

Substantial Returns to Health-Care Spending: But Do We Spend Too Little or Too Much?

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The debate about how much to spend on health care is one that preoccupies many, if not all, countries around the world. In the UK, the NHS has enjoyed a period of unprecedented real growth of spending, following a commitment by the Prime Minister, Tony Blair, to raise the proportion of UK gross domestic product spent on health from the then 6.8% to the European national average of 8.0% [1]. This promise was of course made in the belief that increased spending would improve outcomes, although the relationship between health-care expenditure and health outcomes is complex [2,3]. The study by Luce et al. published in this issue of *Value in Health* makes a valuable contribution to this debate by attempting to estimate the value of the health improvements that have come about from health-care expenditures in the United States in the last two decades of the 20th century [4]. It adds to a small but growing literature and is to be welcomed.

The estimates presented in the Luce et al. article reflect calculations that are unavoidably weakened by data limitations. Key assumptions, recognized by the authors, include: the uncertainty around the value we put on the units of health improvements; the uncertainty around the proportion of the improvements that are attributable to health-care expenditure, rather than other health improving social changes; and the assumed lags between spending and health-care benefits. In addition, there is the problem of splitting the attributed returns between investments in health care itself and investments in health-care research that underpin them. As similar exercises are underway to estimate the return on biomedical or health-related research [5], there are dangers of double counting as the returns in the form of health improvements are claimed by both those estimating the returns to research and those estimating the returns to health-care services. All these details could be questioned and no doubt will be the focus of debate and refinement as others go on to undertake similar calculations. It is to be hoped that future analyses will be able to build on

stronger data and to be tested against a wider range of alternative assumptions and methods. But to dismiss the estimates provided here, on the grounds that they are not perfect, would be churlish.

Rather, accepting that, for all their limitations, they represent the best estimates we currently have, the more important issue is to be clear what they can tell (or suggest to) us, and what they cannot.

They remind us of some very simple points that can often get lost in the debates about health-care spending. Not least of these is the fundamental point that health care is intended to provide health improvements and it is from these that its main value is derived. It is, of course, also a major sector of the economy, and it produces direct economic benefit for those involved as employees or investors. But therein does not lay its justification. Similarly, the analyses remind us that we should value health improvements for their intrinsic value, difficult though it is to measure, and we should not just consider their effect on productivity.

The analyses also remind us that health improvement is not the product of health care alone, and no health-care system should delude itself into automatically assuming that health is most efficiently improved through health-care provision rather than education, housing or efforts to improve the economic welfare of the poorest groups in society. A clear research priority for the future, as we focus more and more on public health issues, is for comparative estimates of the value of the health improvement from investment in these other health-improving social investments.

More directly, the study shows us that in the United States the *average* returns to investment on overall expenditure on health-care services, and on Medicare expenditure in four broad specific disease areas, have been substantial. But the ongoing debate about health-care spending has rarely, if ever, been about whether we should spend all that we do or nothing at all, on health care. Rather, it is about levels of spending: whether we should extend or reduce spending on health care. Using the latest Organization for Economic Cooperation and Development data for 2003 [6] we might ask: was the 7.7% of gross domestic product spent on health in the UK optimal or would either 6% or 10% have represented better targets? Was the 15% spent in the United States too little or too

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10.1111/j.1524-4733.2006.00094.x

much? While, the first Luce et al. analysis is reassuring that *on average* across all the additional spending on health care between 1980 and 2000, each dollar is contemporaneously associated with health gains valued somewhere between \$1.48 and \$1.85, perhaps at the margin there are diminishing, or possibly even negative, returns to additional spending. As economists, we warn our students not to focus on average returns but rather to estimate marginal or incremental returns.

Their second analysis, looking at four main areas of health provision, disaggregates the data a little and suggests that the returns to investment in health care relating to breast cancer have been more than four times as high as the returns to treatment for heart attack. So can we interpret this as an indication that we should spend more on breast cancer (where the returns have been highest), or might we infer that we should spend more on heart attack (where there still remains considerable potential to benefit)? The fact is that we simply cannot tell from a study like this. Not only does it not tell us anything about the margin, but past returns on investments (as the small print at the bottom of the financial advertisements dutifully reminds us) may not be a guide to the future.

The returns to specific innovations, again taking the estimates at face value, emphasize the variability of rates of return on, or cost-effectiveness of, different interventions. The sample of returns quoted is clearly neither random nor representative, but they remind us that in some cases returns do not justify the use of the innovation, and in other cases they suggest that some innovations may be exceptionally good investments of the public's health-care dollars. These cost-effectiveness studies of innovations generally will have estimated returns for the innovation optimally provided and well targeted to appropriate patient groups. But, much of the increase in health-care spending in the period in question would not have been on innovations, but on providing well-established health care in greater quantities but often for broader and less cost-effective indications than initially. So the figures for the returns to individual innovations should remind us how variable are these returns to new activities at the margin of health care and how zealously all countries, including the United States, need to guard against the use of relatively cost-ineffective technologies, or cost-

ineffective application of otherwise relatively effective technologies [7].

Finally, we must all remember that none of us seeks to maximize health alone unconstrained by our other objectives. As individuals making private investment and consumption choices or as public policymakers investing tax-dollars or social insurance receipts on behalf of others, have to judge whether, at the margin, we value the return on investments in health or in other aspects of our utility functions more highly.

None of this is to suggest that the article published here, and the broader stream of research that it represents, are not valuable stepping stones to a better understanding of these issues. But in our enthusiasm to be advocates for health-care spending, let us not overstate what we know and hide what we do not know. Nor should we forget to remind policymakers, whether they are Secretaries of State for Health or CEOs of major manufacturing companies [8], that the average tells us nothing about the margin.

References

- 1 Ferriman A. Blair promises to raise spending on NHS to European average. *BMJ* 2000;320:205.
- 2 Reinhardt UE, Hussey PS, Anderson GF. US health care spending in an international context. *Health Aff (Millwood)* 2004;23:10–25.
- 3 Nixon J, Ulmann P. The relationship between health care expenditure and health outcomes. Evidence and caveats for a causal link. *Eur J Health Econ* 2006; [Epub ahead of print].
- 4 Luce B, Mauskopf J, Sloan F, Ostermann J, Paramore LC. The return on investment on health care: 1980–2000. *Value Health* 2006;9:146–156.
- 5 Buxton M, Hanney S, Jones T. Estimating the economic value to societies of the impact of health research: a critical review. *Bull World Health Organ* 2004;82:733–9.
- 6 OECD. Health Data 2005: Total Expenditure on Health- % of Gross Domestic Product. Available from: <http://www.oecd.org/dataoecd/60/28/35529791.xls> [Accessed February 3, 2006].
- 7 Goldman L. Cost-effectiveness in a flat world—can ICDs help the United States get rhythm? *N Engl J Med* 2005;353:1513–15.
- 8 Hay JW. Where's the value in health care? *Value Health* 2006;9:141–143.