Reading about

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Health economics

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Health economists are multiplying. An increasing number of academic units focus on research and teaching in this area. Notable examples in Britain are the Centre for Health Economics (University of York), the Health Economics Research Unit (University of Aberdeen) and the Health Economics Research Group (Brunel University). Health economists can also be found within departments which have a broader health focus, such as the Department of Public Health and Policy at the London School of Hygiene and Tropical Medicine. However, the impact of health economics on psychiatry has not been widespread. In the 1996 addition of *HEART* (the directory of health economists) only 26 (8%) of 331 economists cite psychiatry, mental illness, mental health, addiction, alcohol, community care, case management, schizophrenia, or depression as a key interest. Even so, there are specialised units such as the Centre for the Economics of Mental Health (Institute of Psychiatry), and interest in health economics is also growing among psychiatrists (Wilkinson & Pelosi, 1988; Goldberg, 1991).

A number of excellent *introductory* books on health economics have been produced. For the non-specialist, Drummond (1980) and Mooney (1992) give an especially accessible account of the key issues. McGuire *et al* (1988) provide a more detailed account for economists.

We start here with a succinct overview of the key classic contributions in the development of mainstream economics, in order to understand how health economics has evolved.

Development of economic theory

Economics has been dubbed 'the dismal science' because it is a study of scarcity. That resources are scarce is seldom disputed, and economic theory has developed in an attempt to account for this scarcity. The science of economics has witnessed a number of developments through its history. In 1776 Adam Smith wrote the seminal *Inquiry into the Nature and Causes of the Wealth of Nations* (modern reprint Smith, 1970). His central message, in a book that is now fascinating to read, was that wealth creation could best be facilitated by free trade, with as little government interference as possible. Commercial interaction between individuals, that is the market, Smith called 'the invisible hand'. Other economists developed this work during the 19th century. Marshall, in his *Principles of Economics* (first published in 1890; 8th edn 1961), proposed in this more technical account that demand is determined by *marginal utility*. Utility is gained from the consumption of goods, and increases as the quantity of goods consumed increases – but at a diminishing rate.

The *laissez faire* approach to economics was dominant until the great depression of the 1920s and 1930s. With mass unemployment it was felt that governments needed to intervene. In a book that was widely influential from the late 1930s, Keynes (1936) proposed that in times of depression governments should increase public expenditure in order to draw more people into employment, which would also stimulate demand. This idea was generally accepted throughout the post-war period until the 1970s and in the UK was associated with the development of the welfare state and the National Health Service (NHS). Economies in the Western world were again afflicted by economic recession and by rising prices, and in the UK, USA and elsewhere the monetarist theories of Friedman (see *Studies in the Quantity Theory of Money* (1956), but which may be difficult reading for the non-specialist) were pursued. According to these theories the primary purpose of government economic policy was to control the supply of money in order to reduce inflation. Since that time there have been pressures in many developed countries to further reduce the role of government.

Importance of health economics

In economic terms health is a commodity, and individuals who have health problems generally want to experience health gain. This demand for health gain usually leads to a demand for health care. The existence of more demand for health care than can be supplied means that economics has a vital role to play in its delivery. This is well illustrated in a challenging paper by Normand (1991), who discusses the need to assess health care efficiency.

Although financial considerations of providing health care have always existed, it is only recently that health economics has been viewed as a distinct discipline. Culyer, more recently renowned for restructuring NHS research and development funding, and colleagues (1977) in *An Annotated Bibliography of Health Economics* provide an invaluable and thorough review of literature published before the mid-1970s. Only 37 (2.5%) of the 1491 entries were published prior to 1960, beginning in 1914. The vast majority of health economics literature, therefore, has been written during the past 30 years. Much of the early work focused on the way in which hospitals produce output, and discussion of resource scarcity and rationing was not prominent. Health economics accelerated as a discipline when it was realised that the post-war economic boom was over, and it became apparent that scarce resources required efficient allocation methods and new models of health care provision, which has led to an increase in the numbers of cost–benefit and cost-effectiveness studies since the 1970s.

Economic appraisal of health care

Placing the foundations of health economics in general economic theory enables the health economist to draw on procedures used in other areas of analysis. Four main types of health care evaluation have been used, and these are described by Drummond *et al* (1987) in *Methods for the Economic Evaluation of Healthcare Programmes*. This book is more detailed than Drummond's earlier (1980) work.

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Cost-minimisation analysis is rarely appropriate, even though it is often what non-economists suppose economists do! One can only ever justify examining only the costs of different interventions if it is known that their effectiveness is identical. Clearly in such cases the least costly option will be preferable. In many situations the outcome achieved from alternative interventions will be different.

Cost–benefit analysis, the theory behind which has been well covered by Mishan (1975), seeks to measure both costs and benefits in monetary terms. By examining monetary outcomes in relation to monetary costs we can compare not only health care programmes designed to achieve the same aim, but also programmes designed to achieve different aims. However, an obvious problem with cost–benefit analysis is that not many outcomes can easily be measured in monetary terms (the 'willingness to pay' (WTP) approach discussed later is one way around this problem). A particularly influential paper by Weisbrod *et al* (1980) employed cost–benefit analysis in their seminal evaluation of the Madison case-management programme. The measure of monetary outcome in this study related to the earnings that patients achieved after receiving care from the programme. This was the first mental health cost–benefit paper to receive the widespread attention of clinicians and policy-makers, and it is now a classic of its genre.

Cost-effectiveness analysis measures outcomes in units which are common to the alternative interventions. Usually these will be units which describe some clinical outcome, such as improvements in ease of breathing which result from different interventions for asthma. Cost-effectiveness is then determined by the cost of achieving a given level of outcome (or how much outcome can be achieved for a given cost). Generally, cost-effectiveness analysis is illness-specific. However, Drummond *et al* (1987) point out that programmes with different aims can be compared if the units of measurement are more generic, such as a reduction in the number of disability days experienced.

Cost–utility analysis has recently emerged as a way of comparing health interventions and prioritising expenditure. Economic theory informs us that individuals seek to maximise utility (or value) by consuming goods. Health and health care are such goods. As utility can be gained from any form of consumption, and hence from any type of health care intervention, it is appropriate to measure utility in generic units. If the utility gained from one intervention is higher than another, but the costs of the two are equal, then the former intervention is more efficient. The method frequently chosen by health economists is to assume that quality and quantity of life are effective proxies for utility. The most notable tool used in this form of analysis is the quality-adjusted life year (QALY). Weinstein & Stason (1977) provide the best early account of the workings of QALYs.

QALYs were established to take account of both quantity and quality of life. Their proponents claim that it is not enough to examine the number of years of life someone will experience after a health care intervention, because the quality of these years may be reduced if the person is not in full health or free from disability. Therefore, if after a liver transplant a patient is expected to live for 10 years, but on a scale of 0 (death) to 1 (full health) the quality of each year is 0.8, then we can say that eight QALYs have been achieved. By combining costs with the number of QALYs we are able to compare the cost–utility of widely different interventions. There are a number of techniques available to estimate the quality score which is used to adjust the quantity measure. Nord (1992) provides an excellent summary of these methods.

Current UK Government opinion in this area is given in *Policy Appraisal and Health* (Department of Health, 1995), which promotes the use of QALYs in health care evaluation. However, the use of QALYs is not problem-free. While there is controversy about ranking health care interventions in this way (Gerard & Mooney (1993), for example, urge caution about such league tables), there may also be more fundamental problems with the measure. First, the different estimates of the quality component of QALYs produce different results. Second, and perhaps more importantly, QALYs may be producing the wrong findings. In the above example eight QALYs were gained from a liver transplant. If the length of life gained was 16 years rather than 10, but the quality score for these years was reduced to 0.5, then eight QALYs would still be gained. QALY theory suggests that individuals would be indifferent between these two situations. Mehrez & Gafni (1989) reject the assumption that these two states are equally preferable to the individual. If they are correct, then prioritising expenditure according to the number of QALYs gained may not be efficient. Mehrez & Gafni have devised an alternative measure, the 'health yearly equivalent' (HYE), which they claim overcomes this problem.

Health economics has recently experienced a return to cost–benefit analysis. As mentioned earlier, the problem with traditional cost–benefit analysis was that outcomes could not easily be measured in monetary terms. Health economists have started to use the WTP approach, which previously had been used mainly in environmental economics. WTP involves asking an individual how much they would be willing to pay in order to achieve a given health state or a gain in health; often this will involve comparing the benefits of different interventions. This monetary value is assumed to reflect the utility which they gain from this state. WTP, described by Donaldson (1993), is true to the economic principles of welfare theory. But a central problem with WTP is that people may be misled into believing that they will be asked to pay for health care if they have stated that they are willing to do so. This is understandable. However, proponents of WTP are usually only interested in the value which individuals place on health gain, and do not propose that this value be converted into a charge.

Use of health economics in psychiatry

As the preceding summary indicates, health economics is not a distinct science but is a branch of general economics. Similarly, mental health economics is part of the wider field of health economics. Martin Knapp and colleagues from the Personal Social Service Research Unit (PSSRU) and the Centre for the Economics of Mental Health (CEMH) have been active in the area of applying health economic techniques to psychiatry. They have developed a now widely used methodology for evaluating services, and a schedule, the Client Service Receipt Inventory, which is used to calculate the cost of services. Details of this methodology and practical examples have been published in *Costing Community Care: Theory and Practice*, edited by Netten & Beecham (1993). A parallel volume summarising recent PSSRU and CEMH studies gives more illustrations of how such methodology can be applied (Knapp, 1995). In addition, Knapp & Beecham (1990) and Beecham & Knapp (1992) offer detailed descriptions of this approach and can be strongly recommended to those interested in evaluating mental health services.

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Research produced from PSSRU and CEMH includes the economic component of the TAPS study looking at the implications of hospital closure and reprovision in North London (Knapp *et al*, 1990; Beecham *et al*, 1991; Hallam *et al*, 1994), the cost-effectiveness of the Daily Living Programme (an assertive community treatment service in South London (Knapp *et al*, 1994)), and the cost-effectiveness of a community psychiatric nurse case-management project in Greenwich (McCrone *et al*, 1994). Detailed economic evaluations rely on accurate cost information. To this aim, the PSSRU have recently produced, and annually updated, the invaluable *Unit Costs of Community Care* collated by Netten & Dennet (1996).

Use of health economics in mental health care is gaining international stature. This can be seen in the recent (and massive) *Handbook of Mental Health Economics and Health Policy: Volume 1 Schizophrenia*, a valuable reference work edited by Moscarelli *et al* (1996). More concise literature reviews have been provided by Goldberg (1991), O'Donnell *et al* (1992), McCrone & Weich (1996) and Healey & Knapp (1997, in press).

However, many of the innovative techniques which are used in health economics have not as yet been applied to psychiatry. Wilkinson *et al* (1990) examined the use of QALYs in psychiatry and reported that they had not yet proved themselves. Chisholm *et al* (1997), in a well-argued paper, indicate that QALYs may encourage clinicians and managers to address resource allocation, but there are a number of technical difficulties, such as how to compare different aspects of quality of life. In addition there may be ethical and equitable problems caused by the bias in QALYs towards physical health problems.

Conclusions

The economics of health care has developed from the studies of hospital output and macro-systems of the Keynesian 1950s and 1960s, through evaluations of alternative similar objectives, to current approaches which allow comparisons of different objectives. The current debate about the rationing of health care has been extensively discussed by New (1996). This debate is likely to become sharper in the coming years. In this respect health economics has, in a sense, rediscovered economics.

REFERENCES

Beecham, J., Knapp, M. & Fenyo, A. (1991) Costs, needs, and outcomes. *Schizophrenia Bulletin*, **17**, 427–439.

— & — (1992) Costing psychiatric interventions. In *Measuring Mental Health Needs* (eds G. Thornicroft, C. R. Brewin & J. Wing), pp. 163–183. London: Gaskell.

Chisholm, D., Healey, A. & Knapp, M. (1997) QALYs and mental health care. *Social Psychiatry and Psychiatric Epidemiology*, **32**, 68–75.

Culyer, A. J., Wiseman, J. & Walker, A. (1977) *An Anotated Bibliography of Health Economics*. London: Martin Robertson.

Department of Health (1995) *Policy Appraisal and Health*. London: HMSO.

Donaldson, C. (1993) *Theory and Practice of Willingness to Pay for Health Care*. Discussion paper no. 01/93. Aberdeen: Health Economics Research Unit, University of Aberdeen.

Drummond, M. F. (1980) *Principles of Economic Appraisal in Health Care*. Oxford: Oxford Medical Publications.

—, Stoddart, G. L. & Torrance, G. W. (1987) *Methods for the Economic Evaluation of Healthcare Programmes*. Oxford: Oxford University Press.

Friedman, M. (1956) *Studies in the Quantity Theory of Money*. Chicago, IL: University of Chicago Press.

Gerard, K. & Mooney, G. (1993) QALY league tables: handle with care. *Health Economics*, **2**, 59–64.

Goldberg, D. (1991) Cost-effectiveness studies in the treatment of schizophrenia: a review. *Social Psychiatry and Psychiatric Epidemiology*, **26**, 139–142.

Hallam, A., Beecham, J., Knapp, M., *et al* (1994) The costs of accommodation and care. *European Archives of Psychiatry and Clinical Neuroscience*, **243**, 304–310.

Healey, A. & Knapp, M. (1997) The economic evaluation of mental health services and treatment initiatives. In *Serious Mental Health Problems in the Community: Policy, Practice, and Research* (eds C. Brooker & J. Repper). London. Baillière Tindall, in press.

Keynes, J. M. (1936) *The General Theory of Employment, Interest and Money*. London: Macmillan.

Knapp, M. (1995) *The Economic Evaluation of Mental Health Care*. Aldershot: Arena.

— & Beecham, J. (1990) Costing mental health services. *Psychological Medicine*, **20**, 893–908.

—, —, Anderson, J., *et al* (1990) The TAPS Project. 3: Predicting the Community Costs of Closing Psychiatric Hospitals. *British Journal of Psychiatry*, **157**, 661–670.

—, —, Koutsogeorgopoulou, V., *et al* (1994) Service use and costs of home-based versus hospital-based care for people with serious mental illness. *British Journal of Psychiatry*, **165**, 195–203.

McCrone, P., Beecham, J. & Knapp, M. (1994) Community psychiatric nurse teams: cost-effectiveness of intensive support versus generic care. *British Journal of Psychiatry*, **165**, 218–221.

— & Weich, S. (1996) Mental health care costs: paucity of measurement. *Social Psychiatry and Psychiatric Epidemiology*, **31**, 70–77.

McGuire, A., Henderson, J. & Mooney, G. (1988) *The Economics of Health Care: An Introductory Text*. London: Routledge and Kegan Paul.

Marshall, A. (1961) *Principles of Economics: An Introductory Volume* (8th edn). London: Macmillan.

Mehrez, A. & Gafni, A. (1989) Quality-adjusted life-years, utility theory, and healthy years equivalents. *Medical Decision Making*, **9**, 142–149.

Mishan, E. J. (1975) *Cost Benefit Analysis* (2nd edn). London: Allen & Unwin.

Mooney, G. (1992) *Economics, Medicine and Health Care* (2nd edn). London: Harvester Wheatsheaf.

Moscarelli, M., Rupp, A. & Sartorius, N. (1996) *Handbook of Mental Health Economics and Health Policy: Volume I Schizophrenia*. Chichester: Wiley.

Netten, A. & Beecham, J. (1993) *Costing Community Care: Theory and Practice*. Canterbury: Ashgate.

Netten, A. & Dennet, J. (1996) *Unit Costs of Community Care*. Canterbury: Personal Social Services Research Unit.

New, B. (1996) The rationing agenda in the NHS. *British Medical Journal*, **312**, 1593–1601.

Nord, E. (1992) Methods for quality adjustment of life years. *Social Science and Medicine*, **34**, 559–569.

Normand, C. (1991) Economics, health, and the economics of health. *British Medical Journal*, **303**, 1572–1577.

O'Donnell, O., Maynard, A. & Wright, K. (1992) Evaluating mental health care: the role of economics. *Journal of Mental Health*, **1**, 39–51.

Smith, A. (1970) *The Wealth of Nations*. Harmondsworth: Penguin.

Weinstein, M. C. & Stason, W. B. (1977) Foundations of cost-effectiveness analysis for health and medical practices. *New England Journal of Medicine* **296**, 716–721.

Weisbrod, B. A., Test, M. A. & Stein, L. I. (1980) Alternative to mental hospital treatment: II. Economic benefit–cost analysis. *Archives of General Psychiatry*, **37**, 400–405.

Wilkinson, G. & Polosi, A. (1988) Economic appraisal. In *The Scope of Epidemiological Psychiatry* (eds G. Wilkinson & K. Rawnsley), pp. 63–73. London: Routledge.

—, Croft-Jeffreys, C., Krekorian, H., *et al* (1990) QALYs in psychiatric care? *Psychiatric Bulletin*, **14**, 582–585.

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