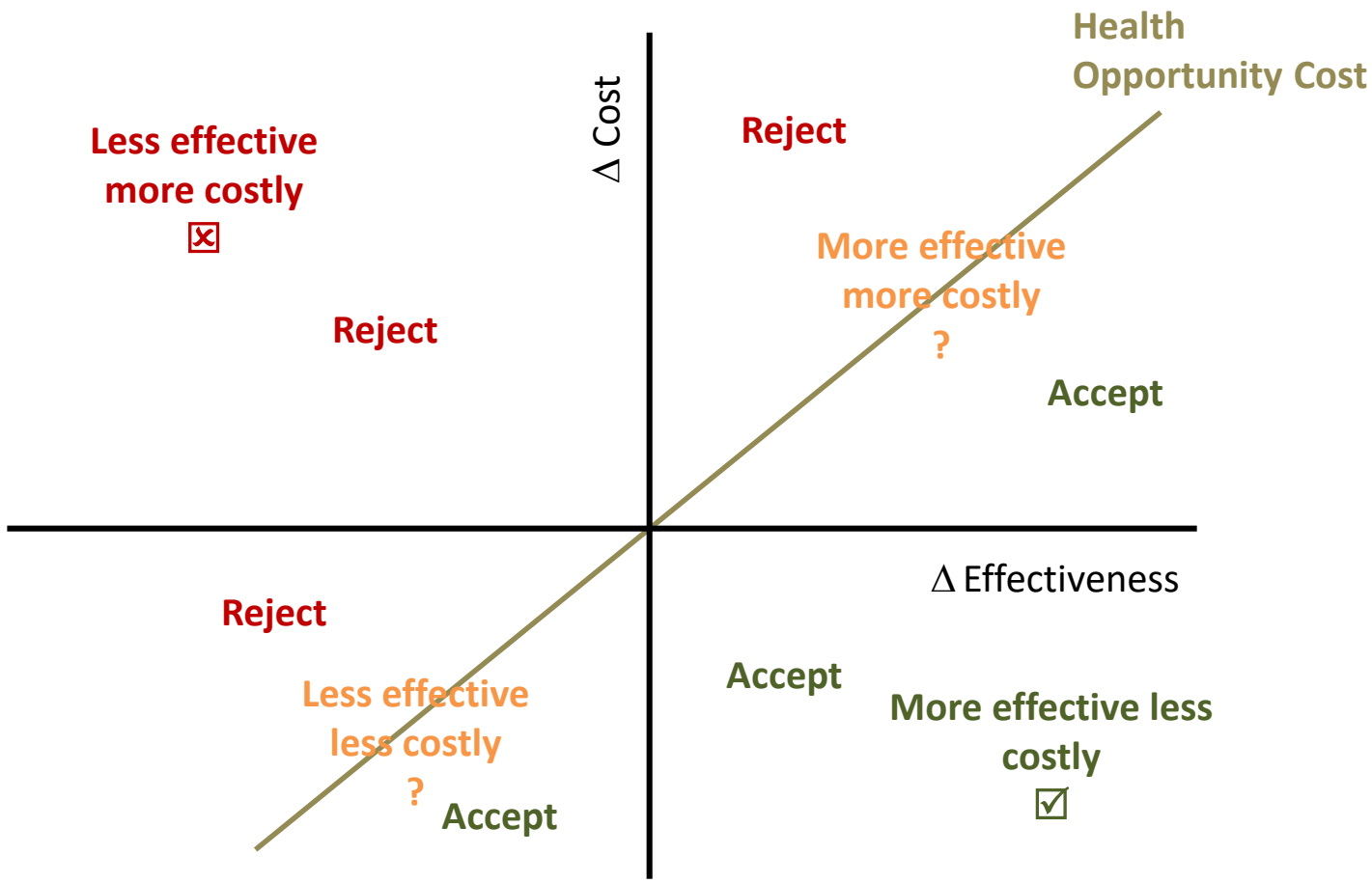


Three dimensions to consider when moving towards universal coverage

The Economic Problem

- Resources are **scarce**
- Decision makers need to **prioritise**
- Cost-effectiveness analysis is about doing as much **good** as possible with **fixed budget**
- In this case maximise overall health benefits

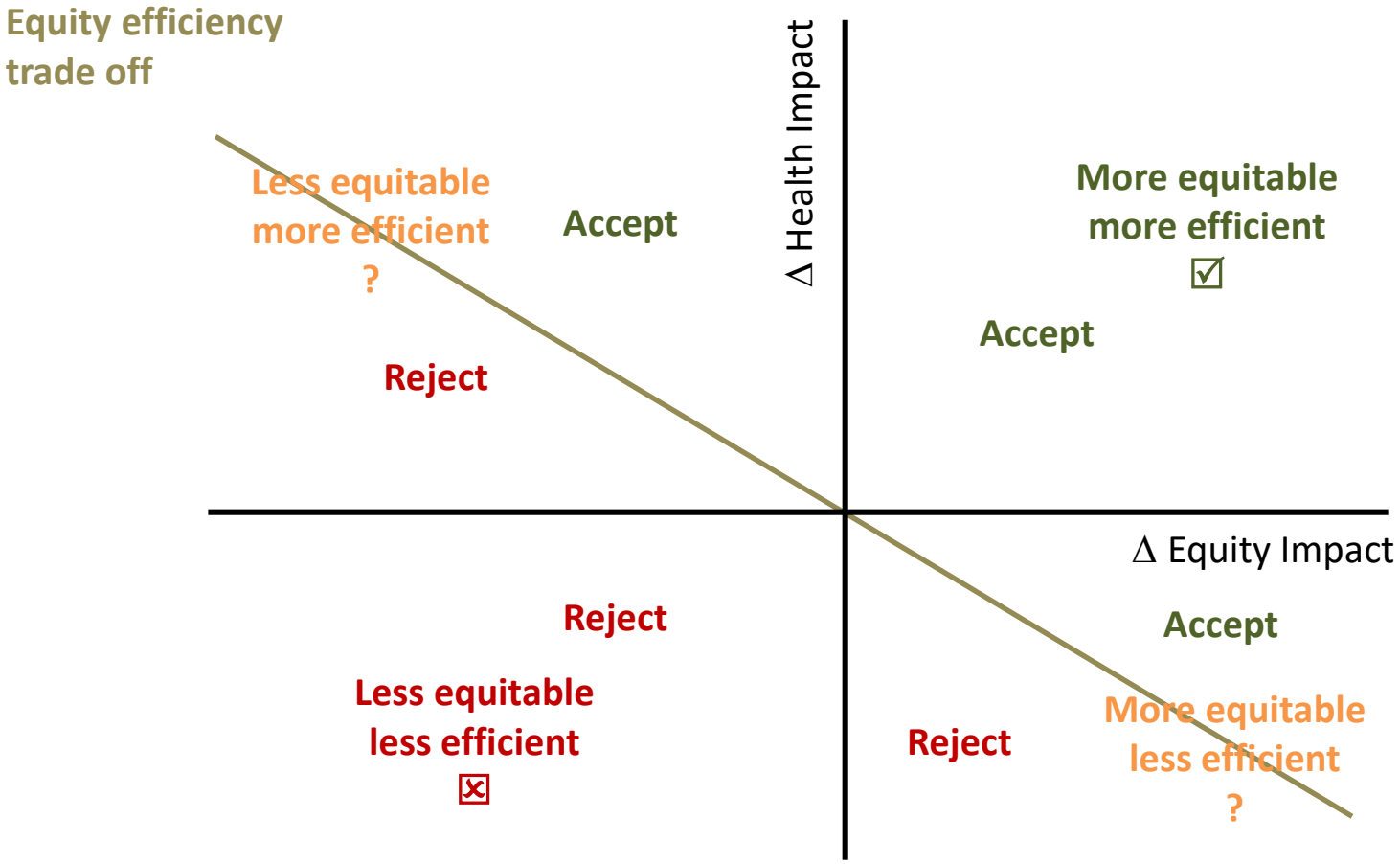
Cost-Effectiveness Analysis



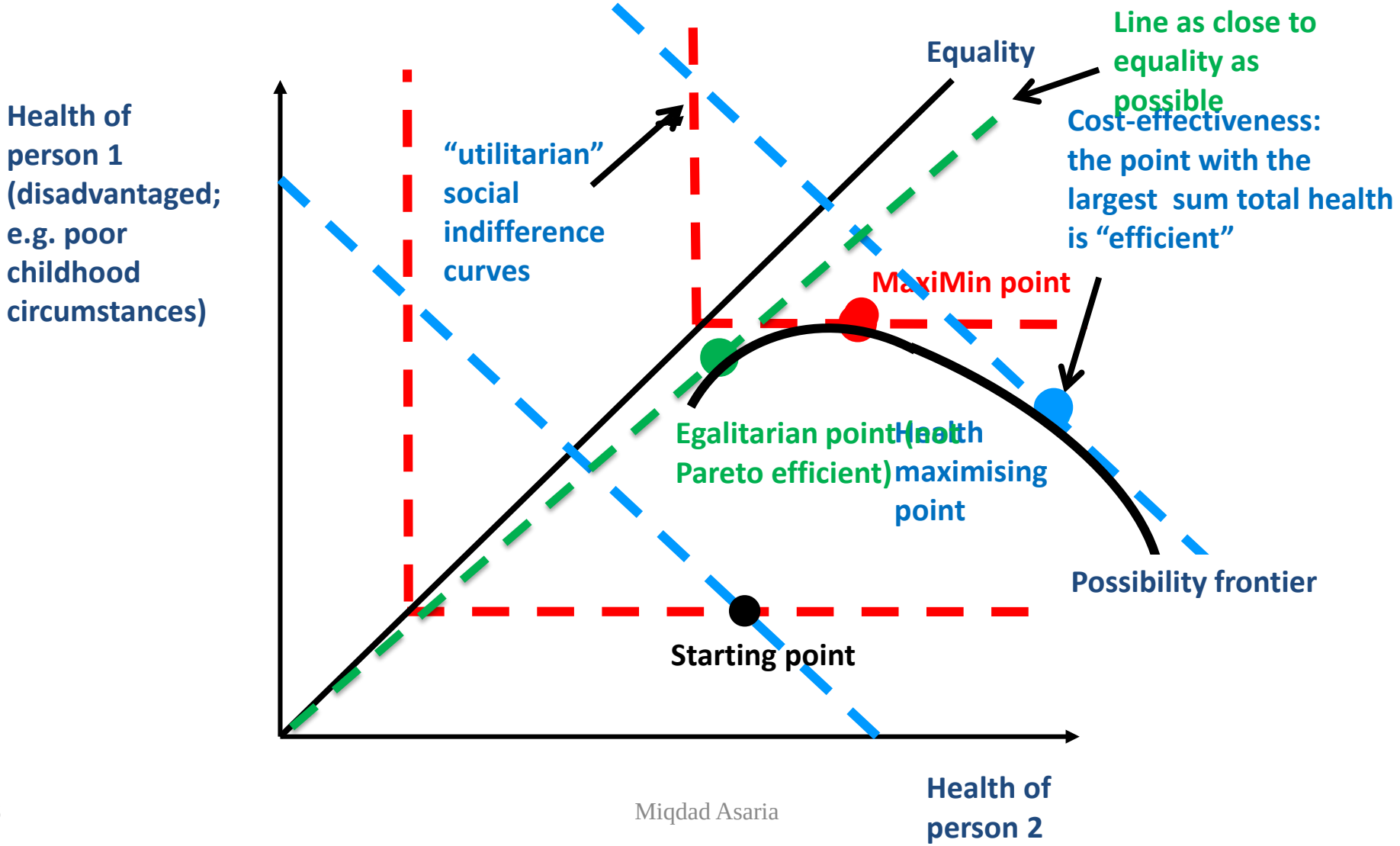
Cost-Effectiveness Analysis

- **Cost** of funding one health policy is the **health we lose** by not funding an alternative health policy
- CEA only focusses on **maximising total health** – has nothing to say on the distribution of health

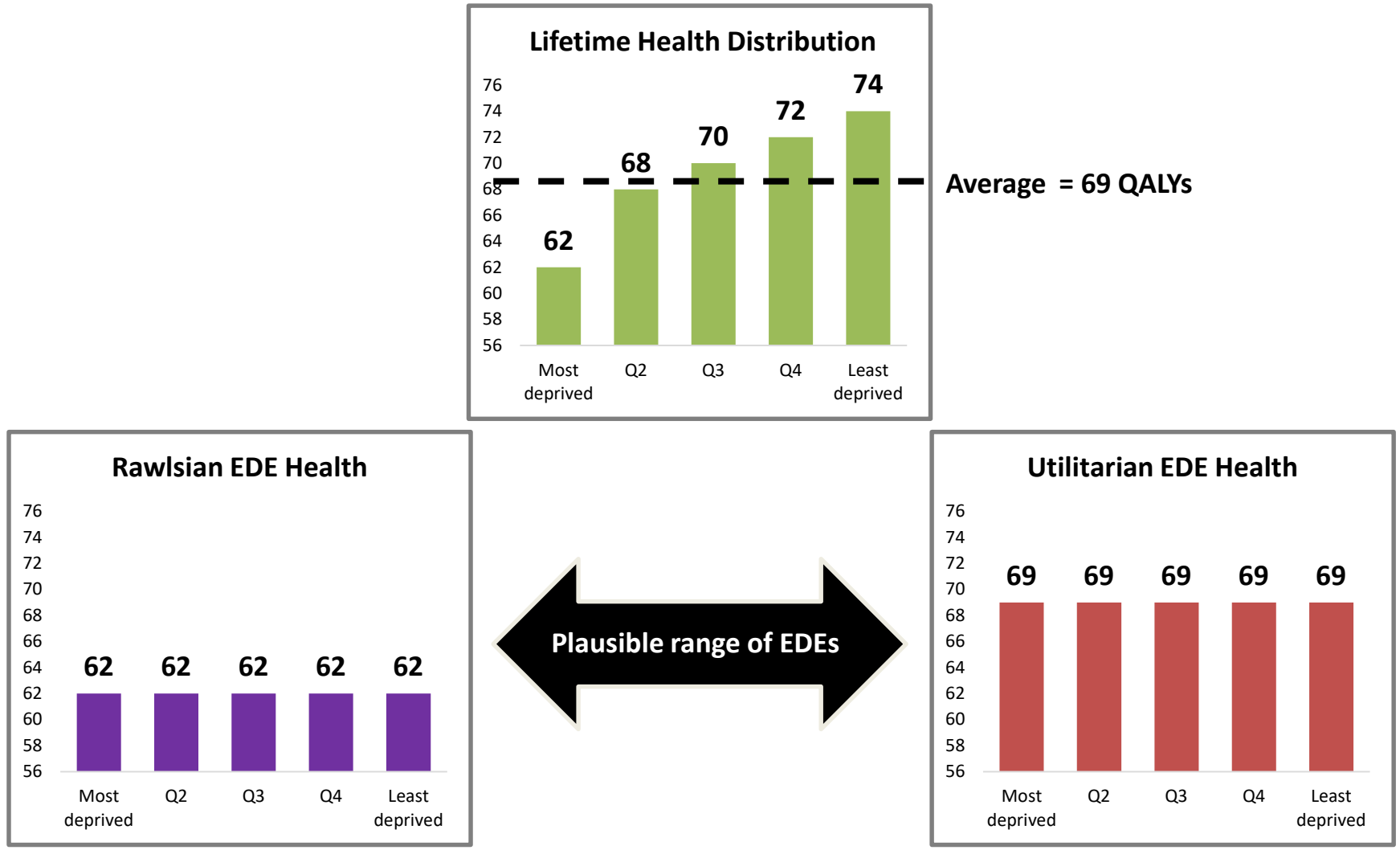
Social Welfare Analysis



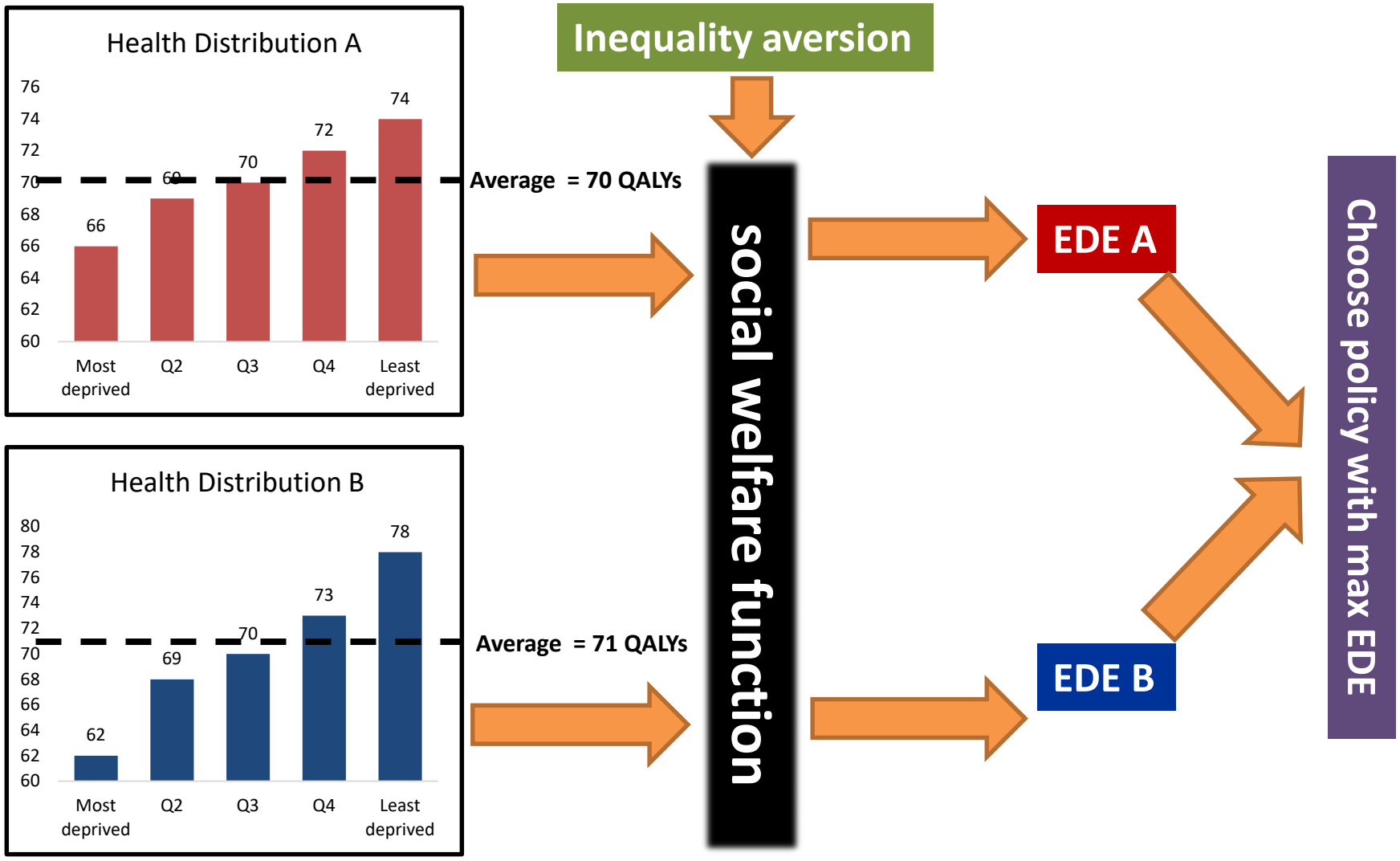
A Primer in Distributive Justice



Equally distributed equivalent



Comparing health distributions

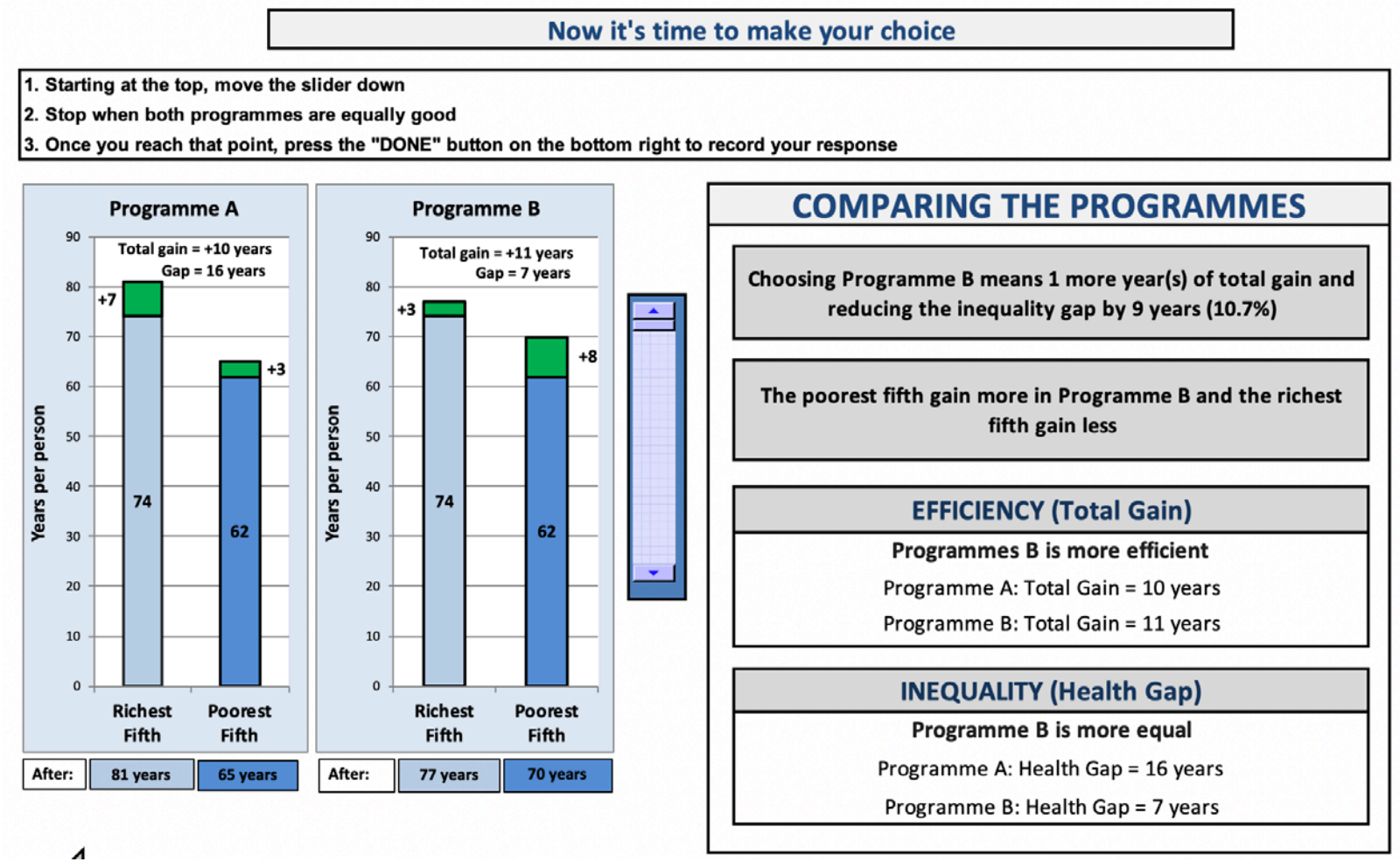


Social Welfare Functions

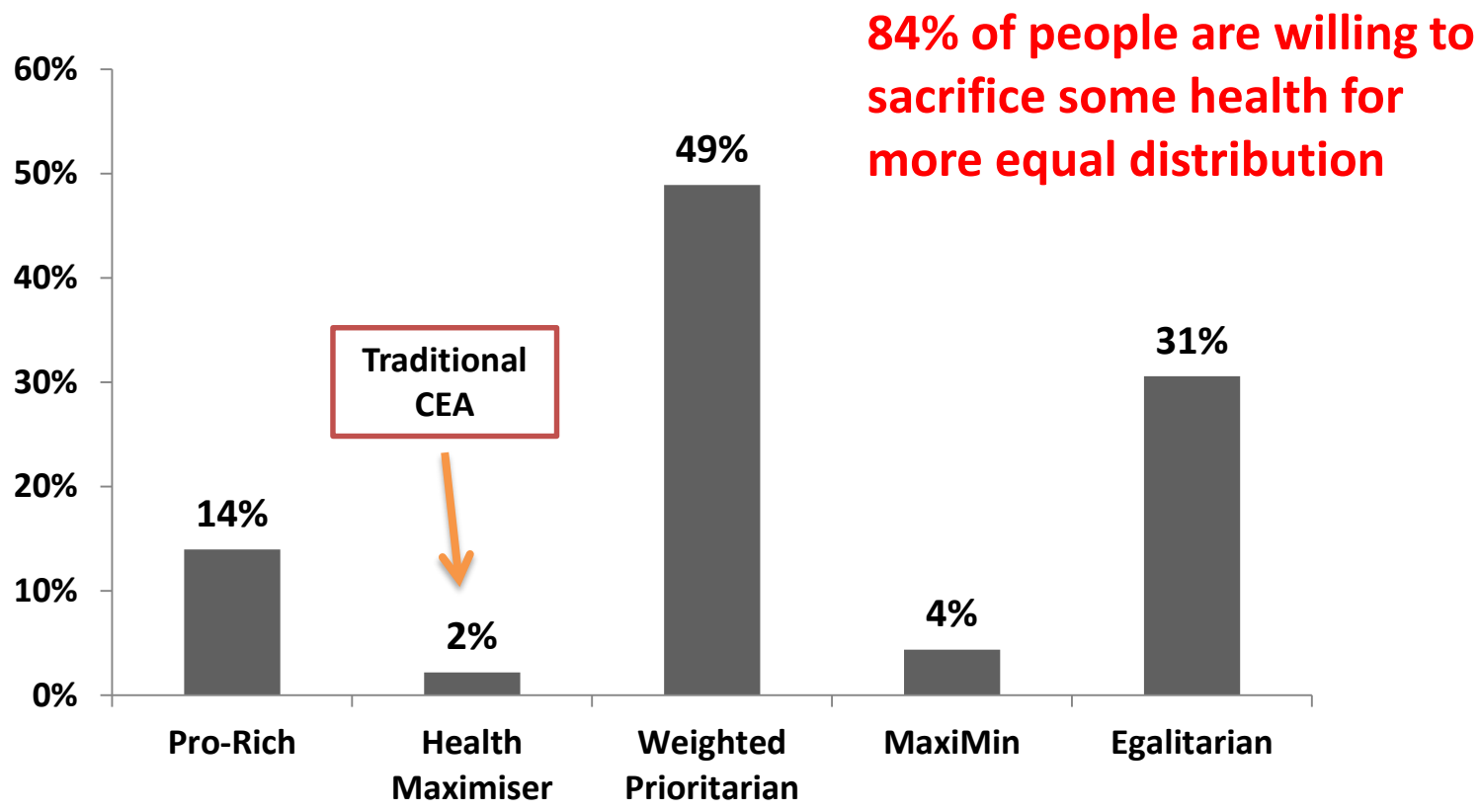
- SWFs allow us to quantitatively evaluate this **equity efficiency trade off**
- They require parameterisation with an **inequality aversion parameter** to specify the curvature of the indifference curves to give something between the "**utilitarian**" (parameter=0) and "**Rawlsian**" (parameter=∞) extremes

Atkinson SWF (relative)	Kolm SWF (absolute)
$h_{ede} = \left[\frac{1}{n}\sum_{i=1}^{n}[h_i]^{1-\varepsilon}\right]^{\frac{1}{1-\varepsilon}}$	$h_{ede} = -\left(\frac{1}{\alpha}\right) log\left(\frac{1}{n}\sum_{i=1}^{n} e^{-\alpha h_i}\right)$

Focus group exercises to elicit inequality aversion



Inequality Aversion in England



The Inequality Aversion Parameter

SWF	Median* (95% CI)	Implied weight** (95% CI)
Atkinson (ε)	10.95	**6.95**
	(9.23 - 13.54)	(5.12 – 10.98)
Kolm (α)	0.15	**6.20**
	(0.13 - 0.19)	(4.76 – 9.78)

* **Median preference and confidence intervals identified through bootstrapping; population weights used**

* * **Implied weight of marginal health gain to poorest fifth of the population compared to the marginal health gain to the richest fifth of the population**

Summary

- If we want to tackle **inequality** we need to consider it **explicitly** when we are making policy decisions
- Tackling inequality may involve **trade-offs** between **aggregate health** and the desired **distribution** of health
- Such trade-offs involve **social value judgements** rather than technical problems to be solved by analysts

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5. Conclusion

Conclusion

- Economics can help provide **tools to think about and quantify** health inequality
- Economics can help to **identify efficient policies** to address inequalities and make trade-offs if and when necessary
- Economics can help to make a **business case** for reducing inequalities
- **Social value judgements need to be made** in order to make trade-offs, analysts are not the people who should be making these