Economics No. 2015:14, CTS-Centre for Transport Studies Stockholm (KTH and VTI), Stockholm, Sweden.
Arrow, K.J. and Lind, R.C. (1970), 'Uncertainty and the Evaluation of Public Investment Decisions', *American Economic Review*, **60**, 364–78.
Department for Transport (UK). (2005), 'Transport, Wider Economic Benefits, and Impacts on GDP', Discussion Paper. UK Department of Transport 2006, Transport, Wider Economic Benefits and Impacts on GDP, June. Available from: http://www.dft.gov.uk/webtag/webdocuments/doc_index.htm.
Hashimzade, N. and Myles, G.D. (2009), 'Cost-Benefit Analysis and the Marginal Cost of Public Funds', Working Paper No. 2009-29, VIII Milan European Economy Workshop, 11–12 June, Milan, Italy.
Mackie, P., Worsley, T. and Eliasson, J. (2014), 'Transport Appraisal Revisited', *Research in Transportation Economics*, **47**, 3–18.
Transport and Infrastructure Council. (2016), 'Australian Transport Assessment and Planning Guidelines: T2 Cost Benefit Analysis'. Available from: https://atap.gov.au/tools-techniques/cost-benefit-analysis/index.aspx.

Health Economics and Policy, by Victor R. Fuchs (World Scientific Publishing, Hackensack, NJ, 2018), pp. 668.

There's a candid moment towards the conclusion of *Health Economics and Policy* where the author, Professor Victor Fuchs, grapples with the question: why doesn't economic research always have a significant effect on public policy? 'One possibility is that most economists don't communicate well to other audiences. It may be only a slight exaggeration to say that there are three grades of writing: good, bad, and economics' (p. 550). It is a characteristically funny line in a volume full of humour. The book is a selection of papers, articles, and public lectures collected and annotated by the author, reflecting his 50-year career in health economics. Fuchs is an economist and the Henry J. Kaiser Professor at Stanford University; he was President of the American Economic Association in 1995, an impressive achievement in an epoch when health economics was in a very nascent stage.

Fuchs, now aged 94 years, was the first economist appointed to a medical school faculty (Stanford Medical School, no less) and author of the book, *Who shall live? Health, economics and social choice* (Fuchs, 1974). That book was a popular and enduring success and, unusually for a book penned by an economist, received glowing reviews in medical journals. It was described as 'a gem – a lucid analysis of a complex and confusing subject... a brilliant distillation', in one medical journal' (Lee, 1976).

The 41 papers that comprise *Health Economics and Policy* are arranged into eight sections, each with a brief introductory and explanatory overview. The papers span a half-century of scholarship and industry, and were published from 1967 (Chapter 8.3, 'A Review of Martin S. Feldstein's Economic Analysis for Health Service Efficiency') through to 2017, ('Social Determinants of Health: Caveats and Nuances'). Included are not one but two forewords, one of which is by Nobel Laureate economist Sir Angus Deaton, who describes the author as 'the master' of health economics. There's no argument from us.

Well-recognised weaknesses of anthologies are difficulties in finding a coherent theme and the datedness of older writings. Although some of the chapters, for example those dealing with comparisons of the US health system against Canada and European countries, have a slightly antiquated feel – the comparison with Canada was published in 1990 – they still hold some interest. Similarly the final section, comprising a series of 'appreciations' of eminent economists, contains papers that are well-written and readable, but do not make such a strong contribution to the author's themes. However, these are only minor issues and the great majority of Fuchs' book is truly excellent.

Can Surgeons and Economists Operate Together?

With characteristic humour Fuchs makes the point that, 'until quite recently, an economist was rarely to be found in the company of the nation's leading physicians, and on those few occasions...likely to be flat on his back with one or more of his vital organs exposed' (p. 141). As a medical school faculty member, the author does not tolerate such a professional distance. In the second foreword to this book, physician Victor Dzau – President of the US National Academy of Medicine – attributes Fuchs' success to 'his appreciation of the need to understand health care institutions and the culture of medicine in order to make useful contributions to public policy' (p. xix).

Professor Fuchs is emphatic that economists have a great deal to contribute to the field of healthcare. Health economics, which took shape only as a discipline after about 1963, draws its

theoretical inspiration from four traditional areas of economics: finance and insurance, industrial organisation, labour and public finance. Fuchs points out that by working closely with the medical profession, he has benefited greatly by giving lectures and presenting research results to medical practitioners and health administrators. He points out that the pressure to make economic topics accessible, relevant, and credible to 'intelligent but economically-illiterate and unsympathetic audiences' greatly improved the clarity of his own thinking. Fuchs makes the point that the future of health economics as a discipline depends on how well health economists carry out the related missions of enhancing understanding of economic behaviour, and providing valuable input into health policy and health services research.

Chapter 4.4, the transcript of a 1997 speech to the leadership of Malaysia (including then-Prime Minister Mahathir, in his first iteration), entitled 'The Challenges of Health Policy in Modern Economics', is an elegant and accessible summary of the path to the modern economy. Professor Fuchs notes that with economic development comes rising life expectancy and lower fertility. These changes, in turn, typically are associated with an increasing proportion of a nation's GDP devoted to health care. Then, as levels of education and income rise, so to do the rates of chronic diseases such as diabetes and mental illnesses, as well as the population's expectations of health and medical care. Of course, healthcare is a superior good where, as wealth increases, the proportion of that wealth spent on that good also increases. At the same time, the weakening of family structures and social supports leads to more care in the organised health sector. No modern economy treats health care as an ordinary commodity, subject to 'the free interplay of supply and demand in the market' (p. 273). Fuchs charts the progress of modern economies with the tendency of employment to move from agriculture to manufacturing, and then to the service sector. Medical care is the quintessential service industry: output is extremely difficult to measure, meaning that standard economic accounts show little or no gain in productivity despite large expenditures. As Fuchs puts it, 'Economists' spend a great deal of time deploring the fact that no country shows much interest in evaluating the outcome of medical care. It might be more fruitful to try to explain why this is so' (p. 16).

An Age-old Old Age Problem

Fuchs devotes a great deal of space to concerns that ageing populations will put increasing pressure on health resources, presenting data from the USA showing that people older than 65 years use four times the health resources of younger people, and that those aged 85 use three times as much as those aged 65. The author, himself a decagenarian, sees ageing as a major threat to the health system and the economy overall. Again, using the USA as his example, he writes that 'the nation must confront the question of not only how much health care to provide the elderly, but also what kind of care' (p. 51). While it might be expected that demand for care increases as health worsens, this is not always the case: a fit elderly person might benefit from hip and knee replacement, or cataract surgery, while persons in poorer health do not.

Historically, adults produced more than they consumed, but with the demographic shift to longevity –'societies invented retirement' (p. 396) – the economic consequences now are viewed with alarm. In the past, poor health was a reason that older people moved in with their children: now it often results in a move to a nursing home. 'Resources devoted to the elderly are resources that could be used to help children, teenagers, minorities, and other groups with special claims to public attention' (p. 421). However, the increase in health expenditures in older people is not purely a demographic phenomenon. 'Most experts believe that the elderly are healthier now than in any previous time – the objective evidence of this comes from mortality rates' (p. 440). The driving force behind increased expenditures – even in the elderly, says Professor Fuchs – is new technology. The effects of new technology are the subject of a book we recently reviewed in this journal, *Taming the Beloved Beast* by Daniel Callahan (Robson & Rawlings, 2018). Fuchs' conclusion? When the state of medical science and other health-determining variables are held constant, the marginal contribution of medical care to health is very small in modern nations (p. 473).

In a remarkable and prescient paper, published in 1972 and presented as Chapter 1.2, 'Health Care and the United States: An Essay in Abnormal Physiology', Fuchs points out that medical research is a good example of an activity with the potential for large external benefits. However, medical research is expected to benefit the population and so problems arise with protections of intellectual property (IP), for example through

the granting of patents. Where patent and other IP protections prove unpalatable to the community, governmental funding of medical research must then drive innovation. However, Fuchs's experience is that governments are notoriously poor managers of innovation funding and, indeed, money is a scarce resource for governments. Considering the chapter was written more than 45 years ago, it was fascinating to see this exact issue play out more than 40 years later when the Australian High Court unanimously ruled that a cancer-causing human genetic mutation was not patentable, and that a company had no right to control use of a gene (Corderoy, 2015). Medicines Australia and some intellectual property lawyers argued that the decision could slow access to new drugs. While research may provide such externalities, medical care itself typically is not associated with significant external benefits: the benefits of an operation accrue largely to the patient, their family, and the surgeon.

Reflections on Reflections...

Chapter 7.4, 'Reflections on Economic Research', is a paper originally published in 2002 in which Fuchs wittily explains that according to the 'bylaws of the American Economic Association', economists who have attained a certain age are entitle to present papers that begin 'reflections on...' although the exact age is unclear because the manuscript is faded. 'Fuchs continues, 'With' widespread disagreement among experts...the failure of much economic research to influence public policy is readily understandable. [Yet] even when economists agree, however, their conclusions are often ignored by policymakers' (p. 550).

Professor Fuchs discusses the emphasis in the medical profession on expensive treatments that yield little in terms of lives saved, while preventive activities – with a high potential yield – receive little attention. In any given year, about 5 per cent of the population accounts for half of all medical expenditure (p. 48). He views this as an aspect of consumer sovereignty, or willingness to pay. People usually are willing to pay for a given reduction in the chance of death according to the probability of dying.

> A person facing almost certain death would usually be willing to pay a great deal for even a small increase in the chance of survival. That same person, facing a low probability of death, would not pay nearly as much for the same increase in survival probability (p. 481).

Despite claims that health is more important than any other goal and that human life is priceless, the author explains, economists note that individuals commonly make trade-offs between health and other goals. In a chapter 1.3, in a section 'If You Don't Know Where You're Going, Any Road Will Get You There', Fuchs points out that one of the great problems with providing health care is that we don't really know what we want the system to do (p. 43). As an example, the USA can provide advanced medical technologies in abundance, luring ambitious doctors from all over the world for training and the super-rich to come for treatment. Yet, paradoxically, if population health in the USA is considered, many indictors are well below the standards of many other comparable nations. Governments in all countries play a large role as regulators, subsidisers, direct buyers or producers of medical care (p. 11). Economists have paid considerable attention to the reasons for and consequences of such governmental interventions.

To Market, to Market...

Health care markets are imperfectly competitive: with the exception of large cities, most areas have too small a market to support enough doctors or hospitals to have a workably competitive market, notes Fuchs. Hospitals often must cooperate – sharing information and resources – and this fosters restriction on competition. Barriers to entry, too, are very high: training a specialist surgeon, for example, commonly takes 13 years of full-time training in Australia. His paper, 'The Supply of Surgeons and the Demand for Operations', reprinted as chapter 3.3, is an insightful analysis of the number of operations done by surgeons according to the ratio of surgeons to population in different areas of the USA. Fuchs finds that where surgeons are more numerous, both the demand for operations and the cost of the procedures increases. This, certainly, is an issue vexing the Australian health system at the moment.

The author predicts a growing gap between 'what medicine *can* do and what it is *economically feasible* to do' (p. 64). In his 2011 op-ed from the *New England Journal of Medicine,* the author writes that:

> When escalating health care expenditures threaten the solvency of the federal government and the viability of the US economy, physicians are forced to re-examine the choices they

> make in caring for patients. . .the physician may recognize that that intervention under consideration is not cost-effective but may recommend it anyway, for a variety of reasons: to keep the goodwill of the patient, to protect against a malpractice suit, or in the belief that the 'primacy of patient welfare' makes the denial of such care 'inappropriate' or 'unethical' (p. 214).

In a 2011 address to the Association of American Medical Colleges (Chapter 7.3, The Structure of Medical Education – It's Time for a Change'), Fuchs is bold enough to argue for reform in the delivery of healthcare that involves 'the urgent need to change the structure of medical education' (p. 534). Recognising the enormity of an economist, albeit a health economist, making a call to radically alter medical education, Fuchs looks to Harvard Medical School Professor of Surgery and author Atul Gawende, citing his contention that 'medicine's complexity has exceeded our individual capabilities as doctors' (p. 533). It is difficult to argue that point.

Moral and Other Hazards

As we pointed out at the start of our review, this is an amusing book. In the introduction to Part 3, a series of papers about the costs of health care, he relates the story of a colleague who published a paper entitled 'Why Hospital Costs Are So High', and was deluged with requests for reprints from hospital administrators. However, the follow-up paper, 'How to Keep Hospital Costs From Going Higher', was met with not a single reprint request. Professor Fuchs sees health insurance as part of the issue. Once insurance is in place, moral hazard leads to over-utilisation of medical care: people with health insurance coverage tend to use more medical care than those who are not insured. Many people experience symptoms but do not know, and are concerned about, their cause – or what tests or treatments might be required. For this reason, they are very susceptible to supplier-induced demand. This is a particular issue with fee-for-service systems such as that in Australia.

In a paper published in the *Journal of Health Economics* in 2000 at the turn of the new millennium, entitled 'The Future of Health Economics' (Chapter 1.4), we read that 'there are no data so bad that an economist won't use them' (p. 61). Despite this warning from the author, he presents some fascinating data from his own research. In Chapter 2.2, 'Schooling and Health: The Cigarette Connection', originally published in a journal in 1982, Fuchs dissects the well-recognised association between the number of years of schooling and health status and asks the question, 'is the relationship causal?' Using survey data from 2,500 respondents to a Harvard health survey, Fuchs concludes that there is no causal link, but instead that both reflect a deeper trait: 'Both schooling and smoking behaviour are related to individual differences in time discount. . .[the] willingness and ability to incur current costs for future benefit benefits' (p. 111).

In his foreword to this book, Deaton comments that Professor Fuchs 'talks to both economists and physicians' (p.xvii). As reviewers representing a view from both professions, we heartily agree. To again quote Deaton, *Health Economics and Policy* 'represents an extraordinary intellectual achievement, and should be a handbook for anyone thinking about health and health policy' (p.xvii). Hear, hear.

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REFERENCES

Corderoy, A. (2015), 'Landmark High Court Ruling on BRCA1 Gene Patent as Pensioner Wins Legal Case', *The Sydney Morning Herald*, 6 October. Available from: https://www.smh.com.au/healthcare/landmark-high-court-ruling-on-brca1-gene-patent-as-pensioner-wins-legal-case-20151007-gk2wvu.html.

Fuchs, V.R. (1974), *Who Shall Live? Health*. Basic Books, New York, NY, Economics and Social Choice.

Lee, P.R. (1976), 'Review of *Who Shall Live? Health, Economics and Social Choice* by Victor R. Fuchs', *American Journal of the Diseases of Childhood*, **130** (1), 108.

Robson, S. and Rawlings, L. (2018), 'Review of *Taming the Beloved Beast*, by Daniel Callaghan', *Economic Record*, **94**, 305.

Poverty in a Rich Society: The Case of Hong Kong, by Maggie K.W. Lau and David Gordon (eds.) (The Chinese University of Hong Kong Press, Hong Kong, 2017), pp. xx+216.