



Using the production of welfare approach to estimate the cost-effectiveness of care services

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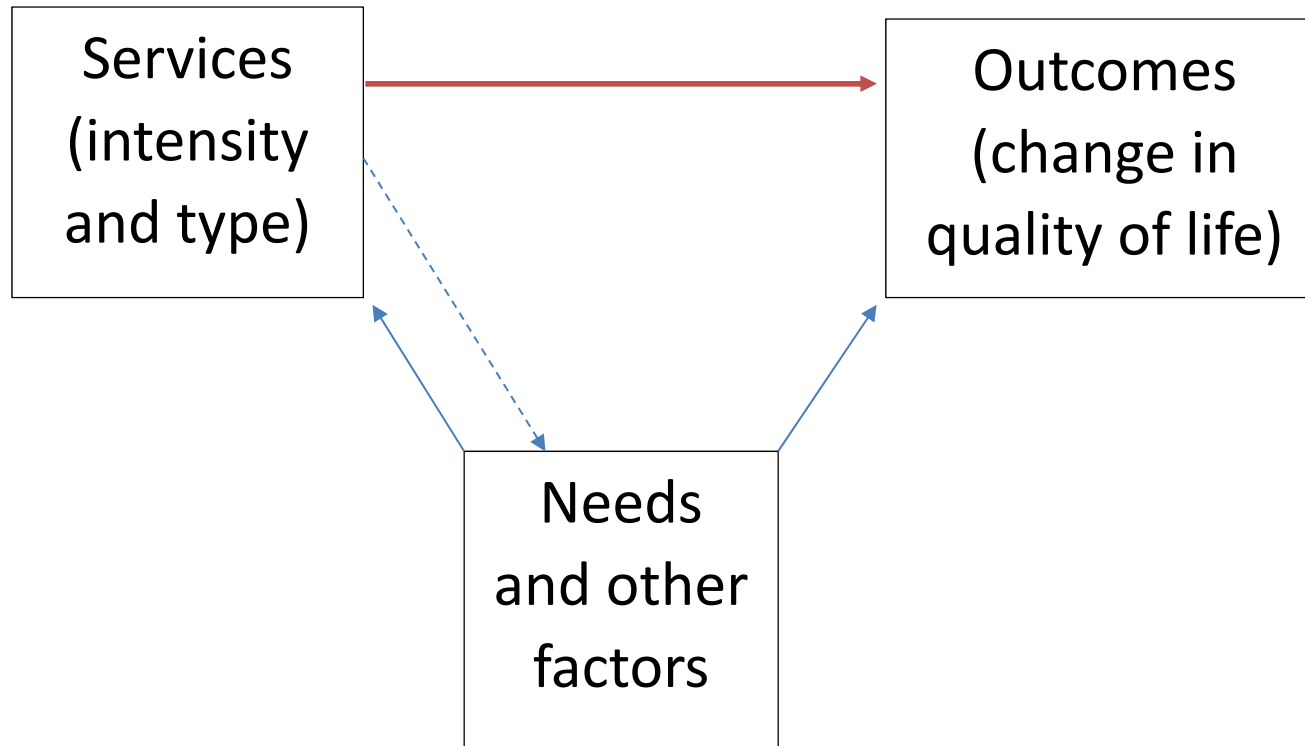
Context

- Little research on the cost-effectiveness of social care for older people – e.g. home care
- Significant hurdles for research...
- (1) the *measurement* problem:
 - Ideally measure the impact of services in terms of how much they improve people's quality of life (QOL)
 - ... measuring QOL is difficult
- (2) the *attribution* problem
 - ... identifying how much of any observed improvement in QOL is due to the service rather than other factors
- Randomised Controlled Trials (RCTs) are gold standard method
 - Intervention group, compared with a control group
- ... but the practical and ethical barriers are particularly high w.r.t. long-term care services (like home care) that already display *de facto* effectiveness
 - RCTs are also expensive

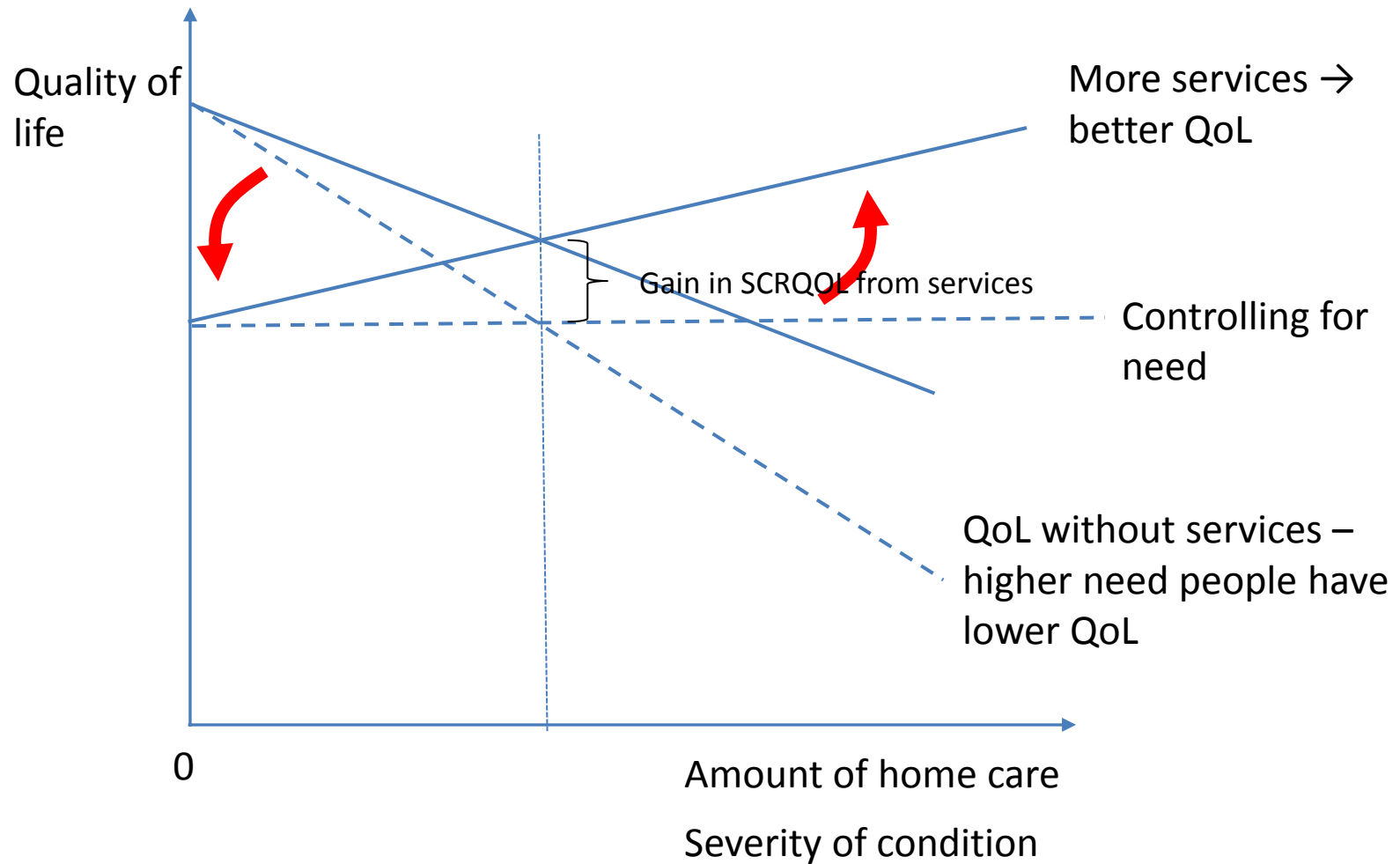
Production of welfare

- Production of welfare model can be used as the basis for a method to provide estimates of the cost-effectiveness using survey data
- Measurement problem:
 - In PoW, Welfare = improvement in QoL.
 - Can be measured using tools as the ASCOT, a social care-related QoL measure
- Attribution problem:
 - PoW maps out the causal relationships between services, needs and other factors and outcomes
 - We can statistically model they relationships...
 - ... Exploit observations of how the quality of life of service users varies with the different **intensity of their service use**, and their **needs-related characteristics**

Simple PoW model



How it works – finding the impact



Measuring and valuing social care related quality of life

- This PoW method can provide an estimate of the impact of additional services on a person's ASCOT-measured quality of life
- But what does that mean?
- Suppose we want to know whether we should provide an extra hour of home care (from current average levels)
- Need to determine the opportunity cost of such a decision i.e. would the (public) money required to pay for the extra hour be better used elsewhere?

Assessing cost-effectiveness

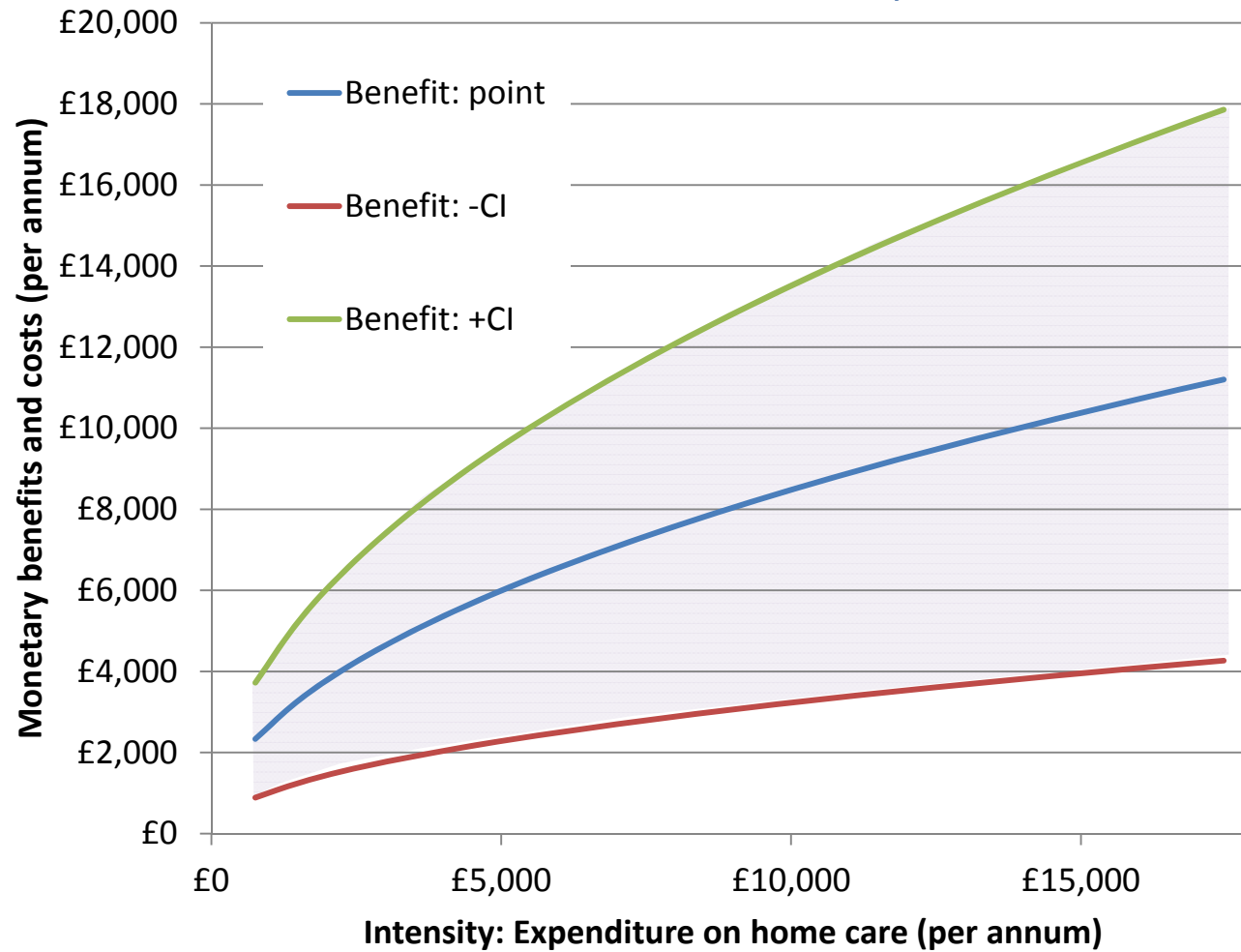
- Two options
 - (1) we can find an alternative use of the money that could produce better outcomes, and compare them directly
 - (2) or we can use a generic threshold of the minimum benefits that the new intervention must achieve
 - This threshold would (in theory) be equal to the benefit produced by the least cost-effective service currently being publicly-funded
 - This is the approach used by NICE
 - Conventionally in health care, this threshold is expressed in terms of the £-amount we are willing to pay to achieve an additional QALY e.g. £30,000 per QALY.
 - The ASCOT quality of life measure can be used to calculate a social care QALY equivalent

A study of the cost-effectiveness of home care for older people

- We applied these methods in the home care case
- Use 2009 home care survey (a follow-up of the national UES). Had data on:
 - (ASCOT) SCRQOL for service users
 - Service use
 - Needs variables e.g. Activities of Daily Living (ADL) impairments, health conditions etc.
- Final sample of 301 older people

Results

the impact of additional home care intensity on ASCOT
QALY valued at £30,000



Effects and cost-effectiveness

ADL group	Mean intensity (Cost per week)	Marginal (1 hour) change in intensity (at average intensity)		Marginal (1 hour) change in intensity (at one hour intensity)		Total effect at mean intensity
		Effect	Cost-effectiveness	Effect	Cost-effectiveness	
All	£96	0.015	£50,011	0.039	£19,501	0.20
High	£159	0.014	£53,205	0.047	£16,110	0.31
Mod/ Low	£69	0.022	£35,146	0.035	£21,794	0.15

Some discussion points

- Suitability of method
 - These methods were applied to a home care survey dataset as a proof-of-concept
 - We were able to empirically model PoW relationships
 - Best used to estimate incremental cost-effectiveness
- Advantages: practically, low-cost, no ethics issues
- Disadvantages: high computation complexity, risk of misspecification and biased results, needs a large sample

Some discussion points

- Given pros and cons, strategy:
 - use extrapolation method to produce preliminary estimates of CE
 - Using surveys of service-users or patients e.g. ASC
 - Where results are borderline, difficult to estimate or potentially subject to excessive error...
 - (and where this cost-effectiveness information is critical to decision-makers)...
 - ... undertake a conventional trial-based study

Some discussion points

- Developments:
 - Focused here on a single service production function
 - To comprehensively evaluate HC we should estimate multiple-service functions
 - There are other services and support that could partly substitute for home care e.g. day care, informal care and other health care
 - Accounting for these substitutes will lower society cost of extra home care, increasing the cost-effectiveness of its use.